



Melrose Public Schools  
Administrative Offices  
360 Lynn Fells Parkway  
Melrose, MA 02176

Patricia Muxie  
Director of Curriculum

Telephone Number (781) 462-3257  
Fax: (781) 979-2285  
Email: pmuxie@melrose.mec.edu

To: Melrose Instructional Staff, Specialists, Paraprofessionals, Administrators, School Committee, and Interested Community Members

From: Pat Muxie

Re: **District-Wide MCAS Results for Spring 2011**

November 12, 2011

There are currently many changes going on at the state and national levels in regard to curriculum, instruction, and assessment. These changes have a direct connection to, and impact on, what is happening in our own district and in our classrooms. Expectations are becoming more rigorous as there is a much greater emphasis on making sure that students who leave our doors are ready for the college and/or career they choose. In Melrose, our goals are even higher...to ensure that our students are leaders in their field.

In connection with and related to this report, interested parties may also view the PowerPoint Presentations created by the Leadership Team and given to the School Committee earlier in October. Those documents can be accessed by going to: [www.melroseschools.com](http://www.melroseschools.com). The elementary school presentation is listed on the main page. The Middle and High School presentations are located on the main page of those respective schools.

Within the pages of this document, you will find an analysis of each grade level's performance on the 2011 MCAS *from a district-wide perspective*. As often as possible, we have tried to report previous year's data to better see trends, achievements, and gaps. We look at the performance of all of our students and pay close attention to subgroups reported. Although the Department of Elementary and Secondary Education is only releasing a limited amount of test items, the items which *have* been released are reviewed and analyzed. Signs of improvement/strength as well as suggestions for improvement are noted here. Administrators, teachers, and Department Heads all review data through their unique lens for the purpose of increasing student programming and achievement.

We can feel good about our efforts in regard to the following facts:

- All Melrose schools continue to earn the DESE Performance Ratings of High or Very High in both English Language Arts and Math.
- In all three subject areas tested, ELA, Mathematics, and Science, the percentage of students scoring Proficient or higher has increased since 2009 for the *majority* of grade levels tested.
- Of particular note, the percentage of students scoring Proficient or higher in Math at the Grade 7 level has dramatically increased. This was one of our data analysis goals from last year. Percentages at the Grades 6 and 8 levels have increased as well. Our staff members have been working hard to make this happen.
- Students in Grades 5-8 and in the district overall over time are increasingly achieving Advanced status in ELA, Math, and Science due to increased rigor supported by our efforts to tailor instruction.
- Tailoring instruction, and efforts to provide effective interventions, has also had a positive impact on the percentage of students we see in the Warning category. This percentage has also decreased for the district overall and for the majority of grade levels tested since 2009.
- Looking at our special education subgroup, we see good results from our move to the co-teaching model, especially at the elementary level, where we see a decreased percentage of students in the warning category for all grade levels and subject areas tested as compared to 2009 statistics.
- Subgroup performance at the High School level in English also improved.
- Over 70 High School students will qualify for a John and Abigail Adams Scholarship, based on their 2011 MCAS results.

continued

- Grade 8 Science scores showed dramatic improvement due in part to an examination of the curriculum with a reassignment of accountability for specific concepts supported by the Department Chair and department members.
- In Biology at the high school level, the percentage of students scoring Proficient or Advanced jumped from 77%-95% this year.
- For the first time, student growth percentile scores at many of our elementary schools reached into the 60s, 70s, and even 80s at a variety of grade levels. This indicates very good growth for our students.
- For the first time, we have a 0% failure rate in ELA at the High school level.

In the upcoming year, we plan to focus our efforts on the following activities in order to ensure continued growth and improvement where we need it most:

- Continue efforts to support and provide Math coaching as the most effective form of professional development for elementary and middle school staff.
- Continue to expand the co-teaching model especially at the Middle School level through Grade 8.
- Assist and support, through targeted professional development, any schools with Student Growth Percentiles lower than 40 in any content area at any grade level.
- Improve the consistency of students' performance and growth scores across all elementary schools by sharing best practices which can be reliably replicated.
- Continue expansion of the Atlas Curriculum Mapping team to promote effective instructional sequences and the use of tailored resources/activities that promote student achievement of 21<sup>st</sup> century skills.
- Consider the use of the Department of Elementary and Secondary Education's, "Conditions for School Effectiveness Self Assessment" tool which contains a detailed rubric for analysis, to determine any additional areas of focus for sustained growth and achievement.

We hope you find this data both helpful and interesting, whether you are seeing it through the lens of a parent, teacher, student, administrator, or community member. As always, we welcome your comments and insights. Feel free to contact me through the above email address.

Sincerely,  
Patricia Muxie

**GRADE 3 MCAS ANALYSIS-SPRING 2011  
ENGLISH LANGUAGE ARTS and MATH**

**Note: Student growth percentiles (SGPs) are not reported at this grade level.**

**NUMBER OF STUDENTS ASSESSED**

**ELA:** 301

60 Students with Disabilities  
15 Limited English Proficient  
54 Low-Income

**Math:** 302

60 Students with Disabilities  
15 Limited English Proficient  
54 Low-Income

**PERFORMANCE LEVEL PERCENTS**

Note: Numbers in parentheses indicate the actual number of students. **Proficient category includes Proficient and Above Proficient categories.**

**ENGLISH LANGUAGE ARTS:**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Proficient	70	66	74	73	56	57	63	61
Needs Improvement	25	7	20	22	33	33	30	30
Warning	5	7 (18)	5 (15)	5 (15)	11	10	8	9

**MATH:**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Proficient	74	70	74	71	61	60	65	66
Needs Improvement	20	19	19	22	25	25	24	25
Warning	7 (17)	11 (31)	6 (18)	7 (21)	14	15	11	10

**PERFORMANCE LEVEL NOTES**

**ENGLISH LANGUAGE ARTS:**

- 1) The percentage of students in the advanced level has gone up since 2008, but decreased slightly in comparison to last year. This same pattern was seen at the state level as well.
- 2) We were higher than the state in the Proficient category and lower than the state in the Needs Improvement and Warning categories in ELA.

**MATH:**

- 1) The percent of students in the Proficient category decreased by 3% .
- 2) We are higher than the state in the Proficient category and lower than the state in the Needs Improvement and Warning categories.

**PERFORMANCE LEVEL RESULTS FOR SELECTED SUBGROUPS**

**ELA** The percentage of ELL students and students with disabilities in the Warning category in Reading decreased this year, with a resulting increase in composite performance index points. This is good. In fact, if we look at the percentages of students in the Warning category, we see a decrease for all subgroups reported with the exception of low-income, and white. Those percentages remained similar to last year.

**MATH** In Math, the percentage of our ELL and African American students in the Warning category decreased this year, with a resulting increase in composite performance index points. Although the *overall* percentage of students in the Warning category has decreased in Math since 2009, in comparison to last year, the percentage of students in the Warning category in the subgroups of students with disabilities, low-income, and white, has increased.

**SUBJECT AREA SUBSCORES:** (average % of points attained)

<b>ELA</b>	Melrose	2008	2009	2010	2011	State	2008	2009	2010	2011
Language		87	83	86	87		77	79	81	82
Literature		75	74	76	80		70	70	72	75

**SUBJECT AREA SUBSCORES CONTINUED:** (average % of points attained)

ELA Item Type	Melrose	2008	2009	2010	2011	State	2008	2009	2010	2011
Multiple Choice		85	83	84	87		78	79	80	82
Open Response		54	53	38	60		50	49	37	55
Short Response		-	-	-	68		-	-	-	64

<b>Math</b>	Melrose	2008	2009	2010	2011	State	2008	2009	2010	2011
Number Sense		77	76	72	76		73	75	71	74
Patterns/Relations		83	81	84	84		79	78	74	80
Geometry		79	78	82	70		71	71	76	69
Measurement		83	78	74	76		77	77	73	73
Data Analysis/SP		84	82	76	83		78	80	72	79

Math Item Type	Melrose	2008	2009	2010	2011	State	2008	2009	2010	2011
Multiple Choice		-	80	80	79		-	78	77	76
Short Answer		-	80	69	79		-	77	67	76
Open Response		-	76	74	74		-	71	63	71

All subject area subscores surpassed the state in both subject areas. Similar to the state, in ELA, Language scores surpassed Literature scores. In ELA, open response question performance jumped back up to and surpassed our previous performance. This was reflected at the state level as well. In Math, Patterns and Relations was our highest area with Data Analysis a close second. Open response question performance was better in Math than ELA, as it has been for the last two years.

**\*See Test Item Analysis below for questions that were released by DESE and proved difficult for Grade 3.**

**TEST ITEM ANALYSIS FOR RELEASED ITEMS**

**ENGLISH LANGUAGE ARTS**

**LITERATURE**

Criteria: More than 25% of our students got the answer incorrect. The Dept. of ESE has only released one of the three questions for analysis.

#23-Structure and origins of English (not released)

#24-Vocabulary (not released)

**OPEN RESPONSE**

Criteria: Fewer than half of our students got a 3 or 4.

#11- Explain how the big orange plot caused the neighborhood to change.

**SHORT RESPONSE**

Criteria: More than half of our students got a 1 or left it blank

#25-drama (not released)

#36-non-fiction (not released)

#37- non-fiction (not released)

**MATH**

**MULTIPLE CHOICE**

Criteria: For multiple choice: More than 25% of our students got the following questions incorrect.

An asterisk indicates that our average item score was LOWER than the state's.

#5- Estimate the total of 2 books. (Students needed to round 80 cents up to a dollar.)

#9- Choose the list of numbers showing ALL multiples of 6. (Some students chose a list that included the number 1.)

#10- Interpret a line graph.

#12- Select the letter showing 2 parallel lines. (Many chose V over N.)

#13- Which pictograph matches the line plot shown? (Many students did not apply the key information which stated that each symbol equaled 2 students.)

#25- Relate multiplication to division.

\*#26- Estimate area of a rectangle.

\*#35- Locate a fraction on a number line.

## **OPEN RESPONSE**

Criteria: Fewer than half of our students got a 2.

None

## **SHORT ANSWER**

Criteria: More than half of our students left it blank.

None

### **RECOMMENDATIONS BASED ON TEST ITEM ANALYSIS-GRADE 3**

**ELA:** We can already see the influence of the common core state standards coming into our MCAS expectations. Students were responsible for writing an *explanation* in their open response question. As you may remember from the new MA ELA and Literacy framework presentation, writing to persuade or explain are 2 other major focus areas (in addition to writing a narrative) as students progress through the grades. Incorporate this knowledge into your instructional time and planning, so that these are the types of writing students are practicing. If you would like to see some exemplars of students' writing on the open response questions at your grade level, go to [www.doe.mass.edu](http://www.doe.mass.edu) and click on the school and district profile tab. Choose Public School from the drop down menu on the left. Choose Melrose from the drop down menu on the right. Click on your blue school link then click on the assessment tab. Choose Item by Item Results on the left side of the page, then choose your grade level and the ELA content area. Click on the number of the Open Response question you wish to view. You can then choose: View Student Work. The DESE has posted samples of each score point. This is an excellent instructional resource that can easily be used with your Smartboard.

### **MATH:**

- In addition to continuing to give students many physical opportunities to calculate the area and perimeter of rectangles, add a visual component where students need to *estimate* the area or perimeter as well. Review procedures for helping students to decide when to round up and when to round down in regard to estimation.
- Studying fractions in depth is now an area of focus at your grade level. According to your sequence of instruction map, you should be devoting close to 5 weeks of study for this concept. This should ensure students' strong conceptual understanding of the topic which includes explorations with fractions on number lines.

### **AREAS SHOWING STRENGTH OR IMPROVEMENT**

#### **ELA**

- Although we have noted open response questions in the section above, it is important to know that our students' open response question performance has improved over the last 3 years. We want all of our students achieving a 3 or a 4 on open response questions, thus, we need to continue our efforts for continued improvement.
- Questions requiring interpretation/understanding of not only a character's actions but also their feelings, showed strong scores. Continue to incorporate higher level thinking skills of inference and analysis into your instruction and questioning.

#### **MATH**

Students showed strong understanding of the following concepts:

- Division
- Rounding
- Algebraic equations
- Place value
- Choosing the most appropriate type of measurement.

**GRADE 4 MCAS ANALYSIS- SPRING 2011  
ENGLISH LANGUAGE ARTS AND MATH**

**NUMBER OF STUDENTS ASSESSED**

English Language Arts: 294 Total (100%), 49 students with disabilities, 8 limited English proficient, 35 low-income  
Math: 296 Total (100%), 49 students with disabilities, 9 limited English proficient, 35 low-income

**STUDENT GROWTH PERCENTILE:** ELA-50 (up from 46) MATH-54(up from 47)

**PERFORMANCE LEVEL PERCENTS**

**Note: Numbers in parentheses indicate the actual number of students.**

**ELA**

	Melrose					State			
	2008	2009	2010	2011		2008	2009	2010	2011
Advanced	10	12	8	9		8	11	11	10
Proficient	49	51	49	55		41	42	43	43
Needs Imp.	37	29	35	30		39	35	35	35
Warning	5 (12)	7 (19)	8 (22)	6 (18)		13	11	12	12

**MATH**

	Melrose					State			
	2008	2009	2010	2011		2008	2009	2010	2011
Advanced	24	17	15	16		20	16	16	15
Proficient	31	40	35	40		29	32	32	32
Needs Imp.	39	35	40	38		38	41	41	42
Warning	7 (18)	8 (20)	9 (25)	5 (15)		13	11	11	11

**PERFORMANCE LEVEL NOTES**

- 1) In ELA, our percentage of Proficient and Advanced students increased this year by 7%. This represents the highest percentage of students we have had in Proficient or above in the past 4 years.
- 2) In Math, our percentage of students reaching Proficient or above increased by 6% from last year but is similar to 2008 and 2009 scores. If we examine the last four years of percentages in the Warning category, we see the lowest percentage of students in 2011.

**PERFORMANCE LEVEL RESULTS FOR SELECTED SUBGROUPS**

English Language Arts: The majority of AYP subgroups had their highest percentage of students in the Needs Improvement category. Exceptions were the Hispanic and white subgroups which had their highest percentage in the Proficient category.

Math: We see the achievement of students with disabilities and low income increasing this year in Math in comparison to last year, with more students moving out of the Warning category.

**SUBJECT AREA SUBSCORES AND ITEM TYPES**

In English Language Arts, proper use of English grammar and good sentence construction was a strength. Reading comprehension was strong. Open response scores were again higher than the state, and up slightly from last year. Writing to a prompt was slightly below the state average.

In Math, Data Analysis and Patterns, Relations and Algebra were our 2 strongest areas. Geometry and data analysis scores improved greatly from last year. Measurement was our weakest area. Open response and short answer performance improved from last year.

**GRADE 4 TEST ITEM ANALYSIS FOR RELEASED ITEMS**

**ENGLISH LANGUAGE ARTS**

**LITERATURE**

Criteria: More than 25% of our students got these questions incorrect.

An asterisk indicates that our average item score was LOWER than the state's.

#3 Fiction- Why does the toy think that what she hears is not a lion?

#4 Fiction- What happens in paragraph 21?

#15 Fiction- Why does Journey most likely feel he is Emmett?

## **LANGUAGE**

None

## **OPEN RESPONSE**

Criteria: Fewer than 50% of our students got a 3 or 4.

#11 Explain how Stingray and Plastic are different.

## **MATH**

### **MULTIPLE CHOICE**

Criteria: More than 25% of our students got the following questions incorrect.

An asterisk indicates that our average item score was LOWER than the state's.

\*#4- Choose the decimal equivalent to a fraction.

\*#10-Select the total number of 3-digit numbers from 3 cards.

#16-Choose the list that shows 3 square numbers.

\*#20-Choose the equation that is true for the diagram of a balanced scale.

## **SHORT ANSWER**

Criteria: Close to or more than half of our students left it blank or received a score of 0.

None

## **OPEN RESPONSE**

Criteria: More than 50% of our students got less than a 3 or 4.

\*#18 Calculate the perimeter and area of a garden. Determine which is bigger.

## **RECOMMENDATIONS BASED ON 2011 TEST ITEM ANALYSIS**

### **ELA**

- 1) Get students comfortable with identifying the climax of a fiction story (i.e., the part of the story which includes a significant change in events for better or worse).
- 2) When reading literature, look for every opportunity to develop a student's ability to identify and explain the symbolism incorporated into it. It may be hidden in the setting or a character's actions and emotions (as it was in this selection).
- 3) When writing answers to open response questions, students must identify the key words in the question and keep those in mind as they begin to answer it. This will not only give coherence to their answer, but will also help them to identify supporting details and evidence from the story. Supporting details and evidence from the story must be included in their answer in order to achieve a high score.
- 4) If you would like to see some exemplars of students' writing on the open response questions at your grade level, go to [www.doe.mass.edu](http://www.doe.mass.edu) and click on the school and district profile tab. Choose Public School from the drop down menu on the left. Choose Melrose from the drop down menu on the right. Click on your blue school link then click on the assessment tab. Choose Item by Item Results on the left side of the page, then choose your grade level and the ELA content area. Click on the number of the Open Response question you wish to view. You can then choose: View Student Work. The DESE has posted samples of each score point. This is an excellent instructional resource that can easily be used with your Smartboard.

### **MATH**

- 1) When converting fractions to decimals, students need to know that the denominator of the fraction must change to 10 or a multiple of 10. In the question, "Change  $\frac{1}{5}$  to a decimal, many of our students chose 1.5 rather than .2.
- 2) Give students many opportunities to figure out the number of possible combinations from a set.
- 3) Use visual models and charts frequently in your instruction to interpret mathematical relationships.
- 4) Correct students' misconception that a square number will always be even. Give them the definition of a square number with many examples and help them see that the numbers can be even or odd.

## **AREAS SHOWING STRENGTH/IMPROVEMENT**

### **ELA**

The majority of questions involving: nonfiction comprehension, vocabulary, and figurative language were very strong.

### **MATH**

Data analysis was a significant strength this year. Geometry, open response and short answer performance also improved district-wide.

Math improvement for students in the subgroup categories of students with disabilities and from low-income households, showed improvement at this grade level.

## **GRADE 5 MCAS ANALYSIS- SPRING 2011**

### **ENGLISH LANGUAGE ARTS, MATH, SCIENCE AND TECHNOLOGY/ENGINEERING**

#### **NUMBER OF STUDENTS ASSESSED**

ELA: 282 Total, 50 students with disabilities, 2 English language learners, 42 low-income

Math: 282 Total, 50 students with disabilities, 2 English language learners, 42 low-income

STE: same as above

**STUDENT GROWTH PERCENTILE:** ELA-58 (down from 63) MATH-65 (up from 57)

#### **PERFORMANCE LEVEL PERCENTS**

**Note: Numbers in parentheses indicate the actual number of students.**

### **ELA**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	15	20	28	26	13	15	16	17
Proficient	56	51	47	52	48	48	47	50
Needs Imp.	25	23	20	18	30	29	28	24
Warning	4 (11)	6 (16)	4 (12)	4 (11)	8	8	10	9

### **MATH**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	22	29	38	34	22	22	25	25
Proficient	33	35	27	37	30	32	30	34
Needs Imp.	32	27	23	20	30	29	28	26
Warning	13 (38)	9 (23)	13 (38)	9 (25)	17	18	17	15

### **SCIENCE/TECHNOLOGY AND ENGINEERING**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	17	23	27	20	17	17	15	14
Proficient	39	38	38	43	33	32	38	36
Needs Imp.	35	32	32	31	38	39	36	36
Warning	9 (25)	7 (18)	4 (12)	6 (17)	12	12	11	15

#### **PERFORMANCE LEVEL NOTES**

### **ELA**

Although the percentage of students in the Advanced category decreased this year, the overall percentage of students scoring Proficient or higher has increased 3% from last year (75% to 78%) and 7% from 2008.

### **MATH**

Our percentage of students scoring proficient or higher jumped from 65% to 71% this year. Percentage of students in the Warning category has also decreased from last year. Since 2008, the percentage of students scoring proficient or above has jumped from 55% to 71%. This is a 16% increase.

### **STE**

The percentage of students scoring proficient or higher decreased slightly this year (65%-63%). This was reflected at the state level (53%-50%).

## **PERFORMANCE LEVEL NOTES FOR SELECTED SUBGROUPS**

**ELA:** All AYP subgroups had their highest percentage of students in the proficient category, except for students with disabilities, who had their highest percentage in the Needs Improvement category. It is interesting to note however, that the percentage of students with disabilities in the Proficient category increased this year as did the percentage of students in the Advanced category. Student growth percentiles for students with disabilities also increased.

**MATH:** The percentage of students with disabilities in the Warning category declined in Math this year, with increases seen in the other performance categories, including Advanced. All other AYP subgroups including low-income students saw increased percentages of students scoring Proficient or higher in comparison to last year.

**STE:** The performance of our low-income and African American subgroups improved this year. Performance of all other AYP subgroups stayed relatively static in comparison to last year.

## **SUBJECT AREA SUBSCORES**

- 1) We exceeded the state in ALL subject area subscores again this year at this grade level.
- 2) In ELA, students performed better, in terms of average percent correct, in the category of Language than in Reading and Literature. Text comprehension improved from last year.
- 3) In Math, Data analysis and Patterns/Relations/ and Algebra were our highest areas. Geometry was our lowest area, but students got a higher percentage of questions correct this year in comparison to last year.
- 4) In Science, questions in the strand of Technology/Engineering received the highest scores, with Physical Sciences and Life Sciences tie for second. Technology/Engineering was our weakest area last year. Earth and Space Science was our weakest area this year.

## **ITEM TYPE**

In all three content areas tested, students performed better on multiple choice than open response questions. We surpassed the state on open response question performance in all areas. Scores for Math were especially strong in this regard. Science open response performance improved for the second year.

## **GRADE 5 TEST ITEM ANALYSIS FOR RELEASED QUESTIONS**

### **ELA**

#### **MULTIPLE CHOICE**

Criteria: Over 25% of our students got the following answers incorrect.

An asterisk indicates our average item score was LOWER than the state's.

#6-In the context of the basketball story, what do the words, "stole, threading, and hooking" indicate?

#8-What does the prefix, "post" mean?

#10-What does the apostrophe in the word, "couldn't" show?

#### **OPEN RESPONSE**

Criteria: Over 50% of our students did not receive a 3 or 4.

#11-Describe/explain the difficulties the basketball team overcame to win the championship.

## **ELA TARGET ACTIONS**

- 1) By the time Grade 5 students take the MCAS, they need to know the major prefixes for words (pre-, post, re- etc.) and how the meaning of a word is changed with the addition of those prefixes. (e.g., Pre- adds the concept of before. Post adds the concept of after. Re- adds the concept of again.)
- 2) Students need to know the grammatical term, "contraction" and be able to clearly distinguish contractions from possessive nouns. This was the alternate choice that many of our students made. Give them opportunities to distinguish one from the other.
- 3) As stated in Grade 3, we can already see the influence of the common core state standards coming into our MCAS expectations. Students were responsible for writing an *explanation* (by way of a description), in their open response question. As you may remember from the New MA ELA and Literacy framework presentation, writing to persuade or explain are 2 other major focus areas (in addition to writing a narrative) as students progress through the grades. Incorporate this knowledge into your instructional time and planning, so that these are the types of writing students are practicing. If you would like to see some exemplars of students' writing on the open response questions at your grade level, go to [www.doe.mass.edu](http://www.doe.mass.edu) and click on the school and district profile tab. Choose Public School from the drop down menu on the left. Choose Melrose from the drop down menu on the right. Click on your blue school link then click on the assessment tab. Choose Item by Item Results on the left side of the page, then choose your grade level and the ELA content area. Click on the number of the Open

Response question you wish to view. You can then choose: View Student Work. The DESE has posted samples of each score point. This is an excellent instructional resource that can easily be used with your Smartboard.

## **MATH:** **MULTIPLE CHOICE**

Criteria: More than 25% of our students got the following questions incorrect.

- #12-Locate the decimal 6.4 on a number line. (Knowing that  $.4 < \text{one half}$  was critical to obtaining the correct answer.)
- #13-Calculate the value of an expression involving multiplication of decimals in expanded notation.
- #17- Identify perpendicular lines in a diagram.
- #18- Solve problems involving proportional relationships using concrete models.
- #20-Represent real situations with words and symbols.

## **SHORT ANSWER**

Criteria: Over half of our students left the answer blank or received a score of 0.  
None!

## **OPEN RESPONSE**

Criteria: Over 50% of our students did not receive a 3 or 4.  
None that were released (#40-Estimation.)

## **MATH RECOMMENDATIONS**

- 1) As seen in questions #18 and #20, students need to be comfortable and adept at creating visual models to solve or represent problems. Devote a small portion of each lesson to giving them many opportunities to do this. It is a skill that can be applied to every concept you teach.
- 2) Geometry: Be sure students can clearly identify perpendicular and parallel lines, as well as symmetrical lines from visual displays. Have them practice counting the edges and faces of three-dimensional shapes.
- 3) In question #12, where students needed to determine where 6.4 would be on a number line showing the space between 6 and 7, many of our students chose the location marked by the 4<sup>th</sup> diamond. Remind students to think about the actual *value* of the decimal before determining its location.  $.4 < \text{one half}$ , thus the location would be in front of the mid-point of the line.
- 4) Questions #28 and 36 were not released but most likely had to do with decimals as well. In our new Atlas curriculum map, decimals are now taught from Weeks 2-12. Make sure you follow this sequence of instruction. This should enable our students to improve their performance in regard to this concept.
- 5) Encourage the test-taking skill of double-checking all computation before passing in the test booklet.

## **SCIENCE AND TECHNOLOGY/ENGINEERING**

### **MULTIPLE CHOICE**

Criteria: Over 25% of our students got the following answers incorrect.

An asterisk indicates our average item score was LOWER than the state's.

- #1-Choose the *next* step in creating an electromagnetic current
- #5-Choose the phenomenon that can be caused by weathering (The correct answer was: a boulder crack. Many of our students chose a glacier. This indicates confusion about the meaning of the academic vocabulary word, "weathering.")
- #6-Based on the illustration, choose the next step as the plant grows.
- #9-Choose the statement that best describes *sandy* soil.
- #11-What is the purpose of coverings on electrical wires? (The correct answer had to do with insulation *not* flexibility or Strength.)
- #15-Which of the following organisms would most likely get its food energy only from consumers? (hawks)
- #19-What would be the best use of data in a table showing average precipitation and temperature of an area in the U.S.? (Students needed to choose: understanding the *climate* of an area.)

### **OPEN RESPONSE**

Criteria: Over half of our students did not receive a 3 or 4

None (Of those that were not released, the most difficult question for our students had to do with the revolution and rotation of the earth.)

### **SCIENCE TARGET ACTIONS**

- 1) Last year, students did not pay enough attention to the word, “most.” In this question, students needed to pay attention to the word, “next.” These specific words can have a direct impact on choosing the one correct answer.  
Have students highlight and/or underline key words in the questions, before they answer them.
- 2) In question #6, students needed to recognize that the open seedpod represented a seed that had already fully developed. Many of our students chose answer b, which stated that seeds and stems would develop. Since illustrations are often included in the Science portion of the MCAS, give students practice describing and explaining illustrations or events taking place in experiments and hands-on activities using *exact and precise language*.
- 3) Encourage students to use their own experiences to help them determine the best choice if they are not sure of the correct answer. They should have been able to use this strategy in answering question # 9, perhaps connecting it to their experiences at a beach.
- 4) Students need to understand the food chain and the role of producers, consumers, and decomposers.
- 5) An understanding of what *climate* is seems to be a concept that is often included on the MCAS. Make sure students have a strong understanding of this concept and how it can be helpful to us in our daily lives.

### **AREAS OF STRENGTH/IMPROVEMENT**

**ELA:** Comprehension of text has steadily improved from 77% correct in 2008-to 89% correct in 2011. Analyzing and understanding dramatic literature has also improved from 59% correct in 2008to 86% correct in 2011.

**MATH:** Our students’ ability to understand and use statistical methods to determine probability has consistently been much higher than the state average. Data collection and analysis of graphs is also a strength. A deeper understanding of measurement is starting to occur with consistent growth in this area since 2008 (from 52% in 2008-73% in 2011). Teachers have been working hard on this by giving students more physical measurement activities.

### **SCIENCE AND TECHNOLOGY/ENGINEERING:**

Our students’ performance on Earth and Space science questions has been consistently improving since 2008 (From 61% correct to 72% correct). More specifically, questions on the topic of Rocks and Minerals have seen a dramatic increase of over 40% correct (43% - 89%). This was a result of data analysis and targeted efforts to support materials and activity development around this topic. A consistent improvement in questions having to do with the Technology/Engineering strand can also be seen (from 67% correct to 77% correct). A better understanding of the scientific concepts related to weather and the water cycle is evidenced by a jump of over 15% correct in both areas.

**GRADE 6 MCAS ANALYSIS- SPRING 2011  
ENGLISH LANGUAGE ARTS AND MATH**

**NUMBER OF STUDENTS ASSESSED**

ELA: 286 Total, 48 students with disabilities, and 2 English language learners, 36 low-income (100%)  
MATH: 287 Total, 48 students with disabilities, 2 English language learners, 36 low-income (100%)

**MEDIAN STUDENT GROWTH PERCENTILE:** ELA-47 (down from 52) Math-46 (down from 55)

**PERFORMANCE LEVEL PERCENTS**

**Note: Numbers in parentheses indicate the actual number of students.**

**ELA**

	Melrose					State			
	2008	2009	2010	2011		2008	2009	2010	2011
Advanced	18	16	21	25		15	16	15	17
Proficient	56	54	62	51		52	50	54	51
Needs Imp.	21	24	12	18		24	24	21	23
Warning	5 (13)	6 (16)	5 (13)	7 (20)		8	9	9	9

**MATH**

	Melrose					State			
	2008	2009	2010	2011		2008	2009	2010	2011
Advanced	23	25	32	34		23	24	27	26
Proficient	34	35	39	29		33	33	32	32
Needs Imp.	27	27	22	25		26	27	25	25
Warning	16 (44)	13 (38)	7 (17)	13 (37)		18	16	16	16

**PERFORMANCE LEVEL NOTES**

- 1) In English Language Arts, although we see a higher percentage of students in the Advanced category, we also see an increase in the percentage of students scoring below Proficient in comparison to last year's scores.
- 2) In Mathematics, we see the same performance level pattern as in ELA.

**PERFORMANCE LEVEL RESULTS FOR SELECTED SUBGROUPS**

In English Language Arts, the highest percentage of students with disabilities fell in the Needs Improvement range. This represents a change from the highest percentage in the proficient range last year. For all other AYP subgroups, the highest percentage of students fell in the proficient range. Those percentages however, were lower overall than last year. In Math, the performance of students in our AYP subgroups did not show the consistent improvement we were hoping to see in relation to last year's scores. Lower CPI and SGP scores were seen for all groups that were also present last year.

**SUBJECT AREA SUBSCORES**

**ELA:** We surpassed the state in all subject area subscores. Looking at our Open Response percentages, we see consistent improvement since 2008. Overall Language as well as Reading and Literature percentages have also consistently increased.

**MATH:** Geometry was our highest scoring area this year. We have seen a consistent increase in percentages in this area since 2008. This year's test included properties of shapes, symmetry, transformations and visual models. Measurement was our lowest scoring area.

**ITEM TYPE**

ELA: Multiple choice questions are still receiving the highest percentage of points, however, at this grade level, we see a consistent increase in percentage points for Open Response questions since 2008.

MATH: Out of the total number of points possible, students got a higher percentage of points answering the multiple choice questions than the open response or short answer questions. However, our open response performance last year was the highest we have seen since 2008 and we did not decrease in that percentage. Short answer questions received the lowest percentage of points.

**Test item analysis and specific suggestions are listed on the following page.**

## GRADE 6 TEST ITEM ANALYSIS FOR RELEASED ITEMS

### ENGLISH LANGUAGE ARTS

#### **MULTIPLE CHOICE**

Criteria: Over 25% of our students got the following questions incorrect.

An **asterisk** indicates that our average item score was LOWER than the state's average.

#11 LT What is one conclusion drawn from archaeologists (in a nonfiction article)?

#14 LT What detail most surprised historians?

#### **#OPEN RESPONSE**

Criteria: Over half of our students did not receive a 3 or 4.

#6 Explain the different ways Turtle persuades other characters in the play to do what he wants. Support your answer with important details from the play.

### ELA SUGGESTIONS

- 1) Communication and collaboration between regular and special education staff around common academic goals and looking at student work needs to take place on a regular and scheduled basis. Joint meetings should be the norm.
- 2) As we saw at the elementary level, a focus on writing to explain or persuade (as emphasized by the common core state standards) is already making its way into the state assessments. Consciously increase the amount of time students spend doing this type of writing using DESE models and scoring guides which are available for public use on their website. If you want to look at models related to the specific questions in the current test, go to [www.doe.mass.edu](http://www.doe.mass.edu) and click on the School and District profile tab. Choose Public School from the drop down menu on the left. Choose Melrose from the drop down menu on the right. Click on the blue Melrose Middle School link then click on the assessment tab. Choose the Item by Item Results link on the left side of the page. Choose your grade level and the ELA content area, and then click on the number of the Open Response question you wish to view. You can then choose: View student work. The DESE has posted samples of each score point. This is an excellent instructional resource that can easily be used with your SmartBoard.

### MATH

#### **MULTIPLE CHOICE**

Criteria: Over 25% of our students got the following questions incorrect.

An **asterisk** indicates that our average item score was LOWER than the state's average.

#1-Find the total weight of bags of concrete from a graph.

#3-Identify a trapezoid.

#6-Calculate the percent of teachers who teach Math.

#9-Calculate the total number of circles from a pattern.

#11-Select the equation modeled on the number line.

#13-Choose the expression that best represents the cost of 2 items.

#18-Choose the number that is equivalent to the power of 10.

#19-Determine the total number of circles shaded when given a fraction.

#20-Compute the value of an expression.

#### **SHORT ANSWER**

Criteria: Over half of our students left the answer blank or received a score of 1.

#5- Calculate the correct fraction based on data in a line plot.

#### **OPEN RESPONSE**

Criteria: Over half of our students received a 3 or 4.

#10-Apply the concepts of perimeter and area to the solution of a visual problem.

### MATH SUGGESTIONS BASED ON 2011 TEST ITEM ANALYSIS

- 1) After analysis of the answers our students chose instead of the correct answer, it is clear that many are, as we saw on Dan Meyer's video, "impatient problem solvers." Rather than taking the time to figure out the relationship between numbers that is shown in the data given, they simply choose *one* of the pieces of data and quickly compute an incorrect answer. We need to give students more opportunities to *talk about the relationships*

*behind/within the data that is shown* and then have them discover how important those relationships are to solving the problem correctly.

- 2) Make sure that students know, a) how to set up an equation that enables them to easily compute the percent of a number (e.g.,  $15/75=X/100$ ) and b) that trapezoids contain 2 parallel (not intersecting) sides. Give them many arrays of shapes where they need to identify the trapezoid.

### **AREAS SHOWING STRENGTH AND/OR IMPROVEMENT**

#### **ENGLISH LANGUAGE ARTS:**

- 1) Students showed strong performance of questions where they needed to interpret figurative language or a character's symbolic action.
- 2) Students are consistently showing improved performance on Open Response questions (2008-2011). Continue your focus on this with increased instructional time, use of models, and student self-assessment.

#### **MATH:**

- 1) Understanding of stem and leaf plots was strong. Students could also easily compute the mode of a given data set.
- 2) Open response question performance has improved since 2008.
- 3) Performance on questions relating to the strand of geometry has consistently improved since 2008.

**GRADE 7 MCAS ANALYSIS - SPRING 2011  
ENGLISH LANGUAGE ARTS AND MATH**

**NUMBER OF STUDENTS ASSESSED**

ELA: 286 Total, 47 students with disabilities, 8 limited English proficient, 53 low-income, (100%)

MATH: 287 Total, 47 students with disabilities, 9 limited English proficient, 53 low-income, (99%)

**STUDENT GROWTH PERCENTILES:** ELA-54 (same as last year) Math- 46 (up from 44.5)

**PERFORMANCE LEVEL PERCENTS**

Note: Numbers **in parentheses** indicate actual number of students.

ELA

	Melrose					State			
	2008	2009	2010	2011		2008	2009	2010	2011
Advanced	12	17	12	22		12	14	11	14
Proficient	68	66	67	63		57	56	61	59
Needs Imp.	17	13	15	13		23	23	21	21
Warning	2 (6)	4 (10)	5 (15)	2 (6)		8	7	7	6

**MATH**

	Melrose					State			
	2008	2009	2010	2011		2008	2009	2010	2011
Advanced	16	10	14	23		15	16	14	19
Proficient	35	33	42	38		32	33	39	32
Needs Imp.	31	39	32	25		29	30	27	27
Warning	17 (43)	18 (52)	13 (39)	14 (40)		24	21	19	22

**PERFORMANCE LEVEL NOTES**

**ELA:** We see the highest percentage of students scoring Advanced in ELA since 2008, as well as the highest percentage of students scoring above Proficient since 2008. Students in the Needs Improvement and Warning categories decreased.

**MATH:** The percentage of Grade 7 students scoring Proficient or Advanced again showed a good increase this year (56%-61%). This represents the highest percentage of students scoring above Proficient since 2008.

**PERFORMANCE LEVEL RESULTS FOR SELECTED SUBGROUPS**

**ELA:** All subgroups had their highest percentage of students in the Proficient category. Student growth percentiles and CPI scores for students with disabilities increased again as they did last year. This shows good positive growth in our efforts to meet the needs of all learners in this content area at this grade level.

**MATH:** Although the percentage of students with disabilities in the warning category increased slightly this year, a higher percentage also reached the Proficient or above category. The percentage of low-income students scoring Proficient or higher in Math also increased. Our African American students had their highest percentage of students in the Needs Improvement category similar to last year. Other AYP subgroups had their highest percentage of students in the Proficient category.

**SUBJECT AREA SUBSCORES:**

- 1) All ELA subject area subscores surpassed the state. Language was our strongest area.
- 2) In Math, we surpassed the state in all reporting categories except Probability and Visual Models. We see a good decrease in the number of subject area subscores falling below the state level from 2008 (13) to 2011 (2).
- 3) In Math, Geometry was our strongest strand this year. Number sense was our weakest strand as it was last year.

**ITEM TYPE**

In English Language Arts, multiple choice questions received the highest percentage of points. Writing Prompt performance remained consistent with last year. Open response performance improved slightly from last year. In Math, short answer questions received the highest number of points. Open response question performance was at its highest point in 4 years.

## GRADE 7 TEST ITEM ANALYSIS FOR RELEASED ITEMS

### ENGLISH LANGUAGE ARTS

#### LITERATURE

Criteria: Over 25% of our students got these answers incorrect.

An asterisk indicates an average item score LOWER than the state's.

#16-Interpretation of a poem (Who is the author speaking to?)

#18-Interpretation of the theme of a poem

#### LANGUAGE

None!

#### OPEN RESPONSE

Criteria: Fewer than half of our students got a 3 or a 4.

#13-Describe how a character's feelings changed over the course of the story

### MATH

#### MULTIPLE CHOICE

Criteria: Over 25% of our students got these answers incorrect.

An asterisk indicates an average item score LOWER than the state's.

#7-Use the inverse operations of multiplication and division to find an equivalent expression involving a fraction

(Many of our students chose the answer that stated divide by  $\frac{1}{5}$  rather than divide by 5.)

#12- Evaluate a simple algebraic expression given variables that include negative numbers

\*#17-Identify a positive rate of change as indicated by lines on a graph

#19-Find the measure of an interior angle within a pentagon given other angles already shown

#### SHORT ANSWER

Criteria: Over half (or close to half) of our students left the answer blank or received a score of 0.

None!

#### OPEN RESPONSE

Criteria: Over half of our students did not get a 3 or 4.

None! Excellent job on Open Response Math questions this year!

### SUGGESTIONS BASED ON TEST ITEM ANALYSIS

#### ENGLISH LANGUAGE ARTS

1) MA is committed to keeping poetry alive within its frameworks through genre study. Thus, we will continue to see evidence of it in the DESE's assessments. Use the list of authors in the frameworks to find appropriate poetry for students at your grade level to discuss in terms of theme and author's perspective.

2) Within the context of the literature you are reading with students, have them discover and discuss how a character's feelings change over time, citing evidence from the story which points to those changes.

#### MATH

- 1) Clarify the misconception many of our students have about multiplying a number by a fraction. It would not be the same as dividing the number by the same fraction. Lead them to see the common sense behind that statement. Then show them the procedure of dividing the number by the number they see in the denominator of the fraction.
- 2) In #12, many of our students did not apply the knowledge that 2 negatives create a positive. Using a number line or graph to visibly help them see this concept may help clarify their uncertainty and solidify their application of the skill when they see it on the assessment.
- 3) Students should know what a positive rate of change would look like on a line graph. Give them many opportunities before the test to discriminate between graphs that do show a positive rate of change and those that don't. Have them verbalize and explain their reasoning.
- 4) Using your clickers or SmartBoard, perform exercises that will quickly enable you to assess your students' ability to analyze the relationship between the number of sides and the sums of the interior angle measures of a wide variety of polygons including pentagons. Have them determine missing measures of angles and explain their thinking in finding the correct measure. This will help solidify their understanding and enable you to clarify any misconceptions.

## **AREAS SHOWING STRENGTH/IMPROVEMENT**

### **ENGLISH LANGUAGE ARTS**

- 1) There was a good increase in the performance of the majority of students in our AYP subgroups in ELA this year. Most notable was the performance of our students with disabilities. Keep up your efforts to meet the needs of all learners.
- 2) Our students' vocabulary and English grammar skills are strong.

### **MATH**

- 1) The performance of our low-income students, and students with disabilities, is increasing in Math as well. Continue to communicate and collaborate to meet the needs of all learners.
- 2) Our students are getting more comfortable with the procedures for answering Open Response questions. Continue to focus some effort in this area as it can definitely have a positive impact on overall scores.
- 3) Students demonstrated better understanding of evaluating expressions containing absolute value and graphing points on a Cartesian plane.
- 4) The percentage of questions correct in the strands of Geometry AND Measurement has consistently increased since 2008.

**GRADE 8 MCAS ANALYSIS- SPRING 2011**

**ENGLISH LANGUAGE ARTS, MATH, SCIENCE AND TECHNOLOGY/ENGINEERING**

**NUMBER OF STUDENTS ASSESSED**

English Language Arts: 297 Total, 50 students with disabilities, 2 limited English proficient, 53 low-income, (100%)  
 Math: 297 Total, 50 students with disabilities, 2 limited English proficient students, 53 low-income, (100%)  
 Science and Technology/Engineering: same as above

**MEDIAN STUDENT GROWTH PERCENTILE:** ELA-47 (down from 48) MATH-57 (up from 55)

**PERFORMANCE LEVEL PERCENTS** Note: Numbers in parentheses indicate the actual number of students.

**ELA**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	16	21	20	25	12	15	17	20
Proficient	70	64	63	60	63	63	61	59
Needs Imp.	10	12	11	12	18	15	16	15
Warning	3 (7)	2 (6)	6 (18)	4 (12)	7	6	7	6

**MATH**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	30	17	18	25	19	20	22	23
Proficient	28	36	34	35	30	28	29	29
Needs Imp.	26	32	30	25	27	28	28	27
Warning	16 (40)	16 (40)	18 (54)	16 (48)	24	23	21	21

**SCIENCE AND TECHNOLOGY/ENGINEERING**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	3	5	3	7	3	4	4	4
Proficient	49	38	37	44	36	35	36	35
Needs Imp.	39	46	49	38	39	40	41	42
Warning	9 (23)	10 (26)	12 (36)	11 (33)	22	21	19	19

**PERFORMANCE LEVEL NOTES**

**ELA**

Our total percent of students scoring Proficient and above increased in comparison to last year, with a decrease in the percentage of students in the Warning category. Overall performance has remained fairly similar for the past 4 years.

**MATH**

In Math, we see the highest percentage of students scoring Proficient or above for the past 4 years. Our median student growth percentile in this content area also increased.

**STE**

We see an increase in the percentage of students scoring Proficient or above as compared to 2009 and 2010. The number of students in the Warning category decreased from last year, but has increased since 2008.

**PERFORMANCE LEVEL RESULTS FOR SELECTED SUBGROUPS**

**ELA**

The performance of our students with disabilities improved in comparison to last year in ELA. The highest percentage of all other AYP subgroups fell in the Proficient range. Median student growth percentiles were significantly higher this year for students with disabilities (from 20-44.5).

**MATH**

While over half of our students with disabilities were in the warning category, we did see a 20% decrease in the percent of students falling in that category with a subsequent increase in the percentage of students in the categories of Proficient

or above (from 13%-20%) in comparison to last year. Median student growth percentiles also saw a significant increase for this subgroup (from 34-55). All other AYP subgroups had their highest percentage of students in the Proficient or higher category.

**STE**  
The performance of our students with disabilities improved this year in comparison to last year and we had a lower percentage in the Warning category with a subsequent increase in the percent scoring Proficient or higher. The highest percentage of our white subgroup fell in the Proficient category. All other AYP subgroups had their highest percentages in the Needs Improvement category.

### **SUBJECT AREA SUBSCORES**

**ELA:** This year, our performance in Literature was slightly higher than Language.

**MATH:** At this grade level, Data Analysis was our strongest area as it was last year. Geometry was our weakest area. We saw a nice improvement in the strand of Measurement which has seen a 12% jump since 2008.

**STE:** Our strongest area was Earth and Space Science this year. We saw the highest percent correct in 4 years for this strand. The Technology/Engineering strand was our lowest strand.

### **ITEM TYPE**

**ELA:** In terms of percentage points, students performed better on multiple choice questions. Open response question performance decreased slightly, but close to two-thirds of our students are still receiving a 3 or 4 on their open response questions at this grade level.

**MATH:** Performance on multiple choice questions was highest with short answer performance second. Both open response and short answer question performance improved 10% in comparison to last year.

**STE:** Multiple-choice questions received the highest percentage of points. The open response question in the area of Technology/Engineering was the most difficult one for our students.

**\* See Test Item Analysis below for specific questions that proved difficult for our Grade 8 students. Suggestions to address them have also been listed.**

## **GRADE 8 TEST ITEM ANALYSIS FOR RELEASED ITEMS**

### **ENGLISH LANGUAGE ARTS**

#### **MULTIPLE CHOICE**

Criteria: More than 25% of our students got the following incorrect.

An asterisk indicates our performance was LOWER than the state's.

#4-Use the table to determine which age group gets the least amount of sleep. (Many of our students just looked at the highlighted information.)

\*#6-Determine the meaning of the word, "stimulant" in the context of a nonfiction article.

\*#10-Interpret poetry.

#### **OPEN RESPONSE**

Criteria: Over half of our students did not get a 3 or 4

None! Excellent job!

### **MATH**

#### **MULTIPLE CHOICE**

Criteria: More than 25% of our students got the following incorrect.

An asterisk indicates our total was LOWER than the state average.

#1-Discern information from a Venn diagram.

#6-Estimate the most likely width of a door. (Students needed to choose the best *metric* unit of measure.)

\*#7-Evaluate a quadratic expression given a variable.

\*#10-Select the graph with the line containing the greatest slope. (Students needed to choose the steepest line.)

#11-Calculate the probability of an outcome of a random drawing. (Students needed to create an organized list to help them compute probability.)

#12-Find an equivalent expression. (When choosing the correct expression, students needed to remember that two negatives = a positive.)

#15-Divide three different groups with no remainder. (Many students chose 8 which would have led to one remainder if divided by 3.)

#18-Calculate elapsed time to travel a given distance. (Use a formula to solve a velocity problem.)

### **OPEN RESPONSE**

Criteria: Over half of our students did not get a 3 or 4.  
One out of 4 but it was not released.

### **SHORT ANSWER**

Criteria: Over half of our students did not get a 1.  
None!

## **SCIENCE AND TECHNOLOGY/ENGINEERING**

### **MULTIPLE CHOICE**

Criteria: Over 25% of our students got the following questions incorrect.  
An asterisk indicates that our average item test score was LOWER than the state's.

### **PHYSICAL SCIENCE**

\*#4-What fact of motion can be determined from a given diagram?

#6-Understand that a product mass = a reactant mass in a chemical reaction.

#10-Choose the one diagram that best represents heat.

#16-Select the unit that best represents the density of an object.

### **LIFE SCIENCE**

#3- Identify a cellular structure given the characteristics of an organelle.

\*#19-In which kingdom is a paramecium classified?

#15-Choose the best description of photosynthesis.

#20-Tell why the offspring of two plants have white flowers.

### **EARTH AND SPACE SCIENCE**

#13-Choose the correct season shown in the diagram of the earth and sun.

### **TECHNOLOGY AND ENGINEERING**

\*#14-Which best describes the function of an encoder in a telephone.

### **OPEN RESPONSE**

Criteria: Over half of our students did not get a 3 or 4.  
#11-Describe the steps taken to build a shelf. Add safety precautions.

## **SUGGESTIONS BASED ON 2011 TEST ITEM ANALYSIS**

### **ENGLISH LANGUAGE ARTS**

1) MA is remaining committed to including poetry in genre studies for our students. Thus, poetry will continue to be on our assessments. Continue to give students opportunities to interpret themes contained within poetry, citing evidence from within the text.

2) Make sure students understand that text highlighted by the author doesn't always mean that the information in the highlighted area is going to necessarily be the answer. They should read and understand what the highlighted text is showing *before* making the decision about whether or not to choose it.

3) Continue to work with your Dept. Chair to closely examine test item analysis reports for individual students with disabilities to uncover any common weak areas that could be addressed with focused instruction. This is working as evidenced by improved subgroup performance.

4) As we saw at the elementary level, a focus on writing to explain or persuade (as emphasized by the common core state standards) is already making its way into the state assessments. Consciously increase the amount of time students spend doing this type of writing using DESE models and scoring guides which are available for public use on their website. If you want to look at models related to the specific questions in the current test, go to [www.doe.mass.edu](http://www.doe.mass.edu) and click on the School and District profile tab. Choose Public School from the drop down menu on the left. Choose Melrose from the drop down menu on the right. Click on the blue Melrose Middle School link then click on the assessment tab. Choose the Item by Item Results link on the left side of the page. Choose your grade level and the ELA content area, and then click on the number of the Open Response question you wish to view. You can then choose: View student work. The DESE has posted samples of each score point. This is an excellent instructional resource that can easily be used with your SmartBoard.

## **MATH**

- 1) Have students estimate the measurement of given objects using *metric* units of measure, so that they can easily discern the most appropriate metric length or width from a list.
- 2) Give students visual models and templates to use specifically for the purpose of calculating the probability of an outcome. Students should eventually be expected to *independently* create and use the best graphic organizer suited to their purpose.
- 3) Make sure students understand when working with equivalent expressions, that 2 negatives = a positive. Use a visual number line to increase their understanding of this concept.
- 4) Students should know the formula to help them calculate the time needed to travel a given distance. Is there a way to, as Dan Meyer suggests, get them to actually *uncover/discover the formula on their own* by giving them a problem with a *minimal* amount of information?
- 5) Encourage students to, in the absence of being able to mathematically solve a problem, use their common sense to make an educated guess. This would have helped them in #10 where they had to determine the graph with the greatest slope.

## **SCIENCE AND TECHNOLOGY/ENGINEERING**

- 1) Students should be able to identify *graphic representations* of major concepts of study (e.g., heat, motion, density).
- 2) Give students opportunities to apply what they know about the definition of a process (e.g., photosynthesis) in order to choose the most accurate description of that process from a variety of written descriptions.
- 3) The new frameworks focus on 3 types of writing: a) persuasive, b) explanatory, and c) narrative. The DESE however, focuses much attention on the first two as it feels that these are primarily the types of communication we will use as adults. This year, starting in grade 3 and evidenced at all grade levels, students had to compose detailed explanations. Incorporate time in your lessons to give students opportunities to create explanations of the steps they would take to create, manufacture, or build something. Encourage the use of details and have them follow their own set of directions to check for accuracy and ensure success.

## **AREAS SHOWING STRENGTH/IMPROVEMENT**

### **ELA**

- 1) The performance of our students with disabilities is improving with co-teaching efforts and strategies to meet the needs of all learners.
- 2) Nonfiction comprehension was very strong. Since this genre has an even greater focus in the new MA ELA and Literacy frameworks, continue these efforts.

### **MATH**

- 1) Students' performance on tackling multi-part Open Response and Short Answer questions has improved.
- 2) Performance on questions involving measurement has shown improvement.
- 3) The performance of our students with disabilities is improving with co-teaching efforts and strategies to meet the needs of all learners.

### **STE**

- 1) Performance on questions involving the earth and space strand has shown improvement.
- 2) Students did well on questions pertaining to the purpose of cell structures.
- 3) The performance of our students with disabilities is improving with co-teaching efforts and strategies to meet the needs of all learners.
- 4) Students showed a strong understanding of the functions of body systems.

**GRADE 10  
MCAS ANALYSIS-SPRING 2011**

**NUMBER OF STUDENTS ASSESSED**

**ELA:** 235 Total- 24 students with disabilities, 6 limited English proficient, 47 low-income (99%)

**MATH:** 235 Total- 23 students with disabilities, 7 limited English proficient, 46 low-income (99%)

**SCIENCE:** 227 Total- 20 students with disabilities, 5 limited English proficient, 42 low income (99%)

**STUDENT GROWTH PERCENTILE:** ELA-45.5 (down from 62)      MATH-51.5 (down from 56.5 )

**PERFORMANCE LEVEL PERCENTS** Note: Numbers **in parentheses** indicate actual number of students.

**ELA**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	36	52	42	41	23	29	26	33
Proficient	52	42	47	48	51	52	52	51
Needs Imp.	11	5	10	12	21	15	18	13
Warning	2 (3)	1 (2)	1 (3)	0	4	4	4	3

**MATH**

	Melrose				State			
	2008	2009	2010	2011	2008	2009	2010	2011
Advanced	51	60	56	50	43	47	50	48
Proficient	30	21	26	29	29	28	25	29
Needs Imp.	16	13	13	19	19	18	17	16
Warning	3 (5)	5 (12)	4 (10)	2 (5)	9	8	7	7

**SCIENCE AND TECHNOLOGY/ENGINEERING**

	Melrose				State			
		2009	2010	2011		2009	2010	2011
Advanced		16	15	16		16	18	20
Proficient		54	55	44		45	47	47
Needs Imp.		27	25	37		29	28	27
Warning		2	4 (9)	2 (4)		9	8	7

**PERFORMANCE LEVEL NOTES**

- 1) In English Language Arts, the percent of students achieving Proficient or higher remained the same as last year.
- 2) In ELA we have a 0% failure rate for the first time.
- 3) While our percentage of students in the Failing category in Math is at its lowest in 4 years, the percentage of students scoring proficient or higher declined, with some students moving into the Needs Improvement category.
- 4) In Science, we saw a decrease in the percent of students in the Proficient category with an increase of students in the Needs Improvement category.

**PERFORMANCE LEVEL SCORE RESULTS FOR SELECTED SUBGROUPS**

**ELA:** The majority of AYP subgroups in ELA had the highest percentage of students in the Proficient or higher range. We see a greater percentage of students with disabilities and low-income students scoring Advanced or Proficient in comparison to last year's performance. Our overall subgroup performance is higher than the state.

**MATH:** The majority of AYP subgroups had their highest percentage of students in the Needs Improvement category. Overall, subgroup performance in Math declined as compared to last year. For the majority of AYP subgroups our percentage of students scoring Proficient or Advanced was lower than the state's.

**STE:** The majority of AYP subgroups had their highest percentage of students in the Needs Improvement category. Overall, subgroup performance in STE declined in comparison to last year, and as in Math, for the majority of AYP

subgroups, our percentage of students scoring Proficient or Advanced was lower than the state's due to performance on the Physics test.

### **SUBJECT AREA SUBSCORES**

**ELA:** All subject area subscores surpassed the state. Test items in the Language strand earned the highest percentage of points. Students showed strong understanding of grammar and the structure and origins of modern English. Interpretation of poetry, which was mentioned as a weakness last year, improved greatly. Our weakest areas were in understanding of a theme and writing composition.

**MATH:** Measurement and data analysis with an emphasis on statistical methods and techniques and tools, were tie for our highest areas this year. Patterns/Relations/Algebra and Geometry with an emphasis on Symbols, Transformations, and Symmetry were our weakest areas.

**SCIENCE:** If we look specifically at the Biology test, questions pertaining to evolution and diversity proved the most difficult for our students. "Chemistry of life" questions received the highest percentage of points. In Physics, conservation of energy and momentum questions received the lowest number of percentage points. Questions on electromagnetism received the highest number of points, but performance was still below the state's level.

### **ITEM TYPE**

**ELA:** Percentages for all types of items (multiple choice, open response, and the writing prompt) surpassed the state. Open response and writing prompts scores were tie for 2<sup>nd</sup>. Multiple choice questions received the highest number of points.

**MATH:** Open response question performance decreased in comparison to last year. This was reflected at the state level as well where performance was the lowest in three years. Short answer questions, which involved actual student computation, came in first.

**SCIENCE:** Multiple choice questions received the highest percentage of points in both Biology and Physics. Open response question performance improved in Biology but decreased in Physics.

## **GRADE 10 TEST ITEM ANALYSIS**

### **ELA**

#### **LITERATURE**

Criteria: Over 25% of our students got the following questions incorrect.

An asterisk indicates that our average item test score was LOWER than the state's.

\*#19-What is suggested by comparing the school to a medieval fortress?

#20- *Based on paragraph 5*, what does the dean assume about Roark?

\*#31-Based on the article, which requires a unique style of fencing?

\*#38- Which of the following **best** describes what motivates Antigone?

### **LANGUAGE**

#8 Vocabulary- What does, "sussing out" mean?

### **OPEN RESPONSE**

Criteria: Over 50% of our students did not get a 3 or 4

**None!** Open response question performance was strong.

### **MATH**

#### **MULTIPLE CHOICE**

Criteria: More than 25% of our students got the question incorrect.

An asterisk indicates that our average item score was LOWER than the state's.

\*#23-Interpret a circle graph to determine a data value.

#7-Select the correct expression that represents the length and area of a rectangle.

\*#3-Match an equation with a scatter plot line of best fit.

- #29-Calculate the area of a triangle.
- #26-Calculate how many times larger the radius of a large pan is than the radius of a small pan.
- #27-Interpret a histogram to determine a true statement.
- #2-Calculate the circumference of a circle when given the area.
- \*#11-Compute the absolute value.
- \*#14-Evaluate an expression containing a root and an exponent.
- #9-Estimate number bought given total spent.
- #35-Compute time taken to deliver mail with a change in the # of mail carriers.
- #10-Select the correct 100<sup>th</sup> term in a linear sequence.
- #28-Calculate how many ways a pilot can fly given routes and stops.
- \*#6-Multiply an expression having a positive integer exponent.
- \*#37-Using a model, choose correct proportions used to find actual height.
- \*#25-Choose the 32 points with closest slope to zero.
- \*#24-Choose the correct graph that represents the solution of an inequality.
- \*#30-Choose the correct absolute value inequality.
- \*#5-Find the x-intercept of a line from its equation.

### **OPEN RESPONSE**

Criteria-Fewer than half of our students got a 3 or 4.

- #20-Draw a triangle on a coordinate plane after several transformations.
- \*#21-Calculate ratios, scores, and number correct on a timed test.
- #41-Find statistical values from a double bar graph.

### **SHORT ANSWER**

Criteria- More than half of our students got a zero or left it blank.  
None

### **BIOLOGY**

#### **MULTIPLE CHOICE**

Criteria: More than 25% of our students got the question incorrect.

An asterisk indicates that our average item score was LOWER than the state's.

- #19-Based on table, which condition promotes high population of pea weevil?
- #40-Name the process occurring when a population is isolated as two groups.
- \*#5-Which explains evolution of mice from a common ancestor?
- #11-Which shows the expected result of a pepsin activity/temp. experiment?
- #41-ID cause of amino acid variation in blood cells of some people.
- #30- Which diagram shows a prokaryotic cell?
- #13-What produced shift in tortoise shell height frequency?
- #16-Which processes determine the amount of plant tissue water?

#### **BIOLOGY OPEN RESPONSE**

Criteria: Fewer than 50% of our students got a 3 or 4

- #32- Explain how evolution through natural selection can result in changes in biodiversity (e.g., as evidenced in tail feather length for male peacocks).
- #44- Explain the interrelated nature of photosynthesis and cellular respiration in the cells of photosynthetic organisms as evidenced by carbon dioxide variation near a forest.

### **INTRODUCTORY PHYSICS**

#### **MULTIPLE CHOICE**

Criteria: More than 25% of our students got the question incorrect.

An asterisk indicates that our average item score was LOWER than the state's.

- \*#1-Indicate direction of gravitational force by star on a comet.
- \*#13-Calculate the current through parallel resistors.

- \*#18- Which molecules have greatest average molecular kinetic energy?
- \*#39-Infer Ohm's law from a table of voltages, currents, and resistances.
- \*#42-Find the current in a simple circuit.
- \*#3-Compute wavelength from frequency and speed of a wave.
- \*#6-Find displacement of an object after a series of movements.
- \*#4-Describe the electric force between approaching charged particles.
- \*#37-Which describes why lightning is seen before thunder is heard?
- #43-Describe the path of an object when released from circular motion.
- \*#31-Interpret time/distance graph to find interval of constant speed.
- \*#20-Explain the pitch of the sound of an approaching horn versus when it stops.
- \*#25-Describe motion of an air particle affected by a sound wave.
- \*#15-What force is exerted by a scale on person standing on it?
- \*#17-Find power user by resistor given voltage and current.
- \*#28-Which device has longest wavelength given EM spectrum reference?
- \*#38-Why is generator harder to turn after light bulb is connected?
- \*#7-Which explains cold feeling when touching a metal object?
- \*#24-Calculate total work given weight and distance.
- \*#10-Explain sound heard from buzzer on swinging pendulum.
- #29-Describe velocities of two objects after collision.
- \*#30-In which example is heat transferred primarily by radiation?
- \*#36-Which describes the final temp. of hot metal placed in cold water?
- \*#8-Distinguish qualitatively between static and kinetic friction.
- \*#33-Which diagram represents refraction of waves?
- \*#16-Which diagram represents the kinetic energy of a swinging pendulum?
- \*#19-Apply Newton's laws of motion to given scenario.
- \*#35-Which observation demonstrates light waves are electromagnetic?
- \*#21-Which measurement represents speed of light in a vacuum?
- \*#22-What is true of two blocks that are heated with different results?
- \*#27-Describe forces involved when an insect strikes windshield.
- \*#26-Compare potential energy of two rocks dropped from same height.
- \*#40-Identify main difference between vector and scalar quantities.
- \*#11-Find average power consumed given energy and time.
- \*#5-What happens to a light ray striking shiny aluminum foil?

### **OPEN RESPONSE**

Criteria: fewer than 50% of our students got a 3 or 4

An asterisk indicates that our average item test score was LOWER than the state's.

- \*#44-Calculate displacement, distance, speed, and velocity.
- \*#12-Work quantitatively with voltage, current, and resistance.
- \*#23-Work with dropped object to calculate effects of gravity.
- \*#45- Explain condensation, cooling, and warming scenario.
- \*#32-Describe water and air waves created by anchor striking boat.

### **AREAS SHOWING STRENGTH**

**ELA:** Students did a much better job this year answering questions related to the genre of poetry. This was mentioned in last year's analysis. Comprehension of nonfiction and ability to infer information was also strong. The performance of students with disabilities and from low-income households improved.

**MATH:** Performance on multiple choice questions involving: calculating measures of central tendency, manipulating data in a table, calculating area, perimeter, and mode, and determining coordinate points on a line segment, was strong. Students also showed good understanding on the open response question involving volume, spheres, and rectangular prisms. This was previously an area of difficulty for our students.

continued

### **STE:**

Biology- An understanding of genetics, cell biology, and anatomy and physiology all showed good improvement in comparison to last year's scores. Open response question performance also improved in Biology, (going from 54% in 2009-62% in 2011).

Physics- Students showed good understanding of wavelength, electric charges as they move through a conductor, and the functions of common circuit elements. Their overall percentages *improved* in comparison to last year in the areas of electromagnetic radiation, electromagnetism, and waves, but performance was still in many places, below the state average.

### **SUGGESTIONS FOR IMPROVEMENT**

#### **ELA:**

- 1) Give students opportunities to determine the meaning of unfamiliar vocabulary using context only.
- 2) Your efforts to improve the performance of students in our AYP subgroups are working. Continue to encourage co-teachers to attend English Department meetings on a regular basis, especially given the new MA ELA and Literacy frameworks out this year.

#### **MATH:**

- 1) Incorporate some instructional time each day to *helping students discover* the strategies to utilize when they **do not know** the answer. You want these to become a natural part of the approach students take to problem solving in Math and in other areas of their life. These should include:
  - a) visually extending patterns (#10)
  - b) actually drawing the slope (or any type of diagram) to help you determine the correct answer (#25)
  - c) checking your answer for reasonableness (#35)
  - d) inserting the numbers of each choice into the formula or equation to determine the correct answer (#24)
  - e) writing down **all** the possibilities given information from a diagram, rather than just trying to keep and recall the information mentally (#28).
- 2) When teaching concepts relating to geometry and measurement, make sure students get practice making connections between procedures. It will make their conceptual understanding even stronger. For example, if you are asking them to convert information about length and width to information about area, have them do the reverse as well: convert information about area to information about length and width (#7 and #2).
- 3) Students need to know how to calculate the x-intercept of a line. This skill was much lower than the state average.
- 4) Focus on improving the performance of students in subgroups. Encourage co-teachers to attend Math Department meetings on a regular basis to discuss instructional strategies and the content of the new MA Math frameworks.

### **SCIENCE TECHNOLOGY AND ENGINEERING:**

#### **BIOLOGY**

- 1) Biology teachers, who have improved their students' scores on open response questions, should work collaboratively with Physics teachers with a focus on strategies to incorporate into instruction.
- 2) In Biology, students would have received higher scores if they:
  - a) persevered and reasoned out the best answer if they had narrowed it down to two (#16),
  - b) read graph labels carefully to determine their affect on how they influence the interpretation of the graph (#19),
  - c) were able to explain and give examples of key academic vocabulary (e.g., speciation, hybridization in #40).
- 3) Give students plenty of opportunities to answer 3-part questions that follow the same format as MCAS 3-part questions: Part 1- Look at the data and explain what it shows, Part 2- Identify something that may not be stated directly in the data but that could be a reason *behind* the data, and Part 3- Explain the conclusions of data interpretation.

#### **INTRODUCTORY PHYSICS**

- 1) Particularly difficult concepts where fewer than 50% of our students got the correct answer, need lab-based experiences. Utilize department meeting time to work on the creation of labs focused on the concepts in a-d below.
  - a) Students should be able to interpret and explain Newton's Laws of Motion through given examples and diagrams. This is a major concept that frequently appears on this test. Make sure that students have a clear understanding of these laws prior to taking the exam (#19 and #27).
  - b) Students should be able to understand the properties of electromagnetic and other waves and be able to distinguish between different types of waves (#21, #32, #35).
  - c) Students should be able to perform calculations related to velocity, speed, distance, the effects of gravity, and power consumption given energy and time (#11 and #44).

- d) Students should have a clear understanding of condensation and the effects of an increase or decrease of temperature.
- 2) Although the majority of our students are meeting the current state requirements for the STE tests, we may want to reexamine our assignment of students for specific tests. Should some students who are currently being assigned to take the Physics test, take the Biology test instead? We see lower percentages in Physics performance across the state as well.
- 3) Do we need to reexamine our Middle School Science program and discuss a more in depth study of waves and energy?
- 4) Do we need to rethink the sequence of our High School Science courses or add course offerings?

## **SYNTHESIS BY LEVEL**

### **ELEMENTARY**

#### **ELA**

In English Language Arts, at the grades 4&5 levels, we see the highest percentage of students scoring Proficient or above since 2008. Performance on open response questions has also improved for the majority of grades tested. A focus on data analysis in the area of literacy and reviewing student work samples related to open response questions is showing evidence that pinpointing specific weaknesses and implementing building-specific interventions and instructional strategies related to them, is beneficial for all students but especially for students in our subgroups. Continue these efforts. In the area of writing, focus on providing students with opportunities to write explanations (e.g., explaining a change in a story after the climax, explaining the symbolic nature of a character's actions or emotions). Writing explanations and persuasive arguments are new focus areas that are included in the common core state standards.

#### **MATH**

Elementary students at all grade levels show strong performance in the strands of Data Analysis and Patterns, Relations, and Algebra. Performance in the areas of measurement and geometry is also improving overall if we look at data historically. Continue to incorporate hands-on activities in those areas to maintain improvement. With a recent realignment of the Math curriculum with the new MA Math frameworks which incorporate the common core standards, you will notice increased instructional time and more in-depth study in regard to fractions and decimals. This should give our students the time they need to create and use visual models, graphs, number lines and charts necessary to understand and correctly interpret the Mathematical relationships inherent in these 2 concepts. An integral part of your lesson design should be to provide students opportunities to explain their visual models either verbally or in writing.

### **SCIENCE AND TECHNOLOGY/ENGINEERING**

As a result of targeted efforts to support instruction around the topic of rocks and minerals, our students have shown increased understanding in this area. Their performance on earth and space questions and technology questions has, in fact, improved consistently since 2008. This is a good reminder to us that the amount of instructional time, methods, and materials matter. We may want to examine our study of climate in the same way, since it seems to be on the assessment very frequently and our students have consistently had a difficult time specifically distinguishing between climate and weather. This is an example of how the use of exact and precise language can help in the understanding of a concept. Not using exact and precise language can lead to misconceptions. To reinforce this idea and promote understanding of other concepts, give students practice describing and explaining illustrations or events in experiments and hands-on activities using *exact and precise* language.

### **MIDDLE SCHOOL**

#### **ELA**

In English Language Arts at all three middle school grade levels, we see a higher percentage of students scoring Advanced. We also see a higher percentage of students scoring Proficient or above in Grades 7&8. These same two grades also improved the performance of their students with disabilities and overall performance on open response questions. Grade 6 teachers will be provided time to meet with a grade 7 or 8 colleague/facilitator during the school day in December to discuss and share best practices regarding open response question instruction and construction of student responses. Poetry is a genre that the state of MA has decided to keep and emphasize within the context of its new MA ELA and Literacy frameworks. We saw the inclusion of questions which involved the interpretation and/or explanation of poetry at both the elementary and middle school levels on the Spring 2011 MCAS. Make sure you include opportunities for students to explain the **themes** of poems, as well as the actions and emotions of characters in the poems, in your lesson plans at least once a month.

## **MATH**

In Math at the Middle School level, our median Student Growth Percentiles have increased. We see an increase in the percentage of students scoring proficient and above in the majority of grades tested. The performance of most of our subgroups in Math has improved as well. Students at all middle school grade levels are doing a much better job of competently answering multi-part open response questions which require them to create visual models to help them solve problems. Measurement and Geometry strands have seen improvement in the majority of grade levels tested. An understanding of the more complex concept of absolute value has improved. In order to see even higher growth, we need to consciously incorporate opportunities for students to practice the 21<sup>st</sup> century skills of, “patient problem-solving” (Dan Meyer) and clear communication that explains one’s thinking, into our lesson design. These are both an integral part of the new Math frameworks’ Standards for Mathematical Practice. *Give students time to look at, discover, and verbally explain to others the relationships within and behind the data* contained in problems, especially those involving measurement of angles, rate of change, probability, finding area, and identifying the greatest slope. Students should also be able to demonstrate their understanding of metric measurement and the fact that 2 negatives equal a positive.

## **SCIENCE**

Our students showed strong understanding of body systems. Their scores on the earth and space science strand, which has been an area of focus, have improved. The performance of our students with disabilities subgroup has improved as well. Efforts should focus on ensuring that students can create and/or identify graphic representations of major concepts of study, such as heat, motion, photosynthesis, cell structure or density. To promote improvement in the Tech Ed. Strand, make sure students are comfortable writing out explanations of the steps they would take if faced with the task of constructing or creating something for a specific purpose.

## **HIGH SCHOOL**

### **ELA**

Students’ ability to answer questions related to non-fiction texts, poetry, the origins of modern English, and grammar was strong. The performance of low-income students and those with disabilities increased. Focus should be on bringing up our median student growth percentile and achieving higher scores on the writing composition portion of the test. This year’s prompt involved writing about a character who stands up for something he or she believes in. Students had to identify the character, describe how the character stands up for something he or she believes in, and explain how the character’s actions relate to the work as a whole. It was, in essence, a three-part question and this needed to be reflected in our students’ answer. The third part of the question was the most challenging. Make sure students are aware of the DESE rubric used to score compositions (12 points for topic development and 8 for proper use of conventions). Have them self-assess their own work using the models available the School/District Profile tab of the DESE website. Or have your Dept. Chair print out actual student compositions which answered this question and are available through the secure MCAS ServiceCenter website. (Names of students must be deleted prior to dept. viewing.) Compare high scoring compositions with low-scoring compositions and have students analyze differences as they relate to each of the three parts of the question.

### **MATH**

While the percentage of students in the Failing category decreased, and we saw improvement in some specific areas which historically have been challenging for our students (e.g., calculations involving volume, area, spheres, rectangular prisms) our overall Math performance was down this year, including scores for those in our subgroups. Focus efforts on those questions/concepts in this report where our student’s performance was lower than the state average. These are indicated with an asterisk (e.g., line of best fit, absolute value, slope, evaluating expressions with exponents, finding the x-intercept of a line given an equation). Using our Atlas membership and the Exemplars tab, look for effective and in-depth SmartBoard lessons involving these concepts, and then incorporate them into your instruction, delegating extra time for increased understanding.

### **STE**

Students who took the Biology test performed better than students taking the Introductory Physics test. This has been historically true but may be in part due to the fact that the majority of students who take the Biology test are honors students. In light of the results, we will be examining our Science course sequence and offerings at the High School level with the Science Department Chair, the Science Department staff, and the high school principal in the upcoming months to make recommendations for possible changes in both. In the meantime, physics teachers should collaborate with Biology teachers on improving students’ performance on Open Response questions (as this in particular will help boost

scores), especially those questions that involve *explaining* major concepts such as currents, condensation, reflection, and the behavior of waves. Biology teachers should also focus on providing opportunities for students to analyze and interpret data and graphs, and explain the interrelated nature of major processes (e.g., photosynthesis, cell behavior, and resulting changes in the environment).