INSTRUCTIONAL TECHNOLOGY 2019 - 2020

MR. FRED KADEN AND MR. TOM LYNCH

Program Enhancement: PDL Initiative

2017 - 2018	2018 - 2019	2019 - 2020
Technology Steering Committee	Deployment to three additional grades	Deployment to three additional grades
Deployment to Grades 6 and 9	Grades 5, 6, 7, 9 and 10 have devices	Grades 4, 5, 6, 7, 9, 10 and 11 have devices
Initial Professional Development	Ongoing Professional Development	Ongoing Professional Development (SAMR)
Initial Purchase	Student Training	

DEVICES AT THE HARBOR AND MANOR: K - 3

Each grade shares an iPad cart

DEVICES AT THE HARBOR AND MANOR: GRADES 4 AND 5

Each student has her/his own device to be used in class

The libraries have an iPad cart and laptop cart for student use

DEVICES AT THE MIDDLE SCHOOL

- Laptops have been deployed to every student
- Additional Epson Projectors have been installed
- Additional Access Points have been installed throughout the building to improve connectivity

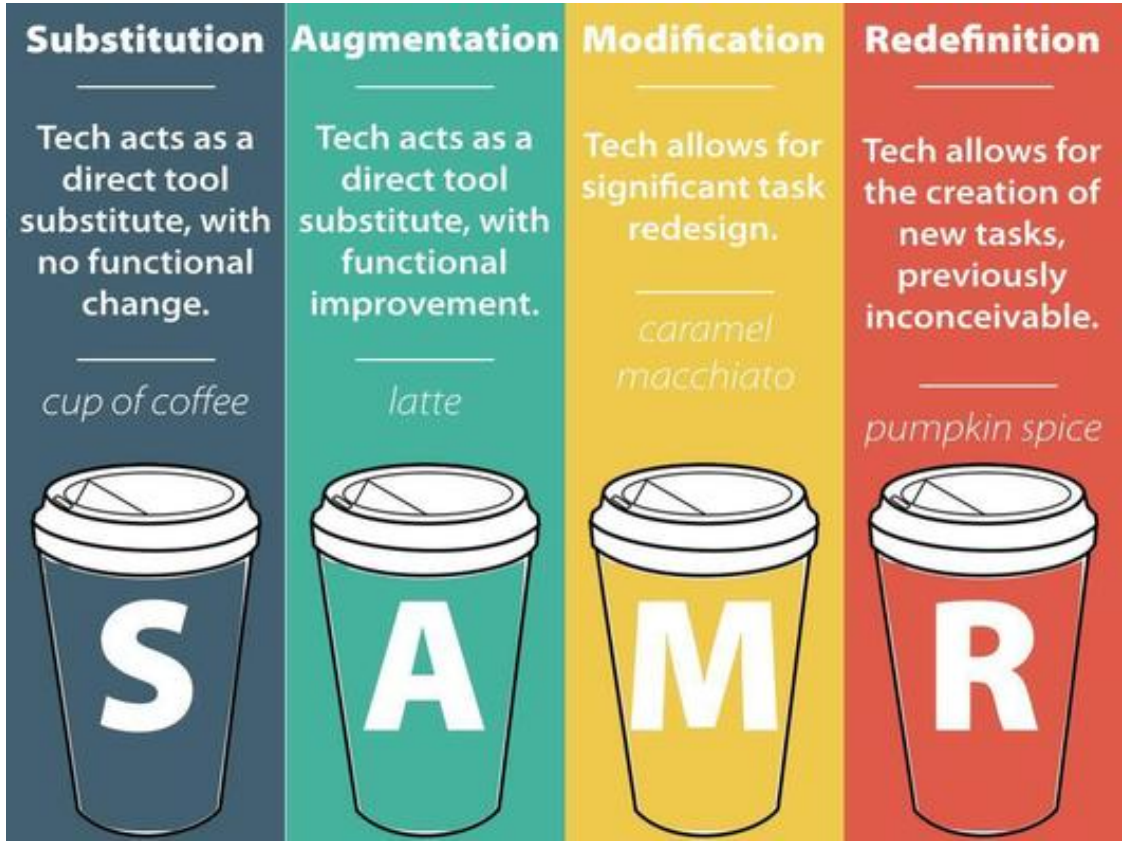
DEVICES AT THE HIGH SCHOOL

Laptops have been deployed to all students in grades 9 through 11

There is a laptop cart available for student use in the library

Additional Epson Projectors have been installed

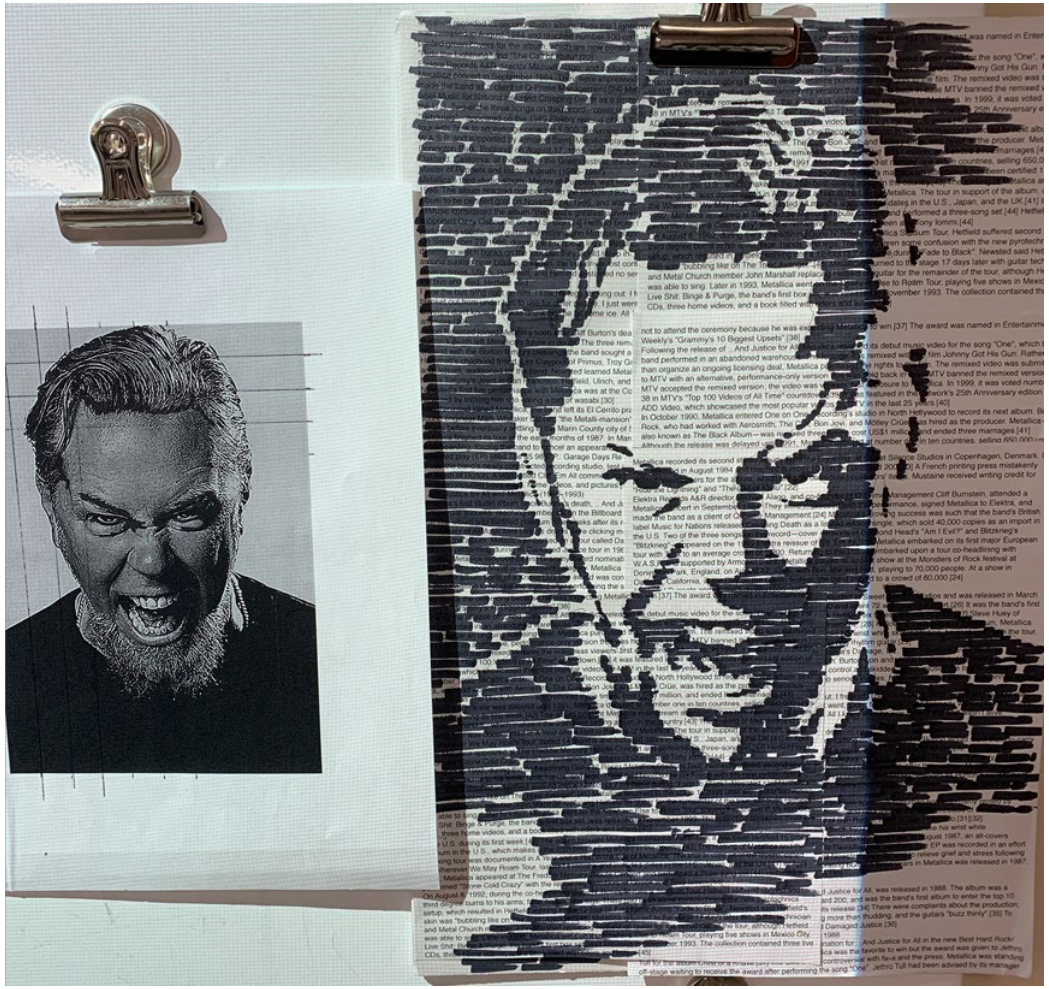
Additional Access Points have been installed throughout the building



THE SAMR MODEL

INSTRUCTIONAL FRAMEWORK – THE SAMR MODEL

Substitution:
Technology acts as a direct substitute, with no functional change



Students in Art Classes using their device to find an image that they will then ‘posterize’ using an article about the person

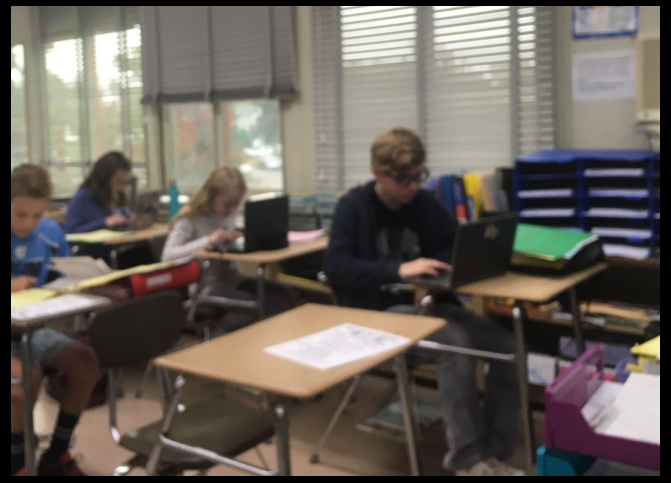
Fourth Grade flute players working on their note naming skills

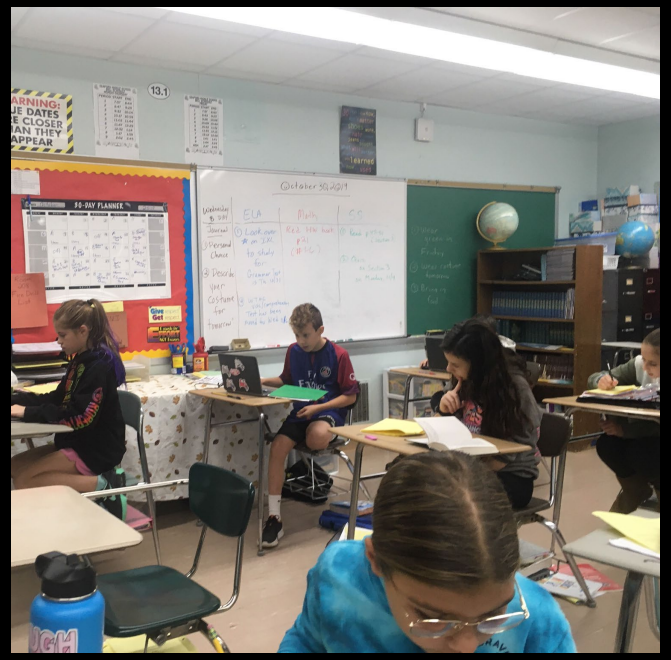
Teacher training to learn more about electronic textbooks and notebook software

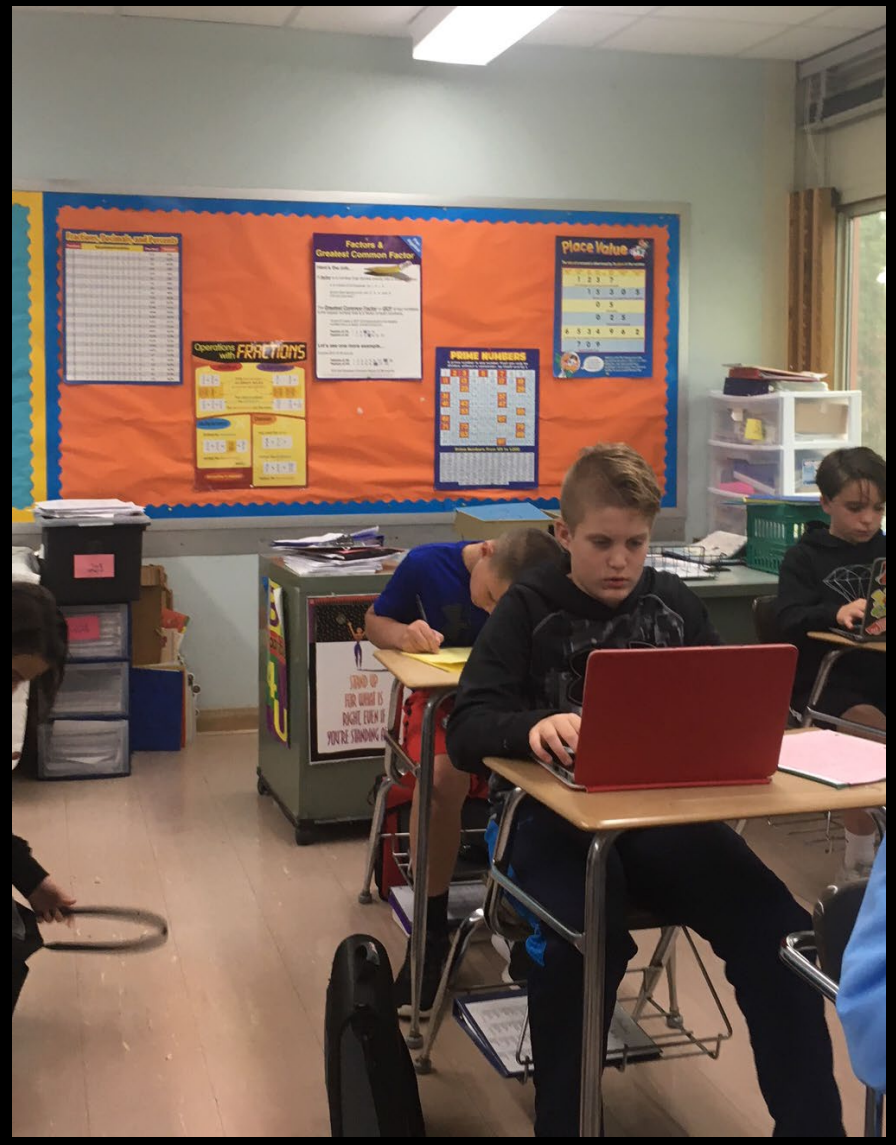
INSTRUCTIONAL FRAMEWORK – THE SAMR MODEL

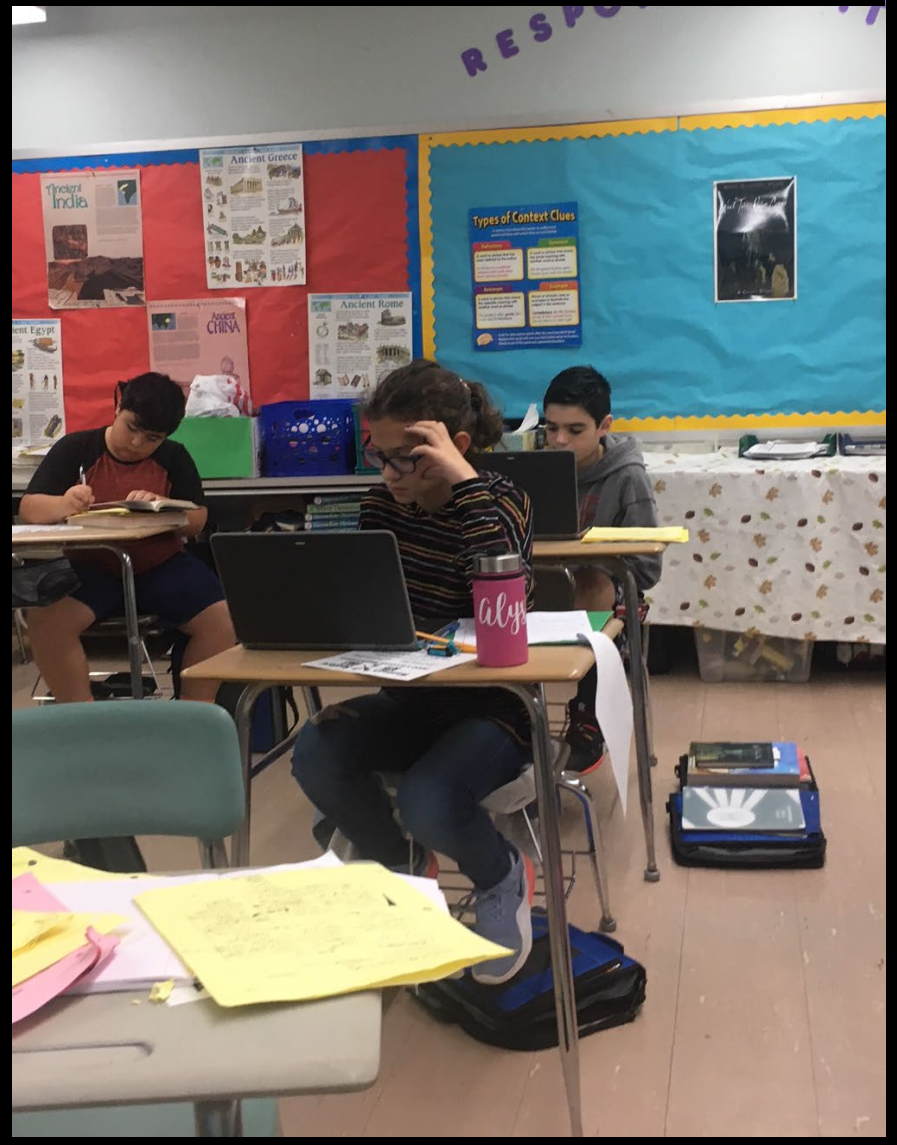
Augmentation:
Technology acts as a direct substitute, with functional improvement

Students working with EasyBib and PowerPoint for their 6th grade research project on Eastern Hemisphere countries in Ms. Christenson's class.

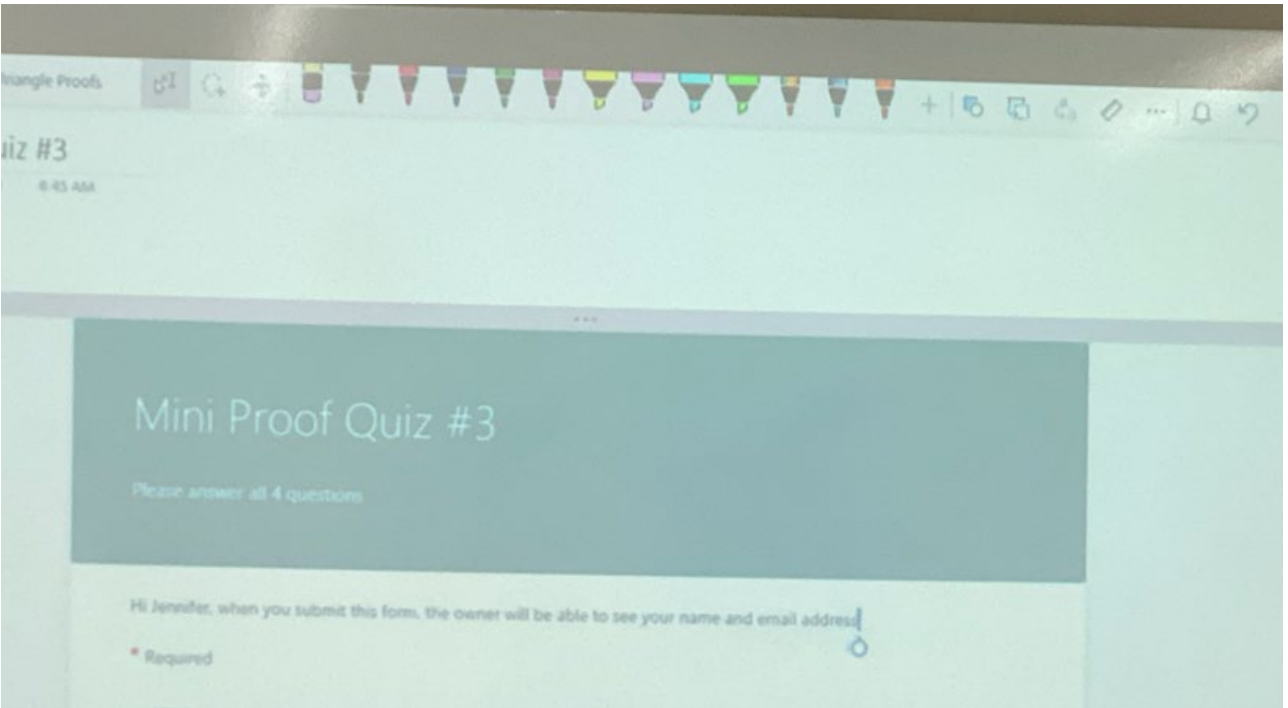








Fourth Grade Students working and revising their written work



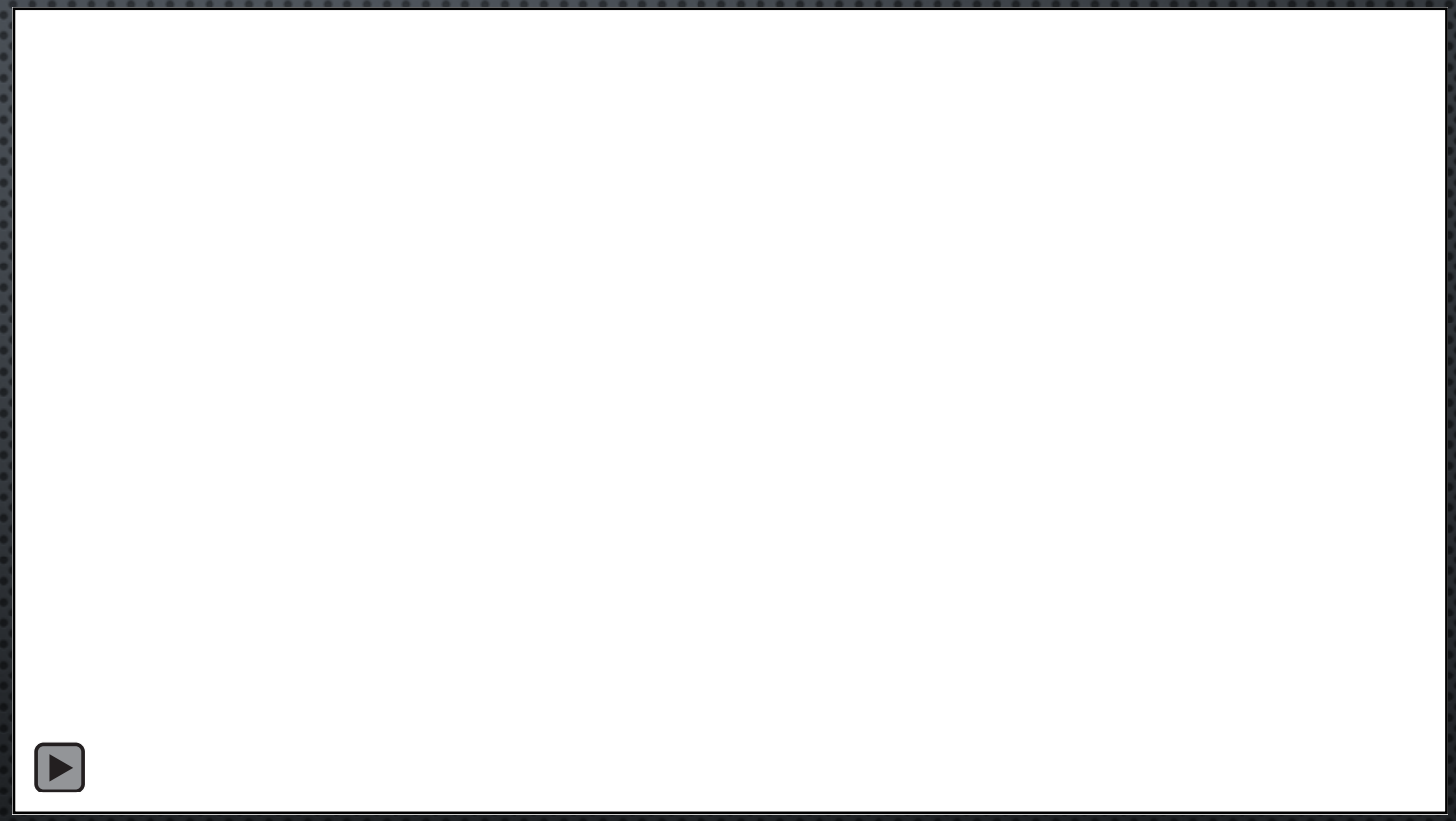
Ms. Wemssen's class taking an online quiz using *Forms*.

Results are shared used for data-driven instruction

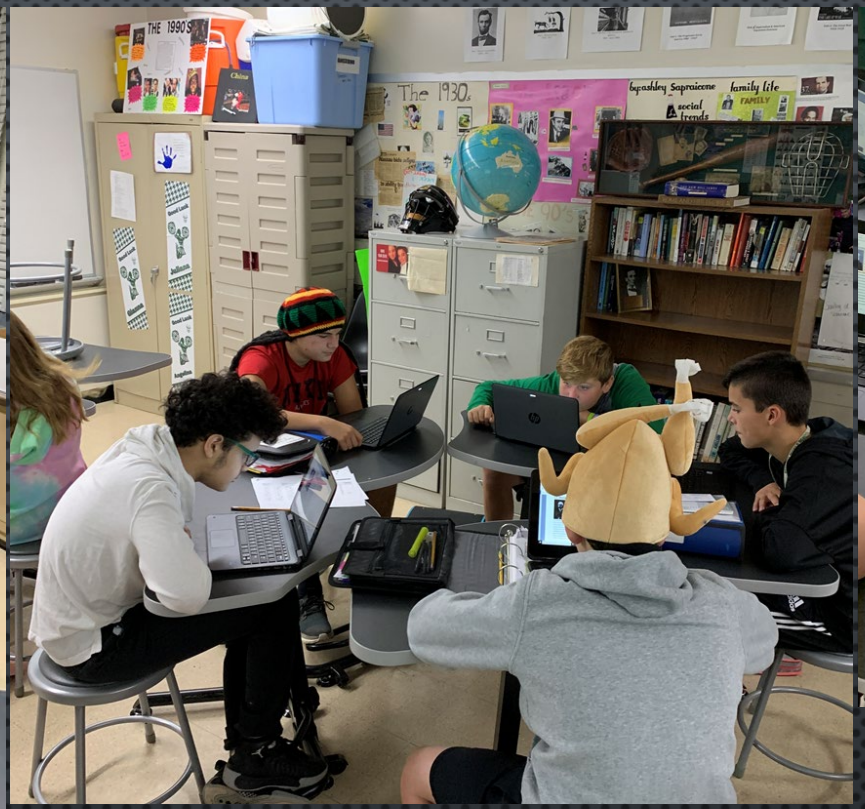
Ms. Bagliore's and Ms. Doris' completing a formative assessment using *Kahoot!*

INSTRUCTIONAL FRAMEWORK – THE SAMR MODEL

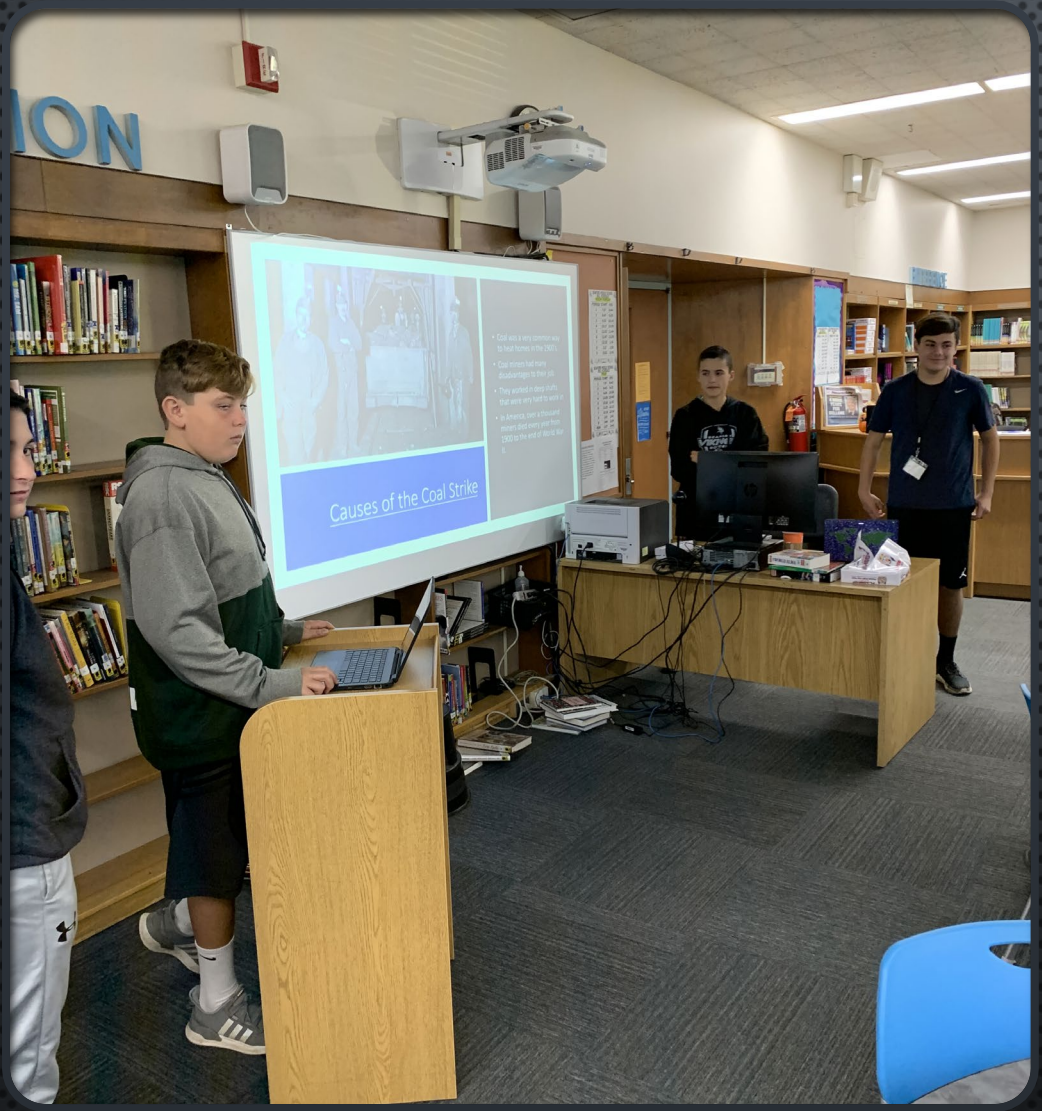
Modification:
Technology allows for significant task redesign



Students in Science Research are using devices in exploring their topic, completing a research plan, performing statistical analysis and using presentation software for sharing their work with peers.



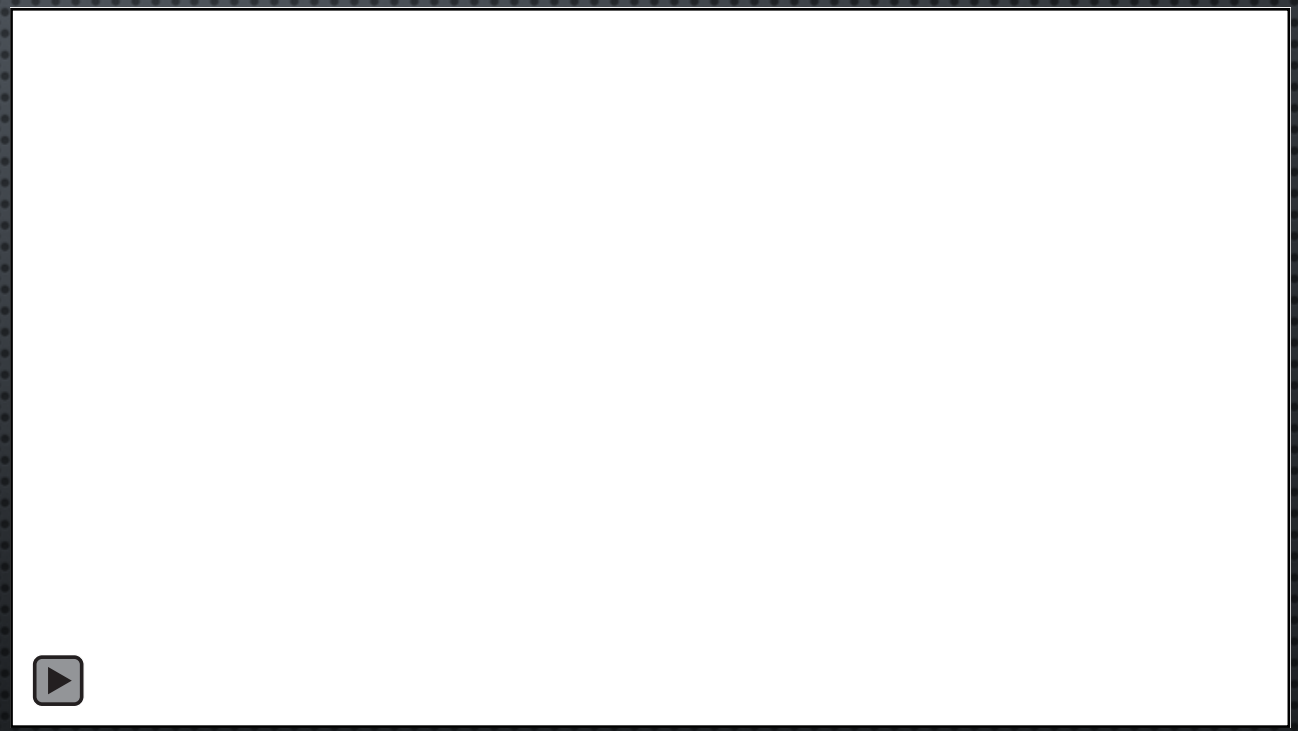
Working on their assignment about Gilded Age Tycoons, 8th grade Social Studies students use their device to retrieve and annotate documents.



Working in cooperative groups, students collaborate and share their work with peers and teacher.

INSTRUCTIONAL FRAMEWORK – THE SAMR MODEL

Redefinition:
Technology allows for the creation of new task, previously inconceivable



Scaffolded math notes are sent electronically to students where they annotate, add additional notes and send work back to teacher for feedback.

Teacher Note Packet and Notes

Exercise #4: A line passes through the points $(5,-2)$ and $(20,4)$.

(a) Determine the slope of this line in simplest rational form.

SLOPE = $\frac{\Delta y}{\Delta x} = \frac{-2-4}{5-20} = \frac{-6}{-15}$

SLOPE = $\frac{2}{5}$

(b) Write an equation of this line in point-slope form.

$m = 2/5$ pt = $(5,-2)$

$y - -2 = \frac{2}{5}(x-5)$

$y+2 = \frac{2}{5}x - 2$

$y = \frac{2}{5}x - 4$

$m = 2/5$ pt = $(20,$

$y-4 = \frac{2}{5}(x-20)$

$y-4 = \frac{2}{5}x - 8$

$y = \frac{2}{5}x - 4$

(c) Write an equation for this line in slope-intercept form.

$y = \frac{2}{5}x - 4$

(d) For what x-value will this line pass through a y-value of 12?

$y = \frac{2}{5}x - 4$

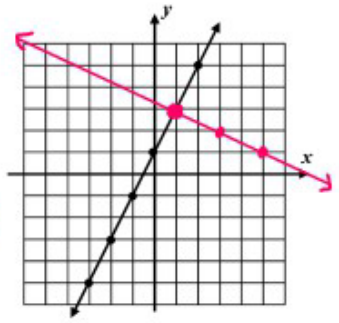
$12 = \frac{2}{5}x - 4$

$16 = \frac{2}{5}x$

$\frac{5}{2} \cdot 16 = \frac{5}{2} \cdot \frac{2}{5}x$

$40 = x$

Exercise #5: The graph of a linear function is shown below.



(a) Write the equation of this line in $y = mx + b$ form.

SLOPE: $\frac{2}{1} = 2$ $y = 2x + 1$

y-int = (0,1)

(b) What must be the slope of a line perpendicular to the one shown?

negative recip slopes

$m = \frac{2}{1}$ $\perp m = -\frac{1}{2}$

(c) Draw a line perpendicular to the one shown that passes through the point $(1,3)$.

See graph

(d) Write the equation of the line you just drew in point-slope form.

$y - y_1 = m(x - x_1)$ use: $m = -1/2$ pt: $(1,3)$

$y - 3 = -\frac{1}{2}(x-1)$

(e) Does the line that you drew contain the point $(30,-15)$? Justify.

$y - 3 = -\frac{1}{2}(x-1)$

$-15 - 3 = -\frac{1}{2}(30-1)$

$-18 = -\frac{1}{2}(29)$

$-18 \neq -14.5$

NO

FORMS OF A LINE
COMMON CORE ALGEBRA II

Linear functions come in a variety of forms. The two shown below have been introduced in Common Core Algebra I and Common Core Geometry.

TWO COMMON FORMS OF A LINE

Slope-Intercept: $y = mx + b$ **Point-Slope:** $y - y_1 = m(x - x_1)$

where m is the slope (or average rate of change) of the line and (x_1, y_1) represents one point on the line.

Exercise #1: Consider the linear function $f(x) = 3x + 5$.

(a) Determine the y-intercept of this function by evaluating $f(0)$.

$f(0) = 3(0) + 5$

$= 5$

y-int = (0,5)

(b) Find its average rate of change over the interval $-2 \le x \le 3$.

AROC = $\frac{\Delta y}{\Delta x} = \frac{14 - -1}{3 - -2} = \frac{15}{5} = 3$

x	y
-2	-1
3	14

AROC = 3 ← SLOPE

Exercise #2: Consider a line whose slope is 5 and which passes through the point $(-2,8)$. ← not a y-int

(a) Write the equation of this line in point-slope form, $y - y_1 = m(x - x_1)$.

$y - y_1 = m(x - x_1)$

$y - 8 = 5(x - -2)$

(b) Write the equation of this line in slope-intercept form, $y = mx + b$.

$y - 8 = 5(x+2)$

$y - 8 = 5x + 10$

$y = 5x + 18$

Exercise #3: Which of the following represents an equation for the line that is parallel to $y = \frac{3}{2}x - 7$ and which passes through the point $(6,-8)$?

$x_1 = 6$ $y_1 = -8$

SAME SLOPE $m = 3/2$

(1) $y - 8 = -\frac{2}{3}(x+6)$ (3) $y + 8 = \frac{3}{2}(x-6)$

(2) $y - 8 = \frac{3}{2}(x+6)$ (4) $y + 8 = -\frac{2}{3}(x-6)$

$y - -8 = \frac{3}{2}(x - 6)$

Student Note Packet and Notes

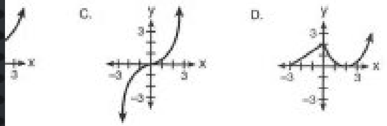
Date: ______________ **Algebra II CC**

iew of Algebra I Functions

raph
ctions pass the vertical line test
↳ vertical line hit graph once

Function: a relation where each element in the domain maps on to only one element in the range (x: can't repeat)

- graph = functions pass vertical line test.
- equation = functions have y^{odd}
- ordered pairs = functions can't have repeating x-values



n → function if y value had an odd exponent

C. $x^2 - 4y^2 = 64$ (D) $xy^1 = 64$

C. $y = \frac{10}{x}$ (D) $x^2 + y^2 = 9$

C. $x^2 + y^2 = 4$ D. $x = y^2 - 6x + 8$

Many times linear models have been constructed and we are asked only to work with these models. Models in the real world can be messy and it is often convenient to use our graphing calculators to plot and investigate their behavior.

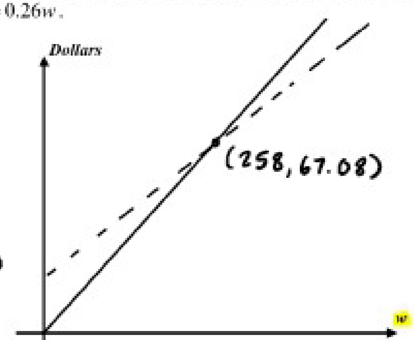
Exercise #3: A factory produces widgets (generic objects of no particular use). The cost, C, in dollars to produce w widgets is given by the equation $C = 0.18w + 20.64$. Each widget sells for 26 cents. Thus, the revenue gained, R, from selling these widgets is given by $R = 0.26w$.

R = revenu
C = cost
P = profit

(a) Use your graphing calculator to sketch and label each of these linear functions for the interval $0 \le w \le 500$. Be sure to label your y-axis with its scale.

C = .18w + 20.64
R = .26w

window > x min: 0 > x max: 500
> zoom fit (0)



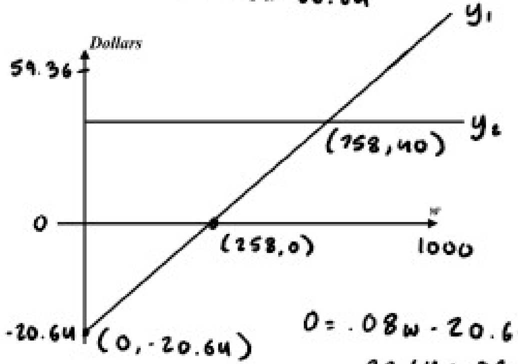
(b) Use your calculator's **INTERSECT** command to determine the number of widgets, w, that must be produced for the revenue to equal the cost.

258 widgets

(c) If profit is defined as the revenue minus the cost, create an equation in terms of w for the profit, P.

P = (R) - (C) = (.26w) - (.18w + 20.64)
P = .26w - .18w - 20.64
P = .08w - 20.64

(d) Using your graphing calculator, sketch a graph of the profit over the interval $0 \le w \le 1000$. Use a **TABLE** on your calculator to determine an appropriate **WINDOW** for viewing. Label the x and y intercepts of this line on the graph.

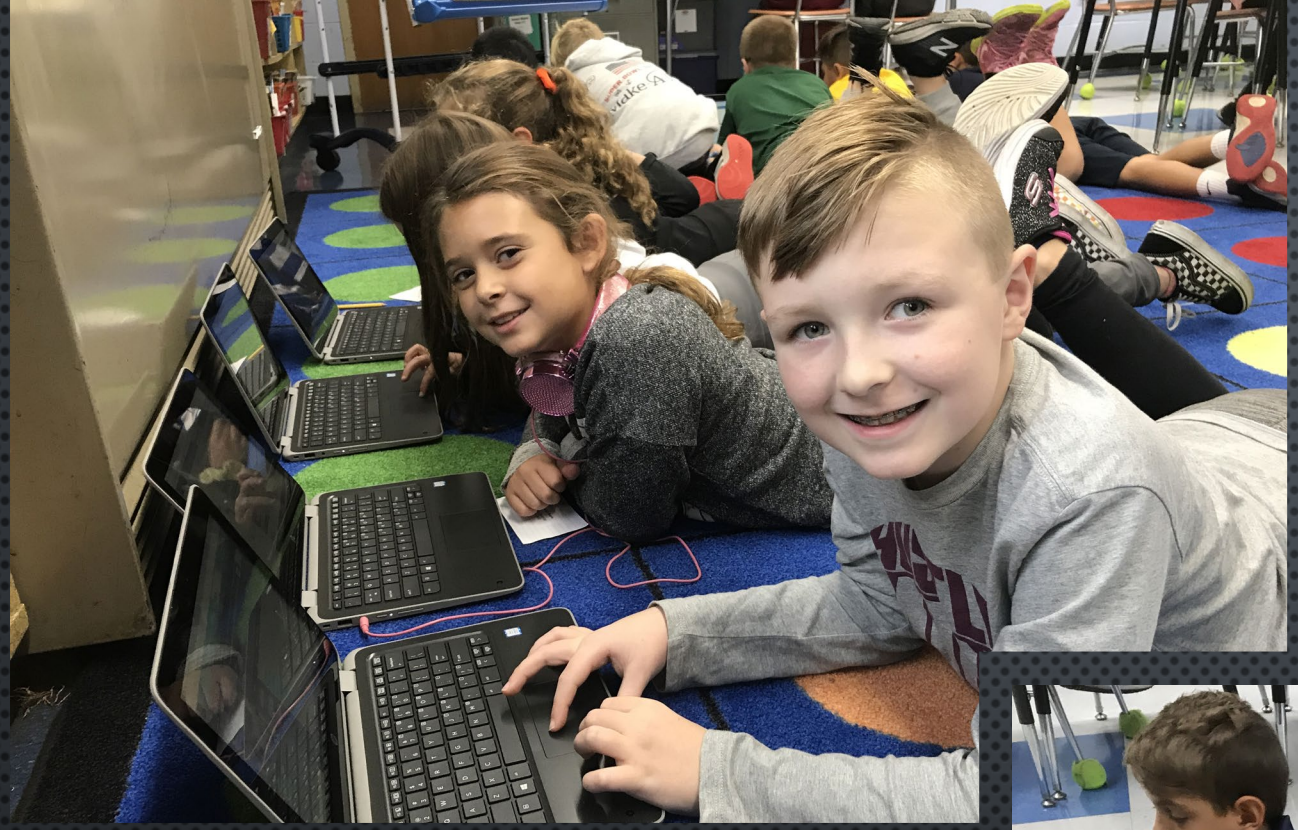


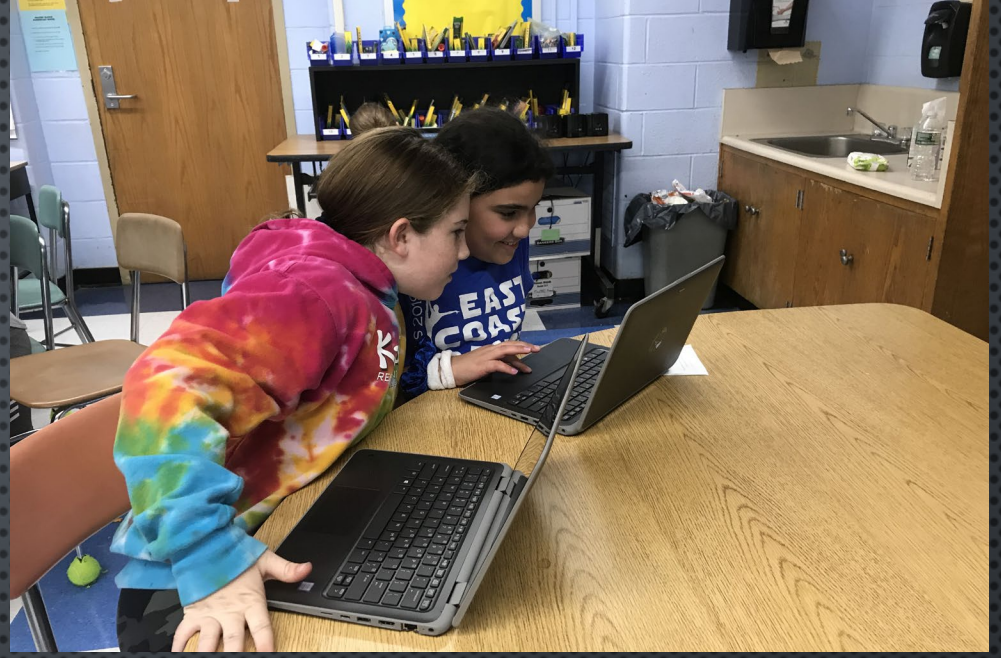
(e) What is the minimum number of widgets that must be sold in order for the profit to reach at least $40? Illustrate this on your graph.

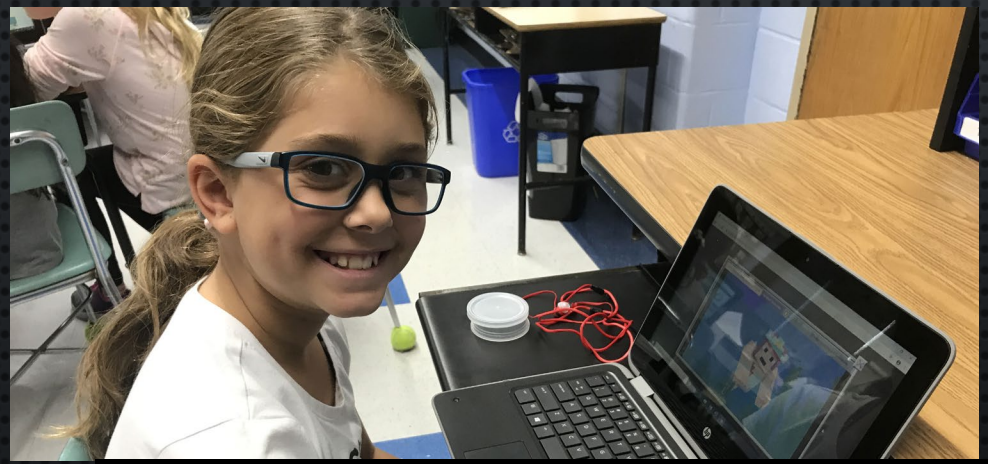
y2 = 40

Need to sell at least 758 widgets to make at least $40

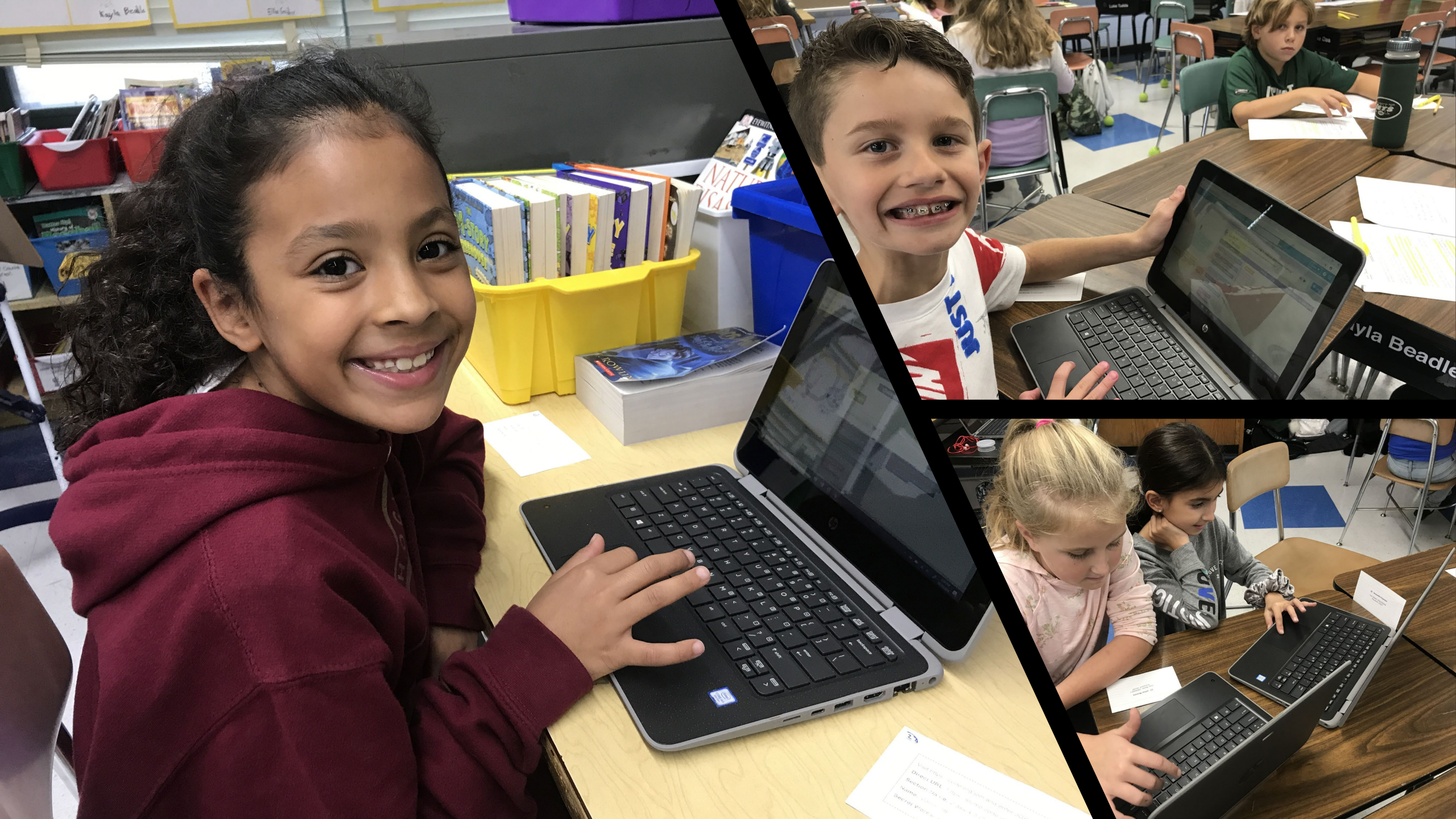
0 = .08w - 20.64
20.64 = .08w
258 = w



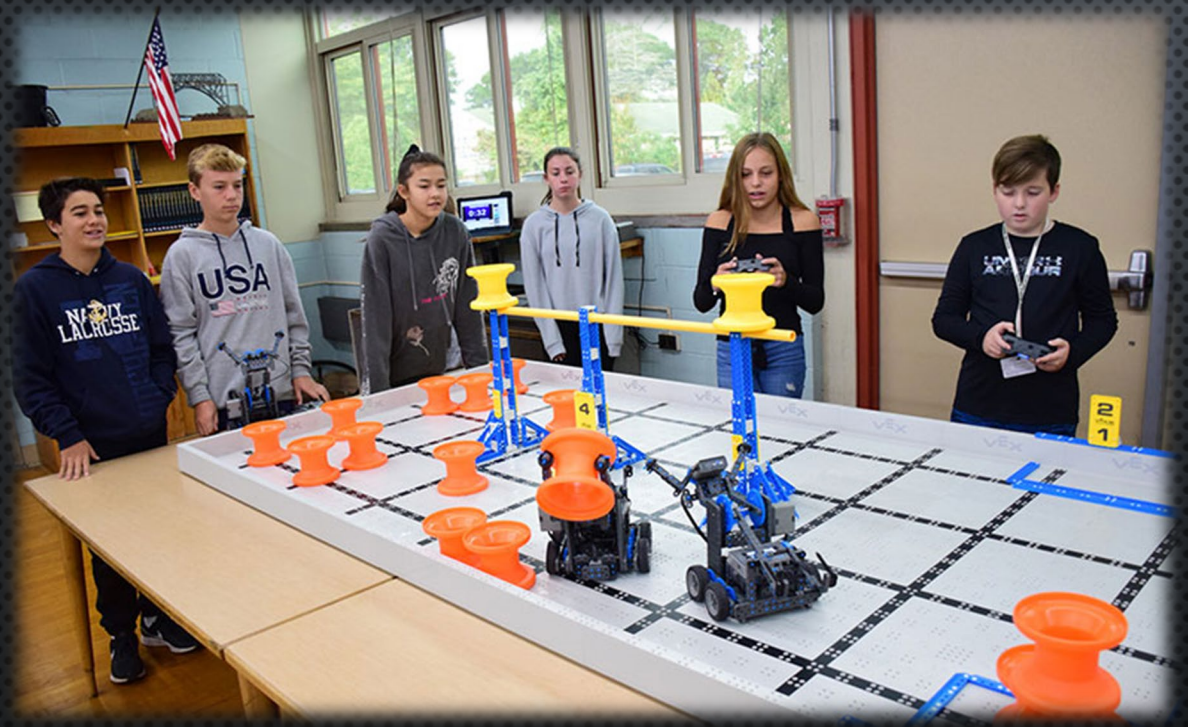




USING CODE.ORG IN MR. WOJCIK'S 4TH GRADE CLASS



8TH GRADE STUDENTS BUILDING AND PROGRAMMING VEX ROBOTS TO COMPETE COOPERATIVELY

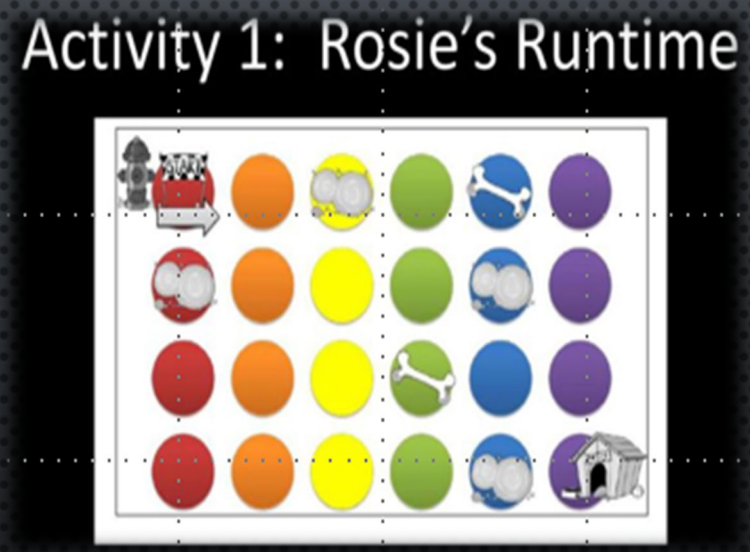


Project Lead the Way

PLTW | Launch

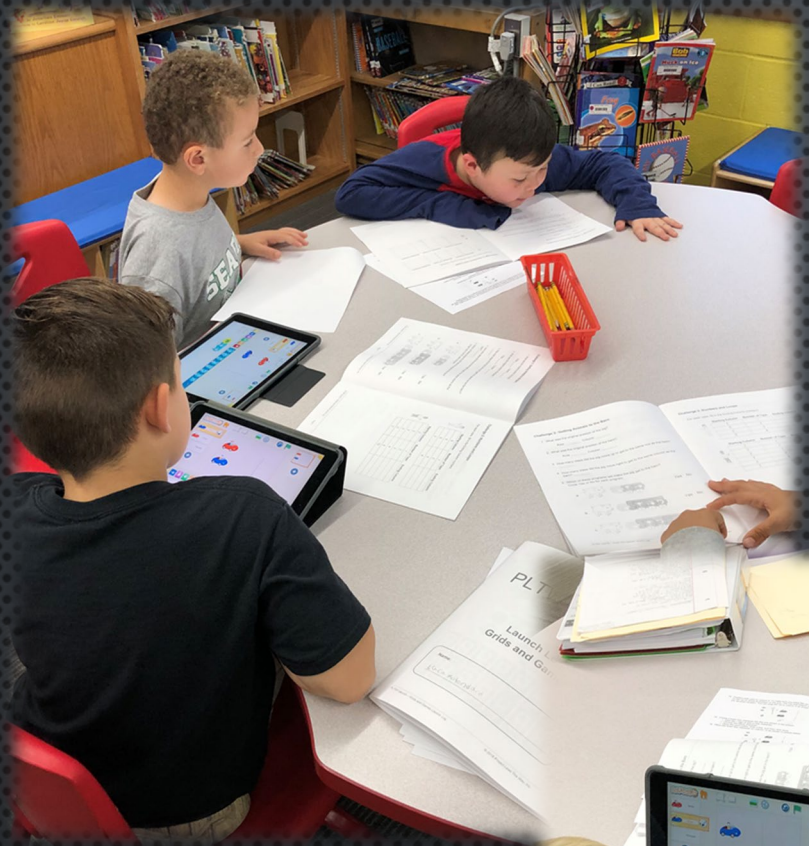
Fall	Winter	Spring
Grades 2 and 3	Kindergarten and 1st	Grades 4 and 5
Grids and Games	Structure and Function: Human Body	Stability and Motion: Science of Flight
Students learn about the sequence and structure required in computer programs and work in teams to build tablet games.	Students explore the relationship between structure and function in the human body and design a cast.	Students learn about the forces involved in flight and design a solution to deliver aid supplies via an aircraft.

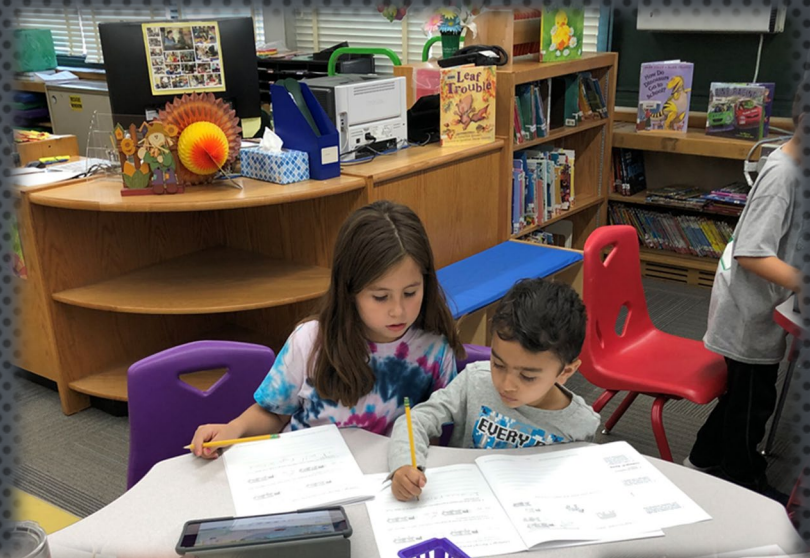
Grids and Games:
Thinking about coding and writing the code

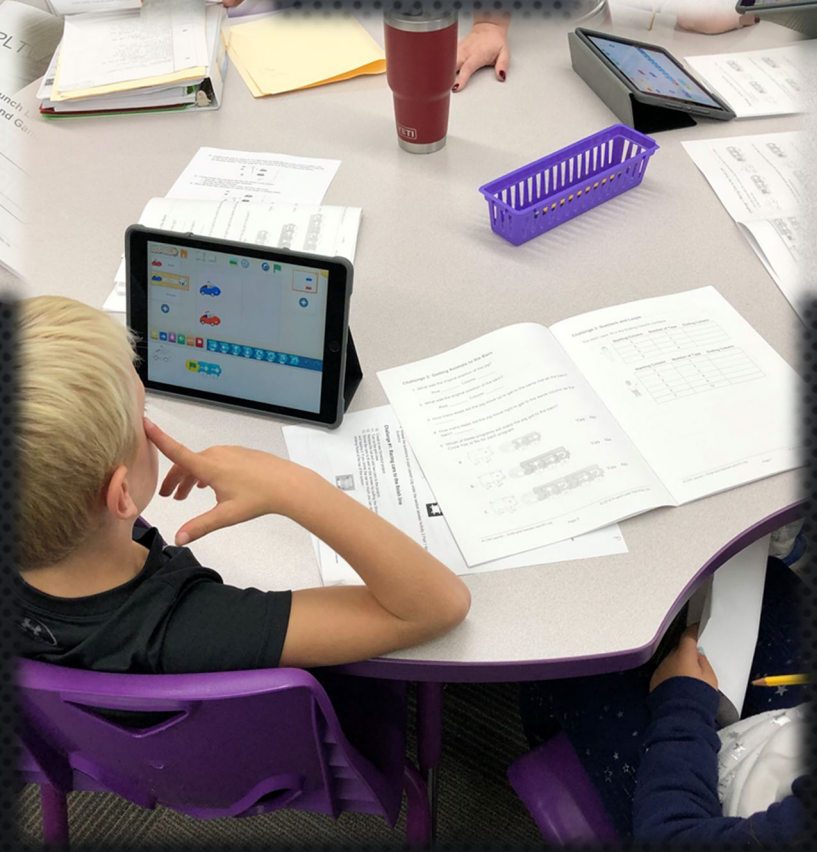


Testing the code and debugging

Coding using Scratch Jr.

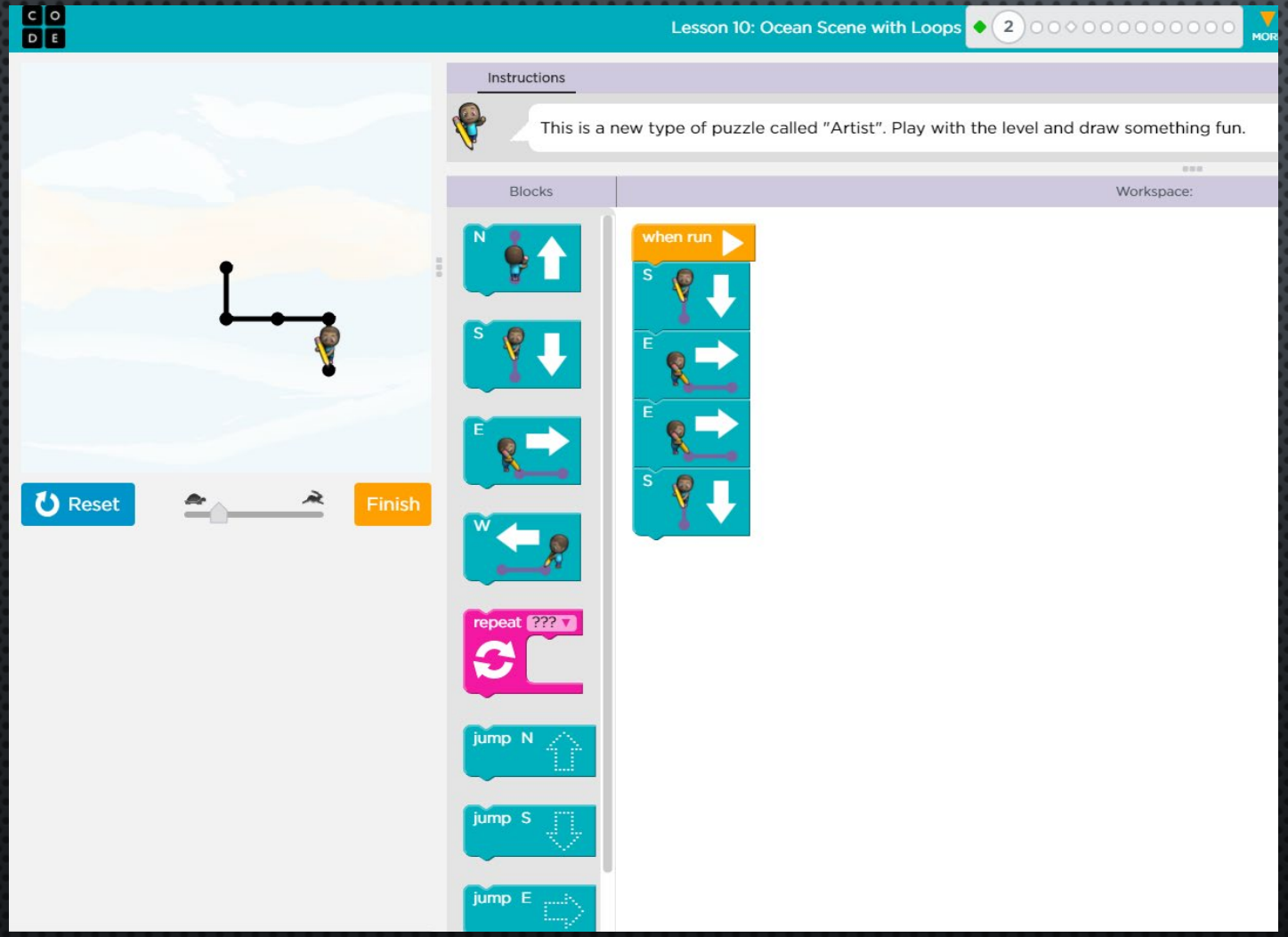


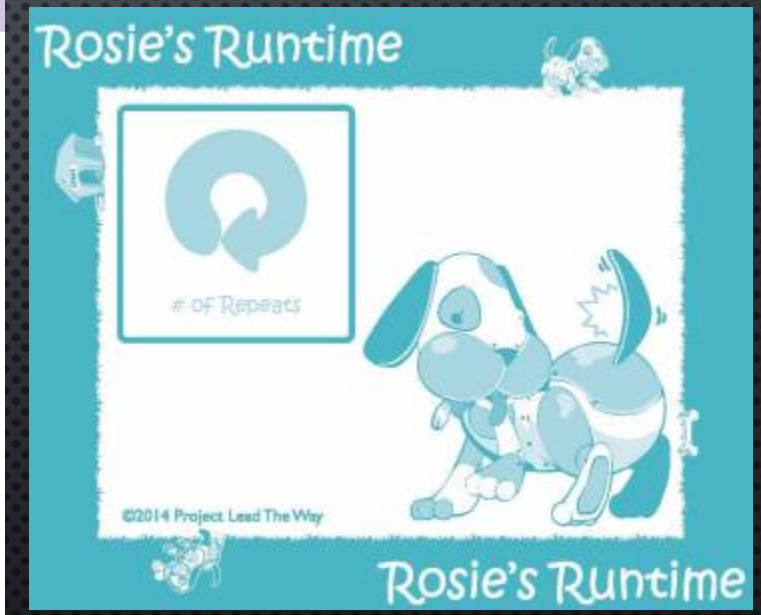

Leaf Trouble




PLTW Launch

An example of Scratch Jr.



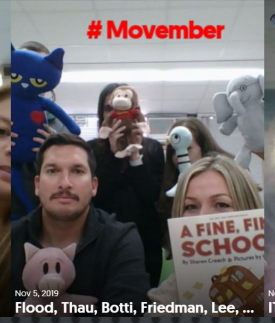


PLTW | Launch

Seaford was awarded two $10,000 grants to start the PLTW Launch Program. The grant money is for the following:

- Training and related expenses
- Materials and equipment
- Yearly Participation Fees

Nov 5, 2019
Kristina S

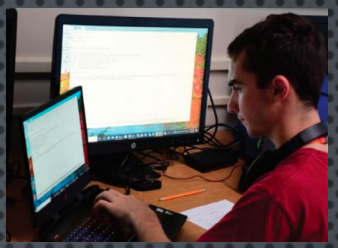


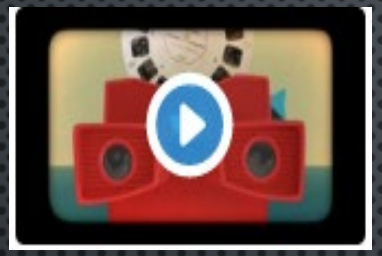
Nov 5, 2019
Flood, Thau, Botti, Friedman, Lee, ...

Nov 5, 2019
ITS TOO DARK IN HERE

Nov 5, 2019
She Persisted

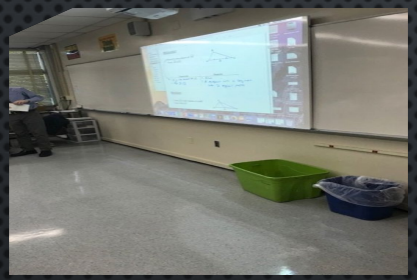
OneNote



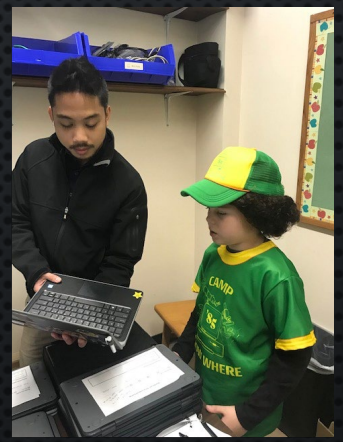


PROJECT LEAD THE WAY
PLTW
Preparing students for the global economy

MORE TO COME!



Office 365



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Go to **www.menti.com** and use the code **78 36 48**