In order to participate in all future public meetings in the Esther Howland Chamber, please call 415-655-0001 (Access Code: 735751404) to participate.

CLERK OF THE SCHOOL COMMITTEE
WORCESTER PUBLIC SCHOOLS
20 IRVING STREET
WORCESTER, MASSACHUSETTS 01609
AGENDA \#17

$$
\begin{array}{ll}
\text { on: } & \text { Thursday May 7, } 2020 \\
\text { at: } & \text { 5:30 p.m. - Executive Session } \\
\text { in: } & \text { Esther Howland South Chamber, City Hall } \\
& \\
& \text { ORDER OF BUSINESS }
\end{array}
$$

ACTION
I. CALL TO ORDER

INVOCATION
PLEDGE OF ALLEGIANCE
NATIONAL ANTHEM
II. ROLL CALL

## III. APPROVAL OF RECORDS

aor \#0-18 - Clerk
(April 29, 2020)
To consider approval of the Minutes of the School Committee Meeting of Thursday, April 16, 2020.
aor \#0-19 - Clerk
(April 29, 2020)
To consider approval of the Executive Session Minutes of March 1, 2018, April 26, 2018, May 3, 2018, June 7, 2018, June 21, 2018, July 19, 2018, August 20, 2018, November 1, 2018, September 19, 2019, November 21, 2019, April 2, 2020 and April 8, 2020.

## IV. MOTION FOR RECONSIDERATION - NONE

V. IMMEDIATE ACTION
gb \#0-154 - Administration
(April 29, 2020)
To consider input from the School Committee's student representatives and the Superintendent's student advisory council.
VI. REPORT OF THE SUPERINTENDENT - NONE
VII. COMMUNICATIONS AND PETITIONS - NONE
VIII. REPORT OF THE STANDING COMMITTEE - NONE
IX. PERSONNEL-NONE
X. GENERAL BUSINESS
gb \#0-147.1 - Administration/Ms. Clancey/Mr. Foley/ Ms. McCullough/Mr. Monfredo/Ms. Novick (April 28, 2020)

Response of the Administration to the request to consider holding Individualized Education Plan (IEP) meetings during the shutdown.
gb \#0-148.1 - Administration/Mrs. Clancey/Mr. Foley/ Ms. McCullough/Mr. Monfredo/Ms. Novick (April 29, 2020)

Response of the Administration to the requests to provide a report on the source of work assigned during the shutdown and any ongoing information for families on the website.
gb \#0-155 Administration
(April 21, 2020)
To accept the High School Voter Registration and Pre-Registration Grant in the amount of \$5,714.00 for the School Year (April 14, 2020 to June 30, 2020) and $\$ 6,286.00$ for the Summer (July 1, 2020 to November 30, 2020).
gb \#0-156 - Administration
(April 21, 2020)
To consider approval of a donation in the amount of $\$ 100$ from AbbVie to Rice Square School.
gb \#0-157 - Mr. Monfredo/Miss Biancheria/Mrs. Clancey/Mr. Foley/
Ms. McCullough
(April 24, 2020)
To consider the feasibility of creating an online Summer School Program, utilizing chromebooks, at various grade levels in the areas of math and English Language Arts, subject to funding and updates on the Coronavirus.

GENERAL BUSINESS (continued)
gb \#0-158 - Ms. McCullough/Miss Biancheria/Mrs. Clancey/Mr. Foley/ Mr. Monfredo/Ms. Novick
(April 27, 2020)
Request that the Administration provide a report with a breakdown by high school for seniors regarding reimbursements for all trips, events, graduations and any other costs. In addition, provide an additional report for all student events and trips that have been paid for and need to be reimbursed.

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gb #0-159 - Mr. Monfredo/Miss Biancheria/Mr. Foley/
    Ms. McCullough/Ms. Novick
    (April 29, 2020)
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To forward a letter to Congressman McGovern to support the Emergency Education Connection Act of 2020 to ensure that K-12 students can be connected and continue online learning and instruction.
gb \#0-160 - Administration
(April 29, 2020)
To consider the results of the student survey.
gb \#0-161 - Mrs. Clancey/Miss Biancheria/Mr. Foley/
Ms. McCullough/Mr. Monfredo/Ms. Novick (April 29, 2020)

Request that the Administration provide a report on the district's plan to enhance extended learning for the remainder of the school year that will ensure students are meeting the standards and are ready for the next grade level.
gb \#0-162 - Administration
(April 29, 2020)
To consider approval of a prior fiscal year payment in the amount of $\$ 7,750$ for a principal who wrote the new Doherty Memorial High School's Education Plan for submittal to the MSBA.
gb \#0-163 - Ms. Novick/Mrs. Clancey/Mr. Foley/Ms. McCullough/ Mr. Monfredo
(April 29, 2020)
Request that the Administration report on the number of seniors eligible for the modified competency determination as passed by the Massachusetts Board of Education on April 28 and the process through which their application for competency will be submitted.

GENERAL BUSINESS (continued)
gb \#0-164 - Ms. Novick/Mrs. Clancey/Mr. Foley/Ms. McCullough/ Mr. Monfredo
(April 29, 2020)
Request that the Administration consider the number of Worcester Public Schools' students in a family in the distribution of district Chromebooks.
gb \#0-165 - Ms. Novick/Mrs. Clancey/Mr. Foley/Ms. McCullough (April 29, 2020)

To clarify the structure of the feedback rubric vis-à-vis district assigned work versus extended work.
gb \#0-166 - Ms. Novick/Mrs. Clancey/Mr. Foley/Ms. McCullough (April 29, 2020)

To create and administer a survey for students, families, and staff regarding current remote learning, to inform Phase III remote learning planning and work.
gb \#0-167 - Miss Biancheria/Mrs. Clancey/Mr. Foley/
Ms. McCullough/Mr. Monfredo/Ms. Novick (April 29, 2020)

Request that the Administration provide information from the City Manager in reference to land purchased on Grafton Street near Roosevelt School which will provide accommodations for parking and traffic flow.
gb \#0-168 - Ms. McCullough/Miss Biancheria/Mrs. Clancey/
Mr. Foley/Ms. Novick
(April 29, 2020)
To clarify the district's directive requiring the recording of teacherstudent interactions.
gb \#0-169 - Administration
(April 29, 2020)
To consider approval of the following textbooks:

- Discovering World Geography (McGraw Hill)-grade 6 Social Studies - Studysync (McGraw Hill)-grades 7 and 8 ELA
XI. EXECUTIVE SESSION
gb \#0-170 - Administration
(April 29, 2020)
To discuss strategy with respect to litigation for a Worker's Compensation - Cook, if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.

To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares - Coronavirus/COVID-19 Related Issues - Educational Association of Worcester, Units A \& B (Educators/Administrators); Aides to the Physically Handicapped, Monitors and Drivers; Instructional Assistants; Parent Liaisons; Tutors; and Therapy Assistants.

## XII. ADJOURNMENT

Helen A. Friel, Ed.D.
Clerk of the School Committee
III. APPROVAL OF RECORDS

ITEM - aor \#0-18
Clerk
(April 29, 2020)

ITEM:
To consider approval of the Minutes of the School Committee Meeting of Wednesday, April 16, 2020.

## PRIOR ACTION:

## BACKUP:

Annex A (21 pages) contains a copy of the Minutes of the School Committee Meeting of April 16, 2020.

RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Approve.

The School Committee of the Worcester Public Schools met in Open Session at 7:00 p.m. on Thursday, April 25, 2020.

There were present at the Call to Order:
Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick and Mayor Petty

The Pledge of Allegiance was recited.

Hearing/
School Choice
1.
gb \#0-64.1 Administration/Administration (April 5, 2020)

To hold a public hearing on School Choice.
Ms. Novick asked if the Administration had any comments regarding trends when it comes to School Choice.

Superintendent Binienda indicated that the biggest trend is one in which parents enroll their children in kindergarten in the WPS because their town does not have the program.

On a roll call, the vote was as follows:

For the motion: Miss Biancheria, Mrs. Clancey,
Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick, Mayor Petty 7

Against the motion: $\underline{0}$ 7

The motion carried.

It was moved to participate in School Choice for the 2020-21 school year.

The meeting adjourned at 7:04 p.m.
Helen A. Friel, Ed.D.
Clerk of the School Committee

IN SCHOOL COMMITTEE Worcester, Massachusetts Thursday, April 16, 2020

Agenda \#16

## In order to participate in all future public meetings in the Esther Howland Chamber, please call 415-655-0001 (Access Code: 735751404) to participate.

The School Committee convened in Open Session at 7:06 p.m.

There were present at the Call to Order:

Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick and Mayor Petty

The Pledge of Allegiance was recited.

## APPROVAL OF RECORDS

Minutes/ 1. aor \#0-15 - Clerk
$\begin{array}{ll}\text { aor \#0-15 - } & \text { Clerk } \\ & \text { (April 6, 2020) }\end{array}$
To consider approval of the Minutes of the School Committee Meeting of Thursday, April 6, 2020.

On a roll call, the vote was as follows:
For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty 7

Against the motion: $\underline{0}$
7
The motion carried.
2. aor \#0-16 - Clerk(April 6, 2020)
To consider approval of the Executive SessionMinutes of February 7, 2019, June 20, 2019, August15, 2019, September 5, 2019, October 3, 2019,December 5, 2019, December 19, 2019 and.February 27, 2020.On a roll call, the vote was as follows:
For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty ..... 7
Against the motion: ..... 07
The motion carried.
3. aor \#0-17 - Clerk(April 10, 2020)
To consider approval of the Minutes of the School
Committee Meeting of Wednesday, April 8, 2020.
On a roll call, the vote was as follows:
For the motion: Miss Biancheria, Mrs. Clancey,Mr. Foley, Ms. McCullough,Mr. Monfredo, Ms. NovickMayor Petty7
Against the motion: ..... 07The motion carried.
MOTION FOR RECONSIDERATION
4. gb \#0-130 - Miss Biancheria Motion for(April 3, 2020)Reconsideration/AP exams


AP exams

To reconsider the vote taken to waive the AP policy by allowing students not to take the AP exam and still receive AP credit for the course, effective for this year only.

## Student

 RepresentativesReport of the Superintendent/ Updated FY21 Budget Estimates

On a roll call, the vote was as follows:
For the motion: Miss Biancheria and Mr. Monfredo 2
Against the motion: Mrs. Clancey, Mr. Foley, Ms. McCullough, Ms. Novick and Mayor Petty

5
7
The motion to reconsider was denied.

## IMMEDIATE ACTION

5. $\mathrm{gb} \# 0-137$. - Administration
(April 6, 2020)
To consider input from the School Committee's student representatives.

Student Representative Kwaku Nyarko suggested setting up a meeting of the School Committee Student Representatives and the Superintendent's Student Advisory Council next week in order for the students to have a discussion on the current academic situation and provide a forum in which the Council may be able to help out other students.

For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty 7

Against the motion: $\underline{0}$
7
On a roll call of 7-0, it was moved to file the item.

## REPORT OF THE SUPERINTENDENT

6. ROS \#0-5 - Administration (April 10, 2020)

UPDATED FY21 BUDGET ESTIMATES
Brian Allen presented the Updated FY21 Budget Estimates as contained in Annexes A and B of the backup.

Mr. Allen stated that, given the current circumstances,
the Administration felt that it was necessary to give
some context to what is known. The House Budget was
supposed to be released on April 15, but that is delayed
until at least next month. This budget is based on the

Governor's Budget and final budget actions will be needed late in the year. He also stated that he expects that the FY21 Budget will be impacted by federal stimulus money to offset likely state cuts. The Budget will be submitted electronically to the School Committee on May 15.

Mr. Monfredo asked for the current elementary teacher/pupil ratio to which Mr. Allen replied it is 21:1, on average districtwide.
Mr. Foley inquired about the cost of replacing SAGE with a new Student Information System (SIS) to include:
-purchasing costs
-cost for training
-ongoing annual costs and
-an explanation on why SAGE is being replaced
at this time

Mr. Allen stated that the annual cost for the SIS is $\$ 460,000$ for consulting, purchasing of the system and implementation for the first two years and estimates the ongoing implementation would be approximately \$250,000.

Superintendent Binienda explained that the CPPAC has been wanting an updated system for some time. SIS provides a more advanced system that would provide easy access to data and scheduling.

Mrs. Kyriazis stated that there will be a meeting next week with stakeholders and the consultant, who was hired through the City Purchasing Office, and will assist in writing the Request for Proposal (RFP). Mr. Foley wondered why there was no item indicating that this system was being considered and that a consultant position had been created and filled. Mrs. Kyriazis believed that the item did go through a subcommittee for allocation of funds.

Ms. Novick wondered if there would be cuts to Chapter 70 funding and how the state dealt with this in the past.

Mr. Allen stated that what he expects is a reduction in Chapter 70 funding backfilled by the Federal Cares Act and also Charter School Reimbursement and Circuit Breaker reduction.

Ms. Novick asked if the Administration intends to present a budget that can be voted on based on the Governor's Budget with some ideas for options to which

Mr. Allen replied that by June 2020, the Administration will have a better sense of what the House and Senate are planning in order to make adjustments by July 1.

Ms. Novick remarked that she shares Mr. Foley's skepticism regarding the purchase of the SIS and that it is not a timely decision nor is it a good time to have parents participate.

Miss Biancheria asked how the poverty level is determined to which Dr. O'Neil replied that they have appealed the findings and offered to provide the results as soon as the Administration hears back.

Miss Biancheria also inquired as to what dollar amount, under Materials, would cover Chapter 74 courses and request that the information be provided prior to the May 7, 2020 meeting.

Mayor Petty made the following motion:
Request that the Administration provide a detailed report on the SIS.

Ms. Novick made the following amendment to Mayor Petty's motion:

Request that the Administration also provide a cost benefit analysis of the SIS.

On a voice vote, the amended motion was approved.
For the motion: Miss Biancheria, Mrs. Clancey,Mr. Foley, Ms. McCullough,Mr. Monfredo, Ms. NovickMayor Petty7
Against the motion: ..... 07

On a roll call of 7-0, the item was filed with the approved reports as amended.

## GENERAL BUSINESS

7. gb \#0-118.1 - Administration/Ms. Novick

(April 8, 2020) | Ms. Novick agreed to file the item but stated that the |
| :--- |
| request was to provide a response on the timeline of |
| the MassHire Central Regional Workforce Grant and felt |
| the response was not provided. |

On a roll call of 7-0, the item was accepted and filed.
8. gb \#0-123.1 - Administration/Mr. Monfredo DEAR/Poem in Your (March 26, 2020)

Response of the Administration to the request to share with families the Drop Everything and Read Day Program(DEAR) during the month of April in honor of Beverly Cleary's birthday and consider implementing the POEM IN YOUR POCKET DAYS during the weekend of April 25th.

On a roll call, the vote to accept and file was as follows:

Parents' Guide to Student Success/ include on WPS Extended Learning website

SOA Funding/data on students subgroups
For the motion: Miss Biancheria, Mrs. Clancey,
Mr. Foley, Ms. McCullough,
Mr. Monfredo, Ms. Novick
Mayor Petty
7
Against the motion: ..... $\underline{0}$7

The motion carried.
On a roll call of 7-0, the item was accepted and filed.
Mayor Petty left at 7:57 p.m. Vice-Chairman Foley chaired the meeting.
9. $\quad \mathrm{gb} \# 0-124.1$ - Administration/Mr. Monfredo (March 26, 2020)

Response of the Administration to the request to place on the WPS Extended Learning website information regarding the Parents' Guide to Student Success from the National PTA's website with ideas for working with your child/ren at home.

On a roll call, the vote to accept and file was as follows:

For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick 6

Absent: Mayor Petty 1
Against the motion: $\underline{0}$
7

On a roll call of 6-0-1 (absent Mayor Petty), the item was accepted and filed.
10. $\mathrm{gb} \# 0-125.1$-Administration/Mr. Foley
(April 8, 2020)
Response of the Administration to the request to present comprehensive data showing the test scores for all student subgroups since these initiatives started. This data should show changes over the years, with a particular emphasis upon the WPS student subgroups targeted through SOA funding (Hispanic students, English Language Learners, and students with disabilities).

> Mr. Foley agreed to accept and file the item but believed that the responses provided did not address the SOA which asks to target the achievement gaps for targeted subgroups.

> Ms. Novick pointed out that the response did not include a demographic breakdown. She voiced her concern that the Fountas and Pinnell methodology and approach is not well outlined.

> Superintendent Binienda stated that allowing every school to have its own literacy practices is not prudent due to the large mobility within the schools.

Dr. O'Neil stated that the Administration is working hard to develop a shared understanding of early literacy development.

Ms. McCullough made the following motion:
Request that the Administration provide more information on the Fountas and Pinnell Reading Program along with other different language based programs which could be used throughout all classrooms including LD and ELL students.

Mayor Petty returned to the meeting at 8:05 p.m.
On a voice vote, the motion was approved.
On a roll call, the vote to refer the item to the Standing Committee on Teaching, Learning and Student Supports was as follows:

For the motion: Miss Biancheria, Mrs. Clancey,
Mr. Foley, Ms. McCullough,
Mr. Monfredo, Ms. Novick
Mayor Petty
Against the motion: $\underline{0}$ 7

On a roll call of 7-0, the item was referred to the Standing Committee on Teaching, Learning and Student Supports.

| Early College Program/data on targeted | 11. | gb \#0-126.1 -Administration/Mr. Foley (April 8, 2020) |
| :---: | :---: | :---: |
| subgroups |  | Response of the Administration to the request to provide data from the current Early College Program in the WPS that would show the demographic makeup of those students who have participated in the program. In particular, indicate the number of students from the targeted WPS student subgroups (Hispanic students, English Language Learners, students with disabilities) and provide evidence that the Early College program is attracting students from these subgroups who were achieving at a lower level than their peers until high school. |
|  |  | On a roll call, the vote to accept and file was as follows: |
|  |  | For the motion: Miss Biancheria, Mrs. Clancey, <br> Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty |
|  |  | Against the motion: $\frac{0}{7}$ |
|  |  | The motion carried. |
|  |  | On a roll call of 7-0, the item was accepted and filed. |
| FY21 Budget Hearings/set dates | 12. | gb \#0-138 -Administration (April 6, 2020) |
|  |  | To set the dates for the FY21 Budget Hearings. |
|  |  | Ms. Novick requested that the public be invited to participate in the Budget Hearings. |
|  |  | Mayor Petty suggested that the Public Hearing be held prior to the Budget Hearing on June 4, 2020. |
|  |  | On a roll call, the vote to set the dates of Thursday, June 4, 2020 and Thursday, June 18, 2020 was as follows: |

For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty ..... 7
Against the motion: ..... 07
The motion carried.
On a roll call of 7-0, the item as amended wasapproved.
13. gb \#0-139 -Mr. Monfredo/Mr. Foley (April 6, 2020)
Request that the Administration reach out to thecommunity and corporate partners to raise funds forthe purchase of Chromebooks for families to useduring the pandemic.
On a roll call, the vote to refer the item to theAdministration was as follows:
For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Ms. Novick, Mayor Petty ..... 6
Absent: Mr. Monfredo (connectivity issue) ..... 1
Against the motion: ..... 07On a roll call of 6-0-1 (absent Mr. Monfredo due toconnectivity issues), the item referred to theAdministration.
It was moved and voice voted to take the followingitems out of order:
14. gb \#0-142 - Administration
(April 6, 2020)

Grant/Massachusetts
Skills Capital
To accept the Massachusetts Skills Capital Grant in the amount of $\$ 87,100$.

Chromebooks/ raising funds for


On a roll call, the vote was as follows:
For the motion: Miss Biancheria, Mrs. Clancey,

\[\)|  Mr. Foley, Ms. McCullough,  |
| :---: |
|  Ms. Novick, Mayor Petty  |\(\quad 6

\]

Absent: Mr. Monfredo (connectivity issue) 1
Against the motion: $\underline{0}$
7
On a roll call of 6-0-1 (absent Mr. Monfredo due to connectivity issues), the item was approved as amended.

17. gb \#0-140 | - | Mr. Monfredo/Miss Biancheria/ |
| ---: | :--- |
|  | Mr. Foley/Mayor Petty |
|  | (April 6, 2020) |

Staff/forward letter

Request that the Administration forward letters of appreciation to the staff for reaching out to families and students above and beyond the call of duty.

On a roll call, the vote to forward letters was as follows:

For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty 7

Against the motion: $\underline{0}$
7
The motion carried.
On a roll call of 7-0, it was moved to forward letters.
18. gb \#0-141 - Mr. Monfredo/Miss Biancheria/

Mrs. Clancey/Mr. Foley/Ms. McCullough (April 6, 2020)

Governor Baker/
Local
Delegation/forward letters
Request that the School Committee forward a letter to the Local Delegation and to Governor Baker with a request to cancel the MCAS testing for this year. On a roll call of 7-0 the motion was approved.

On a roll call, the vote to fil the item was as follows:

Against the motion: $\frac{0}{7}$
7
On a roll call of 7-0, the item was filed.
Student Contact by Teachers/ weekly report on
19.
gb \#0-145

Request that the Administration report weekly on the number of students in the Worcester Public Schools contacted during the closure, due to the pandemic and on the efforts made to reach those as yet unreached.

Ms. Novick requested an update from the Administration.

Superintendent Binienda stated that, due to contractual issues, the Administration had only had eight days to contact students and principals will be providing a list of students who have not been contacted.

Mrs. Clancey asked for contact information for parents in the event that they have not heard from the Administration.

Superintendent Binienda recommended that the parents call the contact line through the WPS website.

Mrs. Clancey requested a phone number in the case that parents do not have access to the WPS website.

Superintendent Binienda stated that the Administration would provide the number.

On a roll call, the vote was as follows:

For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty7
Against the motion: ..... 07

On a roll call of 7-0, the item was referred to the Administration for weekly reports.
20.

gb \#0-146 - Ms. Novick/Mrs. Clancey/Mr. Foley/ Ms. McCullough (April 8, 2020)

Request that the Administration report on the number of families that have:
-no internet access in their homes
-no electronic device for accessing the internet besides cell phones
and report back to the Committee with a plan to eliminate this gap in access.

For the purpose of this item, data on cell phones does not count as internet access.

Superintendent Binienda provided an update on the remote learning process. She stated that students who do not have internet access will be receiving packets through the mail. In addition, she would like to work with the city in order to provide students with internet.

Mayor Petty made the following motion:
Request that the Administration forward the item to the City Manager to look into the feasibility of providing WiFi to the city.

On a voice vote, the motion was approved.
Mr. Monfredo made the following motion:
Request that the Administration forward a letter to
Congressman McGovern for funding for more
broadband service to the students of Worcester.
On a voice vote, the motion was approved.

Mayor Petty announced that the Worcester Public
Library is a hot spot for students to access WiFi from
the parking lot.

| Attorney Tobin stated that she has been in |
| :--- |
| communication with DESE and that the purpose of |
| remote learning is to deepen learned skills and retain |
| learned skills. She also said that the State Special |
| Education Commission is asking that new materials |
| not be taught because of equity issues. |


| Roger Nugent, EAW President clarified that teachers |
| :--- |
| were contacting parents and students before they |
| were mandated to do so. |


| On a roll call, the vote to refer the item to the |
| :--- |
| Administration was as follows: |


| For the motion: Miss Biancheria, Mrs. Clancey, |
| :--- |
| Mr. Foley, Ms. McCullough, |
| Mr. Monfredo, Ms. Novick |
| Mayor Petty |

IEP Meetings/
consider holding

21. | On a roll call of 7-0, the item was referred to the |
| :--- |
| Administration for a report as amended. |
| gb \#0-147 - Mrs. Clancey/Mr. Foley/ |
| Ms. McCullough/Mr. Monfredo/ |
| Ms. Novick |
| (April 8, 2020) |


#### Abstract

Attorney Tobin said that DESE is promoting a remote service plan, support resources and will hold a virtual IEP meeting.


On a roll call, the vote was as follows:
For the motion: Miss Biancheria, Mrs. Clancey,
Mr. Foley, Ms. McCullough,
Mr. Monfredo, Ms. Novick
Mayor Petty

Against the motion: $\underline{0}$
7
On a roll call of 7-0, the item was referred to the Administration.
22. gb \#0-148 - Mrs. Clancey/Mr. Foley/

Ms. McCullough/Mr. Monfredo/
Ms. Novick
(April 8, 2020)
Request that the Administration report on source of work assigned during the shutdown.

Mrs. Clancey requested that the Administration provide clear communications to families.

Ms. Novick made the following motion:
Request that the Administration provide any ongoing information for families on the website.

Ms. McCullough suggested that the website also contain an FAQ section.

On a voice vote, the motion was approved.
On a roll call, the vote to refer the item to the Administration was as follows:

Source of Work during Shutdown/ report on
For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty ..... 7
Against the motion: ..... $\underline{0}$7
On a roll call of 7-0, the item was referred to theAdministration.

Live Town Hall Meeting/consider holding

Teachers and Nurses/forward emails
23.

| gb \#0-149 - | Ms. McCullough/Miss Biancheria/ |
| ---: | :--- |
|  | Mrs. Clancey/Mr. Foley/ |
|  | Mr. Monfredo/Ms. Novick |
|  | $($ April 9, 2020) |

To hold a live town hall meeting with the Superintendent and the Administration for students, parents and teachers to ask questions around remote learning and to get a general update from the district. Questions could possibly be asked through an online chat or submission feature.

On a roll call, the vote was as follows:
For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty 7

Against the motion: $\underline{0}$ 7

On a roll call of 7-0, the item was referred to the Administration.
24. gb \#0-150 - Mr. Monfredo/Miss Biancheria/ Mrs. Clancey/Mr. Foley/Mayor Petty (April 9, 2020)

Request that the Administration forward an e-mail to all teachers and nurses during the week of May 2nd for their dedication to the children of the Worcester Public Schools in celebration of Teachers and Nurses Appreciation Week.

On a roll call, the vote was as follows:

For the motion: Miss Biancheria, Mrs. Clancey,
Mr. Foley, Ms. McCullough,
Mr. Monfredo, Ms. Novick
Mayor Petty ..... 7
Against the motion: ..... 07

On a roll call of 7-0, the item was approved to forward emails.

Request that the Administration forward a letter of thanks via E-mail during the week of April 20th to the secretaries and administrative assistants in appreciation of Administrative Professional Day.

On a roll call, the vote was as follows:
For the motion: Miss Biancheria, Mrs. Clancey, Mr. Foley, Ms. McCullough, Mr. Monfredo, Ms. Novick Mayor Petty 7

Against the motion: $\underline{0}$ 7

On a roll call of 7-0, the item was approved to forward emails.
26. gb \#0-152 - Administration
(April 9, 2020)
To review the status of the FY20 Budget and make appropriate transfers as required.

Mr. Foley asked for assurance that all families will have a Chromebook

Superintendent Binienda stated that once the "surge" has ended, the Administration plans to deliver approximately 10,000 of the leased Chromebooks to students.

Administrative Professional Day/ forward emails

Ms. Novick requested an estimate on the costs for mailing additional packets to which Mr. Allen replied that the first packets cost \$70,000 and Superintendent Binienda stated that the next mailing is not going to be as thick as the first.

Mr. Allen recommended that a supplemental transfer item be presented once the new numbers are available.

Ms. Novick asked for information on the Arts Magnet consultants and made a proposal to pay them.

Ms. Novick also stated that there were a number of recommendations from the Administration that involve the purchase of textbooks without seeking approval of the School Committee and questioned how the approval can be done.

Mr. Allen recommended a meeting of the Standing Committee on Teaching, Learning and Student Supports prior to the May 7, 2020 School Committee meeting in order to go forward with the procurement process.

Superintendent Binienda stated that the approval for the purchase of the textbooks has already been done and suggested that the Administration inquire as to the possibility of securing online copies of the books.

Ms. Novick asked for an explanation on the process for reimbursing AP exam payment to the students.

Dr. Ganias cited the numbers and Superintendent Binienda explained that the checks have not been cashed and they would not be taking any money out of Title IV funds. The Administration can write checks out of the revolving accounts at the schools to reimburse the students.

It was moved to approve the following transfer of funds:

| Amount | From <br> Account | Account Title | To Account | Account Title |
| :--- | :--- | :--- | :--- | :--- |
| $\$ 1,000,000$ | $500-91111$ | Teacher <br> Salaries | $500136-$ <br> 92000 | Miscellaneous <br> Educational OM |
| $\$ 895,000$ | $540103-92000$ | Transportation | $500-92204$ | Instructional Materials |
| $\$ 770,250$ | $500132-92000$ | Tuition | $500-92204$ | Instructional Materials |
| $\$ 737,550$ | $500-91111$ | Teacher Salaries | $500-92204$ | Instructional Materials |
| $\$ 614,000$ | $500-91111$ | Teacher Salaries | $500-92204$ | Instructional Materials |
| $\$ 500,000$ | $540103-92000$ | Transportation | $500136-$ <br> 93000 | Miscellaneous <br> Educational OM |
| $\$ 378,000$ | $500-91111$ | Teacher Salaries | $500-92204$ | Instructional Materials |
| $\$ 300,000$ | $500-91114$ | Teacher Substitutes <br> Salaries | $500-92204$ | Instructional Materials |
| $\$ 285,565$ | $500-91120$ | Maintenance <br> Salaries | $500152-$ <br> 92000 | Facilities Ordinary |
|  |  | Building Utilities | $500152-$ <br> 92000 | Facilities Ordinary |
| $\$ 224,000$ | $500146-92000$ | Maintenance |  |  |

On a roll all of 7-0, the motion was approved.
On a roll call of 7-0, the meeting was adjourned at 10:00 p.m.

Helen A. Friel, Ed.D. Clerk of the School Committee
III. APPROVAL OF RECORDS

ITEM - aor \#0-19
Clerk
S.C. MEETING - 5-7-20
(April 29, 2020)

ITEM:
To consider approval of the Executive Session Minutes of March 1, 2018, April 26, 2018, May 3, 2018, June 7, 2018, June 21, 2018, July 19, 2018, August 20, 2018, November 1, 2018, September 19, 2019, November 21, 2019, April 2, 2020 and April 8, 2020.

## PRIOR ACTION:

## BACKUP:

Annex A (27 pages) contains a copy of the Executive Session Minutes of March 1, 2018, April 26, 2018, May 3, 2018, June 7, 2018, June 21, 2018, July 19, 2018, August 20, 2018, November 1, 2018, September 19, 2019, November 21, 2019, April 2, 2020 and April 8, 2020.

## RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:

Approve.

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- strategy with respect to litigation for a Worker's Compensation for a teacher, if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.
- strategy with respect to litigation regarding the Consent Decree as an open meeting may have a detrimental effect on the litigating position of the Committee, as declared by the Chair.
- strategy with respect to litigation of a Teacher - Discipline Case, if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.
- strategy with respect to litigation for Y. Perez vs Worcester School Committee et al. if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.
- the filing of criminal complaints.

On a roll call of 6-0-1, (absent Mr. Foley), the School Committee recessed to Executive Session in the Levi Lincoln Chamber at 6:10 p.m.

The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

There was present at the Call to Order:
Miss Biancheria, Mr. Comparetto, Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty

There was absent: Mr. Foley
Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Ms. Boulais, Dr. O’Neil, Attorney Sweeney, Attorney Tobin, Attorney Reichert and Dr. Friel
I. To discuss strategy with respect to litigation for a Worker's Compensation for a teacher, if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.

Attorney Reichert discussed the Worker's Compensation Case for a teacher.

It was moved to approve a Worker's Compensation settlement in the amount of $\$ 138,500$ for a teacher, without liability.

On a roll call of 6-0-1 (absent Mr. Foley), the motion was approved.
II. To discuss strategy with respect to litigation regarding the Consent Decree as an open meeting may have a detrimental effect on the litigating position of the Committee, as declared by the Chair.

Attorney Sweeney discussed the litigation regarding the Consent Decree.
III. To discuss strategy with respect to litigation of a Teacher - Discipline Case, if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.

Attorney Sweeney discussed the litigation regarding a Teacher - Discipline Case.
VI. To discuss strategy with respect to litigation for Y. Perez vs Worcester School Committee et al. if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.

The School Committee granted authority to Attorney Reichert to settle the litigation for Y. Perez for $\$ 30,000$.

Held
V. To consider the filing of criminal complaints.

Attorney Sweeney discussed the filing of criminal complaints.
The Executive Session adjourned at 7:13 p.m.

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- strategy with respect to collective bargaining for EAW-Units $A / B$, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Tradesmen-IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Plumbers and SteamfittersIUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-04.
- strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-08.

On a roll call of 7-0, the School Committee recessed to Executive Session in the Mayor's Office at 6:10 p.m.

The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

There was present at the Call to Order:
Miss Biancheria, Mr. Comparetto, Mr. Foley, Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty

Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Attorney Sweeney and Dr. Friel
I. To discuss strategy with respect to collective bargaining for EAW-Units $A / B$, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining for the EAW-Units A/B.
II. To discuss strategy with respect to collective bargaining for TradesmenIUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining for the Tradesmen - IUPE.
III. To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters-IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining for the Plumbers and Steamfitter - IUPE.
IV. To discuss strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining for the EAW-Tutors.
V. To discuss strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining for the EAW-Parent Liaisons.
VI. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-04.

Attorney Sweeney discussed Grievance \#17/18-04. The School Committee will take it under advisement.
VII. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-08.

Attorney Sweeney discussed Grievance \#17/18-08.
VIII. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-09.

Attorney Sweeney discussed Grievance \#17/18-09.
It was moved to deny Grievance \#17/18-09.
On a roll call of 6-0-1 (abstain Mayor Petty), the motion was approved.
IX. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-11.

Attorney Sweeney discussed Grievance \#17/18-11.
It was moved to deny Grievance $\# 17 / 18-11$.
On a roll call of 6-0-1 (abstain Mayor Petty), the motion was approved.

The Executive Session adjourned at 7:38 p.m.

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- strategy with respect to collective bargaining for EAW-Units $A / B$, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-04.
- strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-08.

On a roll call of 4-0-3 (absent Miss Biancheria, Mr. Comparetto and Miss McCullough), the School Committee recessed to Executive Session in the Mayor's Office at 6:15 p.m.

The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

There was present at the Call to Order at 6:17 p.m.:
Mr. Foley, Mr. Monfredo, Mr. O’Connell and Mayor Petty
There was absent: Miss Biancheria, Mr. Comparetto and Miss McCullough

Miss McCullough arrived at 6:50 p.m.
Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Ms. Boulais, Dr. O’Neil, Attorney Sweeney and Dr. Friel
I. To discuss strategy with respect to collective bargaining for EAW-Units $A / B$, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for EAWUnits A/B.
II. To discuss strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Tradesmen - IUPE.
III. To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Plumbers and Steamfitters - IUPE.
IV. To discuss strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the EAW-Tutors.
V. To discuss strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the EAW-Parent Liaisons.
VI. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-04.

Attorney Sweeney discussed Grievance \# 17/18-04.
Hold
VII. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-08.

Attorney Sweeney discussed Grievance \#17/18-08. Hold

The Executive Session adjourned at 7:00 p.m.

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

On a roll call of 7-0, the School Committee recessed to Executive Session in the Mayor's Office at 6:12 p.m.

The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

There was present at the Call to Order:
Miss Biancheria, Mr. Comparetto, Mr. Foley, Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty

Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Ms. Boulais, Dr. O'Neil, Attorney Sweeney and Dr. Friel
I. To discuss strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Tradesmen - IUPE.
II. To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Plumbers and Steamfitters - IUPE.
III. To discuss strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the EAW-Parent Liaisons.
IV. To discuss strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the EAW-Tutors.

The Executive Session adjourned at 7:15 p.m.

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

On a roll call of 6-0-1 (absent Mr. Foley), the School Committee recessed to Executive Session in the Mayor's Office at 6:05 p.m.
I.
II. The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

There was present at the Call to Order:
Miss Biancheria, Mr. Comparetto, Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty

There was absent: Mr. Foley
Mr. Foley arrived at 6:08 p.m.
Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Ms. Boulais, Dr. O’Neil, Attorney Sweeney and Dr. Friel
I. To discuss strategy with respect to collective bargaining for EAW-Tutors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney reviewed the terms and amendments of the contract with the School Committee.

It was moved to ratify and approve the terms of the Memorandum of Agreement between the School Committee and the EAW, E.S.L. Tutors, signed June 21, 2018, for a collective bargaining agreement between the School Committee and the EAW, E.S.L Tutors, for the term of January 1, 2016 through August 31, 2017.

On roll call of 7-0, the item was approved.
It was moved to ratify and approve the terms of the Memorandum of Agreement between the School Committee and the EAW, E.S.L. Tutors, signed June 21, 2018, for a collective bargaining agreement between the School Committee and the EAW, E.S.L. Tutors, for the term of September 1, 2017 through August 31, 2020.

On roll call of 7-0, the item was approved.
II. To discuss strategy with respect to collective bargaining for EAW-Parent Liaisons, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney reviewed the terms and amendments of the contract with the School Committee.

It was moved to ratify and approve the terms of the Memorandum of Agreement between the School Committee and the EAW, Parent Liaisons, signed June 21, 2018, for a collective bargaining agreement between the School Committee and the EAW, Parent Liaisons, for the term of September 1, 2016 through August 31, 2017.

On roll call of 7-0, the item was approved.
It was moved to ratify and approve the terms of the Memorandum of Agreement between the School Committee and the EAW, Parent Liaisons, signed June 21, 2018, for a collective bargaining agreement between the School Committee and the EAW, Parent Liaisons, for the term of September 1, 2017 through August 31, 2020.

On roll call of 7-0, the item was approved.
III. To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Plumbers and Steamfitters - IUPE.
IV. To discuss strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Tradesmen - IUPE.

The Executive Session adjourned at 7:00 p.m.

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-04.

On a roll call of 6-0-1 (absent Mr. Foley), the School Committee recessed to Executive Session in the Mayor's Office at 6:20 p.m.
III.The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

There was present at the Call to Order:
Miss Biancheria, Mr. Comparetto, Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty

There was absent: Mr. Foley
Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Attorney Sweeney and Dr. Friel
I. To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Plumbers and Steamfitter - IUPE.

July 18, 2018
Page 2
II. To discuss strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining agreement for the Tradesmen - IUPE.
III. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#17/18-04.

Attorney Sweeney discussed Grievance \#17/18-04.
Hold
The Executive Session adjourned at 6:40 p.m.

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- strategy with respect to collective bargaining or litigation if an open meeting may have a detrimental effect on the bargaining position or litigating position of the public body and the chair so declares; and to conduct collective bargaining sessions re: IUPE Local 135 and Worcester School Committee, American Arbitration Association No. 01-17-0005-2729 and related administrative agency litigation.

The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

On a roll call of 6-0-1, (absent Miss Biancheria), the School Committee recessed to Executive Session in the Mayor's Office at 6:15 p.m.

There was present at the Call to Order:
Mr. Comparetto, Mr. Foley, Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty

There was absent: Miss Biancheria
Miss Biancheria arrived at 6:17 p.m.
Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Ms. Boulais, Dr. O’Neil, Attorney Sweeney and Dr. Friel
I. To discuss strategy with respect to collective bargaining or litigation if an open meeting may have a detrimental effect on the bargaining position or litigating position of the public body and the chair so declares; and to conduct collective bargaining sessions re: IUPE Local 135 and Worcester School Committee, American Arbitration Association No. 01-17-0005-2729 and related administrative agency litigation.

Attorney Sweeney stated that the termination of the Grievant's employment was substantively arbitrable under the terms of the applicable Collective Bargaining Agreement. He further stated that it could be appealed to the Supreme Court and the School Committee decided to do that.

The Executive Session adjourned at 6:35 p.m.

IN SCHOOL COMMITTEE
Worcester, Massachusetts Thursday, November 1, 2018

## EXECUTIVE SESSION

It was moved to recess to Executive Session in order to discuss:

- To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- To discuss strategy with respect to collective bargaining for Tradesmen - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- To discuss strategy with respect to collective bargaining for Aides to the Physically Handicapped and Monitors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

The Mayor stated that the committee may reconvene in Open Session after the Executive Session.

On a roll call of 4-0-3, (absent Miss Biancheria, Mr. Comparetto and Mr. Foley), the School Committee recessed to Executive Session in the Mayor's Office at 6:15 p.m.

There was present at the Call to Order:
Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty
There was absent: Miss Biancheria, Mr. Comparetto, Mr. Foley
Miss Biancheria arrived at 6:17 p.m.
Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Ms. Boulais, Dr. O’Neil, Attorney Sweeney and Dr. Friel
I. To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters - IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the update for the collective bargaining for the Plumbers and Steamfitters - IUPE.
II. To discuss strategy with respect to collective bargaining for Tradesmen IUPE, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the update collective bargaining for the Tradesmen IUPE.
III. To discuss strategy with respect to collective bargaining for Aides to the Physically Handicapped and Monitors, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the collective bargaining for the Aides to the Physically Handicapped and Monitors.

The Executive Session adjourned at 7:15 p.m.

IN SCHOOL COMMITTEE
Worcester, Massachusetts
Thursday, September 19, 2019

## EXECUTIVE SESSION

The Vice-Chair convened in Open Session in order to recess to Executive Session:

- To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#18/19-10.
- To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- To discuss strategy with respect to collective bargaining for Tradesmen, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.
- To discuss strategy with respect to litigation if an open meeting may have a detrimental effect on the litigation position of the School Committee and the chair so declares - Educational Association of Worcester and Worcester School Committee, Commonwealth of Massachusetts Department of Labor Relations, Case No. CAS-19-7323.
- To discuss strategy with respect to litigation if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares - Worcester School Committee v. International Union of Public Employees, Tradesmen, Local - 135 and International Union of Public Employees, Plumbers and Steamfitters, Local - 125, Worcester Superior Court Civil Action No. 1885CV01520.

On a roll call of 4-0-3 (absent Miss Biancheria, Mr. O'Connell and Mayor Petty), the motion was approved.

Vice-Chairman McCullough stated that the committee may reconvene in Open Session after Executive Session.

There were present at the Call to Order:
Mr. Comparetto, Mr. Foley, Miss McCullough and Mr. Monfredo
There were absent: Miss Biancheria Mr. O'Connell and Mayor Petty
Miss Biancheria arrived at 6:10 p.m.
Mayor Petty arrived at 6:22 p.m.

Mr. O'Connell arrived at 6:50 p.m.
The School Committee recessed to Executive Session at 6:05 p.m.
There were present at the second Call to Order:
Miss Biancheria, Mr. Comparetto, Mr. Foley, Miss McCullough, Mr. Monfredo, Mr. O'Connell and Mayor Petty

Superintendent Binienda represented the Administration.
Others in attendance: M. Baranoff, B. Kaake, R. Nugent, Dr. O'Neil, Attorney Reichart, Attorney Sweeney M. Verdees and Dr. Friel
I. To discuss strategy with respect to collective bargaining and to conduct collective bargaining regarding Grievance \#18/19-10.

Held
II. To discuss strategy with respect to collective bargaining for Plumbers and Steamfitters, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the status of negotiations for the Plumbers and Steamfitters.
III. To discuss strategy with respect to collective bargaining for Tradesmen, if an open meeting may have a detrimental effect on the collective bargaining position of the School Committee and the chair so declares.

Attorney Sweeney discussed the status of negotiations for the Tradesmen.
IV. To discuss strategy with respect to litigation if an open meeting may have a detrimental effect on the litigation position of the School Committee and the chair so declares - Educational Association of Worcester and Worcester School Committee, Commonwealth of Massachusetts Department of Labor Relations, Case No. CAS-19-7323.

Attorney Sweeney discussed the status of the litigation for the Educational Association of Worcester and Worcester School Committee, Commonwealth of Massachusetts Department of Labor Relations, Case No. CAS-19-7323.

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V. To discuss strategy with respect to litigation if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares - Worcester School Committee v. International Union of Public Employees, Tradesmen, Local - 135 and International Union of Public Employees, Plumbers and Steamfitters, Local - 125, Worcester Superior Court Civil Action No. 1885CV01520.

Attorney Sweeney discussed the status of the litigation for the Worcester School Committee v . International Union of Public Employees, Tradesmen, Local - 135 and International Union of Public Employees, Plumbers and Steamfitters, Local - 125, Worcester Superior Court Civil Action No. 1885CV01520.

The Executive Session adjourned at 7:30 p.m.

IN SCHOOL COMMITTEE
Worcester, Massachusetts
Thursday, November 21, 2019

## EXECUTIVE SESSION

The Vice Chair convened in Open Session in order to recess to Executive Session to:

- To discuss strategy with respect to collective bargaining or litigation if an open meeting may have a detrimental effect on the bargaining or litigating position of the public body and the chair so declares Arbitration - Nurse/ Massachusetts Nurses Association.
- To discuss strategy with respect to litigation if an open meeting may have a detrimental effect on the litigating position of the public body and the chair so declares - Janie Lanza Vowles, Personal Representative Estate of Suzanne F. Miville v. Worcester Public Schools, MCAD Docket No. 1785CV00162.
- To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares - Massachusetts Laborers' District Council for and in behalf of Worcester Public Service Employees Local Union 272 of the Laborers' International Union of North America, AFL-CIO, Unit D, Computer Technicians.

On a roll call of 5-0-2 (absent Mr. Comparetto and Mayor Petty), the motion was approved.

Vice-Chairman McCullough stated that the committee may reconvene in Open Session after Executive Session.

The School Committee recessed to Executive Session at 6:10 p.m.
There were present at the Call to Order:
Miss Biancheria Mr. Foley, Miss McCullough Mr. Monfredo and Mayor Petty
There was absent: Mr. Comparetto and Mayor Petty
Mayor Petty arrived at 6:35 p.m.
Superintendent Binienda represented the Administration.
Others in attendance: Mr. Allen, Ms. Boulais, Ms. Novick, Dr. O’Neil, Attorney Sweeney and Dr. Friel

Thursday, November 21, 2019 Page 2
I. To discuss strategy with respect to collective bargaining or litigation if an open meeting may have a detrimental effect on the bargaining or litigating position of the public body and the chair so declares Arbitration - Nurse/ Massachusetts Nurses Association.

Attorney Sweeney discussed the arbitration for a Nurse.
II. To discuss strategy with respect to litigation if an open meeting may have a detrimental effect on the litigating position of the public body and the chair so declares - Janie Lanza Vowles, Personal Representative Estate of Suzanne F. Miville v. Worcester Public Schools, MCAD Docket No. 1785CV00162.

Attorney Sweeney discussed the litigation for Janie Lanza Vowles, Personal Representative for the Estate of Suzanne F. Miville v. Worcester Public Schools, MCAD Docket No. 1785CV00162.
III. To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares - Massachusetts Laborers' District Council for and in behalf of Worcester Public Service Employees Local Union 272 of the Laborers' International Union of North America, AFLCIO, Unit D, Computer Technicians.

Attorney Sweeney discussed the collective bargaining for Unit D, Computer Technicians.

The Executive Session adjourned at 6:50 p.m.

## EXECUTIVE SESSION

The Mayor convened in Open Session in order to recess to Executive Session to:

- To discuss strategy with respect to collective bargaining or litigation if an open meeting may have a detrimental effect on the bargaining or litigating position of the public body and the chair so declares Contractual Arbitration - Three Teachers - Evaluation Grievance/ Educational Association of Worcester, Unit A.
- To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares - All District Labor Unions -Coronavirus/COVID-19 Related Issues.
- To conduct strategy sessions in preparation for negotiations with nonunion personnel - Non Represented Employees of the District Coronavirus/COVID - 19 Related Issues.

On a roll call of 7-0, the motion was approved.
Mayor Petty stated that the committee may reconvene in Open Session after Executive Session.

The School Committee recessed to Executive Session at 6:00 p.m.
There were present at the Call to Order:
Miss Biancheria, Mrs. Clancey, Mr. Foley, Miss McCullough, Mr. Monfredo, Ms. Novick and Mayor Petty

Superintendent Binienda represented the Administration.
Others in attendance: Attorney Sweeney, Ms. Boulais, Mr. Allen, Dr. O’Neil and Dr. Friel
I. To discuss strategy with respect to collective bargaining or litigation if an open meeting may have a detrimental effect on the bargaining or litigating position of the public body and the chair so declares - Contractual Arbitration - Three Teachers - Evaluation Grievance/Educational Association of Worcester, Unit A.

Attorney Sweeney discussed the Contractual Arbitration - Three Teachers - Evaluation Grievance/Educational Association of Worcester, Unit A.
II. To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares - All District Labor Unions -Coronavirus/COVID-19 Related Issues.

Attorney Sweeney discussed the collective bargaining for All District Labor Unions - Coronavirus/COVID-19 Related Issues.
III. To conduct strategy sessions in preparation for negotiations with nonunion personnel - Non Represented Employees of the District Coronavirus/COVID - 19 Related Issues.

Attorney Sweeney discussed the negotiations for the nonunion personnel - Non Represented Employees of the District - Coronavirus/COVID - 19 Related Issues.

The Executive Session adjourned at 7:20 p.m.

IN SCHOOL COMMITTEE Worcester, Massachusetts Wednesday, April 8, 2020

## EXECUTIVE SESSION

The Mayor convened in Open Session in order to recess to Executive Session to:

- To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares - Coronavirus/COVID-19 Related Issues - Educational Association of Worcester, Units A \& B (Educators/ Administrators); Aides to the Physically Handicapped, Monitors and Drivers; Instructional Assistants; Parent Liaisons; Tutors; and Therapy Assistants.

On a roll call of 7-0, the motion was approved.
Mayor Petty stated that the committee may reconvene in Open Session after Executive Session.

The School Committee recessed to Executive Session at 12:30 p.m.
There were present at the Call to Order:
Miss Biancheria, Mrs. Clancey, Mr. Foley, Miss McCullough, Mr. Monfredo, Ms. Novick and Mayor Petty

Superintendent Binienda represented the Administration.
Others in attendance: Attorney Sweeney, Ms. Boulais, Mr. Allen, Dr. O’Neil and Dr. Friel
I. To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares-Coronavirus/COVID-19 Related IssuesEducational Association of Worcester, Units A \& B (Educators/ Administrators); Aides to the Physically Handicapped, Monitors and Drivers; Instructional Assistants; Parent Liaisons; Tutors; and Therapy Assistants.

Attorney Sweeney discussed the Memoranda of Agreements for the Educational Association of Worcester, Units A \& B (Educators/ Administrators); Aides to the Physically Handicapped, Monitors and Drivers; Instructional Assistants; Parent Liaisons; Tutors; and Therapy Assistants.

It was moved to ratify the Memorandum of Agreement between the School Committee and the Educational Association of Worcester, Units $A \& B$ regarding Coronavirus-related negotiations.

On a roll call of 7-0, the Memorandum of Agreement was approved.
It was moved to ratify the Memorandum of Agreement between the School Committee and the Educational Association of Worcester, Aides to the Physically Handicapped, Monitors and Drivers Unit regarding Coronavirus-related negotiations.

On a roll call of 7-0, the Memorandum of Agreement was approved.

It was moved to ratify the Memorandum of Agreement between the School Committee and the Educational Association of Worcester, Instructional Assistants Unit, Parent Liaison Unit, Therapy Assistant Unit, and Tutors Unit (collectively referred to herein as the "ESP Units") regarding Coronavirus-related negotiations.

On a roll call of 7-0, the Memorandum of Agreement was approved.

The Executive Session adjourned at 1:00 p.m.
V. IMMEDIATE ACTION

Administration
(April 29, 2020)

ITEM:
To consider input from the School Committee's student representatives and the Superintendent's student advisory council.

PRIOR ACTION:

## BACKUP:

## RECOMMENDATION OF MAKER:

X. GENERAL BUSINESS

Administration/Ms. Clancey/Mr. Foley/ Ms. McCullough/Mr. Monfredo/Ms. Novick (April 28, 2020)

ITEM:
Response of the Administration to the request to consider holding Individualized Education Plan (IEP) meetings during the shutdown.

ORIGINAL ITEM: Mrs. Clancey/Mr. Foley/Ms. McCullough/Monfred0/ Ms. Novick (April 8, 2020)

Request that the Administration consider holding Individualized Education Plan (IEP) meetings during the shutdown.

## PRIOR ACTION:

4-16-20 - Attorney Tobin said that DESE is promoting a remote service plan, support resources and will hold a virtual IEP meeting.
On a roll call of 7-0, the item was referred to the Administration.

BACKUP:
Annex A (3 pages) contains a copy of the Administration's response to the item.

## RECOMMENDATION OF MAKER:

## RECOMMENDATION OF ADMINISTRATION:

Accept and file.

DESE guidance recommends that districts may consider holding virtual IEP meetings during the period of school closure if feasible. The decision on which IEP meetings are held must be made in a manner that is non-discriminatory and equitable. IEP meetings to discuss potential compensatory services or "additional services" as a result of the current closures are not recommended until after school resumes. District priorities should also continue to provide robust learning plans for students. The district is in the process of finalizing the implementation of remote learning plans for students' with disabilities. As the result of legal guidance, during the upcoming week's district staff will work collaboratively with parents/guardians to coordinate IEP Team meetings given the following parameters:
I. WPS efforts to ensure equity and parent/guardian collaboration:

- Ensure access to interpreter services to allow for meaningful participation,
- Determine which meetings would be the most appropriate to hold virtually (annual, re-evaluation, high school, out of district),
- Prioritize IEP meetings to comply with applicable timelines,
- Inform parents that meetings to discuss compensatory/additional services will be postponed until school resumes,
- Coordinate transition meetings for selected students moving from elementary to middle to high schools to ensure a timely transition and placement,
- Transition meetings for graduating high school seniors should focus on the summary of student's current needs and abilities that will be issued at the time of the student's graduation.
II. The District and parent will need to work together to determine the most accessible way for all meeting participants to be included in the discussion. This should also include:
- Equity and Cultural Relevance;
- Maintain communication with parent/guardian to ensure that parents are informed
- Provide Interpreter as needed based on home language
- Translated all documents based on home language
- Determine which "virtual" options are available to both staff and parents i.e., telephonically, and/or virtually,
- Review confidentiality and privacy concerns regarding selecting how the meeting will be held,
- Provide invitation to parent and provide assurances that all relevant team members must participate, including a general education teacher of the child, specialist and/or providers based on IEP goals and objectives,
- Provide clear communication to parents that they are agreeing to participate in the "virtual" meeting on a specific platform and that they understand that all documents will be sent electronically during the closures and upon request copies when school re-opens.
- Ensure all participants have access to any documents being reviewed prior to the meeting during school closure.
III. Special considerations as determined by Special Education Administration will provide notice to parent regarding the process of remote IEP meetings to ensure effective communication to parent and all participants fully understand the following: For example;
- By participating in the IEP meeting, all parties agree to the following: The parties hereby agree to hold the IEP Team meeting remotely. The parties acknowledge and agree that the IEP Team meeting is being held remotely due to Governor Baker's Executive Order dated March 25, 2020 which prohibits in-person instruction and educational operations until May 4, 2020 while schools are closed due to the Executive Order. By participating in the remote IEP meeting, the participants agree not to save, record, share, or post the IEP meeting. The District will take all reasonable measures to preserve your privacy and the privacy of your child, and each of our educators will continue to maintain the privacy of your child's student record information in accordance with the Massachusetts student privacy and digital privacy laws, as well as the Family Education Rights and Privacy Act. The Parents/Guardians agree to excuse the District from strict performance of IEP timelines which are not feasible pursuant to governmental directives arising from or related to COVID-19 pandemic issues.
IV. The timeframe to coordinate IEP meetings will depend on the number and type of IEP meetings that are due prior to the end of this school year. The following is a breakdown of IEP meetings due (March - June) by the close of school:
- Analysis of IEP Meeting Types:
- Annual Reviews: 1,349
- Re-Evaluation Meetings: 353
- Initial Meetings: 311
- Miscellaneous (i.e. progress, extended evaluations): 109
- Total Number of IEP Meetings = 2,122

ANNEX A

## - IEP Meetings being considered (these numbers are reflected in the numbers above)

- Out of District Meetings $=37$
- Central Mass Collaborative Meetings = 133
- Early Childhood Evaluations = 26
- ASP Goddard/Harlow/ACT (dependent upon completed evaluations): 13
- Sped Transition Program $=22$
- Academic Center for Transition $=13$
- Students transitioning (Prek-k, 6-7, 8-9, 12-Transition)
- Special considerations per parent request determined by Special Education Administration

Please note that the following plans outlined in this response regarding IEP TEAM meetings is subject to change based on the Commonwealth of Massachusetts and DESE guidelines during the COVID-19 pandemic.
X. GENERAL BUSINESS

Administration/Mrs. Clancey/
Mr. Foley/Ms. McCullough/
Mr. Monfredo/Ms. Novick
(April 29, 2020)

CURRENT ITEM - gb \#0-148.1
S.C. MEETING - 5-7-20

| 1ST ITEM | gb $\# 0-148$ | S.C.MTG. $4-16-20$ |
| :--- | :--- | :--- |
| 2ND ITEM | gb $\# 0-148.1$ | S.C.MTG. $5-7-20$ |

$\begin{array}{lll}\text { 1ST ITEM } & \mathrm{gb} \# 0-148 & \text { S.C.MTG. } 4-16-20 \\ \text { 2ND ITEM } & \mathrm{gb} \# 0-148.1 & \text { S.C.MTG. } 5-7-20\end{array}$

ITEM:
Response of the Administration to the requests to provide a report on the source of work assigned during the shutdown and any ongoing information for families on the website.

ORIGINAL ITEM: Mrs. Clancey/Mr. Foley/Ms. McCullough/Mr. Monfredo/ Ms. Novick (April 8, 2020)

Request that the Administration report on source of work assigned during the shutdown.

## PRIOR ACTION:

4-16-20 - Mrs. Clancey requested that the Administration provide clear communications to families.
Ms. Novick made the following motion:
Request that the Administration provide any ongoing information for families on the website.
Ms. McCullough suggested that the website also contain an FAQ section. On a voice vote, the motion was approved.
On a roll call of 7-0, the item was referred to the Administration.

## BACKUP:

Annex A (2 pages) contains a copy of the Administration's response to the item.
Annex B (1 page) contains a copy of a letter from Commissioner Jeffrey C. Riley, dated April 24, 2020 regarding "Updated Remote Learning Guidance."
Annex C (25 pages) contains a copy of the Guidance for Massachusetts districts and schools.
Annex D (33 pages) contains a copy of the Prerequisite Content Standards for Success in grades K-5.
Annex E (37 pages) contains a copy of the Prerequisite Content Standards for Success in grades 6-12.

## RECOMMENDATION OF MAKER:

## RECOMMENDATION OF ADMINISTRATION:

Accept and file.

## Request that the Administration report on source of work assigned during the shutdown.


#### Abstract

Response The source of the work has shifted over the course of the closing in response to changes in guidance from the state. The district has been following guidance from the Department of Education during this unexpected closure. The guidance has evolved and adapted as conditions have changed.

Our initial response began on Thursday, March 12, with organization and preparation for the first week mailing of packets to students by school level staff. The ESL department also provided packets for students with limited English. The Office of Professional Learning and Curriculum (OPLC) created and posted additional support through the online Extended Learning Resources link (https://sites.google.com/worcesterschools.net/wpsextendedlearning/home) with technology support intentionally embedded.

Subsequently, the state guidance changed to initiate Remote Learning Plans with a review of learning to date. The OPLC department organized the curriculum liaisons who developed multiple weekly themes with resources across the grades. School based teams then developed the building's "Weekly Remote Learning Plan" (https://worcesterschools.org/weekly-remote-learning-plans/) shifting to projects and accessing resources from the liaison created themes as they chose. School staff communicated with students around the weekly learning plans.

Recently, Friday, April 24, the guidance from the state changed to incorporate virtual and non-virtual lessons, a suggested structured day, and teaching of new material. Particular standards, power standards, are highlighted to support the transition to the new school year. WPS is referring to this as "Remote Plus". Schools are currently reorganizing to develop the refined lesson units in line with the new guidance. The OPLC content liaisons have developed weekly plans that will be mailed home for students currently without a device or internet access. The ESL department has added support plans to scaffold ESL students to these. The Special Education Department reviewed plans to ensure they are scaffolded. Students' IEPs are being individually addressed by their service teams. Separate packets are being developed for students in sub-separate settings. The most current guidance is attached.


## Request that the Administration provide any ongoing information for families on the website.

## Response

Please see: https://worcesterschools.org/about/departments-offices/nursing/caregivers/faq-by-families/
On Wednesday, April 22, 2020, a separate page was created to hold the Frequently Asked Questions (FAQ's) section. A link to this page was added at the top of the "Parent/Guardian Information" page. It appeared when hovering over the Parent/Caregiver link as "Frequently Asked Questions by Families".

On April 24, a separate link for "Frequently Asked Questions by Families" was added to the green banner on the District website.

Staff are monitoring the FAQ section to update as the information available changes and as other questions arise.

## On the Desktop - April 24, 2020

## Updated Remote Learning Guidance

Dear Superintendents, Charter School Leaders, Assistant Superintendents, Principals, and Collaborative Leaders,

On Tuesday, April 21, when Governor Baker announced that schools would remain closed through the end of the academic year, I said that we would issue additional guidance on remote learning. That guidance is attached to this email.

It builds on the initial guidance released on March 26 (download), with a deeper focus on two areas:

- Further defining the recommended elements of a quality remote learning program, including a focus on teaching the content standards most critical for student success in the next grade level, and
- Encouraging districts to move all students towards successful engagement in remote learning, with a focus on addressing fundamental needs.

While we are not expecting teachers to cover all grade level standards this year, we are now asking you to go further than before. We think a focus on the prerequisite standards most critical to student success in the next school year, coupled with increased attention to student engagement, will best support our students' learning.

## Attachments:

- Guidance: Strengthening Our Remote Learning Experience
- Massachusetts Elementary Prerequisite Content Standards
- Massachusetts Secondary Prerequisite Content Standards

Sincerely,
Jeffrey C. Riley
Commissioner


# Strengthening Our Remote Learning Experience 

Guidance for Massachusetts districts and schools

Jeffrey C. Riley<br>Commissioner

April 2020

# Introduction from Commissioner Jeffrey C. Riley 

Superintendents, Executive Directors, Principals, Educators, and Staff:
It is hard to overstate the societal and educational challenges that confront us as a result of the COVID19 pandemic. Let me begin with wishes that you and your loved ones are safe and healthy in these unprecedented times.

When schools closed on March 17, 2020 by executive order, we said that our first priority throughout this crisis would always be the health and wellness of our students and staff.

That first week - what I call "Phase I" - we prioritized student and staff safety, nutrition, and other foundational needs. We helped districts set up over 1,300 meal distribution centers; began work to expand technology and internet access; secured a partnership with WGBH to provide academic programming for all students, particularly those without access to technology; and encouraged districts to continue to pay their hourly staff.

On March 26, in parallel with the Governor's announcement that school closures were extended until at least May 4, we began "Phase II" with the release of initial guidance on remote learning. That initial guidance was built in close collaboration with stakeholders to provide a strong and aligned coalition for the challenging work that lay ahead. We established guiding principles and broad outlines of our state's remote learning strategy and addressed the most pressing questions facing districts and schools.

We are gratified that this collaborative effort has been recognized by other state education agencies, some of which have adopted our language, and by independent entities like the MIT Teaching Systems Lab, which gave Massachusetts the second highest score of any state for the strength of our guidance. We recognize, however, that this crisis demands that we continuously improve our guidance in support of our educational community.

We know that the shift to remote learning is challenging. I am impressed and grateful at how quickly districts, schools, educators, and support staff rose to the challenge and launched updated remote learning plans. While much work remains, students are connecting with educators and learning remotely, families are supporting this work, and all of us are adjusting to a new and evolving reality.

Superintendents and principals have had the challenge of responding to those who say there is not enough remote learning and others who say the volume of lessons and assignments is overwhelming. Educators, many of whom are also navigating personal challenges caring for their own children and other loved ones, are doing their best to move learning forward while supporting students' social emotional needs, often well into the evening hours. And parents and caregivers are navigating the instructional experience with teachers and students, all while balancing their own work and personal responsibilities. As this crisis continues, we must all pull together to reduce the pressure on each of us in our respective roles.

Here at the state level, we have been working to provide relief to schools. We sought and were approved for waivers from the federal government which allow districts to more easily feed our children. We sought and were approved for waivers that allow districts greater flexibility in carrying over dollars to spend next year. We asked for and were granted permission by the Governor to extend license
renewals for 90 days until after the state of emergency ends. And we applied for and received a waiver from the federal government and worked with the state legislature, enabling us to cancel MCAS testing for grades 3-10 this spring.

With these initial weeks and decisions behind us and with the Governor's extension of school closures through the end of the school year, we are publishing a second round of remote learning recommendations to help districts and schools begin "Phase III."

In Phase III, I am looking for districts and schools to continue to enhance and refine their remote learning plans. I know districts and schools are already moving down this path based on their own experiences in these initial weeks, and the hope is that this guidance can both affirm work already underway and provide some additional ideas and strategies.

This document builds on the initial guidance released on March 26 (download), with a deeper focus on two areas:

- Further defining the recommended elements of a quality remote learning program, including a focus on teaching the content standards most critical for student success in the next grade level.
- Encouraging districts to move all students towards successful engagement in remote learning, with a focus on addressing fundamental needs.

The first bullet may be the key ingredient in our new guidance. While we are not expecting teachers to cover all grade level standards this year, we are now asking you to go further than before. We think a focus on the prerequisite standards most critical to student success in the next school year will best support our students' learning.

In short order, districts and schools should also expect to see separate guidance around critical operational matters related to closing out the school year remotely.

All of this will help us prepare for our final phase of this work - "Phase IV" - when students and staff will re-enter school. In that phase, we will also need to support students with unfinished learning and prioritize additional supports to help catch them up.

Finally, I want to stress the importance of completing the 2020 Census. With fiscal headwinds likely ahead, we as a community must remind families and our communities how critical being counted is to the future funding of our schools.

As always, thank you for your extraordinary efforts on behalf of our Commonwealth's children and families.

Jeffrey C. Riley
Commissioner

## Beyond the guidance: How DESE will continue to support remote learning in the Commonwealth

The release of this updated guidance is just one of many steps we are taking at DESE to enhance remote learning across the Commonwealth. In the coming weeks, you will see us take the following steps in collaboration with stakeholders:

- Continuing to listen and learn from stakeholders' experience with remote learning: We will conduct surveys and interviews with educators, principals, superintendents, families, and students to better understand the day-to-day successes and challenges. We will identify best practices and new supports DESE can provide based the ongoing experiences of our stakeholders.
- Continuing to address students' and families' technology needs: We are collecting data and convening stakeholders to identify the most efficient and effective plan to make necessary technology available to our students and families across the Commonwealth, including devices, internet connectivity, and technical support and training with technology for students and families. We will share additional information in the coming weeks.
- Best practice sharing and professional development for educators: We will be organizing opportunities for educators to network and share expertise and resources around remote learning, including engaging projects and tasks that could be provided to students in both online and offline formats. We will also make opt-in, statewide professional development opportunities on online learning available for educators and administrators.
- Creating an updated guidance document for families: We will create a more familyfriendly version of this guidance.
- Planning for school re-entry: As we listen to public health experts, we must confront the possibility that re-entry into school might require social distancing and hygiene measures to ensure the safety of students and staff. We will work with health experts, the education community, and stakeholders to begin preparing for re-entry possibilities and will share more information in the coming weeks.
- Building out remote learning resources: We update the DESE homepage (http://www.doe.mass.edu/) on a rolling basis with additional resources and links to useful information. We recognize that the impacts of the COVID-19 pandemic are fast moving, and we will need to continue to issue guidance on various facets of remote learning in the coming weeks and months.


## Overview of guidance

As we prepare to continue remote learning through the end of the school year, this document:

- Further defines the recommended elements of a quality remote learning program, including a focus on teaching the content standards most critical for student success in the next grade level.
- Encourages districts to move all students towards successful engagement in remote learning, with a focus on addressing fundamental needs.

This is not a comprehensive guide to designing and implementing a remote learning model. Districts and schools in Massachusetts have already established structured remote learning models based on their local needs and guidance that DESE released on March 26, 2020. Instead, the hope is that this guidance can both affirm work already underway and provide some additional ideas and strategies. We recommend that districts and schools take time to process this guidance and work to enhance their remote programs by early May.

We deliberately called this document "Strengthening our remote learning experience." While we focus primarily on students' remote learning experience, we know that the student experience is tightly connected to the educator and family experience, as remote learning has been a paradigm shift for the entire educational community. Therefore, this document also provides recommendations intended to support teachers, staff, and families.

## Building from initial guidance issued in March

## Review of guiding principles

In our March 26, 2020 guidance, we committed to a set of guiding principles focused on the holistic needs of our educational community, with an emphasis on supporting our most vulnerable learners. These principles must continue to guide our work:

- The safety and well-being of students, families, and staff has been and must continue to be our top priority as an educational community. We are focused not only on physical health, safety, and nutrition, but also on social-emotional and mental health needs, which could intensify during this time.
- This crisis disproportionately affects our most vulnerable students in terms of their physical and mental health and also academically. Equity needs to be a top consideration in local planning efforts, especially as districts and schools make plans to manage an extended closure. To support these efforts, DESE has issued further guidance on how best to support special populations, including students with disabilities and English learners.
- Maintaining connections between school staff, students, and families is paramount, particularly for the most vulnerable members of our school communities. These connections will help guide districts and schools in addressing students' specific needs.


## Features of remote learning

What is remote learning? Remote learning takes place when a student and teacher are separated by time and/or physical distance. It is important to note that remote learning in a pandemic is different from remote learning in a non-emergency environment.

In our initial guidance, we noted the following definition and scope of remote learning:

- Remote learning can encompass a wide variety of learning opportunities. While technology can be a supportive tool, districts and schools should also consider ways that student learning can continue offline. This could include exploring the natural world, activities to support students' local communities (with appropriate social distancing), and engaging hands-on projects and artistic creations that stem from students' own passions and experiences.
- Examples of remote learning tools include large group video or audio conference calls, 1:1 phone or video calls, email, work packets, projects, reading lists, online learning platforms, and other resources to effectively engage with students. These tools could be used to deliver lessons, provide individual student support, provide resources (including instructional material and student assignments), connect students to each other and the teacher, and provide feedback on student work. Districts and schools should ensure all online learning platforms meet confidentiality and student privacy standards.

In our initial guidance, we recommended that students should engage in meaningful and productive learning for approximately half the length of a regular school day through a combination of educatordirected learning and student self-directed learning. At the same time, we affirmed that the individual student experience would vary based on factors including student age, individual and family needs, and critical wellness and readiness factors like student and family health, technology, and internet access.

We further specified the following essential components of a remote learning model: the importance of connections with educators, access to academic content with an emphasis on applying and deepening previously taught skills, and time each day for exercise and enrichment activities.

## Grading and promotion

Finally, in our initial guidance, we recommended that academic content be graded as "credit/no credit" so as to incentivize continuous learning while acknowledging the challenging situation we face. Specific high school guidance on grading and graduation will be forthcoming.

With the extension of remote learning through the end of the school year, we want to expand on this recommendation to encourage districts and schools to promote students to the next grade level, an action supported by research.

## Goals and actions for remote learning's next phase

Our initial guidance, particularly the guiding principles, provides clear direction to keep equity at the forefront of our efforts to improve remote learning and to maintain focus on our most vulnerable students. We must continue to work towards an effective and equitable learning experience for all. With this in mind, we recommend districts and schools focus on the following goal through the end of the school year:

Move all students toward consistent engagement in remote learning, with a focus on connectedness and on the content standards most critical for success in the next grade.

To do this, we recommend that districts and schools take the following steps:
Strengthen the remote learning program for all students. We recommend that districts and schools focus on the following elements to ensure a strong baseline remote learning program. Please note, the only area where we are materially modifying our initial recommendations is the focus on covering the prerequisite content standards (\#2 below):

1. Prioritize meaningful connections with educators and peers.
2. Provide engaging core instruction focused on the prerequisite content standards that are most critical for student success in the next grade.
3. Offer opportunities for enrichment, exercise, and play.
4. Ensure programming is accessible and secure and communication is streamlined for students and their families.

Develop a system for identifying and supporting students not effectively engaged in remote learning. We recommend that districts and schools:

1. Collect information to understand each student's level of engagement in remote learning.
2. Provide supports to further engage all students, with a focus on meeting foundational student needs.

We also encourage districts and schools to:
Consider the strategic collaboration, teaming, and differentiated roles that remote learning makes possible. Rethinking traditional responsibilities and eliminating duplicative work can ease the pressures on educators and make the best use of their unique skills.

The rest of this guide provides concrete recommendations, best practices, and resources to strengthen the remote learning experience and accomplish the work outlined on the previous page of this document. It is organized into two parts:

- Part 1: Strengthening the remote learning program for all students
- Part 2: Developing a system for identifying and supporting students not effectively engaging in remote learning

Throughout these pages, we will also provide several "working together" tips, quick ideas for making this work manageable for school teams.

## Part 1: Strengthening the remote learning program for all students

In this section, we provide further guidance on elements of a quality remote learning model.

## Strong remote learning programming should*:

1. Prioritize meaningful connections with educators and peers
2. Provide engaging core instruction focused on the content standards most critical for student success in the next grade
3. Offer opportunities for enrichment, exercise, and play
4. Ensure programming is accessible and communication is streamlined for students and families
*We acknowledge that foundational student wellness and readiness is a critical prerequisite for students to engage in remote learning. This is discussed at length later in this document.

## 1. Prioritize meaningful connections with educators and peers

It is well-documented that meaningful relationships can insulate children from the effects of trauma and serve as a buffer against toxic stress. Particularly for students who value their relationships with educators and peers at school, maintaining regular connections that provide an opportunity for supportive two-way interaction is critical.

A quality remote learning program will ensure that opportunities for connection are woven throughout core instruction and enrichment opportunities. Separate group or individual check-ins focused on students' social-emotional health and well-being are also highly encouraged for all students.

Examples of strategies that facilitate these connections include:

- Starting blocks of synchronous ("live") lessons with "morning meeting" or "opening circle" activities designed to build connection.
- Synchronous weekly advisory group meetings led by an advisory teacher or student leader.
- Regular teacher "office hours" when students can drop in via computer or phone to get help with assignments and/or check in with their teacher.
- Individual calls to students from educators and staff to check on students' well-being or to review feedback on student work.
- Opt-in, interest-based peer groups, such as a book club, drawing workshop, sing-along group, etc. led by educators, paraprofessionals, or students.
- Counselor-facilitated peer support groups organized around a common need.


## 2. Provide engaging core instruction focused on the content standards most critical for student success in the next grade

## NEW: Focus on the prerequisite content standards that are critical for success in the next grade

In our March 26 guidance, we urged districts and schools to focus on reinforcing previously taught content. We are updating this guidance based on further direction from the U.S. Department of Education and in light of schools remaining closed through the end of the school year.

While we are not asking teachers to cover all standards this year, we are asking educators to go further than reviewing material previously covered.

When planning future remote learning lessons, we recommend districts and schools focus on those standards that are the most critical prerequisites for student success in the next grade. Since many standards will already have been covered prior to the closures, we anticipate that some time would still be spent on reinforcement.

We have compiled an elementary and a secondary guide to the prerequisite content standards critical for success in the next grade for math, English language arts, science, and history/social studies. This resource is only to be used during school closure due to COVID-19. These guides are available as separate attachments that accompany this document and will soon be posted on DESE's website.

## Emphasize student engagement in core instruction

In a remote learning context, making core instruction engaging for students is more important than ever. There are multiple methods administrators and educators can use to prioritize engagement when creating or curating remote learning content.

In Appendix A, we have curated a remote learning resource list for English language arts/literacy, math, science, history/social studies, and digital learning as well as resources for English learners, to make this process as easy as possible for educators.

There are many ways to maximize student engagement through remote learning, including:

- Curriculum that provides real-world applications for learning,
- Gamified, self-paced learning platforms that provide frequent feedback,
- Frequent feedback on student work, with celebrations of progress,
- Project-based learning on an engaging, socially relevant topic, with clear links to standards and supports for students. This could be provided via online platforms or mailed packets.

In addition to the resources listed in Appendix A, we will be working to create a repository of projectbased learning examples, including digital and non-digital projects.

One of these methods is not necessarily better than the other; school communities should choose strategies that work for their students and staff.

## Ensure supports and scaffolds for students with disabilities and English learners

Special education and English as a second language (ESL) teachers should ensure appropriate supports and scaffolds are in place for students with disabilities and English learners.

Please click here for our guidance on special education.
Please click here for our guidance on English learners.

Working together: Consider co-planning and co-teaching opportunities among content teachers, special education teachers, and ESL teachers.

- Remote learning opens up new possibilities for regular co-planning and co-teaching given various technological formats, including larger whole class instructional formats and the ability to create breakout groups assigned to specific teachers.


## Provide a manageable number of lessons and assignments

Administrators and educators should treat time that students are spending on core instructional work as precious, particularly in elementary grades where student attention spans are shorter. We encourage schools and educators to coordinate across each grade level so that students receive a manageable number of lessons and assignments each day.

As stated in the March 26 guidance, the overall student remote learning day is expected to last roughly half as long as a normal school day. However, academic time on task should appropriately vary by grade level, with enrichment opportunities filling in the remaining remote learning time.

Working together: Consider encouraging educator collaboration and differentiating responsibilities over components of the learning process.

- For example, in a larger school, one content area teacher could be responsible for planning curriculum and recording remote lessons. Other content area teachers could take responsibility for following up with students in small groups and providing feedback on student work. Roles could be assigned based on educators' strengths and interests.
- District leaders could also connect smaller schools to encourage teachers to share curricular resources and duties (e.g., teachers rotate responsibility for planning curriculum and recording lessons). Reducing the planning load would allow each teacher to spend more time on personalized engagement with their students.


## 3. Offer opportunities for enrichment, exercise, and play

A quality remote learning model also provides students with access to enrichment, exercise, and playbased activities that support their mental and physical health. We recommend that districts and schools offer students a menu of opportunities for enrichment, exercise, and play. Schools should include suggestions for activities the student can engage in independently at home, as well as opt-in opportunities to participate in structured activities with a teacher and/or peers. Engagement in either independent or school-provided opportunities should be acceptable.

Examples of opt-in, school-provided enrichment opportunities include:

- Daily physical education class (e.g., yoga or calisthenics) provided by a physical education teacher synchronously ("live") and also posted asynchronously (e.g., recorded)
- Workshops or lessons provided by specialist teachers in art (drawing, singing, or musical instruments), sports clinics (footwork, skill development), etc.
- Interest-based workshop lessons provided by educators or support staff in their own areas of interest or hobbies (e.g. origami, cartoon drawing, speech/debate, etc.)


## 4. Ensure programming is accessible and secure and communication is streamlined

The degree of accessibility and quality of communication from the school to students and families is critical for a quality remote learning program.

## Streamline communication to help students and families organize their remote learning

To support students and families in structuring their remote learning, administrators and educators should consider the following:

- Plan and communicate remote learning content in weekly doses. Planning and organizing lessons, assignments, and meetings one week at a time instead of day-by-day will allow students and families to plan time for schoolwork within their own daily routines and needs.
- Send out one communication with assignments and meeting times before the week begins. Aim to post all assignments and meetings for the week no later than the Friday before the upcoming school week. Unless appropriate based on context, do not send out meeting invitations the day of the meeting.
- Provide sample daily schedules to suggest ways that students can organize their time, including an approach for dividing up their work across the days of the week.
- Provide a weekly checklist of all assignments. If the checklist will be submitted, be sure to provide an option for students to either: verify they have completed the assignment; note that they will complete the assignment at a later date; or acknowledge they have not completed the assignment and provide a reason.
- Clearly differentiate between required and optional assignments and meetings. Ensure there is an easy way for families and students to quickly zero in on the lessons and assignments that are required.
- Coordinate efforts between districts and schools to align on communication to families to ensure families are receiving a manageable number of emails and/or calls.
- Provide an (opt-in) opportunity for families to meet regularly with the teacher/teaching team to address any issues a student may be having accessing or completing remote learning lessons, meetings, or assignments.
- To the extent possible, streamline the platforms, web tools, logins, and passwords used across a school and district.

It is also critical that districts and schools ensure all technology tools, products, and resources meet legal requirements for student data privacy and security. Please see Appendix B for more information.

## Prioritize asynchronous (e.g., recorded) lessons for remote learning

We generally recommend that schools and educators deliver instructional lessons intended for all students in an asynchronous format (e.g., record a video of the lesson as opposed to asking students to tune in at a specific hour to watch it "live"). Benefits of this approach include:

- Freeing up educator time during the school day to provide synchronous ("live") support to students who may need extra support.
- Accessibility for all students and families who may have conflicting commitments or responsibilities during the school day.
- Ability for students to watch lessons multiple times as needed while completing assignments.

If synchronous ("live") lessons are preferred based on local needs or preferences, we recommend:

- Offering the lesson in multiple time slots if possible.
- Separately recording and posting the lesson asynchronously (this must be done separately to ensure no students are recorded).


## Part 2: Developing a system for identifying and supporting students not effectively engaged in remote learning

Across our communities, many students are effectively engaging in the core remote learning program. But what about students who aren't being reached? What about students who only engage intermittently? What about those who need additional mental health or other foundational supports?

We can only move all students toward consistent engagement in the core remote learning program by identifying and addressing the specific barriers students are facing. This requires a system for collecting information about student and family needs, piloting potential supports, and assessing their impact. While such work is time-intensive, we have a moral obligation to do all we can to reach and engage all of our children.

One option to consider is using a tiered support model, through which districts and schools regularly review student needs to 1 ) inform the program provided to all students and 2 ) develop targeted supports where needed, both for specific student groups and individual students. For more information about using a tiered support model in remote learning, please see Appendix C.

Below are some recommendations and examples districts and schools may find useful regardless of the system they choose to adopt.

## 1. Collect information to understand each student's level of engagement in remote learning

Because of the specific and diverse challenges students are facing, some of this information will likely need to be collected through individual calls with families. Other information could be collected from teachers or monitored through student work.

Working together: We recognize that collecting this level of personalized information about student needs takes time and effort. Enlisting a variety of staff can lighten the workload.

- With appropriate training, schools could assign a variety of staff members (teachers, paraprofessionals, and student support staff, including counselors and others) to a small group of students. This would allow for frequent outreach and routine points of connection while reducing the student caseload for educators.
- Think creatively when assigning staff to reach out to families and students. So long as effective training is provided that emphasizes the supportive nature of outreach, support staff who may have built positive relationships with students could be especially effective in reaching certain families.

All members of the outreach team should be clear that the purpose of collecting this information is for support, not compliance. Students should never be shamed or disciplined for lack of engagement. Instead, the purpose of the calls is to understand the needs that are preventing the student from engaging in schoolwork, with the goal of ultimately providing support to meet those needs. In addition, staff should receive training and a sample script to use when contacting families (please see Appendix D for an example script). Staff should be available to place calls in a family's home language if needed.

Below is a sample process for collecting information and providing follow up support.

## Plan and prepare:

- Collect and review existing information: Gather existing information from teachers to understand current student engagement and potential student needs (e.g. teacher reports being in contact with a student about a recent assignment or knows that a student lacks internet access). It can be helpful to collect this information in a central and secure location.
- Identify students/families for targeted outreach: Identify students who are not engaging regularly and flag the need for additional information to find out why.
- Assign staff to each student/family: Split up responsibility for individual student/family contact across the school leadership team, student support team members, guidance counselors, teachers, paraprofessionals and/or other staff.


## Connect and follow up:

- Connect with students/families to identify barriers to engagement: Call each student/family to identify barriers preventing students from engaging in core lessons and assignments.
- Determine next steps to support each student, potentially in consultation with the student support team and/or administrator. This could include making the baseline remote learning program more accessible to all students based on trends, a follow up call from a school counselor, or connecting the family with other resources.
- Follow up with each student and family over the next few days/week. If appropriate, set a goal with the student for increasing engagement in remote learning and celebrate successes, even if small.


## 2. Provide supports to further engage all students, with a focus on meeting foundational student needs

Collecting data is essential; however, the most important thing is how districts and schools respond to this information. With that in mind, districts and schools should consider the questions below when reviewing progress:

- What are the biggest trends as to why students are not engaging? (e.g. foundational needs, academic skill gaps, communication challenges, social emotional connection needs, etc.)
- How might we improve the baseline remote learning programming provided to all students based on these trends? (What additional supports should be built into the core program?)
- How can we best address the foundational needs of students who are currently disengaged?
- Are there specific student groups (e.g., gender, age, race/ethnicity, etc.) who are disproportionately disengaged?


## Focus on foundational wellness and readiness for all students

We must continue to prioritize the foundational wellness and readiness for all students to engage in remote learning. Supports to address individual student needs may include:

- Direct 1:1 support provided by school staff, for example:
- Support from a school counselor for a student experiencing mental health challenges.
- Hands-on technology support from a teacher or paraprofessional for a student or family member navigating new technologies or programs.
- Referral to a community agency or district-wide program, for example:
- Support to address household challenges such as food insecurity.
- Help obtaining technology, including devices and internet access.

Districts should provide school staff with resource lists that they can use to connect families to community organizations and other groups that can provide support. Examples of such lists include:

- Greater Boston: Wellness Idea Bank
- Merrimack Valley: Lawrence Resource Guide

Some wellness and readiness gaps may present fundamental barriers to student participation in remote learning with no simple solutions. This could include students who need to work to generate family income or students who need to care for younger siblings or a sick family member. School personnel should reach out frequently to check in on students facing these structural challenges and gently support possible entry points to a more robust connection to school.

## Conclusion

We know how hard educators, administrators, students, and families are working to get remote learning right. The recommendations in this document build on our initial guidance with a focus on two areas: enhancing existing remote learning and engaging all students.

We are asking that districts and schools refine their remote learning models by early May to prioritize connectedness, shift to teaching the content standards most critical for student success, build in time for enrichment, and make programming accessible for students and families.

We are also asking districts and schools to focus on engagement, both for students who are currently disengaged and for those who are only partially engaged. We know this means first and foremost a strong focus on meeting foundational student needs.

Through the upcoming actions we note at the beginning of this document, DESE is committed to partnering with districts, schools, educators, families and students as we strengthen remote learning across the Commonwealth. Thank you again for all of your efforts on behalf of our students.

## Appendix A: Resource list for remote teaching and learning during COVID-19

A note about resources:

If schools, districts, and educators are currently using a particular curriculum, they should first see what resources they have set up to support remote learning.

## ELA/Literacy

| Grade(s) | Resource name | Description | Link |
| :--- | :--- | :--- | :--- |
| K-2 | Heggerty | Free videos and lesson plans to support <br> development of phonemic awareness in English <br> and Spanish. | $\underline{\text { Heggerty }}$ |
| K-5 | Flyleaf Publishing <br> Decodable Text | A library of digital decodable texts organized by a <br> Phonics Scope and Sequence, ideal for reading <br> practice either independently or with an adult. | $\underline{\text { Flyleaf }}$ |
| K-8 | Wit \& Wisdom | Free access to the Wit \& Wisdom curricular <br> materials and daily video lessons delivered by <br> Great Minds teachers. | $\underline{\text { Great Minds }}$ |
| 3-12 | CommonLit | A free resource of texts, tasks, and tools for grades <br> 3-12. | $\underline{\text { CommonLit }}$ |
| PreK-5 | CKLA | A comprehensive preschool-grade 5 program for <br> teaching skills in reading, writing, listening, and <br> speaking, Core Knowledge Language Arts (CKLA) <br> also builds students' knowledge and vocabulary. | CKLA |
| K-2 | EVERFI's WORD <br> Force | One of 100+ of EVERFI's interactive, game-based <br> lessons, WORD Force: A Literacy Adventure for K-2 <br> Students helps students develop budding literacy <br> skills through 15 skill-building literacy games. | $\underline{\text { EVERFI }}$ |
| K-8 | EL Education | Remote learning guidance and necessary <br> implementation resources for conversion of EL <br> Education, the comprehensive, standards-aligned <br> core literacy curriculum centered on real world <br> content. | $\underline{\text { EL Education }}$ |

## Math

| Grade | Resource name | Description | Link |
| :--- | :--- | :--- | :--- |
| K-12 | Khan Academy | Free diagnostic tools, video tutorials, practice <br> problems, and teacher monitoring dashboard <br> facilitated through gamified platforms. <br> Content is organized by grade level, course <br> title, or specific curriculum programs: Eureka <br> (grades 3-8), Illustrative Mathematics (grades <br> 6-8), AP courses, and SAT prep. | Khan Academy |
| K-12 | Eureka Math <br> (EngageNY) - Great <br> Minds | Free access to the Eureka Math (EngageNY) <br> curricular materials and daily video lessons <br> delivered by Great Minds teachers. | Great Minds |
| K-8 | ST Math | Free access to ST Math, a visual instructional <br> program that teaches concepts visually as <br> students solve mathematical problems. <br> Without language barriers, the problem is <br> accessible to all students, regardless of skill <br> level or language background. | ST Math |
| K-5 | ZEARN Math | Free access to the ZEARN Math curricular <br> materials including digital lessons with on- <br> screen teachers and supportive remediation. | $\underline{\text { ZEARN Math }}$ |
| 6-12 | Illustrative Math | Free access to Illustrative Math (IM) 6-8 and 9- <br> 12, including student and teacher materials <br> (available with free registration). The materials <br> can also be accessed through three IM <br> certified partners LearnZillion (instructional <br> videos), Kendall Hunt (Google Classroom <br> interface; Spanish-language materials), and <br> McGraw-Hill. | $\underline{\text { Kendall Hunt }}$ |
| 6-12 | Carnegie Learning | Carnegie Learning provides free access to <br> lesson videos, student practice, and MATHia <br> software for adaptive, student-centered <br> learning. | $\underline{\text { Carnegie }}$ |

## Science, Technology, and Engineering

| Grade | Resource name | Description | Link |
| :--- | :--- | :--- | :--- |
| K-12 | National Science <br> Teaching <br> Association | Collection of lessons and resources that can be <br> sorted by standard. Each day, they share a <br> sensemaking task teachers and families can use to <br> engage students in authentic, relevant science <br> learning. | $\underline{\text { NSTA Daily Do }}$ <br> and NSTA/NGSS <br> $\underline{\text { Classroom }}$ <br> $\underline{\text { Resources }}$ |
| 1 1-12 | Next Generation <br> Science | Collection of open-source NGSS-aligned units <br> reviewed by Achieve. | $\underline{\underline{\text { Quality Examples }}}$ |
| Concord | Consortium | A library of simulations, models, and lessons. <br> Educators can create a class and assign resources <br> to students. | $\underline{\underline{\text { Concord }}}$ |
| K-5 | Mystery Science | An elementary curriculum of NGSS-aligned units <br> and lessons (temporarily free) | $\underline{\text { Mystery Science }}$ |

## History/Social Studies

| Grade | Resource name | Description | Link |
| :--- | :--- | :--- | :--- |
| K-5 | KidCitizen | Interactive episodes in which children explore civics <br> concepts via primary sources and a KidCitizen Editor <br> tool for teachers to create their own interactive <br> learning experiences | KidCitizen |
| K-12 | C3 Teachers | Inquiry units sortable by topic and grade level <br> created using the Inquiry Design Model from the <br> College, Career, and Civic Life (C3) Framework. Each <br> unit is framed around one compelling question and <br> several supporting questions with accompanying <br> primary source activities and tasks. | C3 Inquires |
| 6-12 | Facing History | Collection of educator resources covering a range of <br> history topics with a focus on addressing racism, <br> antisemitism, and prejudice. There is a weekly <br> updated page on coronavirus-related resources. | $\underline{\text { Facing History }}$ |
| 6-12 | Stanford History <br> Education Group <br> (SHEG) | Reading Like a Historian offers primary source <br> investigations lessons on world and U.S. history. <br> Civic Online Reasoning offers lessons for evaluating <br> online content. | Stanford <br> Education |
| $\underline{\text { Group }}$ |  |  |  |


| 6-12 | iCivics | Engaging civics content for grades k-12 in the form <br> of games, lesson plans, and complete units. | $\underline{\text { iCivics }}$ |
| :--- | :--- | :--- | :--- |
| K-12 | Teaching <br> Tolerance | Learning plans, lessons, student texts based around <br> the social justice domains of identity, diversity, <br> justice, and action on a range of subjects including <br> digital literacy, geography, and history. Resources <br> are searchable by grade band and topic. | Teaching <br> Tolerance |

## English Learners

In order to maximize learning opportunities for English learners and ensure equitable access to academic content, educators are encouraged to a) explore various grade-appropriate delivery methods, b) offer daily activities to enhance oral language and literacy as well as comprehension, c) consider culturally relevant text and content to facilitate connection, d) engage parents as collaborative partners and problem solvers in a language that they understand, and e) be cognizant of the amplified social emotional needs of many English learners and their families, particularly newcomers.

Below is a list of the three sites that provide support for English learners. However, educators are encouraged to review the previously published Guidance on Remote Learning for English Learners for further support.

| Grade | Resource Name | Description | Link |
| :--- | :--- | :--- | :--- |
| 2-12 | Listenwise | Curated podcasts and lessons on engaging topics, plus <br> comprehension quizzes and a variety of accessibility features <br> and embedded supports for English learners. They have <br> made their premium service free for schools during this <br> crisis. Easily integrated with Google Classroom. (LISTENING) | Listenwise |
| K-12 | NewsELA | Engaging texts across content areas (including current <br> events) and text sets, standards-aligned skills practice and <br> assessments, great embedded English learner supports, and <br> ability to adjust the Lexile level of a text. Teachers can easily <br> adapt assessments and writing tasks for each text and easily <br> integrate with Google Classroom. (READING / WRITING) | NewsELA |
| K-12 | Flipgrid | Allows teachers to post prompts and students to respond <br> orally through voice recording. Teachers and students can <br> have a virtual discussion by responding to one another, and <br> teachers can give students feedback on their recordings. <br> (LISTENING / SPEAKING) | Flipgrid |

Digital Literacy and Computer Science

| Grade | Resource name | Description | Link |
| :---: | :---: | :---: | :---: |
| K-12 | Code.org | Provides resources that help students learn about computer science. Offerings include: Computer Science Fundamentals for K-5 and CS Express, CS Discoveries, and CS Principles for middle and high school. Curriculum in over 25 languages. | Code.org |
| K-12 | Common Sense <br> Media: Digital <br> Citizenship | Ready-to-teach lessons to help students take ownership of their digital lives. Curriculum in English and Spanish. | Digital Citizenship |

## Appendix B: Information and resources on student data privacy and security

School districts should be sure the technology tools, products, and resources that they use meet legal requirements for student data privacy and security. This section provides a brief overview of key laws in this area. Districts should also refer to their own technology standards and guidelines and consult with their legal counsel for specific advice.

## COPPA

The Federal Trade Commission has provided helpful guidance for schools and districts relating to the federal Children's Online Privacy Protection Act (COPPA), 15 U.S.C., §6501 et seq; 16 CFR Part 312. COPPA limits the gathering of personal information from children under the age of 13 on the internet. The FTC's guidance includes:

Schools or school districts should decide whether a particular site's or service's privacy and information practices are appropriate, rather than delegating that decision to the teacher. Also, the school or district should give parents a notice of the websites and online services whose collection they have consented to on behalf of the parent. In deciding which online technologies to use with students, a school should be careful to understand how an operator will collect, use, and disclose personal information from its students. Among the questions that a school should ask potential operators are:

- What types of personal information will you collect from students?
- How do you use this personal information?
- Do you use or share the information for commercial purposes not related to the provision of the online services requested by the school? For instance, do you use students' personal information in connection with generating targeted advertising or building user profiles for commercial purposes not related to the provision of the online service? If so, the school cannot consent on behalf of the parent.
- Do you let the school review and, if desired, have the company delete the personal information collected from their students? If not, the school cannot consent on behalf of the parent.
- What measures do you take to protect the security, confidentiality, and integrity of the personal information that you collect?
- What are your data retention and deletion policies for children's personal information?

Please see https://www.ftc.gov/news-events/blogs/business-blog/2020/04/coppa-guidance-ed-tech-companies-schools-during-coronavirus for more details.

## FERPA

The federal Family Educational Rights and Privacy Act (FERPA) applies to schools that receive federal education funds. This law requires schools to protect the privacy of personally identifiable information about students contained in education records and gives parents and students rights, including inspection and review of education records. The FERPA statute is found at 20 U.S.C., $\S 1232 \mathrm{~g}$. The FERPA regulations are found at 34 CFR Part 99. The Massachusetts Student Records Regulations, $\underline{603 \text { CMR }}$ 23.00, are consistent with the FERPA statute and regulations. The U.S Department of Education's Student Privacy Policy Office has posted information on FERPA and Virtual Learning at https://studentprivacy.ed.gov/?src=fpco

## PPRA

Districts must ensure that education service providers comply with the Protection of Pupil Rights Amendment (PPRA), 20 U.S.C. §1232h; 34 CFR Part 98. The PPRA protects student privacy by, among other things, restricting the administration of surveys that ask personal questions and restricting the collection of personally identifiable information about students for marketing purposes. Data collected about students must adhere to the requirements of the PPRA. Information about the PPRA is at: https://studentprivacy.ed.gov/content/ppra.

## Additional Resources

- Massachusetts Student Privacy Alliance: The Massachusetts Student Privacy Alliance (MSPA) is a collaboration of Massachusetts school districts that share common concerns about student privacy. The alliance offers a searchable database of student data privacy agreement (DPA) information from across the state.
- TEC Student Data Privacy Alliance: The Education Cooperative (TEC) Student Data Privacy Alliance has developed a successful collaborative model to provide member schools and districts with administrative and legal support to negotiate privacy terms with software vendors. See: TEC SDPA Flyer. The Education Cooperative is a member of the Massachusetts Student Privacy Alliance and posts their data privacy agreements (DPAs) there. When a district joins, they can sign onto any of TEC's agreements (over 450) with one document. If there isn't a DPA for a vendor, TEC can negotiate one on behalf of the district.
- The Massachusetts Attorney General's Office on April 10, 2020, issued a memo on video conferencing safety. The memo has broad guidelines for any video conferencing platform and specific recommendations about Zoom.

This information is provided as of April 24, 2020.

# Appendix C: Using a tiered support model to increase student engagement in remote learning 

## Overview of the tiered support model

Most educators are familiar with the concept of a tiered support model (also sometimes referred to as a "response to intervention" model). We believe this model is well-suited to the remote learning context and can provide concrete steps that schools and districts can take to strengthen remote learning for all students.

Within a traditional school context, the goal of a tiered support model is to support all students to access the school's core instructional program and master grade-level standards.

The baseline instructional program and supports offered to all students are commonly referred to as "Tier 1." Examples of traditional Tier 1 instruction and programming may include effective whole class and small group classroom instruction, universal free breakfast in the classroom, and classroom or school-wide positive behavior intervention systems. Special education and English learner services and scaffolds are also considered Tier 1 support for these student populations.

Some students may struggle to meet grade level standards within the core Tier 1 program. In this case, small groups of students facing common skill gaps may be offered additional, targeted support. Supports offered to help these small groups successfully meet grade level standards are referred to as "Tier 2" support.

If students struggle to meet grade level standards even with Tier 2 supports, or if the presence of an exceptional need necessitates it, a more personalized support plan is created targeted to an individual student's needs. This is referred to as "Tier 3" support.

Critical to the successful implementation of a tiered support model is collecting information to identify the barriers preventing students from meeting grade level standards. Once gaps are identified, the school can then organize and deploy Tier 2 and Tier 3 interventions to effectively support each student to access Tier 1 content. School teams meet frequently to review data, identify gaps, formulate support plans, deploy plans, and then revisit student performance to determine if the support plan is working or needs to be revised.

The traditional tiered support model will not look exactly the same in a remote learning context, as students are likely to need very different supports in this context than in the traditional school environment. However, this framework can support forward-looking enhancements to remote learning and in how to engage as many students as possible.

## Adopting a tiered support model for remote learning

The tiered support model begins with the data collection efforts outlined earlier in this document. Once school staff have gathered information on the needs of students, they should review this information to understand whether barriers are faced by larger or smaller numbers of students in the school community.

Typically, about 85 percent of students should be well-served by Tier 1 instruction and supports (supports available to all students). In the current emergency remote learning context, it is likely that the Tier 1 program is effectively engaging fewer than 85 percent of students, and in that case, it is important for schools and districts to work to address common barriers within the overall remote learning program.

For instance, if only 3-5 percent of students do not have computer access, then a district may employ small group support to provide those students with access to curricular resources. However, if more than 20 percent of students do not have computers, then the school or district should develop a Tier 1 strategy to address the need. For example, district or school-wide systems could be created for mailing packets home or distributing computers.

In addition to strengthening the overall Tier 1 program, districts and schools can set up specific Tier 2 and 3 supports for students based on their individual needs. Below are some examples of Tier 2 and 3 supports districts and schools could consider in a remote learning context:

## To address social emotional needs:

- Run regular virtual social emotional groups where students can connect with peers and support staff (e.g. a counselor, social worker, paraprofessional, aide, etc.).
- Set up a phone call buddy system where students are matched up to support each other with academics or to connect.
- Have a teacher or staff member communicate with families (or families and students together) who need Tier 2 or 3 support for a quick check in at the beginning of the week to set goals for work completion and engagement. Celebrate student progress toward goals with a call or text at the end of each week.
- Set up an advisory system where each student is assigned to an adult in the school, including ancillary staff beyond core teaching staff to decrease the student-staff ratio.


## To address academic needs:

- Provide regular feedback on student work, identifying multiple positives and one area for growth. Loop back on that area for growth in the next assignment to note progress and celebrate successes, even if small.
- Schedule synchronous and asynchronous gradual release "workshops" to help students navigate remote learning assignments through an "I do, we do, you do" model
- Teach strategies that help students persevere through a task (e.g., breaking down elements in a task, chunking a complex reading, using color-coded highlighting to navigate important elements in a text or word problem).
- Schedule regular "study halls" for students to complete assignments at the same time while on a group phone call or video conference platform with their teacher.


# Appendix D: Sample script for outreach to families to identify barriers to student engagement 

Hi [Family Name],

This is $\qquad$ from $\qquad$ school. I wanted to check in on [child's name] and your family. Do you have a minute to talk? I know things are hectic right now.
[Family responds]
If able to talk now: How is your family holding up? I know you are managing a lot.
[Family responds]
I want to make sure that [child's name] is able to practice the skills he's learned this year, even though we aren't able to have our regular school day. I've noticed that he turned in a few assignments and had some difficulty completing them. Can you tell me a little more about how he's doing right now and if there are other ways we could provide support to help him?
[Family responds; staff member takes notes]
[Staff member repeats back/summarizes what the family shared]
Does that sound right?
[Family responds]
If possible/needed: [Staff member makes additional suggestions and family and staff member discuss together]: I wonder if we could try [suggestion]...
[Staff member takes notes]

## If quick solutions are not apparent or require the expertise of another staff member or other

 resources: Thanks for sharing with me. I want to share this information with [principal, school support team] so we can find a solution for you. Is that okay?Thanks for your time. I'm glad we had a chance to connect so we can support [child's name]. I'm going to call you back soon. Is there anything I can do to support you between now and then?
[Family responds]

## Massachusetts Department of Elementary and Secondary Education

## Prerequisite Content Standards: Elementary Grades (K-5) This

resource is only to be used during school closure due to COVID-19. The Department identified content standards that are prerequisites for student success in the next grade level. The standards should not be used in connection with MCAS expectations or referenced in preparing students for the MCAS for any grade level. Since most standards will already have been taught prior to the closures, we anticipate that significant time would still be spent on reinforcement.

## Kindergarten

## English Language Arts and Literacy

## Reading Literature and Informational [RL/RI]

1. With prompting and support, ask and answer questions about key details in a text

## Reading Literature [RL]

2. With prompting and support, retell familiar stories, including key details.
3. With prompting and support, identify characters, settings, and major events in a story.

## Reading Informational [RI]

2. With prompting and support, identify the main topic and retell key details of a text.
3. With prompting and support, identify the reasons an author gives to support points in a text.

## Reading Foundational Skills [RF]

1. Demonstrate understanding of the organization and basic features of print.
a. Follow words from left to right, top to bottom, and page by page.
b. Recognize that spoken words are represented in written language by specific sequences of letters.
c. Understand that words are separated by spaces in print.
d. Recognize and name all upper- and lowercase letters of the alphabet.
2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
a. Recognize and produce rhyming words.
b. Count, pronounce, blend, and segment syllables in spoken words.
c. Blend and segment onsets and rimes of single-syllable spoken words.
d. Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (consonant-vowel-consonant, or CVC) words. ${ }^{1}$ (This does not include CVCs ending with $/ \mathrm{l} / \mathrm{/} / \mathrm{r} /$, or $/ \mathrm{x} /$.)
3. Know and apply grade-level phonics and word analysis skills in decoding words.
a. Demonstrate basic knowledge of one-to-one letter-sound correspondences by

[^0]producing the primary sound or many of the most frequent sounds for each consonant.
b. Associate the long and short sounds with common spellings (graphemes) for the five major vowels.
c. Read common high-frequency words by sight (e.g., the, of, to, you, she, my, is, are, do, does).
d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ.

## Writing [W]

1. Use a combination of drawing, dictating, and writing to compose opinion pieces that tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., My favorite book is...).
2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts that name and supply some information about a topic.

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned previously. Sentence Structure and Meaning
a. Demonstrate the ability to produce and expand complete sentences using frequently occurring nouns, pronouns, adjectives, verbs, question words, and prepositions; name and use in context numbers 0-100 (see kindergarten mathematics standards for Counting and Cardinality).
b. Form questions that seek additional information, rather than a simple yes/no answer.
Word Usage
c. Form regular plural nouns orally by adding / $s /$ or $/ e s /$.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Print upper- and lowercase letters.
b. Capitalize the first word in a sentence and the pronoun I.
c. Recognize and name end punctuation.
d. Write a letter or letters for most consonant and short-vowel sounds (phonemes).
e. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.
f. Write numbers 0-20 (see kindergarten mathematics standards for Counting and Cardinality).
3. Use words and phrases acquired through conversations, activities in the kindergarten curriculum, reading and being read to, and responding to texts.

## Mathematics

## Counting and Cardinality

A. Know number names and the count sequence.

1. Count to 100 by ones and by tens.
2. Count forward beginning from a given number within the known sequence (instead of having to begin at one).
3. Write numbers from 0 to 20 . Represent a number of objects with a written numeral $0-20$ (with 0 representing a count of no objects).
B. Count to tell the number of objects.
4. Understand the relationship between numbers and quantities; connect counting to cardinality.
a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
c. Understand that each successive number name refers to a quantity that is one larger. Recognize the one more pattern of counting using objects.
5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

## C. Compare numbers.

6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group for groups with up to 10 objects, e.g., by using matching and counting strategies.
7. Compare two numbers between 1 and 10 presented as written numerals.

## Operations and Algebraic Thinking

A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

1. Represent addition and subtraction with objects, fingers, mental images, drawings, ${ }^{2}$ sounds
(e.g., claps), acting out situations, verbal explanations, expressions, or equations.
2. Solve addition and subtraction word problems, and add and subtract within 10 , e.g., by using objects or drawings to represent the problem.
3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5=2+$ 3 and $5=4+1$ ).
4. For any number from 1 to 9 , find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
5. Fluently add and subtract within 5 , including zero.
[^1]
## Number and Operations in Base Ten

A. Work with numbers 11-19 to gain foundations for place value.

1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18=10+8$ ); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

## Measurement and Data

A. Describe and compare measurable attributes.

1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

## Geometry

## B. Analyze, compare, create, and compose shapes.

5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

## Science and Technology/Engineering

## Earth and Space Sciences

K-ESS
K-ESS2-1. Use and share quantitative observations of local weather conditions to describe patterns over time.

## Life Science

## K-LS

K-LS1-1. Observe and communicate that animals (including humans) and plants need food, water, and air to survive. Animals get food from plants or other animals. Plants make their own food and need light to live and grow.

## Physical Science

K-PS1-1(MA). Investigate and communicate the idea that different kinds of materials can be solid or liquid depending on temperature.
K-PS2-1. Compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.

## History and Social Science

## Practice Standard 1: Demonstrate civic knowledge, skills, and dispositions.

## Content Topic 1: Civics: classroom citizenship [K.T1]

2. Take on responsibilities and follow through on them, being helpful to and respectful of others
3. With prompting and support, give examples from literature and informational texts read or
read aloud of characters who show authority, fairness, caring, justice, responsibility, or who show how rules are created and followed.
4. Ask and answer questions and explore books to gain information about national symbols, songs, and texts of the United States.

## Content Topic 3: History: shared traditions [K.T3]

2. Contrast and compare traditions and celebrations of peoples with diverse cultural backgrounds.
3. Put events from their personal lives, observations of the natural world, and from stories and informational texts read or read aloud in temporal order, using words and phrases relating to chronology and time:

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## Grade 1

## English Language Arts and Literacy

## Reading Literature and Informational [RL/RI]

1. Ask and answer questions about key details in a text.
2. With prompting and support, read and comprehend texts exhibiting complexity appropriate for at least grade 1.

## Reading Literature [RL]

2. Retell stories, including key details, and demonstrate understanding of their central message or lesson.
3. Describe characters, settings, and major events in a story, using key details.

## Reading Informational [RI]

2. Identify the main topic and retell key details of a text
3. Describe the connection between two individuals, events, ideas, or pieces of information in a text.
4. Identify the reasons an author gives to support points in a text.

## Reading Foundational Skills [RF]

1. Demonstrate understanding of the organization and basic features of print.
a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
a. Distinguish long from short vowel sounds in spoken single-syllable words.
b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends.
c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.
d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).
3. Know and apply grade-level phonics and word analysis skills in decoding words.
a. Know the spelling-sound correspondences for common consonant digraphs.
b. Decode regularly spelled one-syllable words.
c. Know final -e and common vowel team conventions for representing long vowel sounds.
d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word.
e. Decode two-syllable words following basic patterns by breaking the words into syllables.
f. Read words with inflectional endings.
g. Recognize and read grade-appropriate irregularly spelled words.

## Writing [W]

1. Write opinion pieces that introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.
2. Write informative/explanatory texts that name a topic, supply some facts about the topic, and provide some sense of closure.
3. Produce writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3)

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. Sentence Structure and Meaning
a. Produce and expand simple and compound sentences.
b. Demonstrate understanding that a question is a type of sentence.
c. Use singular and plural nouns with matching verbs in sentences.
d. Use verbs in sentences to convey a sense of past, present, and future. Word Usage
e. Use common, proper, and possessive nouns.
f. Use personal, possessive, and indefinite pronouns.
g. Use frequently occurring prepositions, adjectives, adverbs, conjunctions, and articles.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Print legibly all upper- and lowercase letters.
b. Use end punctuation for sentences.
c. Capitalize the names of months and people.
d. Use commas in dates and to separate individual words in a series.
e. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words.
f. Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.
g. Write numerals up to 120 (see grade 1 mathematics standards for Numbers and Operations in Base Ten); understand that numbers are also written as words; write words for numbers from one to ten.
3. Use words and phrases acquired through conversations, activities in the grade 1 curriculum, reading and being read to, and responding to texts, including using frequently occurring conjunctions (e.g., because) to signal simple relationships.

## Mathematics

## Operations and Algebraic Thinking

A. Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations (number sentences) with a symbol for the unknown number to represent the problem. ${ }^{3}$

## B. Understand and apply properties of operations and the relationship between addition and subtraction.

3. Apply properties of operations to add. ${ }^{4}$
4. Understand subtraction as an unknown-addend problem. For example, subtract $10-8$ by finding the number that makes 10 when added to 8 .

## C. Add and subtract within 20.

5. Relate counting to addition and subtraction (e.g., by counting on 2 to add 2 ).
6. Add and subtract within 20 , demonstrating fluency for addition and subtraction within 10. Use mental strategies such as counting on; making 10 (e.g., $8+6=8+2+4=10+4=$ 14); decomposing a number leading to a 10 (e.g., $13-4=13-3-1=10-1=9$ ); using the relationship between addition and subtraction (e.g., knowing that $8+4=12$, one knows $12-8=4$ ); and creating equivalent but easier or known sums (e.g., adding $6+7$ by creating the known equivalent $6+6+1=12+1=13$ ).

## D. Work with addition and subtraction equations.

7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.

## Number and Operations in Base Ten

A. Extend the counting sequence.

1. Count to 120 , starting at any number less than 120 . In this range, read and write numerals and represent a number of objects with a written numeral.
B. Understand place value.
2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
a. 10 can be thought of as a bundle of ten ones-called a "ten."
b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
c. The numbers $10,20,30,40,50,60,70,80,90$ refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

## C. Use place value understanding and properties of operations to add and subtract.

7. Add within 100 , including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10 , using concrete models or drawings, and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
[^2]Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

## Measurement and Data

A. Measure lengths indirectly and by iterating length units.

1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.
2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.

## Geometry

## A. Reason with shapes and their attributes.

1. Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes that possess defining attributes.

## Science and Technology/Engineering

## Earth and Space Sciences

1-ESS1-2. Analyze provided data to identify relationships among seasonal patterns of change, including relative sunrise and sunset time changes, seasonal temperature and rainfall or snowfall patterns, and seasonal changes to the environment.

## Life Science

1-LS1-1. Use evidence to explain that (a) different animals use their body parts and senses in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air, and (b) plants have roots, stems, leaves, flowers, and fruits that are used to take in water, air, and other nutrients, and produce food for the plant.

1-PS4-1. Demonstrate that vibrating materials can make sound and that sound can make materials vibrate.
1-PS4-3. Conduct an investigation to determine the effect of placing materials that allow light to pass through them, allow only some light through them, block all the light, or redirect light when put in the path of a beam of light.

## History and Social Science

## Practice Standard 1: Demonstrate civic knowledge, skills, and dispositions.

## Content Topic 1: Civics: communities, elections, and leadership [1.T1]

4. Analyze examples of leadership and leaders from history, everyday life, and from literature and informational texts read or read aloud, and describe the qualities of a good leader.
5. Give examples of why members of a group who hold different views need ways to make decisions, and explain how members of a group can make fair decisions or choose leaders by voting.
6. Explain that an election is a kind of voting in which people select leaders. For example, students connect their discussion of leadership qualities to the idea of elections, listing the qualities they would look for in a candidate for election.
7. Identify some leaders who are chosen by elections (e.g., the President of the United States, the Governor of Massachusetts, the captain of a soccer team) and explain their roles.
8. Demonstrate understanding that members of a town, city, or nation in the United States are called citizens, and that their rights and responsibilities include
a. electing leaders who serve fixed terms
b. paying attention to the leader's actions, and
c. deciding whether or not to re-elect them on the basis of how well they have served citizens.
9. Explain that all people born in the United States are citizens, while some people become citizens after moving to the Unites States from another country. Understand that some residents of the United States are not citizens, but are still members of the community with rights and responsibilities.
10. Evaluate the qualities of a good citizen or member of the community, drawing on examples from history, literature, informational texts, news reports, and personal experiences.

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## Grade 2

## English Language Arts and Literacy

## Reading Literature and Informational [RL/RI]

1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
2. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 2.

## Reading Literature [RL]

2. Retell stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
3. Describe how characters in a story respond to major events and challenges.

## Reading Informational [RI]

2. Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
3. Describe the connection between a series of historical events, scientific ideas or concepts, mathematical ideas or concepts, or steps in technical procedures in a text.
4. Describe how reasons support specific points the author makes in a text.

## Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
a. Distinguish long and short vowels when reading regularly spelled one-syllable words.
b. Know spelling-sound correspondences for additional common vowel teams.
c. Decode regularly spelled two-syllable words with long vowels.
d. Decode words with common prefixes and suffixes.
e. Identify words with inconsistent but common spelling-sound correspondences.
f. Recognize and read grade-appropriate irregularly spelled words.
4. Read with sufficient accuracy and fluency to support comprehension.
a. Read grade-level text with purpose and understanding.
b. Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings.
c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

## Writing [W]

1. Write opinion pieces that introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.
2. Write informative/explanatory texts that introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section
3. Produce writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3)
Language [L]
4. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. Sentence Structure and Meaning
a. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences and choose among sentence types depending on the meaning to be conveyed.
b. Use adjectives and adverbs in sentences and choose between them depending on what is to be modified.
Word Usage
c. Use collective nouns and frequently occurring irregular plural nouns.
d. Use reflexive pronouns.
e. Form and use the past tense of frequently occurring irregular verbs.
5. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Print upper- and lowercase letters legibly and fluently.
b. Capitalize holidays, product names, and geographic names.
c. Use commas in greetings and closings of letters.
d. Use an apostrophe to form contractions and frequently occurring possessives.
e. Generalize learned spelling patterns when writing words (e.g., cage $\rightarrow$ badge; boy $\rightarrow$ boil).
f. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
g. Demonstrate understanding that context determines whether the writer uses a numeral or a written number (e.g., numerals in $1+3=4$, but written words in "When I was one, I was just begun, / When I was two, I was still quite new" from A. A. Milne's poem "Now We Are Six").
6. Use words and phrases acquired through conversations, activities in the grade 2 curriculum, reading and being read to, and responding to texts, including using adjectives and adverbs to describe.

## Mathematics

## Operations and Algebraic Thinking

2.0A
A. Represent and solve problems involving addition and subtraction.

1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. ${ }^{5}$

## B. Add and subtract within 20.

2. Fluently add and subtract within 20 using mental strategies. ${ }^{6}$ By end of grade 2, know from memory all sums of two single-digit numbers and related differences.
C. Work with equal groups of objects to gain foundations for multiplication.
3. Use addition to find the total number of objects arranged in rectangular arrays with up to five rows and up to five columns; write an equation to express the total as a sum of equal addends.

## Number and Operations in Base Ten

## 2.NBT

A. Understand place value.

1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
a. 100 can be thought of as a bundle of ten tens-called a "hundred."
b. The numbers $100,200,300,400,500,600,700,800,900$ refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2. Count within 1,000 ; skip-count by $5 \mathrm{~s}, 10$ s, and 100 s. Identify patterns in skip counting starting at any number.
3. Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.

## B. Use place value understanding and properties of operations to add and subtract.

5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
6. Add and subtract within 1,000 , using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
7. Explain why addition and subtraction strategies work, using place value and the properties of operations. ${ }^{7}$

## Measurement and Data

A. Measure and estimate lengths in standard units.

1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
[^3]
## B. Relate addition and subtraction to length.

5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

## Geometry

## A. Reason with shapes and their attributes.

9. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. ${ }^{8}$ Identify triangles, squares, rectangles, rhombuses, trapezoids, pentagons, hexagons, and cubes.

## Science and Technology/Engineering

## Earth and Space Sciences

2-ESS2-4(MA). Observe how blowing wind and flowing water can move Earth materials from one place to another and change the shape of a landform.

## Life Science

2-LS4-1. Use texts, media, or local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.

## Physical Science

2-PS1-2. Test different materials and analyze the data obtained to determine which materials have the properties that are best suited for an intended purpose.*
2-PS3-1(MA). Design and conduct an experiment to show the effects of friction on the relative temperature and speed of objects that rub against each other.

## History and Social Science

## Practice Standard 1: Demonstrate civic knowledge, skills, and dispositions.

## Content Topic 2: Geography and its effect on people [2.T1]

1. On a map of the world and on a globe, locate all the continents and some major physical characteristics on each continent (e.g., lakes, seas, bays, rivers and tributaries, mountains and mountain ranges, and peninsulas, deserts, plains).
2. On a map of the world and on a globe, locate the oceans of the world, and explain the importance of oceans and how they make the world habitable.

## Content Topic 3: History: Migrations and cultures [2.T3]

[^4]1. Investigate reasons why people migrate (move) to different places around the world, recognizing that some migration is voluntary, some forced (e.g., refugees, people driven from their homelands, enslaved people)
2. Identify what individuals and families bring with them (e.g., memories, cultural traits, goods, ideas, and languages or ways of speaking) when they move to a different place and identify the significant impacts of migration; identify elements that define the culture of a society (e.g., language, literature, arts, religion, traditions, customs); explain how the community is enriched by contributions from all the people who form it today.

Content Topic 4: Civics in the context of geography: countries and governments [2.T4]
3. Locate and analyze information and present a short research report on the physical features, resources, and people of a country outside the United States.

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## Grade 3

## English Language Arts and Literacy

## Reading Literature and Informational [RL/RI]

1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
2. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 3.

## Reading Literature [RL]

2. Retell stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in a text.
3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
4. Determine the meaning of words and phrases as they are used in a text, distinguishing literal from figurative language.

## Reading Informational [RI]

2. Determine the main idea of a text; recount the key details and explain how they support the main idea.
3. Describe the relationship between a series of historical events, scientific ideas or concepts, mathematical ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect
4. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).

## Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
a. Identify and know the meaning of the most common prefixes and derivational suffixes.
b. Decode words with common Latin suffixes.
c. Decode multisyllable words.
d. Read grade-appropriate irregularly spelled words.
4. Read with sufficient accuracy and fluency to support comprehension.
a. Read grade-level text with purpose and understanding.
b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

## Writing [W]

1. Write opinion pieces on topics or texts, supporting an opinion with reasons.
a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.
b. Provide reasons that support the opinion.
c. Use linking words and phrases (e.g., because, therefore, since, for example) to connect opinion and reasons.
d. Provide a concluding statement or section.
2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
a. Introduce a topic and group-related information together; include illustrations when useful to aiding comprehension.
b. Develop the topic with facts, definitions, and details.
c. Use linking words and phrases (e.g., also, another, and, more, but) to connect ideas within categories of information.
d. Provide a concluding statement or section.
3. Produce writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3).

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. Sentence Structure and Meaning
a. Produce, expand, and rearrange complete simple, compound, and complex sentences.
b. Ensure subject-verb and pronoun-antecedent agreement. ${ }^{9}$
c. Use verbs in the present, past, and future tenses and choose among them depending on the overall meaning of the sentence.
d. Use coordinating and subordinating conjunctions and choose between them depending on the overall meaning of the sentence.
e. Form and use comparative and superlative adjectives and adverbs and choose between them depending on what is to be modified and the overall meaning of the sentence.
Word Usage
f. Use abstract nouns.
g. Form and use regular and irregular plural nouns and the past tense of regular and irregular verbs.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Write legibly and fluently by hand, using either printing or cursive handwriting.
b. Capitalize appropriate words in titles.
c. Use commas in addresses.
d. Use commas and quotation marks in dialogue.

[^5]e. Form and use possessives.
f. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., sitting, smiled, cries, happiness).
g. Demonstrate understanding that numerals used at the beginning of a sentence are written as words and capitalized (e.g., "Three pandas could be seen eating leaves high in the bamboo grove.").
h. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
i. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, ${ }^{8}$ including those that signal spatial and temporal relationships.

## Mathematics

## Operations and Algebraic Thinking

3.0A
A. Represent and solve problems involving multiplication and division.

1. Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in five groups of seven objects each.
2. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. ${ }^{10}$
4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

## B. Understand properties of multiplication and the relationship between multiplication and division.

5. Apply properties of operations to multiply. ${ }^{11}$
6. Understand division as an unknown-factor problem.
C. Multiply and divide within 100.
7. Fluently multiply and divide within 100 , using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5=40$, one knows $40 \div 5=8$ ) or properties of operations. By the end of grade 3, know from memory all products of two single-digit numbers and related division facts.

## Number and Operations in Base Ten

A. Use place value understanding and properties of operations to perform multi-digit arithmetic. ${ }^{12}$
2. Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

[^6]3. Multiply one-digit whole numbers by multiples of 10 in the range $10-90$ (e.g., $9 \times 80,5 \times 60$ ) using strategies based on place value and properties of operations.

## Number and Operations-Fractions

A. Develop understanding of fractions as numbers for fractions with denominators $2,3,4,6$ and 8 .

1. Understand a fraction $1 / b$ as the quantity formed by 1 part when a whole (a single unit) is partitioned into $b$ equal parts; understand a fraction ${ }^{a} / b$ as the quantity formed by a parts of size ${ }^{1} / b$.
2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.
a. Represent a unit fraction, $1 / b$, on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into $b$ equal parts. Recognize that each part has size $1 / b$ and that the fraction $1 / b$ is located $1 / b$ of a whole unit from 0 on the number line.
b. Represent a fraction ${ }^{a} / b$ on a number line diagram by marking off a lengths ${ }^{1} /{ }_{b}$ from 0 . Recognize that the resulting interval has size ${ }^{\alpha} / b$ and that its endpoint locates the number ${ }^{a} /{ }_{b}$ on the number line.
3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
b. Recognize and generate simple equivalent fractions, e.g., ${ }^{1} / 2=2 / 4,{ }^{2} / 6={ }^{2} / 3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>,=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

## Measurement and Data

## C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

7. Relate area to the operations of multiplication and addition.
a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent wholenumber products as rectangular areas in mathematical reasoning.
c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths $a$ and $b+c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.

## A. Reason with shapes and their attributes.

1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Compare and classify shapes by their sides and angles (right angle/non-right angle). Recognize rhombuses, rectangles, squares, and trapezoids as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

## Science and Technology/Engineering

## Earth and Space Sciences

3-ESS2-2. Obtain and summarize information about the climate of different regions of the world to illustrate that typical weather conditions over a year vary by region.

## Life Science

3-LS
3-LS3-1. Provide evidence, including through the analysis of data, that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms. 3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals within the same species may provide advantages to these individuals in their survival and reproduction.

## History and Social Science

## Practice Standard 3: Organize information from multiple sources

Teachers are encouraged to prioritize Content Standards not yet introduced, and to apply them in connection with Practice Standard 3. Content Standards from Topics 5 and 6 are identified here with the assumption that earlier Topics were introduced earlier in the year.

Content Topic 5: The Puritans, the Massachusetts Bay Colony, Native Peoples, and Africans [3.T5]
4. Explain that in the 17th and 18th century slavery was legal in all the French, Dutch, and Spanish, and English colonies, including Massachusetts and that colonial Massachusetts had both free and enslaved Africans in its population.

## Content Topic 6: Massachusetts in the $18^{\text {th }}$ century through the American

 Revolution [3.T6]2. Analyze the connection between events, locations, and individuals in Massachusetts in the early 1770s and the beginning of the American Revolution, using sources such as historical maps, paintings, and texts of the period.
3. Explain how, after the Revolution, the leaders of the new United States had to write a plan for how to govern the nation, and that this plan is called the Constitution. Explain that the rights of citizens are spelled out in the Constitution's first ten Amendments, known as the Bill of Rights; explain that full citizenship rights were restricted to white male property owners over the age of 21 in the new Republic.

This resource is only to be used during school closure due to COVID-19. The Department identified content standards that are prerequisites for student success in the next grade level. The standards should not be used in connection with MCAS expectations or referenced in preparing students for the MCAS for any grade level. Since most standards will already have been taught prior to the closures, we anticipate that significant time would still be spent on reinforcement.

## Grade 4

## English Language Arts and Literacy

## Reading Literature and Informational [RL/RI]

1. Refer to details and examples in a text when explaining what the text states explicitly and when drawing inferences from the text.
2. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 4.

## Reading Literature [RL]

2. Determine a theme of a story, drama, or poem from details in the text; summarize a text.
3. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
4. Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean); explain how figurative language (e.g., simile, metaphor) enriches a text.

## Reading Informational [RI]

2. Determine the main idea of a text and explain how it is supported by key details; summarize a text.
3. Explain events, procedures, ideas, or concepts in a historical, scientific, mathematical, or technical text, including what happened and why, based on specific information in the text.
4. Explain how an author uses reasons and evidence to support particular points in a text.

## Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
4. Read with sufficient accuracy and fluency to support comprehension.
a. Read grade-level text with purpose and understanding.
b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
5. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped in paragraphs and sections to support the writer's purpose.
b. Provide reasons that are supported by facts and details.
c. Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).
d. Provide a concluding statement or section related to the opinion presented.
6. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
a. Introduce a topic clearly and group related information in paragraphs and sections; include text features (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
c. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).
d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
e. Provide a concluding statement or section related to the information or explanation presented.
7. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3)

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grade 4 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)
Sentence Structure and Meaning
a. Produce complete sentences, using knowledge of subject and predicate to recognize and correct inappropriate sentence fragments and run-on sentences. ${ }^{13}$
b. Correctly use frequently confused words (e.g., their/there).
c. Use helping verbs, also known as auxiliaries (e.g., can, may, might, should), to convey various conditions of possibility, likelihood, obligation, or permission, choosing among helping verbs depending on the overall meaning of the sentence.
d. Use relative pronouns and relative adverbs to add more information about a noun or verb used in a sentence.
e. Form and use prepositional phrases in sentences to add more information about qualities such as location, time, agency, and direction.
Word Usage
f. Form and use progressive verb tenses.

[^7]2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Write legibly and fluently by hand, using either printing or cursive handwriting; write their given name signature in cursive.
b. Use correct capitalization.
c. Use commas and quotation marks to mark direct speech and quotations from a text.
d. Use a comma before a coordinating conjunction in a compound sentence.
e. Spell grade-appropriate words correctly, consulting references as needed.
6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic

## Mathematics

## Operations and Algebraic Thinking <br> 4.0A

A. Use the four operations with whole numbers to solve problems.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. ${ }^{14}$
3. Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
a. Know multiplication facts and related division facts through $12 \times 12$.

## Number and Operations in Base Ten

## 4.NBT

A. Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000.
2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, $=$, and < symbols to record the results of comparisons.
B. Use place value understanding and properties of operations to perform multi-digit arithmetic on whole numbers less than or equal to $1,000,000$.
4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.
5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

[^8]
## Number and Operations-Fractions

A. Extend understanding of fraction equivalence and ordering for fractions with denominators $2,3,4$, $5,6,8,10,12$, and 100 .

1. Explain why a fraction $\mathrm{a} / \mathrm{b}$ is equivalent to a fraction $\left(n^{\times} a\right) /(n \times b)$ by using visual fraction models, with attention to how the numbers and sizes of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions, including fractions greater than 1.
2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1 / 2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>,=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.
B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers for fractions with denominators $2,3,4,5,6,8,10,12$, and 100.
3. Understand a fraction $a / b$ with $a>1$ as a sum of fractions $1 / b$.
a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. (The whole can be a set of objects.)
b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using drawings or visual fraction models. Examples: $3 / 8=1 / 8+1 / 8+1 / 8$; $3 / 8=1 / 8+2 / 8 ; 21 / 8=1+1+1 / 8=8 / 8+8 / 8+1 / 8$.
c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using drawings or visual fraction models and equations to represent the problem.

## C. Understand decimal notation for fractions, and compare decimal fractions.

5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100 , and use this technique to add two fractions with respective denominators 10 and $100 .{ }^{15}$
6. Use decimal notation to represent fractions with denominators 10 or 100.
7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>,=$, or $<$, and justify the conclusions, e.g., by using a visual model.

## Measurement and Data

A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

1. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
2. Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.
[^9]
## Geometry

A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

## Science and Technology/Engineering

## Earth and Space Sciences

4-ESS2-1. Make observations and collect data to provide evidence that rocks, soils, and sediments are broken into smaller pieces through mechanical weathering and moved around through erosion.

## Life Science

4-LS1-1. Construct an argument that animals and plants have internal and external structures that support their survival, growth, behavior, and reproduction.

## Physical Science

4-PS3-2. Make observations to show that energy can be transferred from place to place by sound, light, heat, and electric currents.
4-PS4-2. Develop a model to describe that light must reflect off an object and enter the eye for the object to be seen.

## History and Social Science

## Practice Standard 3: Organize information from multiple sources

Teachers are encouraged to prioritize Content Standards not yet introduced, and to apply them in connection with Practice Standard 3. Content Standards from Topic 4 are identified here with the assumption that earlier Topics were introduced earlier in the year.

## Content Topic 4: The Expansion of the United States over time and its regions today [4.T4]

3. Explain that many different groups of people immigrated to the United States from other places voluntarily and some were brought to the United States against their will (as in the case of people of Africa).
4. Show understanding that in the middle of the 19th century, the people of the United States were deeply divided over the question of slavery and its expansion into newly settled parts of the West, which led to the Civil War from 1861 to 1865.

## Content Topic 4a: The Northeast [4.T4a]

1. On a political map of the United States, locate the states in the Northeast.
2. Describe the diverse cultural nature of the region, including contributions of Native Peoples (e.g., Wampanoag, Iroquois, Abenaki), Africans, Europeans (e.g., the early settlements of the Dutch in New York, French near Canada, Germans in Pennsylvania, the English in Massachusetts, Rhode Island, Connecticut, Vermont and New Hampshire, subsequent 19th and early 20th century immigration by groups such as Irish, Italian, Portuguese, and Eastern Europeans) and various other immigrant groups from other regions of the world in the later 20th and 21st centuries (e.g., Puerto Ricans, Dominicans, Mexicans, Salvadorans, Colombians, Guatemalans, Brazilians, Haitians, Vietnamese, Cambodians, Chinese, Indians, and Somalis).

## The Southeast, Midwest, Southwest, and West [4.T4b-e]

1. On a political map of the United States, locate the states in the Southeast, Midwest, Southwest, and West.
2. Describe the diverse cultural nature of the region.

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## Grade 5

## English Language Arts and Literacy

## Reading Literature and Informational [RL/RI]

1. Quote or paraphrase a text accurately when explaining what the text states explicitly and when drawing inferences from the text. (See grade 5 Writing Standard 8 for more on paraphrasing.)
2. Independently and proficiently read and comprehend texts exhibiting complexity appropriate for at least grade 5 .

## Reading Literature [RL]

2. Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize a text.
3. Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
4. Determine the meaning of words and phrases as they are used in a text; identify and explain the effects of figurative language such as metaphors and similes.

## Reading Informational [RI]

2. Determine one or more main ideas of a text and explain how they are supported by key details; summarize a text.
3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, mathematical, or technical text based on specific information in the text.
4. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

## Reading Foundational Skills [RF]

3. Know and apply grade-level phonics and word analysis skills in decoding words.
a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
4. Read with sufficient accuracy and fluency to support comprehension.
a. Read grade-level text with purpose and understanding.
b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

## Writing [W]

1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped in paragraphs and sections to support the writer's purpose.
b. Provide logically ordered reasons that are supported by facts and details.
c. Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically).
d. Provide a concluding statement or section related to the opinion presented.
2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
a. Introduce a topic clearly, provide a general observation and focus, and group related information logically in paragraphs and sections; include text features (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).
d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
e. Provide a concluding statement or section related to the information or explanation presented.
3. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3.)
4. Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grade 5 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)

## Sentence Structure and Meaning

a. Use verb tense to convey various times, sequences, states, and conditions, choosing among verb tenses depending on the overall meaning of the sentence.
b. Recognize and correct inappropriate shifts in verb tense. ${ }^{16}$
c. Use active and passive verbs, choosing between them depending on the overall meaning of the sentence.
Word Usage
d. Form and use perfect verb tenses.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

[^10]a. Write legibly and fluently by hand, using either print or cursive handwriting; write their given and family name signature in cursive.
b. Use punctuation to separate items in a series. ${ }^{17}$
c. Use a comma to separate an introductory element from the rest of the sentence.
d. Use a comma to set off the words yes and no (e.g., Yes, thank you), to set off a tag question from the rest of the sentence (e.g., It's true, isn't it?), and to indicate direct address (e.g., Is that you, Steve?).
e. Use underlining, quotation marks, or italics to indicate titles of works.
f. Spell grade-appropriate words correctly, consulting references as needed.
6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).

## Mathematics

## Number and Operations in Base Ten

## 5.NBT

## A. Understand the place value system.

1. Recognize that in a multi-digit number, including decimals, a digit in any place represents 10 times as much as it represents in the place to its right and $1 / 10$ of what it represents in the place to its left.
2. Read, write, and compare decimals to thousandths.
a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g.,
$347.392=3 \times 100+4 \times 10+7 \times 1+3 \times(1 / 10)+9 \times(1 / 100)+2 \times(1 / 1000)$.
b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

## B. Perform operations with multi-digit whole numbers and with decimals to hundredths.

5. Fluently multiply multi-digit whole numbers. (Include two-digit x four-digit numbers and, three-digit x three-digit numbers) using the standard algorithm.
6. Find whole-number quotients of whole numbers with up to four-digit dividends and twodigit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction and between multiplication and division; relate the strategy to a written method and explain the reasoning used.

## Number and Operations-Fractions

A. Use equivalent fractions as a strategy to add and subtract fractions.

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.

[^11]2. Solve word problems involving addition and subtraction of fractions referring to the same whole (the whole can be a set of objects), including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.

## B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

3. Interpret a fraction as division of the numerator by the denominator $(a / b=a \div b)$. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
a. Interpret the product $(a / b) \times q$ as a parts of a partition of $q$ into $b$ equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.
b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5. Interpret multiplication as scaling (resizing), by:
a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a / b=(n \times a) /(n \times b)$ to the effect of multiplying $a / b$ by 1 .
6. Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

## Measurement and Data

## C. Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.

3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
b. A solid figure which can be packed without gaps or overlaps using $n$ unit cubes is said to have a volume of $n$ cubic units.

Geometry
B. Classify two-dimensional figures into categories based on their properties.
3. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
4. Classify two-dimensional figures in a hierarchy based on properties.

## Science and Technology/Engineering

## Earth and Space Sciences

5-ESS
5-ESS1-2. Use a model to communicate Earth's relationship to the Sun, Moon, and other stars that explain (a) why people on Earth experience day and night, (b) patterns in daily changes in length and direction of shadows over a day, and (c) changes in the apparent position of the Sun, Moon, and stars at different times during a day, over a month, and over a year.
5-ESS2-1. Use a model to describe the cycling of water through a watershed through evaporation, precipitation, absorption, surface runoff, and condensation.

## Life Science

5-LS
5-LS1-1. Ask testable questions about the process by which plants use air, water, and energy from sunlight to produce sugars and plant materials needed for growth and reproduction.

5-LS2-1. Develop a model to describe the movement of matter among producers, consumers, decomposers, and the air, water, and soil in the environment to (a) show that plants produce sugars and plant materials, (b) show that animals can eat plants and/or other animals for food, and (c) show that some organisms, including fungi and bacteria, break down dead organisms and recycle some materials back to the air and soil.

## Physical Science

 5-PS5-PS1-1. Use a particle model of matter to explain common phenomena involving gases, and phase changes between gas and liquid and between liquid and solid.

## History and Social Science

## Practice Standard 3: Organize information from multiple sources

Teachers are encouraged to prioritize Content Standards not yet introduced, and to apply them in connection with Practice Standard 3. Content Standards from Topic 5 are identified here with the assumption that earlier Topics were introduced earlier in the year. It is critical students learn about the historical significance and lasting impact of slavery on our nation through effective instruction, which approaches the content consciously, critically, and carefully, with attention paid to context and point of view.

## Content Topic 5: Slavery, the legacy of the Civil War and the struggle for civil rights for all [5.T5]

2. Identify the major reasons for the Civil War (e.g., slavery, political and economic competition in Western territories, the emergence of the Republican Party) and the war's most important outcomes (e.g., end of slavery, Reconstruction, expanded role of the federal government, industrial growth in the North).
3. Explain the ideas and roles of some of the people of the pre-Civil War era who led the struggle against slavery (abolitionism) and for voting and property rights for African Americans (e.g., Harriet Tubman, Nat Turner, Sojourner Truth, Frederick Douglass, William Lloyd Garrison, Harriet Beecher Stowe).
4. Explain the consequences of the Emancipation Proclamation and the 13th, 14th, and 15th Amendments for the rights of African Americans. a. advocacy for women's rights surrounding the passage of the 14th and 15th Amendments and its relationship to the later movement for women's rights $b$. women's attainment of the right to vote with the passage of the 19th Amendment of 1920
5. Describe living conditions for African Americans following the Civil War, during the Jim Crow era, including limited educational and economic opportunities, separate public facilities (e.g., segregated schools and colleges, neighborhoods, sections in buses, trains, restaurants, and movie theaters), the organized perpetuation of white supremacist beliefs and the threat of violence from extra-legal groups such as the Ku Klux Klan. Describe the role African American churches, civic organizations, and newspapers played in supporting and unifying African American communities. Research and analyze one of the people, organizations, events, or legislative acts from the 20th century that contributed to expanding civil rights of African Americans, women, and others in the United States.
6. Explain how the 20th century African American Civil Rights movement served as a model for other movements for civil rights (e.g., the second phase of the women's movement in the 1960s and 1970s, the disability rights movement, the LGBTQ movement).

## Massachusetts Department of Elementary and Secondary Education

## Prerequisite Content Standards: Secondary Grades (6-12)

This resource is only to be used during school closure due to COVID-19. The Department identified content standards that are prerequisites for student success in the next grade level. The standards should not be used in connection with MCAS expectations or referenced in preparing students for the MCAS for any grade level. Since most standards will already have been taught prior to the closures, we anticipate that significant time would still be spent on reinforcement.

## Secondary Grades (6-12) <br> English Language Arts and Literacy

## Grade 6

Reading Literature [RL]

1. Cite textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text, quoting or paraphrasing as appropriate. (See grade 6 Writing Standard 8 for more on quoting and paraphrasing.)
2. Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of a text distinct from personal opinions or judgments.
3. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; explain how word choice affects meaning and tone. (See grade 6 Language standards 4-6 on applying knowledge of vocabulary to reading.)

## Reading Informational Text [RI]

1. Cite textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text, quoting or paraphrasing as appropriate. (See grade 6 Writing Standard 8 for more on quoting and paraphrasing.)
2. Determine a text's central idea(s) and how particular details help convey the idea(s); provide a summary of a text distinct from personal opinions or judgments.
3. Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not
4. Independently and proficiently read and comprehend literature and literary nonfiction representing a variety of genres, cultures, and perspectives and exhibiting complexity appropriate for at least grade 6.

## Writing [W]

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above.)
5. Draw evidence from literary or informational texts to support written analysis, interpretation, reflection, and research, applying one or more grade 6 standards for Reading Literature or Reading Informational Text as needed.
Language [L]
6. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grade 6 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)
Sentence Structure, Variety, and Meaning
a. Use simple, compound, complex, and compound-complex sentences to communicate ideas clearly and to add variety to writing.
b. Explain the function of phrases and clauses in general, how phrases and clauses differ, and how their use conveys a particular meaning in a specific written or spoken sentence.
c. Place or rearrange phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers
7. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements
b. Spell correctly, recognizing that some words have commonly accepted variations (e.g., donut/doughnut).

## Grade 7

Reading Literature [RL]

1. Cite several pieces of textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text, quoting or paraphrasing as appropriate. (See grade 7 Writing Standard 8 for more on quoting and paraphrasing.)
2. Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of a text.
3. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning, tone, or mood, including the impact of repeated use of particular images. (See grade 7 Language Standards 4-6 on applying knowledge of vocabulary to reading.)

## Reading Informational Text [RI]

1. Cite several pieces of textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text, quoting or paraphrasing as appropriate. (See grade 7 Writing Standard 8 for more on quoting and paraphrasing.)
2. Determine a text's central idea(s) and analyze its/their development over the course of the text; provide an objective summary of a text.
3. Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.
4. Independently and proficiently read and comprehend literature and literary nonfiction representing a variety of genres, cultures, and perspectives and exhibiting complexity appropriate for at least grade 7 .

## Writing [W]

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3.)
5. Draw evidence from literary or informational texts to support written analysis, interpretation, reflection, and research, applying one or more grade 7 Standards for Reading Literature or Reading Informational Text as needed.

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grade 7 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)
Sentence Structure, Variety, and Meaning
a. Use phrases and clauses to communicate ideas precisely, with attention to skillful use of verb tenses to add clarity.
b. Recognize and correct vague pronouns (those that have unclear or ambiguous antecedents). ${ }^{17}$
c. Recognize and correct inappropriate shifts in pronoun number and person in sentences with multiple clauses and phrases.
d. Recognize that changing the placement of a phrase or clause can add variety, emphasize particular relationships among ideas, or alter the meaning of a sentence or paragraph. ${ }^{17}$
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Use a comma to separate coordinate adjectives (e.g., a fascinating, enjoyable movie).
b. Spell correctly, recognizing that some words have commonly accepted variations (e.g., donut/doughnut).

## Grade 8

## Reading Literature [RL]

1. Cite the textual evidence that most strongly supports analysis of what a text states explicitly as well as inferences drawn from the text, quoting or paraphrasing as appropriate. (See grade 8 Writing Standard 8 for more on quoting and paraphrasing.)
2. Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of a text
3. Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning, tone, or mood, including the impact of allusion and irony. (See grade 8

Language Standards 4-6 on applying knowledge of vocabulary to reading.)

## Reading Informational Text [RI]

1. Cite the textual evidence that most strongly supports an analysis of what a text states explicitly as well as inferences drawn from the text, quoting or paraphrasing as appropriate. (See grade 8 Writing Standard 8 for more on quoting and paraphrasing.)
2. Determine a text's central idea(s) and analyze its/their development over the course of the text, including relationships to supporting ideas; provide an objective summary of a text.
3. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced.
4. Independently and proficiently read and comprehend literature and literary nonfiction representing a variety of genres, cultures, and perspectives and exhibiting complexity appropriate for at least grade 8.

## Writing [W]

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)
5. Draw evidence from literary or informational texts to support written analysis, interpretation, reflection, and research, applying one or more grade 8 standards for Reading Literature or Reading Informational Text as needed.

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grade 8 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)
Sentence Structure, Variety, and Meaning
a. Coordinate phrases and clauses in simple, compound, complex, and compound-complex sentences, with emphasis on agreement of pronouns and their antecedents.
b. Form and use verbs in the active and passive voices and the indicative, imperative, interrogative, conditional, and subjunctive moods to communicate a particular meaning.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Use punctuation (comma, ellipsis, dash) to indicate a pause or break.
b. Use an ellipsis to indicate an omission. Spell correctly, recognizing that some words have commonly accepted variations (e.g., donut/doughnut).

## Grades 9-10

## Reading Literature [RL]

1. Cite strong and thorough textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text.
2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of a text.
3. Determine the figurative or connotative meaning(s) of words and phrases as they are used in a text; analyze the impact of words with multiple meanings, as well as symbols or metaphors that extend throughout a text and shape its meaning. (See grades 9-10 Language Standards 4-6 on applying knowledge of vocabulary to reading.)

## Reading Informational Text [RI]

1. Cite strong and thorough textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text.
2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of a text.
3. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements or incomplete truths and fallacious reasoning.
4. Independently and proficiently read and comprehend literary texts and literary nonfiction representing a variety of genres, cultures, and perspectives and exhibiting complexity appropriate for the grade/course.

## Writing [W]

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Standards 1-3 above.)
5. Draw evidence from literary or informational texts to support written analysis, interpretation, reflection, and research, applying one or more grades 9-10 Standards for Reading Literature or Reading Informational Text as needed.

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grades 9-10 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)
Sentence Structure, Variety, and Meaning
a. Manipulate and rearrange clauses and phrases in sentences, paying attention to agreements of pronouns and their antecedents, logical use of verb tenses, and variety in sentence patterns.
b. Use various types of phrases (noun, verb, adjectival, participial, prepositional) and clauses (independent, dependent, noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.
c. Use parallel structure as a technique for creating coherence in sentences, paragraphs, and larger pieces of writing. ${ }^{19}$
2. Demonstrate command of the conventions of standard English capitalization,
punctuation, and spelling when writing.
a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
b. Use a colon to introduce a list or quotation.
c. Spell correctly, recognizing that some words have commonly accepted variations (e.g., catalog/catalogue).

## Grades 11-12

## Reading Literature [RL]

1. Cite strong and thorough textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
2. Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of a text.
3. Determine the figurative or connotative meaning(s) of words and phrases as they are used in a text; analyze the impact of specific words or rhetorical patterns (e.g., how the language evokes a sense of time and place, how shifts in rhetorical patterns signal new perspectives). (See grades 11-12 Language Standards 4-6 on applying knowledge of vocabulary to reading.)

## Reading Informational Text [RI]

1. Cite strong and thorough textual evidence to support analysis of what a text states explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of a text.
3. Delineate and evaluate the reasoning in seminal historical texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).
4. Independently and proficiently read and comprehend literary texts and literary nonfiction representing a variety of genres, cultures, and perspectives and exhibiting complexity appropriate for the grade/course.

## Writing [W]

4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)
5. Draw evidence from literary or informational texts to support written analysis, interpretation, reflection, and research, applying one or more grades 11-12 standards for Reading Literature or Reading Informational Text as needed.

## Language [L]

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; retain and further develop language skills learned in previous grades. (See grades 11-12 Writing Standard 5 and Speaking and Listening Standard 6 on strengthening writing and presentations by applying knowledge of conventions.)
Word Usage
a. Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
b. Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage) as needed.
2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
a. Observe hyphenation conventions.
b. Spell correctly, recognizing that some words have commonly accepted variations (e.g., catalog/catalogue).

## Science and Technology/Engineering

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## Grade 6

## Earth and Space Sciences

6.MS-ESS1-1a. Develop and use a model of the Earth-Sun-Moon system to explain the causes of lunar phases and eclipses of the Sun and Moon.
6.MS-ESS2-3. Analyze and interpret maps showing the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence that Earth's plates have moved great distances, collided, and spread apart.

## Life Science

6.MS-LS
6.MS-LS1-2. Develop and use a model to describe how parts of cells contribute to the cellular functions of obtaining food, water, and other nutrients from its environment, disposing of wastes, and providing energy for cellular processes.
6.MS-LS1-3. Construct an argument supported by evidence that the body systems interact to carry out essential functions of life.

## Physical Science

6.MS-PS
6.MS-PS1-7(MA). Use a particulate model of matter to explain that density is the amount of matter (mass) in a given volume. Apply proportional reasoning to describe, calculate, and compare relative densities of different materials.
6.MS-PS4-2. Use diagrams and other models to show that both light rays and mechanical waves are reflected, absorbed, or transmitted through various materials.

## Technology/Engineering

6.MS-ETS
6.MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution. Include potential impacts on people and the natural environment that may limit possible solutions.*

## Grade 7

7.MS-ESS2-2. Construct an explanation based on evidence for how Earth's surface has changed over scales that range from local to global in size.

## Life Science

7.MS-LS
7.MS-LS2-3. Develop a model to describe that matter and energy are transferred among living and nonliving parts of an ecosystem and that both matter and energy are conserved through these processes.

## Physical Science

7.MS-PS
7.MS-PS2-5. Use scientific evidence to argue that fields exist between objects with mass, between magnetic objects, and between electrically charged objects that exert force on each other even though the objects are not in contact.
7.MS-PS3-3. Apply scientific principles of energy and heat transfer to design, construct, and test a device to minimize or maximize thermal energy transfer.*
7.MS-PS3-7(MA). Use informational text to describe the relationship between kinetic and potential energy and illustrate conversions from one form to another.

## Technology/Engineering

7.MS-ETS
7.MS-ETS1-2. Evaluate competing solutions to a given design problem using a decision matrix to determine how well each meets the criteria and constraints of the problem. Use a model of each solution to evaluate how variations in one or more design features, including size, shape, weight, or cost, may affect the function or effectiveness of the solution.*

## Grade 8

Earth and Space Sciences
8.MS-ESS1-1b. Develop and use a model of the Earth-Sun system to explain the cyclical pattern of seasons, which includes Earth's tilt and differential intensity of sunlight on different areas of Earth across the year.
8.MS-ESS2-1. Use a model to illustrate that energy from Earth's interior drives convection that cycles Earth's crust, leading to melting, crystallization, weathering, and deformation of large rock formations, including generation of ocean sea floor at ridges, submergence of ocean sea floor at trenches, mountain building, and active volcanic chains.
8.MS-ESS3-5. Examine and interpret data to describe the role that human activities have played in causing the rise in global temperatures over the past century.

## Life Science

8.MS-LS
8.MS-LS1-7. Use informational text to describe that food molecules, including carbohydrates, proteins, and fats, are broken down and rearranged through chemical reactions forming new molecules that support cell growth and/or release of energy.
8.MS-LS3-1. Develop and use a model to describe that structural changes to genes (mutations) may or may not result in changes to proteins, and if there are changes to proteins there may be harmful, beneficial, or neutral changes to traits.
8.MS-LS4-4. Use a model to describe the process of natural selection, in which genetic variations of some traits in a population increase some individuals' likelihood of surviving and reproducing in a changing environment. Provide evidence that natural selection occurs over many generations.

## Physical Science

8.MS-PS
8.MS-PS1-4. Develop a model that describes and predicts changes in particle motion, relative spatial arrangement, temperature, and state of a pure substance when thermal energy is added or removed.
8.MS-PS2-2. Provide evidence that the change in an object's speed depends on the sum of the forces on the object (the net force) and the mass of the object.

## High School Biology

## LS1. From Molecules to Organisms: Structures and Processes

HS-LS1-1. Construct a model of transcription and translation to explain the roles of DNA and RNA that code for proteins that regulate and carry out essential functions of life.
HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.
LS2. Ecosystems: Interactions, Energy, and Dynamics
HS-LS2-5. Use a model that illustrates the roles of photosynthesis, cellular respiration, decomposition, and combustion to explain the cycling of carbon in its various forms among the biosphere, atmosphere, hydrosphere, and geosphere.
HS-LS2-7. Analyze direct and indirect effects of human activities on biodiversity and ecosystem health, specifically habitat fragmentation, introduction of non-native or invasive species, overharvesting, pollution, and climate change. Evaluate and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.*

## LS3. Heredity: Inheritance and Variation of Traits

HS-LS3-1. Develop and use a model to show how DNA in the form of chromosomes is passed from parents to offspring through the processes of meiosis and fertilization in sexual reproduction. HS-LS3-3. Apply concepts of probability to represent possible genotype and phenotype combinations in offspring caused by different types of Mendelian inheritance patterns.
LS4. Biological Evolution: Unity and Diversity
HS-LS4-4. Research and communicate information about key features of viruses and bacteria to explain their ability to adapt and reproduce in a wide variety of environments.
HS-LS4-5. Evaluate models that demonstrate how changes in an environment may result in the evolution of a population of a given species, the emergence of new species over generations, or the extinction of other species due to the processes of genetic drift, gene flow, mutation, and natural selection.

## High School Chemistry

## PS1. Matter and Its Interactions

HS-PS1-2. Use the periodic table model to predict and design simple reactions that result in two main classes of binary compounds, ionic and molecular. Develop an explanation based on given observational data and the electronegativity model about the relative strengths of ionic or covalent bonds.

HS-PS1-4. Develop a model to illustrate the energy transferred during an exothermic or endothermic chemical reaction based on the bond energy difference between bonds broken (absorption of energy) and bonds formed (release of energy).
HS-PS1-7. Use mathematical representations and provide experimental evidence to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. Use the mole concept and proportional relationships to evaluate the quantities (masses or moles) of specific reactants needed in order to obtain a specific amount of product.
HS-PS1-10(MA). Use an oxidation-reduction reaction model to predict products of reactions given the reactants, and to communicate the reaction models using a representation that shows electron transfer (redox). Use oxidation numbers to account for how electrons are redistributed in redox processes used in devices that generate electricity or systems that prevent corrosion.*

## PS2. Motion and Stability: Forces and Interactions

HS-PS2-6. Communicate scientific and technical information about the molecular-level structures of polymers, ionic compounds, acids and bases, and metals to justify why these are useful in the functioning of designed materials.*
HS-PS2-8(MA). Use kinetic molecular theory to compare the strengths of electrostatic forces and the prevalence of interactions that occur between molecules in solids, liquids, and gases. Use the combined gas law to determine changes in pressure, volume, and temperature in gases.
PS3. Energy
HS-PS3-4b. Provide evidence from informational text or available data to illustrate that the transfer of energy during a chemical reaction in a closed system involves changes in energy dispersal (entropy change) and heat content (enthalpy change) while assuming the overall energy in the system is conserved.

## High School Introductory Physics

## PS2. Motion and Stability: Forces and Interactions

HS-PS2-1. Analyze data to support the claim that Newton's second law of motion is a mathematical model describing change in motion (the acceleration) of objects when acted on by a net force. HS-PS2-3. Apply scientific principles of motion and momentum to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.*
HS-PS2-10(MA). Use free-body force diagrams, algebraic expressions, and Newton's laws of motion to predict changes to velocity and acceleration for an object moving in one dimension in various situations.
PS3. Energy
HS-PS3-1. Use algebraic expressions and the principle of energy conservation to calculate the change in energy of one component of a system when the change in energy of the other component(s) of the system, as well as the total energy of the system including any energy entering or leaving the system, is known. Identify any transformations from one form of energy to another, including thermal, kinetic, gravitational, magnetic, or electrical energy, in the system. HS-PS3-2. Develop and use a model to illustrate that energy at the macroscopic scale can be accounted for as either motions of particles and objects or energy stored in fields.

PS4. Waves and Their Applications in Technologies for Information Transfer
HS-PS4-5. Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.*

## Secondary Grades (6-12) <br> History and Social Science

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## Grade 6 and 7

Grades 6 and 7 form a two-year sequence in which students study regions of the world by examining physical geography, nations in the region today, and selected ancient and classical societies. The standards listed below are pre-requisites for success in grade 8.

## Practice Standards

2. Develop focused questions or problem statements and conduct inquiries
3. Organize information and data from multiple primary and secondary sources.

## Content Topic 1: Studying complex societies, past and present [6.T1]

1. Explain how different academic fields in the social sciences concentrate on different means of studying societies in the past and present.
2. Give examples of ways in which a current historical interpretation might build on, extend, or reject an interpretation of the past.
3. Give examples of how archaeologists, historians, geographers, economists, and political scientists work as teams to analyze evidence, develop hypotheses, and construct interpretations of ancient and classical civilizations.

## Content Topics 6.T2- 7.T4c

Teachers are encouraged to use Practice Standards 2 and 3 to facilitate inquiry-based investigations of a civilization/region not yet studied.

## Grade 8: U.S. and MA Government and Civic Life

## Practice Standards

1. Demonstrate civic knowledge, skills, and dispositions.
2. Analyze the purpose and point of view of each source; distinguish opinion from fact.
3. Evaluate the credibility, accuracy, and relevance of each source.

## Content Topic 4: Rights and responsibilities of a citizen [8.T4]

7. Apply knowledge of the meaning of leadership and the qualities of good leaders to evaluate political leaders at the community, the state and national levels.
8. Explain the importance of individuals working cooperatively with their elected leaders.
9. Explain the importance of public service, and identify career and other opportunities in public
service at the local, state, and national levels.
10. Analyze issues involving liberty in conflict with equality or authority, individual rights in conflict with the common good, or majority rule in conflict with minority rights.
11. Examine the varied understandings of the role of elected representatives and discuss those who have demonstrated political courage or those whose actions have failed to live up to the ideals of the Constitution

## Content Topic 6: The Structure of Massachusetts state and local government [8.T6]

1. Compare and contrast the functions of state government and national government.
2. Describe provisions of the United States Constitution and the Massachusetts Constitution that define and distribute powers and authority of the federal or state government

## Content Topic 7: The Freedom of Press and News/Media Literacy [8.T7]

2. Give examples of how a free press can provide competing information and views about government and politics.
3. Evaluate the benefits and challenges of digital news and social media to a democratic society.
4. Explain methods for evaluating information and opinion in print and online media (e.g., determining the credibility of news articles; analyzing the messages of editorials and op-ed commentaries; assessing the validity of claims and sufficiency of evidence).
5. Analyze the point of view and evaluate the claims of an editorial, editorial cartoon, or op-ed commentary on a public policy issue at the local, state, or national level (e.g., a mayoral or school committee decision, an action by a state legislature or Governor, a vote in Congress or an action by the President).

## Grade 9-12

## Content Standards

Secondary HSS courses follow variable scope and sequences; teachers should attempt to address
the Content Standards they have not yet introduced for their course. The last Topic of each grade is identified here with the assumption that earlier Topics were introduced earlier in the year; however, teachers are encouraged to prioritize Content Standards not yet introduced, and to apply them in connection with Practice Standards 2,3, and 7 to encourage inquiry-based investigations.

## US History I

## Practice Standards

2. Develop focused questions or problem statements and conduct inquiries
3. Argue or explain conclusions, using valid reasoning and evidence.
4. Determine next steps and take informed action, as appropriate.

## Content Topic 7: Progressivism and WWI [USI.T7]

1. Explain what Progressivism meant in the early 20th century and analyze a text or images by a Progressive leader (e.g., Jane Addams, William Jennings Bryan, John Dewey, Robert La Follette, Theodore Roosevelt, Margaret Sanger, Upton Sinclair, Lewis Hine, William H. Taft, Ida Tarbell, Woodrow Wilson).
2. Research and analyze one of the following governmental policies of the Progressive Period, determine the problem it was designed to solve, and assess its long and short-term effectiveness: bans against child labor, the development of Indian boarding schools, the Sherman Anti-Trust Act (1890), the Pure Food and Drug Act (1906), the Meat Packing Act (1906), the Federal Reserve Act (1913), the Clayton Anti-Trust Act (1914), the Indian Citizenship Act (1924).
3. Analyze the campaign for, and the opposition to, women's suffrage in the late 19th and early 20th centuries; describe the role of leaders and organizations in achieving the passage of the 19th Amendment (e.g., Carrie Chapman Catt, Alice Paul, Ida B. Wells-Barnett the National Woman Suffrage Association, National Women's Party, League of Women Voters).
4. Analyze the strategies of African Americans to achieve basic civil rights in the early 20 th century, and determine the extent to which they met their goals by researching leaders and organizations (e.g., Ida B. Wells-Barnett, W. E. B. DuBois, Marcus Garvey, Booker T, Washington, and the National Association for the Advancement of Colored People).
5. Analyze the causes and course of growing role of the United States in world affairs from the Civil War to World War I, researching and reporting on one of the following ideas, policies, or events, and, where appropriate, including maps, timelines, and other visual resources to clarify connections among nations and events
6. Explain the rationale and events leading to the entry of the U.S. into World War I (e.g., unrestricted submarine warfare, the sinking of the Lusitania, the Zimmerman telegram, the concept of "making the world safe for democracy."
7. Analyze the role played by the U.S. in support of the Allies and in the conduct of the war
8. Explain the course and significance of Woodrow Wilson's wartime diplomacy, including his Fourteen Points, the League of Nations, and the failure of the Versailles Treaty.

## US History II

## Practice Standards

2. Develop focused questions or problem statements and conduct inquiries
3. Argue or explain conclusions, using valid reasoning and evidence.
4. Determine next steps and take informed action, as appropriate.

## Content Topic 5: United States and globalization

1. Using primary sources such as campaign literature and debates, news articles/analyses, editorials, and television coverage, analyze the important policies and events that took place during the presidencies of John F. Kennedy (e.g., the confrontation with Cuba over missile bases, the space exploration program, Kennedy's assassination), Lyndon Johnson (the Great Society programs, the Civil Rights and Voting Rights Acts, the Vietnam War and anti-war movements, the 1965 Immigration and Nationality Act, the assassinations of Martin Luther King, Jr., and Robert F. Kennedy), and Richard Nixon (the creation of the Environmental Protection Agency, diplomacy with China, détente with the Soviet Union, the Watergate scandal, and Nixon's resignation).
2. Analyze and evaluate the impact of economic liberalism on mid-20th century society, including the legacy of the New Deal on post World War II America, the expansion of American manufacturing and unionism, social welfare programs, and the regulation of major industries such as transportation, energy, communications and finance.
3. Analyze the presidency of Ronald Reagan (1981-1989) and the rise of the conservative movement in American politics, (e.g., policies such as tax rate cuts, anti-communist foreign
and defense policies, replacement of striking air traffic controllers with non-union personnel.
4. Analyze how the failure of communist economic policies and U.S.-sponsored resistance to Soviet military and diplomatic initiatives contributed to the fall of the Berlin Wall in 1989 the dissolution of the Soviet Union in 1991, and the end of the Cold War.
5. Analyze some of the major technological and social trends and issues of the late 20th and early 21st centuries (e.g., the computer and technological revolution beginning in the 1980s, scientific and medical discoveries such as DNA research, major immigration and demographic changes such as the rise in Asian and Hispanic immigration).
6. Evaluate the effectiveness of the federal government's response to international terrorism in the 21st century, including the 2001 terrorist attack on the World Trade Center in New York City and the Pentagon near Washington, D.C., the Homeland Security Act, the Foreign Intelligence Surveillance Act, and the Afghanistan and Iraq Wars.

## World History I

## Practice Standards

2. Develop focused questions or problem statements and conduct inquiries
3. Argue or explain conclusions, using valid reasoning and evidence.
4. Determine next steps and take informed action, as appropriate.

## Content Topic 6: Philosophies of Government

1. Identify the origins and the ideals of the European Enlightenment, such as happiness, reason, progress, liberty, and natural rights, and how intellectuals of the movement (e.g., Denis Diderot, Emmanuel Kant, John Locke, Charles de Montesquieu, Jean-Jacques Rousseau, Mary Wollstonecraft, Cesare Beccaria, Voltaire, or social satirists such as Molière and William Hogarth) exemplified these ideals in their work and challenged existing political, economic, social, and religious structures.
2. Explain historical philosophies of government, giving examples from world history: a. the Chinese doctrine of the Mandate of Heaven, in which a ruler must be worthy of the right to rule b. absolute monarchy, in which a monarch holds unlimited power with no checks and balances (e.g., in France of Louis XIV, Spain, Prussia, and Austria) c. enlightened absolutism (e.g., in Russia under Czars Peter the Great and Catherine the Great, in which ideas of the Enlightenment temper absolutism) d. constitutional monarchy, in which a ruler is limited by a written or unwritten constitution (e.g., English traditions beginning with Magna Carta).
3. Explain why England was the exception to the growth of absolutism in Europe. a. the causes, essential events, and effects of the English Civil War and the Glorious Revolution of 1688 b. the English Bill of Rights and its limits on the power of the monarch to act without the consent of Parliament
4. Explain the development of constitutional democracy following the American Revolution, the United States Constitution (1787), and the Bill of Rights (1791)

## World History II

## Practice Standards

2. Develop focused questions or problem statements and conduct inquiries
3. Argue or explain conclusions, using valid reasoning and evidence.
4. Determine next steps and take informed action, as appropriate.

## Content Topic 7: The Politics of difference: conflicts, genocide and terrorism

1. Distinguish between the concepts of genocide and mass atrocity and analyze the causes of genocide and mass atrocities in the modern world (e.g., conflicts over political power, historical grievances, manipulation of ideas about difference and fear by political forces).
2. Analyze the events, people and conditions that have given rise to international terrorism including the emergence of the global terror network Al-Qaeda, the Taliban in Afghanistan, and ISIS, and evaluate responses by governments and societies to international terrorist activity.

## Mathematics

This resource is only to be used during school closure due to COVID-19. The Department identified content standards that are prerequisites for student success in the next grade level. The standards should not be used in connection with MCAS expectations or referenced in preparing students for the MCAS for any grade level. Since most standards will already have been taught prior to the closures, we anticipate that significant time would still be spent on reinforcement.

## Grade 6

## Ratios and Proportional Relationships

A. Understand ratio and rate concepts and use ratio and rate reasoning to solve problems.

1. Understand the concept of a ratio including the distinctions between part:part and part:whole and the value of a ratio; part/part and part/whole. Use ratio language to describe a ratio relationship between two quantities.
For example: The ratio of wings to beaks in the bird house at the zoo was $2: 1$, because for every two wings there was one beak; For every vote candidate A received, candidate C received nearly three votes, meaning that candidate $C$ received three out of every four votes or $3 / 4$ of all votes.
2. Understand the concept of a unit rate $a / b$ associated with a ratio $a: b$ with $b \neq 0$, and use rate language in the context of a ratio relationship, including the use of units.
For example: This recipe has a ratio of three cups of flour to four cups of sugar, so there is $3 / 4$ cup of flour for each cup of sugar; We paid $\$ 75$ for 15 hamburgers, which is a rate of five dollars per hamburger. ${ }^{1}$
3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
a. Make tables of equivalent ratios relating quantities with whole-number measurements. Find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
b. Solve unit rate problems, including those involving unit pricing, and constant speed. For example, if it took seven hours to mow four lawns, then, at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
c. Find a percent of a quantity as a rate per 100 (e.g., $30 \%$ of a quantity means $30 / 100$ times the quantity); solve problems involving finding the whole, given a part and the percent.
d. Use ratio reasoning to convert measurement units within and between measurement systems; manipulate and transform units appropriately when multiplying or dividing quantities.
For example, Malik is making a recipe, but he cannot find his measuring cups! He has, however, found a tablespoon. His cookbook says that 1 cup $=16$ tablespoons. Explain how he could use the tablespoon to measure out the following ingredients: two cups of flour, $1 / 2$ cup sunflower seed, and $11 / 4$ cup of oatmeal. ${ }^{2}$
e. Solve problems that relate the mass of an object to its volume.
[^12]
## The Number System

## A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
For example, create a story context for $(2 / 3) \div(3 / 4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2 / 3) \div(3 / 4)=8 / 9$ because $3 / 4$ of $8 / 9$ is $2 / 3$. In general, $(a / b) \div(c / d)=\mathrm{ad} / \mathrm{bc}$. How much chocolate will each person get if three people share $1 / 2 \mathrm{lb}$. of chocolate equally? How many $3 / 4$-cup servings are in $2 / 3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3 / 4$ mile and area $1 / 2$ square mile?
B. Compute fluently with multi-digit numbers and find common factors and multiples.
2. Fluently divide multi-digit numbers using the standard algorithm.
3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
C. Apply and extend previous understandings of numbers to the system of rational numbers.
4. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, and positive/negative electric charge). Use positive and negative numbers (whole numbers, fractions, and decimals) to represent quantities in real-world contexts, explaining the meaning of zero in each situation.
5. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3)=3$, and that zero is its own opposite.
b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

## Expressions and Equations

A. Apply and extend previous understandings of arithmetic to algebraic expressions.

1. Write and evaluate numerical expressions involving whole-number exponents.
2. Write, read, and evaluate expressions in which letters stand for numbers.
a. Write expressions that record operations with numbers and with letters standing for numbers.
For example, express the calculation "Subtract y from 5" as 5 - y.
b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, and coefficient); view one or more parts of an expression as a single entity.
For example, describe the expression $2(8+7)$ as a product of two factors; view $(8+7)$ as both a single entity and a sum of two terms.
c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
For example, use the formulas $V=s^{3}$ and $A=6 s^{2}$ to find the volume and surface area of a cube with sides of length $s=1 / 2$.
3. Apply the properties of operations to generate equivalent expressions.

For example, apply the distributive property to the expression $3(2+x)$ to produce the equivalent expression $6+3 x$; apply the distributive property to the expression $24 x+18 y$ to produce the equivalent expression $6(4 x+3 y)$; apply properties of operations to $y+y+$ $y$ to produce the equivalent expression $3 y$.
4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).
For example, the expressions $y+y+y$ and $3 y$ are equivalent because they name the same number regardless of which number $y$ stands for.

## B. Reason about and solve one-variable equations and inequalities.

5. Understand solving an equation or inequality as a process of answering a question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
7. Solve real-world and mathematical problems by writing and solving equations of the form $x+p=q$ and $p x=q$ for cases in which $p, q$, and $x$ are all nonnegative rational numbers.
C. Represent and analyze quantitative relationships between dependent and independent variables.
8. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $\mathrm{d}=65 \mathrm{t}$ to represent the relationship between distance and time.

## Geometry

A. Solve real-world and mathematical problems involving area, surface area, and volume.

1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

## Statistics and Probability

6.SP

## B. Summarize and describe distributions.

5. Summarize numerical data sets in relation to their context, such as by:
a. Reporting the number of observations.
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
c. Giving quantitative measures of center (median, and/or mean) and variability (range and/or interquartile range), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

## Grade 7

## Ratios and Proportional Relationships

A. Analyze proportional relationships and use them to solve real-world and mathematical problems.

1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.
For example, if a person walks $1 / 2$ mile in each $1 / 4$ hour, compute the unit rate as the complex fraction ${ }^{13 /} / 34$ miles per hour, equivalently 2 miles per hour.
2. Recognize and represent proportional relationships between quantities.
a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table, or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
c. Represent proportional relationships by equations.

For example, if total cost $t$ is proportional to the number $n$ of items purchased at a constant price $p$, the relationship between the total cost and the number of items can be expressed as $t$ =pn.
d. Explain what a point $(x, y)$ on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0,0)$ and $(1, r)$ where $r$ is the unit rate.
3. Use proportional relationships to solve multi-step ratio, rate, and percent problems. For example: simple interest, tax, price increases and discounts, gratuities and commissions, fees, percent increase and decrease, percent error.

## The Number System <br> 7.NS

A. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

1. Apply and extend previous understandings of addition and subtraction to add and subtract integers and other rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
a. Describe situations in which opposite quantities combine to make zero. For example: A hydrogen atom has zero charge because its two constituents are oppositely charged; If you open a new bank account with a deposit of $\$ 30$ and then withdraw $\$ 30$, you are left with a $\$ 0$ balance.
b. Understand $p+q$ as the number located a distance $|q|$ from $p$, in the positive or negative direction depending on whether $q$ is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
c. Understand subtraction of rational numbers as adding the additive inverse, $p-q=$ $p+(-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
d. Apply properties of operations as strategies to add and subtract rational numbers.
2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide integers and other rational numbers.
a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1)=1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then
$-(p / q)=(-p) / q=p /(-q)$. Interpret quotients of rational numbers by describing realworld contexts.
c. Apply properties of operations as strategies to multiply and divide rational numbers.
d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
3. Solve real-world and mathematical problems involving the four operations with integers and other rational numbers. ${ }^{3}$

## Expressions and Equations

A. Use properties of operations to generate equivalent expressions.

1. Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients.
For example, $4 x+2=2(2 x+1)$ and $-3(x-5 / 3)=-3 x+5$.
2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
For example, $a+0.05 a=1.05$ a means that "increase by $5 \%$ " is the same as "multiply by 1.05." A shirt at a clothing store is on sale for $20 \%$ off the regular price, " p ". The discount can be expressed as 0.2 p . The new price for the shirt can be expressed as $\mathrm{p}-0.2 \mathrm{p}$ or 0.8 p .

## B. Solve real-life and mathematical problems using numerical and algebraic expressions and

 equations.3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
For example, if a woman making $\$ 25$ an hour gets a $10 \%$ raise, she will make an additional $1 / 10$ of her salary an hour, or $\$ 2.50$, for a new salary of $\$ 27.50$. If you want to place a towel bar $93 / 4$ inches long in the center of a door that is $271 / 2$ inches wide, you will need to place the bar about 9 inches from each edge; This estimate can be used as a check on the exact computation.
4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
a. Solve word problems leading to equations of the form $p x+q=r$ and $p(x \div q)=r$, where $p, q$, and $r$ are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
For example, the perimeter of a rectangle is 54 cm . Its length is 6 cm . What is its width?
b. Solve word problems leading to inequalities of the form $p x+q>r$ or $p x+q<r$, where $p, q$, and $r$ are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
For example, as a salesperson, you are paid $\$ 50$ per week plus $\$ 3$ per sale. This week you want your pay to be at least $\$ 100$. Write an inequality for the number of sales you need to make, and describe the solutions.

[^13]c. Extend analysis of patterns to include analyzing, extending, and determining an expression for simple arithmetic and geometric sequences (e.g., compounding, increasing area), using tables, graphs, words, and expressions.

## B. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

4. Circles and measurement:
a. Know that a circle is a two-dimensional shape created by connecting all of the points equidistant from a fixed point called the center of the circle.
b. Understand and describe the relationships among the radius, diameter, and circumference of a circle.
c. Understand and describe the relationship among the radius, diameter, and area of a circle.
d. Know the formulas for the area and circumference of a circle and use them to solve problems.
e. Give an informal derivation of the relationship between the circumference and area of a circle.
5. Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

## Statistics and Probability

## C. Investigate chance processes and develop, use, and evaluate probability models.

5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $1 / 2$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
6. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
b. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.
c. Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If $40 \%$ of donors have type A blood, what is the probability that it will take at least four donors to find one with type A blood?

## Grade 8

## Expressions and Equations

A. Work with radicals and integer exponents.

1. Know and apply the properties of integer exponents to generate equivalent numerical expressions.
For example, $3^{2} \times 3^{-5}=3^{-3}=1 / 3^{3}=1 / 27$.
2. Use square root and cube root symbols to represent solutions to equations of the form $x^{2}=$ $p$ and $x^{3}=p$, where $p$ is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.
B. Understand the connections between proportional relationships, lines, and linear equations.
3. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
C. Analyze and solve linear equations and pairs of simultaneous linear equations.
4. Solve linear equations in one variable.
a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x=a, a=a$, or $a=b$ results (where $a$ and $b$ are different numbers).
b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
5. Analyze and solve pairs of simultaneous linear equations.
a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
b. Solve systems of two linear equations in two variables algebraically (using substitution and elimination strategies), and estimate solutions by graphing the equations. Solve simple cases by inspection.
For example, $3 x+2 y=5$ and $3 x+2 y=6$ have no solution because $3 x+2 y$ cannot simultaneously be 5 and 6 .
c. Solve real-world and mathematical problems leading to two linear equations in two variables.
For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.

## Functions

A. Define, evaluate, and compare functions.

1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. ${ }^{4}$
2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

[^14]3. Interpret the equation $y=m x+b$ as defining a linear function whose graph is a straight line; give examples of functions that are not linear.
For example, the function $\mathrm{A}=\mathrm{s}^{2}$ giving the area of a square as a function of its side length is not linear because its graph contains the points $(1,1),(2,4)$ and $(3,9)$, which are not on a straight line.
B. Use functions to model relationships between quantities.
4. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two $(x, y)$ values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

## Geometry

A. Understand congruence and similarity using physical models, transparencies, or geometry software.
2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations. Given two congruent figures, describe a sequence that exhibits the congruence between them.
4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

## B. Understand and apply the Pythagorean Theorem.

7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in realworld and mathematical problems in two and three dimensions.

## Statistics and Probability

A. Investigate patterns of association in bivariate data.
3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.
For example, in a linear model for a biology experiment, interpret a slope of $1.5 \mathrm{~cm} / \mathrm{hr}$ as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.

## High School Standards for Mathematical Content: By Conceptual

## Category

## Conceptual Category: Number and Quantity [ N ] <br> The Real Number System <br> N-RN

A. Extend the properties of exponents to rational exponents.

1. Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.
For example, we define $5^{1 / 3}$ to be the cube root of 5 because we want $\left(5^{1 / 3}\right) 3=5^{(1 / 3) 3}$ to hold, so $\left(5^{1 / 3}\right)^{3}$ must equal 5 .
2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.

## Conceptual Category: Algebra [A]

Seeing Structure in Expressions
A. Interpret the structure of linear, quadratic, exponential, polynomial, and rational expressions.

1. Interpret expressions that represent a quantity in terms of its context. $\star$
a. Interpret parts of an expression, such as terms, factors, and coefficients.
b. Interpret complicated expressions by viewing one or more of their parts as a single entity.
For example, interpret $\mathrm{P}(1+r)^{\mathrm{n}}$ as the product of P and a factor not depending on P .
B. Write expressions in equivalent forms to solve problems.
2. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.
a. Factor a quadratic expression to reveal the zeros of the function it defines.
b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
c. Use the properties of exponents to transform expressions for exponential functions. For example, the expression $1.15^{\mathrm{t}}$ can be rewritten as $\left(1.15^{1 / 12}\right)^{12 \mathrm{t}} \approx 1.012^{12 \mathrm{t}}$ to reveal the approximate equivalent monthly interest rate if the annual rate is $15 \%$.

## Arithmetic with Polynomials and Rational Expressions A-APR

A. Perform arithmetic operations on polynomials.

1. Understand that polynomials form a system analogous to the integers, namely, they are closed under certain operations.
a. Perform operations on polynomial expressions (addition, subtraction, multiplication, division) and compare the system of polynomials to the system of integers when performing operations.
b. Factor and/or expand polynomial expressions, identify and combine like terms, and apply the Distributive property.
B. Understand the relationship between zeros and factors of polynomials.
2. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

## Creating Equations

A. Create equations that describe numbers or relationships.

1. Create equations and inequalities in one variable and use them to solve problems. (Include equations arising from linear and quadratic functions, and simple root and rational functions and exponential functions.) $\star$
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. $\star$
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. $\star$ For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
For example, rearrange Ohm's law $\mathrm{V}=\mathrm{IR}$ to highlight resistance, R .

## Reasoning with Equations and Inequalities

## B. Solve equations and inequalities in one variable.

3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
a. Solve linear equations and inequalities in one variable involving absolute value.
4. Solve quadratic equations in one variable.
a. Use the method of completing the square to transform any quadratic equation in $x$ into an equation of the form $(x-p)^{2}=q$ that has the same solutions. Derive the quadratic formula from this form.
b. Solve quadratic equations by inspection (e.g., for $x^{2}=49$ ), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm b i$ for real numbers $a$ and $b$.

## C. Solve systems of equations.

6. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

## D. Represent and solve equations and inequalities graphically.

10. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). Show that any point on the graph of an equation in two variables is a solution to the equation.
11. Explain why the $x$-coordinates of the points where the graphs of the equations $y=f(x)$ and $y=g(x)$ intersect are the solutions of the equation $f(x)=g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. $\star$
12. Graph the solutions of a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set of a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

## Conceptual Category: Functions [F]

Interpreting Functions
A. Understand the concept of a function and use function notation.

1. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If $f$ is a function and $x$ is an element of its domain, then $f(x)$ denotes the output of $f$ corresponding to the input $x$. The graph of $f$ is the graph of the equation $y=f(x)$.
2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
For example, given a function representing a car loan, determine the balance of the loan at different points in time.

## B. Interpret functions that arise in applications in terms of the context (linear, quadratic, exponential,

 rational, polynomial, square root, cube root, trigonometric, logarithmic).4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. $\star$
5. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*

## C. Analyze functions using different representations.

7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ${ }^{\star}$
a. Graph linear and quadratic functions and show intercepts, maxima, and minima. ${ }^{\star}$
b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.*
c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.*
d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. ${ }^{\star}$
e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.*
8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
a. Use the process of factoring and/or completing the square in quadratic and polynomial functions, where appropriate, to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
b. Use the properties of exponents to interpret expressions for exponential functions. Apply to financial situations such as identifying appreciation and depreciation rate for the value of a house or car some time after its initial purchase. $V_{n}=P(1+r)^{n}$ For example, identify percent rate of change in functions such as $y=(1.02)^{\mathrm{t}}, \mathrm{y}=(0.97)^{\mathrm{t}}$, $y=(1.01)^{12 t}$, and $y=(1.2)^{t / 10}$, and classify them as representing exponential growth or decay.
9. Translate among different representations of functions (algebraically, graphically, numerically in tables, or by verbal descriptions). Compare properties of two functions each represented in a different way.
For example, given a graph of one polynomial function (including quadratic functions) and an algebraic expression for another, say which has the larger/smaller relative maximum and/or minimum.
10. Given algebraic, numeric and/or graphical representations of functions, recognize the function as polynomial, rational, logarithmic, exponential, or trigonometric.

## Building Functions

## A. Build a function that models a relationship between two quantities.

1. Write a function (linear, quadratic, exponential, simple rational, radical, logarithmic, and trigonometric) that describes a relationship between two quantities. $\star$
a. Determine an explicit expression, a recursive process, or steps for calculation from a context. ${ }^{\star}$
b. Combine standard function types using arithmetic operations. $\star$ For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.
c. (+) Compose functions. $\star$

For example, if $\mathrm{T}(\mathrm{y})$ is the temperature in the atmosphere as a function of height, and $\mathrm{h}(\mathrm{t})$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.
2. Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. ${ }^{\star}$

## B. Build new functions from existing functions.

3. Identify the effect on the graph of replacing $f(x)$ by $f(x)+k, k f(x, f(k x)$, and $f(x+k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. (Include linear, quadratic, exponential, absolute value, simple rational and radical, logarithmic and trigonometric functions.) Utilize technology to experiment with cases and illustrate an explanation of the effects on the graph. (Include recognizing even and odd functions from their graphs and algebraic expressions for them.)

## Linear, Quadratic, and Exponential Models <br> F-LE

A. Construct and compare linear, quadratic, and exponential models and solve problems.

1. Distinguish between situations that can be modeled with linear functions and with exponential functions. ${ }^{\star}$
a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. ${ }^{\star}$
b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. ${ }^{\star}$
c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. ${ }^{\star}$
2. Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (including reading these from a table).^
3. Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.*

## Trigonometric Functions

## B. Model periodic phenomena with trigonometric functions.

5. Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. $\star$

## Conceptual Category: Geometry [G]

Congruence
A. Experiment with transformations in the plane.

1. Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
3. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

## Similarity, Right Triangles, and Trigonometry

## A. Understand similarity in terms of similarity transformations.

1. Verify experimentally the properties of dilations given by a center and a scale factor:
a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
B. Prove theorems involving similarity.
2. Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.
C. Define trigonometric ratios and solve problems involving right triangles.
3. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
4. Explain and use the relationship between the sine and cosine of complementary angles.
5. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. $\star$
Circles

## B. Find arc lengths and areas of sectors of circles.

5. Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

## Expressing Geometric Properties with Equations

B. Use coordinates to prove simple geometric theorems algebraically.
4. Use coordinates to prove simple geometric theorems algebraically including the distance formula and its relationship to the Pythagorean Theorem.
For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point ( 0,2 ).
5. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

## Geometric Measurement and Dimension

## G-GMD

A. Explain volume formulas and use them to solve problems.

1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.
2. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*

Modeling with Geometry
A. Apply geometric concepts in modeling situations.

1. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder). $\star$

## Conceptual Category: Statistics and Probability [S]

Interpreting Categorical and Quantitative Data S-ID
A. Summarize, represent, and interpret data on a single count or measurement variable. Use calculators, spreadsheets, and other technology as appropriate.

1. Represent data with plots on the real number line (dot plots, histograms, and box plots). $\star$
2. Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. ${ }^{\star}$
3. Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).*
4. Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.*
B. Summarize, represent, and interpret data on two categorical and quantitative variables.
5. Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. ${ }^{\star}$
6. Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. ${ }^{\star}$
a. Fit a linear function to the data and use the fitted function to solve problems in the context of the data. Use functions fitted to data or choose a function suggested by the context. Emphasize linear and exponential models. ${ }^{\star}$
b. Informally assess the fit of a function by plotting and analyzing residuals. ${ }^{\star}$
c. Fit a linear function for a scatter plot that suggests a linear association.*
C. Interpret linear models.
7. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. ${ }^{\star}$
8. Compute (using technology) and interpret the correlation coefficient of a linear fit.*
9. Distinguish between correlation and causation.*

Making Inferences and Justifying Conclusions
A. Understand and evaluate random processes underlying statistical experiments. Use calculators, spreadsheets, and other technology as appropriate.
4. Understand statistics as a process for making inferences about population parameters based on a random sample from that population. ${ }^{\star}$

## The High School Standards for Mathematical Content: Standards by Model Course

The mathematical content standards presented above are organized by Conceptual Categories. The tables below show how these conceptual category content standards are distributed across the eight model courses:

- Algebra I (AI)
- Geometry (GEO)
- Algebra II (AII)
- Math I (MI)
- Math II (MII)
- Math III (MIII)
- Precalculus (PC)
- Advanced Quantitative Reasoning (AQR)


## Number and Quantity [ N ]

|  | A I | GE0 | A II | M I | M II | M III | PC | AQR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| The Real Number System (N-RN) |  |  |  |  |  |  |  |  |
| A. Extend the properties of exponents to rational exponents. |  |  |  |  |  |  |  |  |
| 1 | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |
| 2 | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |


| Statistics and Probability [S] |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A I | GEO | A II | M I | M II | M III | PC | AQR |
| Interpreting Categorical and Quantitative Data (S-ID) |  |  |  |  |  |  |  |  |
| A. Summarize, represent, and interpret data on a single count or measurement variable. Use calculators, spreadsheets, and other technology as appropriate. |  |  |  |  |  |  |  |  |
| 1 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| 2 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| 3 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| 4 | $\checkmark$ |  | $\checkmark$ |  |  | $\checkmark$ |  |  |
| B. Summarize, represent, and interpret data on two categorical and quantitative variables. |  |  |  |  |  |  |  |  |
| 5 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| 6 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| a | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| b | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| c | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| C. Interpret linear models. |  |  |  |  |  |  |  |  |
| 7 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| 8 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| 9 | $\checkmark$ |  |  | $\checkmark$ |  |  |  | $\checkmark$ |
| Making Inferences and Justifying Conclusions (S-IC) |  |  |  |  |  |  |  |  |
| A. Understand and evaluate random processes underlying statistical experiments. |  |  |  |  |  |  |  |  |
| 4 |  |  | $\checkmark$ |  |  | $\checkmark$ |  |  |

## ALGEBRA [A]

|  | A I | GEO | A II | M I | M II | M III | PC | AQR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Seeing Structure in Expressions (A-SSE) |  |  |  |  |  |  |  |  |
| A. Interpret the structure of expressions. |  |  |  |  |  |  |  |  |
| 1 | $\checkmark$ |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| a | $\checkmark$ |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| b | $\checkmark$ |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| B. Write expressions in equivalent forms to solve problems. |  |  |  |  |  |  |  |  |
| 3 | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |
| a | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |
| b | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |
| c | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |
| Arithmetic with Polynomials and Rational Expressions (A-APR) |  |  |  |  |  |  |  |  |
| A. Perform arithmetic operations on polynomials. |  |  |  |  |  |  |  |  |
| 1 | $\checkmark$ |  | $\checkmark$ |  | $\checkmark$ | $\checkmark$ |  |  |
| a | $\checkmark$ |  | $\checkmark$ |  | $\checkmark$ | $\checkmark$ |  |  |
| b | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |
| B. Understand the relationship between zeros and factors of polynomials. |  |  |  |  |  |  |  |  |
| 3 |  |  | $\checkmark$ |  |  | $\checkmark$ |  |  |
| Creating Equations (A-CED) |  |  |  |  |  |  |  |  |
| A. Create equations that describe numbers or relationships. |  |  |  |  |  |  |  |  |
| 1 | $\checkmark$ |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| 2 | $\checkmark$ |  | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |
| 3 | $\checkmark$ |  | $\checkmark$ | $\checkmark$ |  | $\checkmark$ |  |  |
| 4 | $\checkmark$ |  |  | $\checkmark$ | $\checkmark$ |  |  |  |
| Reasoning with Equations and Inequalities (A-REI) |  |  |  |  |  |  |  |  |
|  | A I | GEO | A II | M I | M II | M III | PC | AQR |
| B. Solve equations and inequalities in one variable. |  |  |  |  |  |  |  |  |
| 3 | $\checkmark$ |  |  | $\checkmark$ <br> $\checkmark$ |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| 4 | $\checkmark$ |  |  |  | $\checkmark$ |  |  |  |
| b |  |  |  |  |  |  |  |  |
| C. Solve systems of equations. |  |  |  |  |  |  |  |  |
| 6 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| D. Represent and solve equations and inequalities graphically. |  |  |  |  |  |  |  |  |
| 10 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |
| 11 | $\checkmark$ |  | $\checkmark$ | $\checkmark$ |  | $\checkmark$ |  |  |
| 12 | $\checkmark$ |  |  | $\checkmark$ |  |  |  |  |

## Functions [F]


B. Interpret functions that arise in applications in terms of the context (linear, quadratic, exponential, rational, polynomial, square root, cube root, trigonometric, logarithmic).



## Building Functions (F-BF)

A. Build a function that models a relationship between two quantities.


## Geometry [G]



## ITEM:

To accept the High School Voter Registration and Pre-Registration Grant in the amount of \$5,714.00 for the School Year (April 14, 2020 to June 30, 2020) and $\$ 6,286.00$ for the Summer (July 1, 2020 to November 30, 2020).

## PRIOR ACTION:

BACKUP: The purpose of this grant is to work with students within each of the seven high schools. The focus of our efforts would be in building teams of students, teachers and administrators within each of the seven high schools who would work as a group within those schools to plan, initiate and implement voter pre-registration and registration activities at each one of the high school campuses.

Annex A (13 pages) contains a copy of the grant acceptance form.

RECOMMENDATION OF MAKER:

## RECOMMENDATION OF ADMINISTRATION:

Approve on a roll call.

# Grant Acceptance Form 

| Name of Grant: | High School Voter Registration and Pre-Registration |
| :--- | :--- |
| Type of Funder: $\quad$ Massachusetts Department of Elementary and Secondary Education |  |


| Awarded Amount: | \$5,714.00-School Year |
| :---: | :---: |
|  | \$6,286.00 - Summer |
| Grant Funding Period: | April 14, 2020 - June 30, 2020 SY \& July 1, 2020 - November 30,2020-Summer |
| Project title: | High School Voter Registration and Pre-Registration |
| Program coordinator: | O'Neil/Kelly |
| Purpose: | To promote civic engagement of high school students through initiatives that encourage them to register or pre-register to vote. |
| Description of the program: | To work with students within each of our seven high schools. The main focus of our efforts would be in building teams of students, teachers and administrators within each of the seven high schools who would work as a group within those schools to plan, initiate and implement voter pre-registration and registration activities at each one of our high school campuses. |
| Program location: | Worcester Public School- Seven High Schools |
| Outcomes and Measures: | To prepare students, morally and intellectually, for the duties of citizenship. |

MASSACHUSETTS DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION

## STANDARD CONTRACT FORM AND APPLICATION FOR PROGRAM GRANTS


A. APPLICANT: Worcester Public Schools

ADDRESS: 20 Ivving Street
Worcester, MA 01609
TELEPHONE: (508) 799-3108
B. APPLICATION FOR PROGRAM FUNDING

| FUND <br> CODE | PROGRAM NAME | PROJECT DURATION | AMOUNT <br> REQUESTED |
| :---: | :---: | :---: | :---: |
| FY2020 | Trust - COMPETITIVE <br> administered by the <br> PROGRAM UNIT NAME | FROM | TO |
| 575 | High School Voter Registration |  |  |
| and | Upon <br> Approval <br> Pre-Registration Grant | $6 / 30 / 2020$ |  |

C. I CERTIFY THAT THE INFORMATION CONTAINED IN THIS APPLICATION IS CORRECT AND COMPLETE; THAT THE APPLICANT AGENCY HAS AUTHORIZED ME, AS ITS REPRESENTATIVE, TO FILE THIS APPLICATION; AND THAT I UNDERSTAND THAT FOR ANY FUNDS
RECEIVED THROUGH THIS APPLICATION THE AGENCY AGREES TO COMPLY WITH ALL APPLICABLE STATE AND FEDERAL GRANT REQUIREMENTS COVERING BOTH THE PROGRAMMATIC AND FISCAL ADMINISTRATION OF GRANT FUNDS.


Friday, March 6, 2020
Proposals must be received at the Department by 5:00 p.m. on the date due.



## MASSACHUSETTS DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION STANDARD CONTRACT FORM AND APPLICATION FOR PROGRAM GRANTS

PART I - GENERAL

| A. APPLICANT: Worcester Public Schools | District Code: | 0 | 3 | 4 |
| :--- | :--- | :--- | :--- | :--- |
| ADDRESS: $\quad 20$ Irving Street | 8 |  |  |  |
|  | Worcester, MA 01609 |  |  |  |
| TELEPHONE: $(508) 799-3108$ |  |  |  |  |

B. APPLICATION FOR PROGRAM FUNDING

| FUND CODE | PROGRAM NAME | PROJECT DURATION |  | AMOUNT REQUESTED |
| :---: | :---: | :---: | :---: | :---: |
| FY2021 | Trust - COMPETITIVE administered by the PROGRAM UNIT NAME | FROM | TO | \$6,286 |
| 575 | High School Voter Registration and Pre-Registration Grant | 7/1/2020 | 11/30/2020 |  |

C. I CERTIFY THAT THE INFORMATION CONTAINED IN THIS APPLICATION IS CORRECT AND COMPLETE; THAT THE APPLICANT AGENCY HAS AUTHORIZED ME, AS ITS REPRESENTATIVE, TO FILE THIS APPLICATION; AND THAT I UNDERSTAND THAT FOR ANY FUNDS RECEIVED THROUGH THIS APPLICATION THE AGENCY AGREES TO COMPLY WITH ALL APPLICABLE STATE AND FEDERAL GRANT REQUIREMENTS COVERING BOTH THE PROGRAMMATIC AND FISCAL ADMINISTRATION OF GRANT FUNDS.


Friday, March 6, 2020
Proposals must be received at the Department by 5:00 p.m. on the date due.


School Finance Regulations (/lawsregs/603cmr10.html)

Spending Comparisons - (/finance/statistics/)

Transportation (/finance/transportation/)
Chapter 74 Nonresident Tuition (/ccte/cute/admissions/)
School Finance Contacts (/finance/contactus.html)

Related Links (/finance/links.html)

## FY2020: High School Voter Registration and Pre-Registration

## Fund Code: 575

## Purpose:

The purpose of this competitive grant program is to promote civic engagement of high school students through initiatives that encourage them to register or pre-registering to vote. Chapter 296 of the Acts of 2018 (https://malegislature.gov/laws/sessionlaws/acts/2018/chapter296), An Act to promote and enhance civic engagement, states, "In all public schools, history of the United States of America and social science, including civics, shall be taught as required subjects to promote civic service and a greater knowledge thereof and to prepare students, morally and intellectually, for the duties of citizenship." This grant supports Local Education Agencies (LEAs), Collaboratives, and Approved Special Education School Programs to meet this charge by raising students' awareness of the importance of voting and supporting them to register or pre-register to vote.

## Priorities:

The 2018 Massachusetts Curriculum Framework for History and Social Science (/frameworks/hss/2018-12.pdf) includes "A Renewed Mission: Education for Civic Life in a Democracy." According to the Framework, "The primary purpose of a history and social science education is to prepare students to have the knowledge, skills, and dispositions to become thoughtful and active participants in a democratic society and a complex world." To achieve this purpose, the learning standards in the Framework include civic skills, knowledge, and dispositions for students at all grades. This grant is focused specifically on high schools and supports LEAs, Collaboratives, and Approved Special Education School Programs to connect civics instruction with informed participation in our democratic society, in this case the act of voting.

In Massachusetts, you may register or pre-register to vote if you are:

- A citizen of the United States,
- A Massachusetts resident, and
- At least 18 years old for registration or at least 16 years old for pre-registration

Chapter 296 of the Acts of 2018 (https://malegislature.gov/laws/sessionlaws/acts/2018/chapter296) establishes a high school voter challenge to be organized by the Secretary of State's Office. In support of the challenge, the Department of Elementary and Secondary Education (DESE) is administering this competitive grant program to catalyze and learn from local efforts to support high school students to become voters.

Grant applications will be scored with the following priorities in mind:

- Appropriateness of proposed activities: Grant funds may be used to host non-partisan voter registration events for students (in collaboration with city or town clerks), establish student leadership structures for students to help their peers register to vote, develop communications materials for students and families about the importance of voting and how to register, partner with voter registration and voter education organizations, develop leadership opportunities for teachers to connect voter registration activities with students' classroom instruction.
- Scale of impact: As noted below, proposals that reach multiple high schools, and thereby more students, are eligible for higher funding levels. In general, applications that describe a clear impact on the greatest number of students will be scored most favorably.
- Coordination with city or town clerk: Applications that demonstrate a commitment to and support for the proposed grant activities from the city or town clerk will be scored most favorably.
- Evaluation: DESE will be evaluating grant impact. Grant recipients will be required to share a description of the outcomes and any products created (e.g., communication materials). As noted above, DESE hopes to leam from grantees about effective mechanisms for supporting students to become voters. Grantees will be expected to quantify the impact of the grant, for example by specifying the number of students who registered or pre-registered to vote as a result of grant activities.
- Appropriateness of budget: DESE is interested in funding as many valuable projects as possible. Accurate and reasonable budgets that are specific about funding needs will be scored most favorably.

In addition, competitive priority in the scoring process will be given to the following applicants:

- Cross-LEA partnerships. With limited funding available, partnerships are attractive for maximizing the reach of the grant. LEAs that form a partnership should identify one LEA to apply for the grant as the fiscal agent for the group.
- LEAs or partnerships in which greater than $30 \%$ of the student population is designated as economically disadvantaged

Eligibility:
All Massachusetts Local Education Agencies (districts, charter schools, Collaboratives, and Approved Special Education School Programs) are eligible to apply.

Funding Type:
Trust

## Funding:

Approximately $\$ 80,000$ is available through trust funds.
Maximum award size is determined by the number of high schools in the LEA (or group of LEAs in the case of partnerships).

- Size Tier 1: LEA with 1 high school may apply for up to $\$ 3,000$
- Size Tier 2: LEA(s) or partnerships with 2 to 5 high schools may apply for up to $\$ 5,000$
- Size Tier 3: LEA(s) or partnerships with 6 to 12 high schools may apply for up to $\$ 12,000$
- Size Tier 4: LEA(s) or partnerships with greater than 12 high schools may apply for up to $\$ 20,000$.

Funding is contingent upon availability. All dollar amounts listed are estimated/approximate and are subject to change.
Fund Use:

- Stipends for teachers who will manage voter education and registration events for the school, including coordination of events with the city or town clerk
- Contracting with external partners who specialize in voter registration
- Costs associated with voter registration events
- Costs associated with running a student civic leadership group focused on student voter registration and education

Funding restrictions:

- No funds may be dedicated toward administrator salaries
- No funds may be used to purchase technology (e.g., Smart Boards, iPads)
- No funds may be used to provide payment or any form of remuneration to students to register or pre-register to vote.
- No funds may be used to support political candidates or campaigns.


## Project Duration:

FY2020 - Upon Award through 6/30/2020
FY2021 - July 1, 2020 - November 30, 2020
Program Unit:
Center for Instructional Support
Contact:
Cecelia Spencer (mailto:Cecelia.Spencer@doe.mass.edu)

## Phone Number:

(781) 338-6243

Date Due:
Complete Proposals are due by Friday, March 62020
Proposals must be received at the Department by 5:00 p.m. on the date due.

## Required Forms:

wy
(parti- Grants)
signature.docx)
FY2021: Part I — General — Program Unit Signature Page - (Standard Contract Form and Application for Program
(parti- Grants)
fy21.docx)
FY2020: Part II-Budget Detail Pages Workbook (include both pages)
(partii-
budget.xlsx)

気 FY2021: Part II - Budget Detail Pages Workbook (include both pages)
(partii-
fy21.x|sx)
Part III — Required Program Information
(partiii-
info.docx)

Additional Information:
FAQ - FC 575 High School Voter (faq.docx)
Grant use of funds will be evaluated upon completion of project duration.
Any grant related questions must be emailed to: Cecelia Spencer $\boxtimes$ (mailto:Cecelia.Spencer@doe.mass.edu). Responses will be posted to this website.

## Submission

Instructions:
Email one (1) complete set of all required documents (Part I, Part II and Part III) to: Cecelia Spencer $\square$ (mailto:Cecelia.Spencer@doe.mass.edu) no later than 5:00 p.m. on the date due.

Upon award, recipients will be required to enter the approved budget in EdGrants and upload required documents. Once selected, grant recipients will be contacted with further instructions on the process.

## About this Site

A-Z Site Index (/resources/A-Zindex.aspx)
Policies (/resources/policy.html)
Site Information (/resources/howto.html)
Photo Credits (/resources/credits.html)
Contact Webmaster (https://massgov.service-now.com/)

Most Requested

Licensure (/licensure/)
Curriculum Frameworks (/frameworks/)

MCAS (/mcas/)
MTEL (/mtel/)
Educator Services (/educators/)
Educator Evaluation (/edeval/)
Job Opportunities (/jobs/)

Comments/Questions

Media \& Public Records Requests (/news/)
Contact the Department (/contact/)
Contact the Board (/bese/contactinfo.html)
Contact a District or School (http://profiles.doe.mass.edu/search/search.aspx?leftNavid=11238)
Problem Resolution (/prs/)

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## Contact Us

Massachusetts Department of Elementary and Secondary Education
75 Pleasant Street, Malden, MA 02148-4906
Voice: (781) 338-3000
TV: (800) 439-2370

PDirections (/contact/doedirections.html)

Disclaimer: A reference in this website to any specific commercial products, processes, or services, or the use of any trade, firm, or corporation name is for the information and convenience of the public and does not constitute endorsement or recommendation by the Massachusetts Department of Elementary and Secondary Education.
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## Grants and Other Financial Assistance Programs (|grants/)

| Accounting \& Auditing • (/finance/accounting/) |
| :--- |
| Chapter 70 Program (/finance/chapter70/) |
| Charter Schools (/charter/finance/) |
| Circuit Breaker (/finance/circuitbreaker/) |
| Educational Collaboratives (/finance/collaboratives/) |
| DESE Budget (/finance/ESEbudget/) |
| Grants/Funding Opportunities • (/grants/) |
| Current Grants (/grants/current.html) |
| Previous Grants (/grants/pastgrants.aspx) |
| Allocations \& Awards (/grants/awards.html) |
| Nutrition Programs (/cnp/nprograms/) |
| Regional Districts (/finance/regional/) |
| School Buildings (/finance/sbuilding/) |
| School Choice (/finance/schoolchoice/) |

X. GENERAL BUSINESS

ITEM - gb \#0-156
Administration
S.C. MEETING - 5-7-20
(April 21, 2020)

## ITEM:

To consider approval of a donation in the amount of $\$ 100$ from AbbVie to Rice Square School.

PRIOR ACTION:

BACKUP:

RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Approve on a roll call.
X. GENERAL BUSINESS

Mr. Monfredo/Miss Biancheria/Mrs. Clancey
Mr. Foley/Ms. McCullough
(April 24, 2020)

ITEM:
To consider the feasibility of creating an online Summer School Program, utilizing chromebooks, at various grade levels in the areas of math and English Language Arts, subject to funding and updates on the Coronavirus.

## PRIOR ACTION:

BACKUP:

## RECOMMENDATION OF MAKER:

Refer to the Administration for implementation.
RECOMMENDATION OF ADMINISTRATION:
Refer to the Administration.
X. GENERAL BUSINESS

Ms. McCullough/Mrs. Biancheria/Mrs. Clancey/
Mr. Foley/Mr. Monfredo/Ms. Novick
(April 27, 2020)

ITEM:
Request that the Administration provide a report with a breakdown by high school for seniors regarding reimbursements for all trips, events, graduations and any other costs. In addition, provide an additional report for all student events and trips that have been paid for and need to be reimbursed.

PRIOR ACTION:

BACKUP:

## RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Refer to the Admistration.
X. GENERAL BUSINESS

Mr. Monfredo/Miss Biancheria/Mr. Foley/ S.C. MEETING - 5-7-20

Ms. McCullough/Ms. Novick
(April 29, 2020)

ITEM:
To forward a letter to Congressman McGovern to support the Emergency Education Connection Act of 2020 to ensure that K-12 students can be connected and continue online learning and instruction.

## PRIOR ACTION:

BACKUP:

## RECOMMENDATION OF MAKER:

Refer to the Administration for implementation.
RECOMMENDATION OF ADMINISTRATION:
Forward letter.
X. GENERAL BUSINESS

Administration
(April 29, 2020)

ITEM:

To consider the results of the student survey.

PRIOR ACTION:

BACKUP:

RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Discuss and file.
X. GENERAL BUSINESS

Mrs. Clancey/Miss Biancheria/Mr. Foley/
Ms. McCullough/Mr. Monfredo/Ms. Novick
(April 29, 2020)

ITEM:
Request that the Administration provide a report on the district's plan to enhance extended learning for the remainder of the school year that will ensure students are meeting the standards and are ready for the next grade level.

PRIOR ACTION:

BACKUP:

RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Refer to the Administration.
X. GENERAL BUSINESS

Administration
(April 29, 2020)

## ITEM:

To consider approval of a prior fiscal year payment in the amount of \$7,750 for a principal who wrote the new Doherty Memorial High School's Education Plan for submittal to the MSBA.

## PRIOR ACTION:

BACKUP:

RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Approve on roll call.
X. GENERAL BUSINESS

ITEM - gb \#0-163
Ms. Novick/Mrs. Clancey/Mr. Foley/Ms. McCullough/ S.C. MEETING - 5-7-20 Mr. Monfredo
(April 29, 2020)

ITEM:
Request that the Administration report on the number of seniors eligible for the modified competency determination as passed by the Massachusetts Board of Education on April 28 and the process through which their application for competency will be submitted.

## PRIOR ACTION:

## BACKUP:

## RECOMMENDATION OF MAKER:

Refer to the Administration for a report back via Friday letter.
RECOMMENDATION OF ADMINISTRATION:
The Administration concurs with the maker.
X. GENERAL BUSINESS

ITEM:
Request that the Administration consider the number of Worcester Public Schools' students in a family in the distribution of district Chromebooks.

## PRIOR ACTION:

## BACKUP:

## RECOMMENDATION OF MAKER:

Refer to the Administration.
RECOMMENDATION OF ADMINISTRATION:
The Administration concurs with the maker.
X. GENERAL BUSINESS

Ms. Novick/Mrs. Clancey/Mr. Foley/Ms. McCullough S.C. MEETING - 5-7-20 (April 29, 2020)

## ITEM:

To clarify the structure of the feedback rubric vis-à-vis district assigned work versus extended work.

## PRIOR ACTION:

## BACKUP:

## RECOMMENDATION OF MAKER:

Discuss and request addition to the district FAQ.

## RECOMMENDATION OF ADMINISTRATION:

The Administration concurs with the maker.

## ITEM:

To create and administer a survey for students, families, and staff regarding current remote learning, to inform Phase III remote learning planning and work.

## PRIOR ACTION:

BACKUP:

## RECOMMENDATION OF MAKER:

Refer to the Standing Committee on Governance and Employee Issues.

## RECOMMENDATION OF ADMINISTRATION:

The Administration concurs with the maker.
X. GENERAL BUSINESS

Miss Biancheria/Mrs. Clancey/Mr. Foley/ Ms. McCullough/Mr. Monfredo/Ms. Novick (April 29, 2020)

ITEM:

Request that the Administration provide information from the City Manager in reference to land purchased on Grafton Street near Roosevelt School which will provide accommodations for parking and traffic flow.

## PRIOR ACTION:

BACKUP:

## RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Refer to the Administration.
X. GENERAL BUSINESS

ITEM - gb \#0-168
Ms. McCullough/Miss Biancheria/Mrs. Clancey/ S.C. MEETING - 5-7-20

Mr. Foley/Ms. Novick
(April 29, 2020)

ITEM:
To clarify the district's directive requiring the recording of teacher-student interactions.

## PRIOR ACTION:

## BACKUP:

## RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Refer to the Administration.
X. GENERAL BUSINESS

## ITEM:

To consider approval of the following textbooks:

- Discovering World Geography (McGraw Hill)-grade 6 Social Studies
- Studysync (McGraw Hill)-grades 7 and 8 ELA


## PRIOR ACTION:

BACKUP: For perusal of these textbooks, click the following links:
Textbook for Discovering World Geography: my.mheducation.com Username: WorcesterSS Password: WorcesterSS

Textbook for Studysync: my.mheducation.com
Username: WorcesterELA
Password: WorcesterELA

## RECOMMENDATION OF MAKER:

## RECOMMENDATION OF ADMINISTRATION:

Approve on roll call.

ITEM:

To discuss strategy with respect to litigation for a Worker's Compensation Cook, if an open meeting may have a detrimental effect on the litigating position of the School Committee and the chair so declares.

To discuss strategy with respect to collective bargaining if an open meeting may have a detrimental effect on the bargaining position of the public body and the chair so declares - Coronavirus/COVID-19 Related Issues Educational Association of Worcester, Units A \& B (Educators/Administrators); Aides to the Physically Handicapped, Monitors and Drivers; Instructional Assistants; Parent Liaisons; Tutors; and Therapy Assistants.

PRIOR ACTION:

BACKUP:

RECOMMENDATION OF MAKER:

RECOMMENDATION OF ADMINISTRATION:
Discuss.


[^0]:    ${ }^{1}$ Words, syllables, or phonemes written in /slashes/ refer to their pronunciation or phonology. Thus, /CVC/ is a word with three phonemes regardless of the number of letters in the spelling of the word.

[^1]:    ${ }^{2}$ Drawings need not show details, but should show the mathematics in the problem.

[^2]:    ${ }^{3}$ See Glossary, Table 1.
    ${ }^{4}$ Students need not use formal terms for these properties.

[^3]:    ${ }^{5}$ See Glossary, Table 1.
    ${ }^{6}$ Strategies such as counting on; making tens; decomposing a number; using the relationship between addition and subtraction; and creating equivalent but easier or known sums.
    ${ }^{7}$ Explanations may be supported by drawings or objects.

[^4]:    ${ }^{8}$ Sizes are compared directly or visually, not compared by measuring.

[^5]:    ${ }^{9}$ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K-5 resource section in this Framework.

[^6]:    ${ }^{10}$ See Glossary, Table 2.
    ${ }^{11}$ Students need not use formal terms for these properties. Students are not expected to use distributive notation.
    ${ }^{12} \mathrm{~A}$ range of algorithms may be used.

[^7]:    ${ }^{13}$ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K-5 resource section in this Framework.

[^8]:    ${ }^{14}$ See Glossary, Table 2.

[^9]:    ${ }^{15}$ Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

[^10]:    ${ }^{16}$ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K-5 resource section in this Framework.

[^11]:    ${ }^{17}$ These skills are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking. See the table in the pre-K-5 resource section in this Framework.

[^12]:    ${ }^{1}$ Expectations for unit rates in this grade are limited to non-complex fractions.
    ${ }^{2}$ Example is from the Illustrative Mathematics Project: https://www.illustrativemathematics.org/content-standards/tasks/2174

[^13]:    ${ }^{3}$ Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

[^14]:    ${ }^{4}$ Function notation is not required in grade 8 .

