ALL-ED Routines

Planned by MfA Teachers

During professional learning with Harvard Graduate School of Education's Agile Teacher Lab, MfA teachers learned about the Domino Discover and Sort It Out routines, as well as strategies to facilitate equitable academic discussions.

These routines can be applied across all content areas and grade levels. In this slide deck, explore the routines that MfA teachers planned and executed with their students.

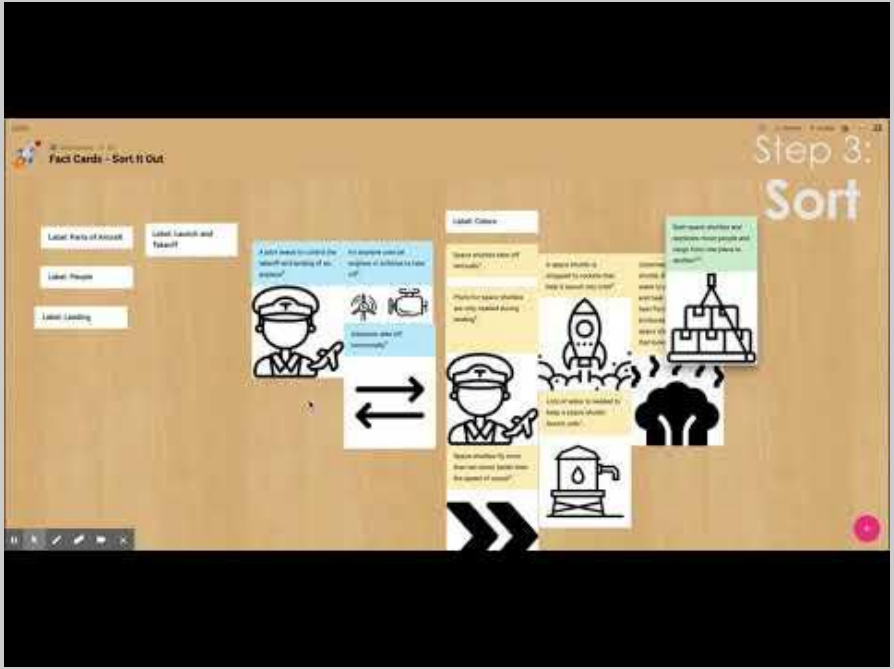
The Agile Teacher Lab is part of the Reach Every Reader grant funded by the Chan Zuckerberg Foundation

agile teacher lab

Examples of Domino Discover Routines

Subject	Grade	Teacher's Name	Routine & Link
Biology	High School	Devin Sprague	Domino Discovers New
Biology	High School	Emily Birden	Domino Discover
Biology	High School	Lisa Homer	Domino Discover
Biology	High School	Elisa Margarita	Domino Discover
Biology	High School	Jessica Ross	Domino Discover
Biology	High School	Susie Kang	Domino Discover
Biology	High School	Camila Lock	Domino Discover
Biology	High School	Gijon Polite	Domino Discover
Chemistry	High School	Erin Ratz-Guinals	Domino Discover
Earth Science	High School	Aida Rosenbaum	Domino Discover
General Science	Elementary	Laurie Matthews	Domino Discover
General Science	Middle School	Lynn Shon	Domino Discover
General Science	Middle School	Michael Fagan	Domino Discover
General Science	Middle School	Kelli Buck	Domino Discover
Physics	High School	Katie Davey	Domino Discover / TTO

Learn - Sort It Out



- Sort It Out Routine Directions
- **Sort It Out Resources**
  - Math
  - Science

Online adaptation:
Fact Cards - Sort it Out in Padlet

Examples of Sort It Out Routines

Subject	Grade	Teacher's Name	Routine & Link
Biology	Middle School	Isabelle Giannella	Sort It Out
Biology	High School	Kristin Azer	Sort It Out
Biology	High School	Stefanie Fier	Sort It Out
Chemistry	High School	Rosalie Malone	Sort It Out
Earth Science	High School	Samantha Adams	Sort It Out
General Science	Middle School	Jesse Markowitz	Sort It Out
Math	Elementary School	Martina Meijer	Sort It Out
Math	Elementary School	Meera Zucker	Sort It Out
Math	Elementary School	Ariel Thompson	Sort It Out
Math	Middle School	Laura Brando	Sort It Out
Physics	High School	Robin Norwich	Sort It Out
Physics	High School	Katelin Corbett	Sort It Out

Find a routine by subject

Biology	Chemistry
Earth Science	General Science
Math	Physics

Find a routine by grade level

Biology

Biology

Grade	Teacher's Name	Routine & Link
Middle School	Isabelle Giannella	Sort It Out
High School	Kristin Azer	Sort It Out
High School	Devin Sprague	Domino Discover
High School	Emily Birden	Domino Discover
High School	Lisa Homer	Domino Discover
High School	Elisa Margarita	Domino Discover
High School	Jessica Ross	Domino Discover
High School	Susie Kang	Domino Discover
High School	Camila Lock	Domino Discover
High School	Gijon Polite	Domino Discover
High School	Jesusa Merioles	2 x 2 x 2
High School	Stefanie Fier	Sort It Out

Sort-it-out for our "On My Plate" Expedition

Isabelle Giannella

Framing of previous task: In our Living Environment class, we launched a learning expedition where groups of students used our "Levels of Questioning" to generate questions about food labels. They posted their questions on jamboards.

Sort-it-out task: We will revisit our already created Jamboards to participate in a Sort-it-out routine with the questions we generated.The slides with instructions for this lesson are in the following four slides.

Biology	Middle School	Isabelle Giannella	Sort It Out

DIRECTIONS:

Isabelle Giannella

1) Open the Jamboard that you and your group made with food label questions from our "On my Plate" Expedition kick-off.
2) Follow the "Sort-it-out" Protocol.
   a) "Look" at the questions you created.
   b) "Label" by using the following labels and creating some of your own: nutrition, where food comes from, healthy vs. unhealthy.
   c) "Sort" the questions under the categories
   d) "Mix" up the sticky notes and repeat the steps 2 more times.

"Sort-it-out" Routine

Isabelle Giannella

- Sort -it-out is a routine we will be using where you sort materials under labels in multiple ways.
- The purpose of this routine is to:
  - Build your creative thinking skills by thinking of new ways that ideas fit together
  - Helps you practice adventurous thinking where you keep an open mind and consider differing perspectives.

Protocol:

Isabelle Giannella

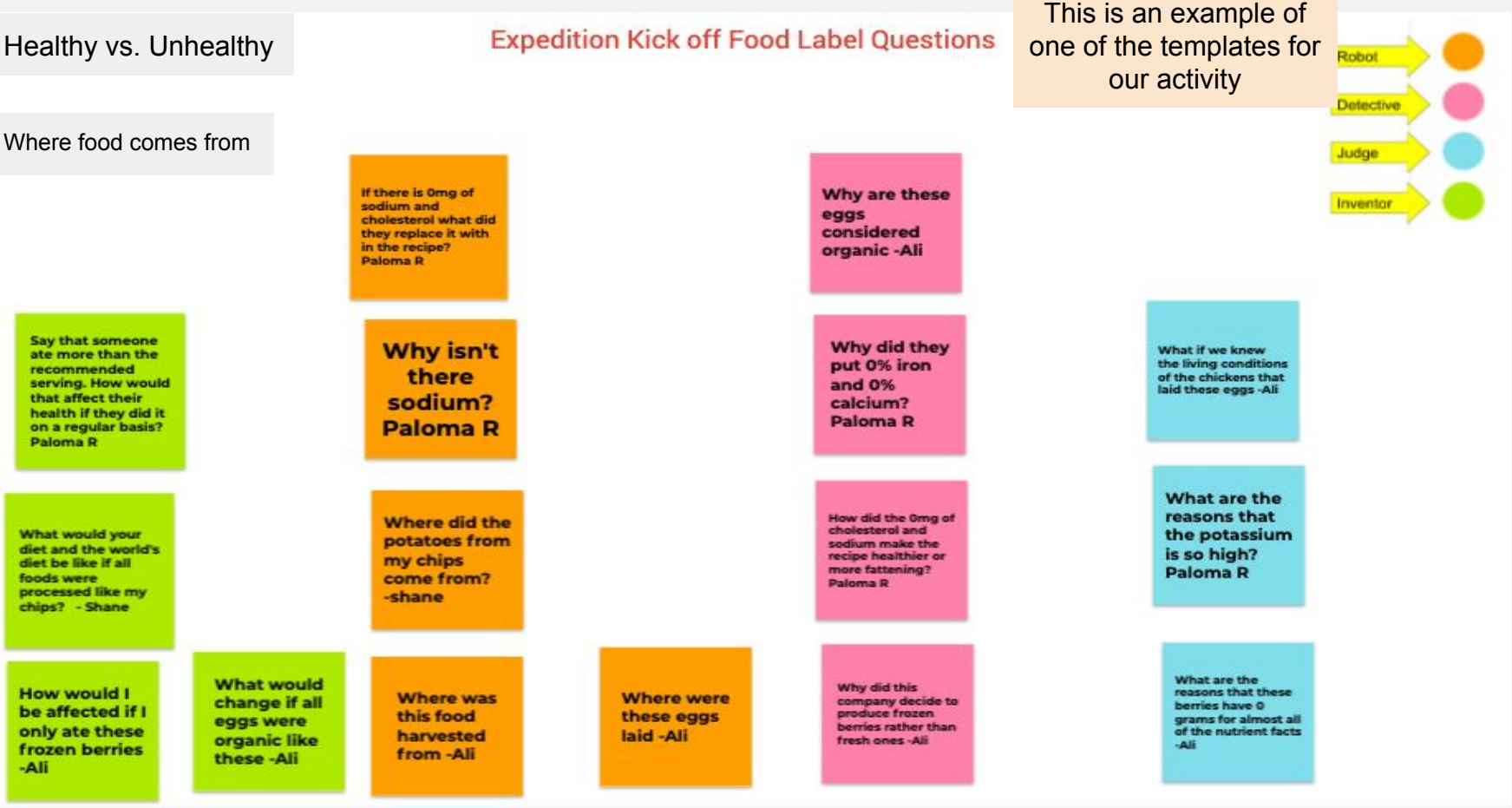
- Look - You will first observe the questions you created with your group
- Label - Use the provided labels and/or create some of your own
- Sort - Sort the questions under the labels
- Mix - Mix-up your sources and Look, Label, and Sort in a new way

Biology	Middle School	Isabelle Giannella	Sort It Out

Healthy vs. Unhealthy

Where food comes from

This is an example of one of the templates for our activity



Using Wakelet for a Building Background Knowledge (BBK) Workshop on Food Waste

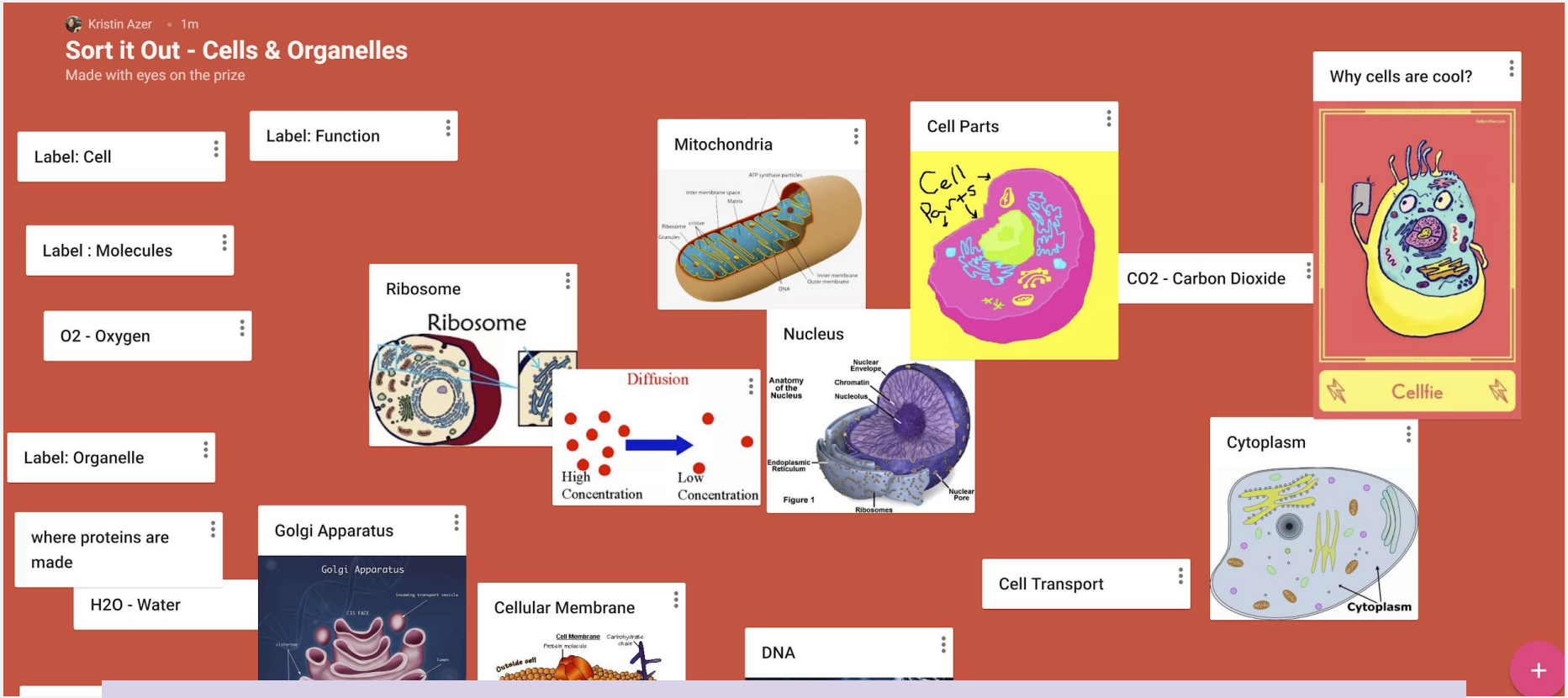
Isabelle Giannella

A part of our Learning Expedition (we are an Expeditionary Learning School), we are doing a case study on Food Waste. In order to “build background knowledge” we will do a BBK workshop. We will complete 3 rounds: common text, expert texts, and questioning. We will create our BBK “posters” on jamboard.

The instructions and materials were all put into a Wakelet to organize the workshop.

Wakelet is linked here: Food Waste BBK Wakelet

Biology	High School	Kristin Azer	Sort It Out



Sort It Out Concept Mapping for Cells and Organelle Functions
https://padlet.com/kazer/gxw2byx82gpcm2u1 Kristin Azer

Devin Sprague's Domino Discover:

Predicting the questions that will appear on Exam 1 of AP Biology for Fall 2020

Students are given background reading of two experiments that will each be the basis for an essay question on the exam. The actual question prompts/tasks are not shown.

AP BIOLOGY
Fall 2020
Mr. Sprague

Exam 1
2 Questions

Directions: Read each question carefully and completely. Answers must be written out in paragraph form. Outlines, bulleted lists, or diagrams alone are not acceptable.

1. Estuaries are partially enclosed bodies of water that rivers flow into and serve as nursery areas for juvenile marine fish. Researchers investigating the possibility that juvenile fish are attracted to nursery areas by olfactory (smell) cues used a choice chamber to measure the preferences of juvenile Cape stumpnose fish (*Rhabdosargus holubi*) larvae from the Kowie estuary system (Figure 1) in South Africa for estuary or river water (James et al., 2007).

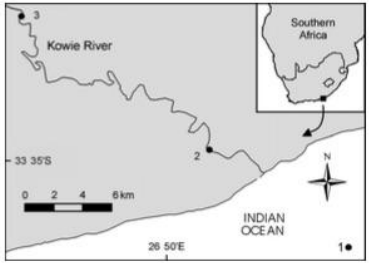


Figure 1. Map of the Kowie River, Port Alfred, showing the location of water collection points for sea water (1), estuary water (2) and river water (3)

Five different experiments were conducted: (1) estuary water versus sea water, (2) river water versus sea water, (3) river water versus estuary water, (4) estuary water versus a 50:50 mixture of river water and estuary water, and (5) river water versus a 50:50 mixture of river water and estuary water. The mixture experiments were conducted to determine whether larvae are attracted to olfactory cues in both river water and estuary water or more strongly attracted to either estuary or river water. Each choice experiment was repeated three times using different groups of larvae. At the start of an experiment, five to nine *R. holubi* larvae were introduced into the choice chamber shown in Figure 2 (based on the design of Atema, Kingsford, & Gerlach, 2002) at one time and given 5 minutes to acclimate without flowing water.

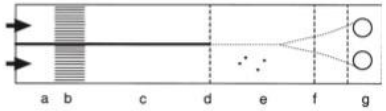


Figure 2. Choice chamber with an overall size of 240 × 50 cm with water depth of approximately 6 cm. Labeled parts include: (a) water inflow compartment where left and right side inflows (arrows) are exchanged by switching two hoses manually; (b) collimator of packed soda straws to homogenize turbulence; (c) barrier-separated channels to further laminate flow; (d) upstream fine mesh (0.5 mm) net to contain test animals; (e) 61 × 50 cm test area where left- and right-side flows remain separated without barrier (fine dotted center line); gradually separating center line indicates downstream area where cooler water slid underneath warmer water in tests where ocean and lagoon water were at greatly different temperatures; (f) downstream containment net; and (g) drain area via perforated standpipes. Squares (■) represent fish.

Each experiment consisted of two trials (two repeated observations per group of larvae). In trial 1, the contrasting test waters from different origins were allowed to flow through the adjacent sides of the test chamber for 3 minutes. In trial 2, the two water sources (inflows) were alternated to flow down different sides of the chamber, by switching two hoses, for an additional 3 minutes. The number of individuals in each side of the test area was counted repeatedly over the last minute during each of the 3-minute trials, with a recording made of any changes in numbers on either side of the test area during this minute. The total number of observations made on each side of the test area was then averaged. The results are shown in Figure 3.

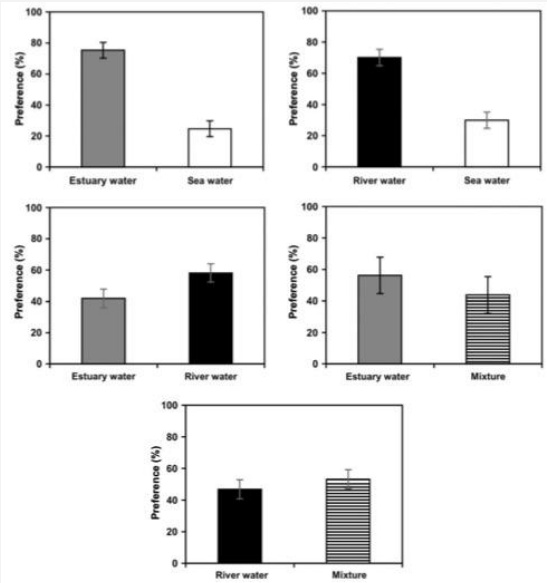


Figure 3. Mean percent preference $\pm 2SE_{\bar{X}}$ of *R. holubi* larvae (n = 6 trials) for different water sources.

Biology	High School	Devin Sprague	Domino Discover

Devin Sprague's Domino Discover: Help Resource

Each student will need to have their AP Biology College Science Skill self-assessment rubric out to help them predict the possible specific question prompts/tasks that might be asked in each of the two essay questions (every prompt/task on each exam will be aligned to one of the skills on this rubric).

SCIENCE SKILL	HIGH SCHOOL LEVEL	COLLEGE LEVEL
Science Skill 1 Explain Biological Concepts	• Summarize biological theories and concepts. • Compare biological processes.	• Explain biological theories and concepts in applied contexts. • Relate processes across the molecular, cellular, physiological, population, and ecosystem levels.
Science Skill 2 Construct and Analyze Models	• Interpret diagrams, graphs, equations, physical representations, flow charts, and summaries. • Summarize key ideas and relationships depicted in a model.	• Refine a model to better represent a data set. • Construct your own model. • Evaluate the benefits and shortcomings of a model.
Science Skill 3 Ask Questions and Test Hypotheses	• Pose testable cause-and-effect questions. • Construct predictive experimental hypotheses. • Design controlled experiments. • Identify independent and dependent variables and control and experimental groups. • Control for extraneous variables. • Select an appropriate sample size for an investigation.	• Pose questions that connect outside knowledge to experimental situations, data sets, and models. • Pose ethical questions related to biological phenomena. • Construct null hypotheses and multiple competing alternative hypotheses. • Design investigations to yield quantitative data that are appropriate for statistical analysis. • Justify the selection of positive or negative controls. • Evaluate the impact of inherent experimental errors. • Select an appropriate model organism for an investigation.
Science Skill 4 Represent and Describe Data	• Construct tables and graphs to display data. • Summarize trends from a graph or table. • Describe the relationship between two variables.	• Select and justify the appropriate type of graph for a data set. • Construct and justify the use of logarithmic and dual-Y scales. • Summarize trends from non-traditional displays of data.
Science Skill 5 Apply Mathematics and Analyze Data	• Calculate means, medians, modes, and percentages. • Solve problems using equations. • Use data to evaluate a hypothesis.	• Calculate and estimate rates and ratios. • Construct and interpret error bars representing confidence intervals. • Perform and interpret a chi-square test. • Construct your own summary equation. • Evaluate the assumptions and shortcomings of an equation. • Justify the decision to reject or fail to reject a null hypothesis and to support or refute an alternative hypothesis.
Science Skill 6 Develop and Justify Scientific Arguments	• State claims based on biological theories. • Compare data from a group of interest to a control group. • Predict the causes and effects of a	• State claims that connects the underlying biology to complex cellular or ecological phenomena. • Cull specific useful data points of interest from large data sets and

Biology	High School	Devin Sprague	Domino Discover

1. (5 minutes)
   Everyone reads the question introduction background information.
   (odd numbered rooms read question 1; even numbered rooms read question 2)

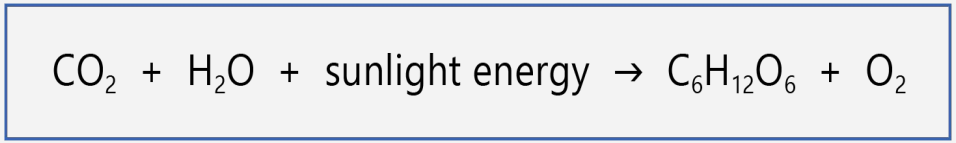
2. (2 minutes)
   Each member shares a potential question prompt/task that Mr. Sprague might ask based on the background information.

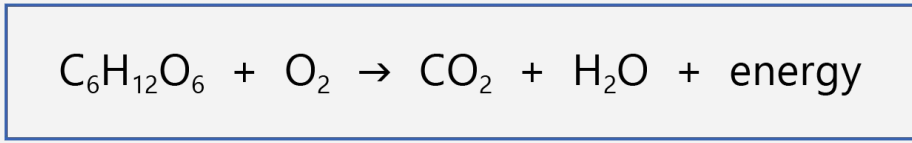
3. (2 minutes)
   The team works together to identify the specific college science skill that aligns to the prompt proposed by each team member.

4. (1 minute)
   Team selects a member to present one potential prompt/task (with aligned skill), along with a backup prompt in case another group presents a similar prompt.

Domino Discover:

Compare and contrast the chemical equations below. Record all the ideas you can think of. You have 3 minutes





Emily Birden

Share out

First share out: Let's start with comparisons. Each group member will share one idea at a time. Go in alphabetical order by first name and complete as many share out rounds as you can in 3 minutes. As you listen to your classmates, add any new ideas to your notes.

Second share out: Now let's contrast the equations. This time, go in alphabetical order by last name. Again, keep going around until 3 minutes are up and add new ideas to your notes.

Domino Discover- Lisa Homer

1. Individual preparation (20 seconds)- *What is one thing you notice in this cartoon?*
2. Round 1- Share out-Clockwise (40 seconds) The tallest person goes first
3. Round 2- Share out- *What do the men mean by "We can play tic tac toe all day long"?* (40 seconds)
4. A random reporter- who is the shortest person in the group will report the groups answer to the class

*I would use this quick domino share to introduce students to the topic of selective breeding while having them use their imagination and learn from each other

Elisa Margarita: Domino Share

What Are Logical Fallacies?

Logical fallacies are errors in reasoning that undermine the logic of an argument. In any discourse where you are trying to support a statement with logic and evidence, avoiding these pitfalls is important as they will undermine the strength of your argument.

An example of a VALID argument where valid premises support the conclusion:

> Whichever team scores the most points wins the game. Red team scored more points than Blue team. Therefore, Red team wins the game.

Faulty arguments occur when either the premises are incorrect. In the example above, not all games are won that way. If you were playing Uno, the winner of the game would be the one who scored the fewest points overall. Faulty arguments can also occur when the conclusion does not follow the premises.

> Example: Cats are very good pets. Penny is a good pet. Therefore, Penny is a cat.

For each of the fallacies below, read the example and then create an example of your own. Be prepared to share with the class.

Types of Fallacies

1. **Ad Hominen** - This translates as "to the man" and refers to any attacks on the person advancing the argument, rather on the validity of the argument or the evidence.

> *Example: Charles is a terrible person, therefore anything Charles says must be wrong.*

Your Example:

2. **Association (Guilt by) Fallacy** - This occurs when a source is viewed negatively because of her association with another group who is viewed negatively.

> *Example: Rex is a member of the Dog Lovers Club, and last year one of their members was suspended for abusing a cat. Rex must want to hurt cats.*

Your example:

3. **Argument from Ignorance** - This occurs when an idea that has not been proven false must likely be true.

Sometimes, the idea may be beyond the realm of truth, as in the case of many religious arguments. This type of argument will often ask the person to "prove a negative" which can be difficult to do.

> *Example: Since we haven't been able to prove that the moon is not inhabited by little green moonmonsters, then it must be true that they exist there.*

In breakout rooms independently read 2 fallacies. Think about your own example of the fallacy. Oldest student shares first. Others listen. When we return to the whole group, youngest student explains the fallacy. And shares out an example another group member gave.

Next group goes and build on or shares something new.

Elisa Margarita: Domino Quick Check

Group 1 Task # 2 Quick Check: Think and then share Find your Group number and work on the same slide number.The person with First name closest to letter “A” goes first and then proceed in alpha order. Build on to what your partners said. After all has shared, come to a consensus. Be ready to share. 6 minutes.

You should be able to define and provide an example of each of the following:

1. Population- All the organisms of one species that live in a particular area.

2. Community- All of the organisms of all of the species that live in a particular area

3. Ecosystem- community containing biotic and abiotic factors

4. Biome- a community of plants and animals in one environment.

5. Ecology- Study of biology that focuses on animals and their environments.

6. Biosphere- anywhere on the earth that can support life

Elisa Margarita: Sort it Out

Ecosystems- In the chat record your response -

1. Identify all the abiotic factors.
2. Scroll over the response from you classmates.
3. Look for patterns and trends.
4. Sort out responses by similarities.

Repeat for Biotic factors.

Biology	High School	Jessica Ross	Domino Discover

1. Read Cardiac Arrest (previous day)
2. Define in your own words: (5 minutes)
    a. Cardiac Chain of Survival
    b. Early CPR
    c. Rapid Defibrillation
    d. Effective Advanced Life Support
    e. Integrated Post Cardiac Arrest Care
3. In your breakout room each person should share 1 thing they found interesting. Present in order of whose birthday is next. Decide on a reporter and a recorder. (4 minutes)
4. Come up with the one thing you, as a group found most interesting. Be prepared to share.

Think It Ask It Domino Share

Statement: Mental and physical health is impacted by factors we can and cannot control.

STEP 1: Read the Statement SILENTLY and record in your doc:

- What questions do you have about this statement?
- What else do you want to know?

STEP 2: Write Questions

- Choose a recorder to write the group's questions on the slide.
- The recorder chooses who will first share one question about the statement.
- Pick a direction for who goes next. Go around the group as many times as possible, with each person asking one question about the statement.
  - As others share, think - does this raise new questions for me? If so, add them to your doc to share out.
- Write the questions just as they are worded. Don't stop to revise or discuss. Keep adding questions until the time is up.

STEP 3: Prioritize Questions

- As a group, choose the three questions that you think are most important and/or would lead to the most interesting discussion. Bold or highlight the questions.
- Choose one person to share out.

STEP 4: Share out in large groups.

Must Haves	Amazings
- Each person shares questions - When not presenting, students are listening and thinking about what is being shared out	- Different types of questions are asked (Who, what, where, when, why, how) - Students add questions inspired by hearing their group members' questions

Biology	High School	Camila Lock	Domino Discover

Camila - Domino Share

Guiding Question: Technology has changed the way scientists conduct their research. Provide two pieces of evidence from the film to support this claim: “Technology is crucial for lion research in Gorongosa National Park.”

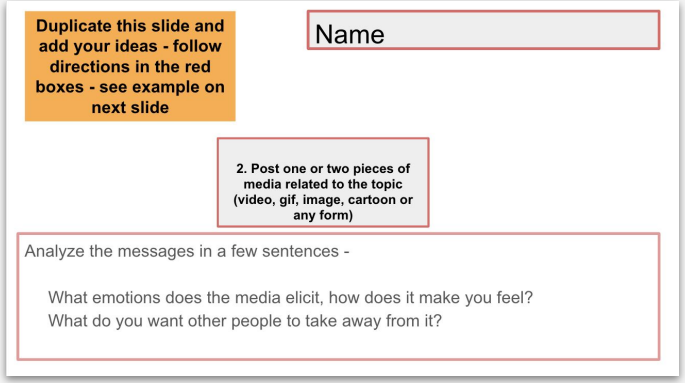
Directions:

1. Prep - Explore Google Voyager (Scientists at Work)/Watch video on Lion Research in Gorongosa National Park (HHMI)
2. Independent (2 min) - Students jot down ideas to share with their group
3. Breakout Rooms Groups of 3-4 students (5 min)
    a. Students take turns sharing their ideas about the guiding question. Each student has 30 seconds to share. Begin with person who has the most # of siblings.
    b. 2.5 minute open discussion to discuss commonalities and develop a group response on shared Google Slide
    c. 30 sec to prep random reporter
4. Whole Class Domino Share - Random reporters share group responses

Gijon Polite - Domino Share

Student Led Discussion on Global Warming

I had one student share a video and lead the directions to guide a domino discussion. She did great. Students enjoyed making their own slides and giving positive feedback to one another. I asked them to rate it and they felt it helped them to guide discussion and for everyone to have a voice.



Biology	High School	Jesusa Merioles	2 x 2 x 2

Jesusa Merioles - 1X2X3 (Modified version of 2x2x2)

1 question: Write a hypothesis that will answer the question - Will listening to rock music cause my heart to beat faster?

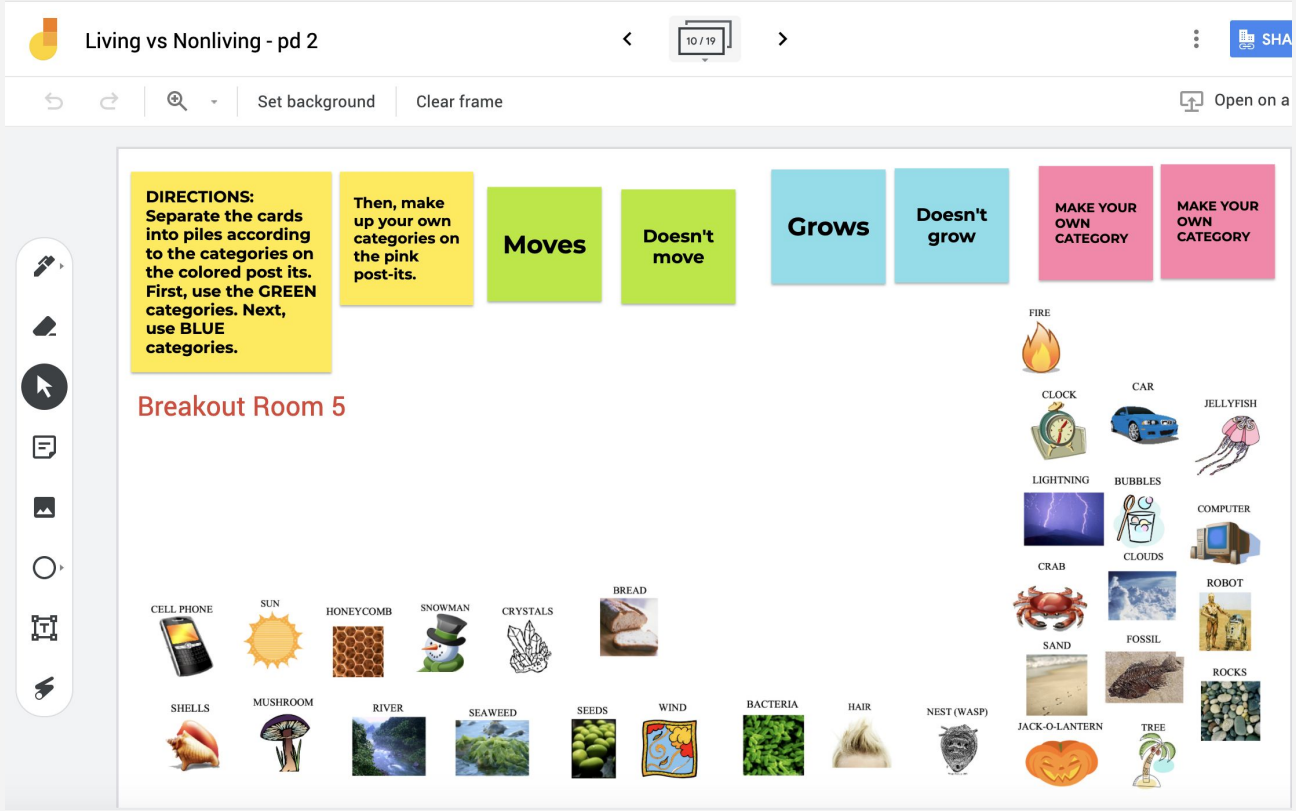
2 students in the breakout room

3 minutes in the breakout room

My name is _____.

My hypothesis is: If _____, then _____.

Stefanie Fier - Sort it Out



Chemistry

Chemistry

Grade	Teacher's Name	Routine & Link
High School	Rosalie Malone	Sort It Out
High School	Erin Ratz-Guinals	Domino Discover

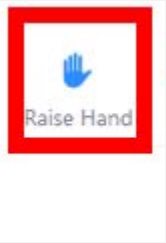
Rosalie

Rosalie's Sort it Out Practice Edition Using Google Slides

Rosalie's Sort it Out Particle Diagram Using Google Slides

Erin Ratz-Guinals Domino routine for problem sets

- Students are given time to work on some problems on a Google doc independently
- Students move to breakout room and are given this protocol:
  - The student in the room whose first name starts first in the alphabet will go first. When it's your turn:
  - Share your answer for Q1, or share what you are unsure of about the question
  - Call on the next student (alphabetically) to share the next question or what they are unsure of until you get to the end of the problems
  - Choose a reporter to share your group's work with the class
- When students return to the main room, I ask the reporters to all raise their hands so I can call on them throughout the discussion



Earth Science

Earth Science

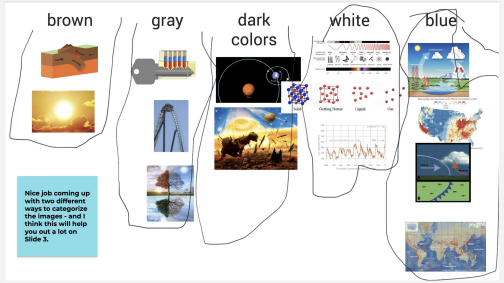
Grade	Teacher's Name	Routine & Link
High School	Samantha Adams	Sort It Out
High School	Aida Rosenbaum	Domino Discover

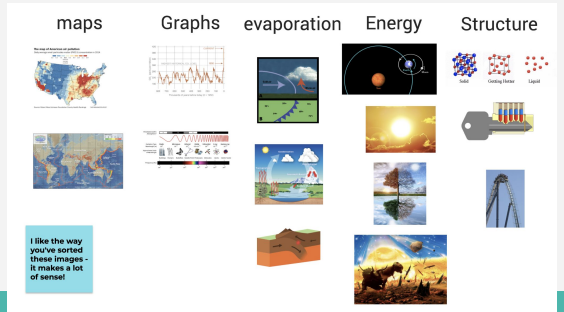
Samantha Adams - Sort It Out Routine

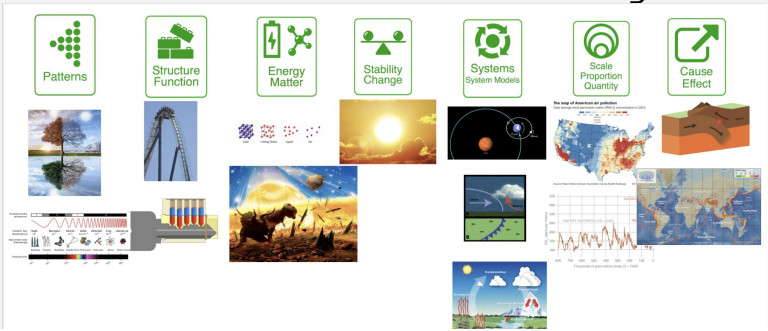
A modified version of the Sort It Out (created in Jamboard) to introduce students to the NGSS Cross Cutting Concepts:

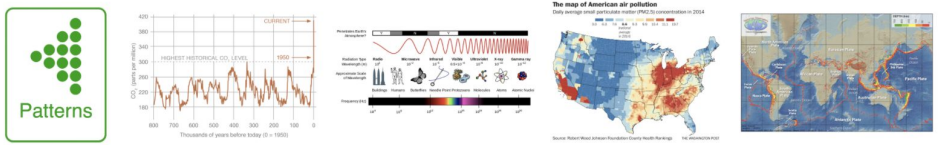
- Student-facing template
- Directions

Screenshots of student Jamboards:

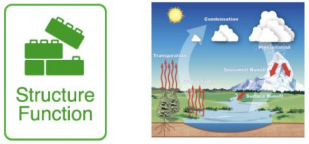








I think these pictures represent this concept because: all of these graphs and maps show unique patterns based on what their graphs and maps are representing, and patterns are something that could be repeated or predicted.



I think this picture represents this concept because: this is showing a cycle

Jamboard: Symbiosis : Sort it out- Identify organisms as +, - or 0.

Task # 2 :Directions: In a text box, identify of each type of symbiotic relationship. Use + to show if the organism is benefited, 0 for not affected, or - for harmed. M= mutualism, C= commensalism, P= parasitism


1.Barnacles create home sites by attaching themselves to **whales**. Example: 1. +/0, C


2.Yucca flowers are pollinated by **yucca moths**. The moths lay their eggs in the flowers where the larvae hatch and eat some of the developing seeds. 2. +/+, M


3. Remoras attach themselves to a **shark's** body. They then travel with the shark and feed on the leftover food scraps from the shark's meals.


4. Oxpeckers feed on the ticks found on a **rhinoceros**. The oxpeckers get a meal and the rhinoceros is has removal of the ticks.

Earth Science	High School	Aida Rosenbaum	Domino Discover

Domino Discover - How does the mass of a star impact the stages of a star's life cycle?

Prep - Students have been shown in a previous lesson how to use the Star in a Box computational model. Motivation to listen - classmates will help you interpret the data about stars so you can answer some of the student-generated questions on the Jamboard.

1. Student Response - looking for content-specific vocabulary (main sequence, massive, red giant, radius, duration, supernova, white dwarf, degrees Kelvin) and comparisons of stars of different mass.
2. Rules - Discuss one property per round, each student has 1 minute to share without interruption, note-taker records on common Google Doc, Share in alpha order, Must have - comparison statement & vocab, Amazing - connection or explanation of the observation & specific numerical evidence, Help - word bank, previous lesson's Nearpod slides

Domino Discover - continued

3 & 4 Design/Equitable Distribution of Participation - Students will meet in Zoom breakout rooms to discuss in groups of 3. 1 minute per student in alpha order, no interruptions, followed by 1 minute for the Reporter (student with last name closest to Z) to review and prepare to share out to the whole class. Roles - reporter, recorder, and time-keeper. Share out to whole class and teacher records on Zoom whiteboard.

5. Logistics - students will be grouped randomly by Zoom breakout room generator, they will know where to go based on the Join Room message on their screen. Students who were previously absent will still participate, they may just need to see the data that is screen shared since they may not know how to use the website. Students who miss the discussion will have access to the Google Doc with the notes from each breakout group.

General Science

General Science

Grade	Teacher's Name	Routine & Link
Elementary	Laurie Matthews	Domino Discover
Middle School	Lynn Shon	Domino Discover
Middle School	Michael Fagan	Domino Discover
Middle School	Jesse Markowitz	Sort It Out
Middle School	Kelli Buck	Domino Discover

General Science	Elementary	Laurie Matthews	Domino Discover

Laurie Matthews: Establishing Qualities of Good Visual Note-taking Domino Discover

First we met to review the goals/Must haves of our visual note-taking on Monarch caterpillars' metamorphosis.

1.Students prepared by reviewing their notes to identify one thing they did well on their notes.

2. In groups of 3 and 4 , Students took turns sharing their strength while holding up their notes. (I indicated the person who would start.)

3. Based upon what they heard, students identified a goal for themselves for their future work. They shared an additional time.

4. The group chose a recorder to share out good qualities and goals.

5. We added to the "must have" list and created the Amazings list.

Domino Discover: Why is density an important physical property of matter?

Prepare: Draw and/or list why density is an important physical property of matter.

Show & Share: Listeners can tally/celebrate when students use academic vocabulary or connect to science concepts (mass, volume, matter, ice, mixture separation, physical property, chemical property).

I plan to use this domino discover activity after students have learned about and practiced (via hands-on activities) how density can be used to identify unknown substances. This formative assessment will come prior to the final assessment of cleaning Gowanus water using the physical & chemical properties of matter.

- Lynn Shon

Michael Fagan - 6th Grade Science - Domino Discover

Task: What do you think of when you hear the word “Scientist”?
Goal: Expand student ideas of science and scientists, increase representation in the classroom

Students were asked this BEFORE completing an in-class activity, and AFTER.

The Domino Discover consisted of the following steps:

1. Draw your scientist and write a brief description (hold up to the screen for a shout-out from the teacher when finished)
2. Breakout groups for go-around (roles and specific sharing directions in slides)
    a. Listeners jotting down patterns and similarities
3. As a team, create a summary phrase for your similarities, and a reporter to share this on the Padlet

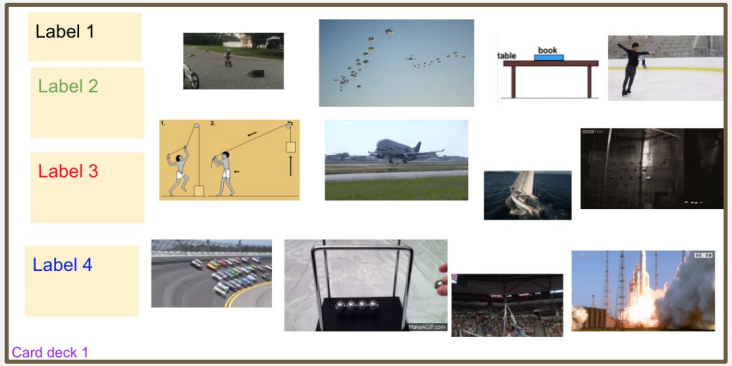
Slides

BEFORE Padlet

AFTER Padlet

Jesse Markowitz (6th grade science)

Sort it Out!



Can you spot the patterns?

In your breakout rooms:

1. Sort the images into groups.
2. Write labels of each group/pattern you created.

Click here to play!

Kelli Buck - Domino Share

What are your initial ideas about our Chapter 1 Question: *How small are the microorganisms that live on and in the human body?*

Individual Preparation: 3 minutes

"During this time, take 3 minutes to record your initial ideas to this question. Be sure to consider the video and images that we generated questions about during class time as well as what you may already know about this topic. Record your ideas in your Digital Notebook. Choose one sentence that you will share out and place a star by that sentence."

Domino Share: 8-10 minutes

We are going to share in alphabetical order, of first name. The order can be found by clicking participants at the bottom of your Zoom screen. Starting with the first person, each person will share the one sentence they identified. It is okay if you repeat a similar idea as someone before you. When you are finished, please call the name of the next person. In order to share, please unmute your microphone or type your response in the chat to be read by Ms. Buck.

Math

Math

Grade	Teacher's Name	Routine & Link
Elementary School	Martina Meijer	Sort It Out
Elementary School	Meera Zucker	Sort It Out
Elementary School	Ariel Thompson	Sort It Out
Middle School	Laura Brando	Sort It Out

Martina Meijer

We have been using the dance party slide in our morning meetings-- lots of joy there!

We also used the Sort it Out activity to categorize different products/ arrays for our multiplication unit in math class. Here is the Padlet.

Meera Zucker - 1st Grade

Sort it Out!

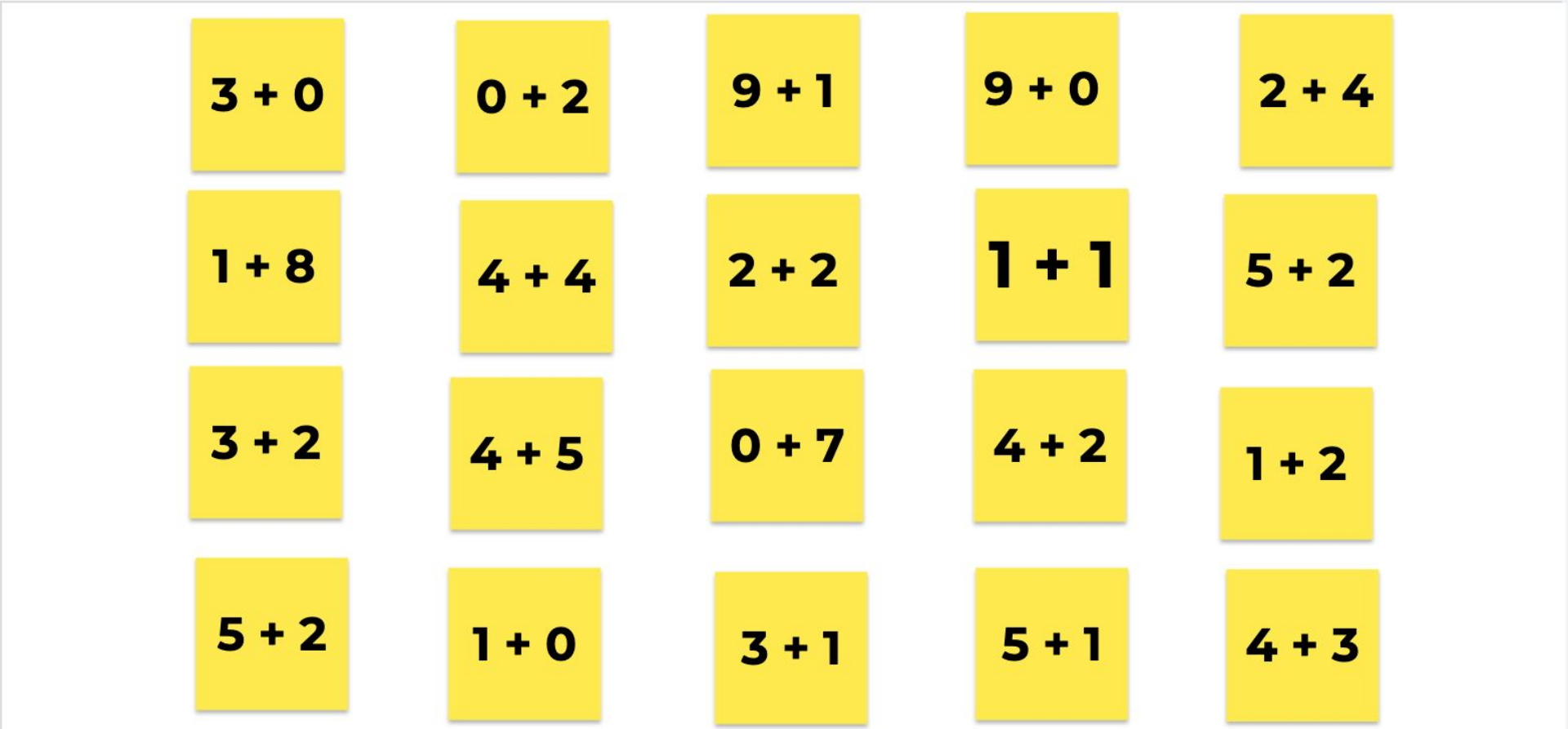
Look at the number sentences on the next slide.

In your breakout rooms:

1. Sort the number sentences into groups or line them up to create a pattern.

2. Write labels of each group/pattern you created.

Math	Elementary	Martina Meijer	Sort It Out



Math	Elementary	Ariel Thompson	Sort It Out

Ariel - Sort it Out (launching a social studies research project- I'm an elementary teacher so teach all subjects)

https://padlet.com/rballantine1/y7mtj6gmcisvj6ya

Day 1- Students will read different facts and analyze images related to the Mayan Civilization. They will sort them into the provided categories.

Day 2- Students complete same task with info. about Incan Civilization. Added challenge will be to re-sort ideas into different categories at the end.

Day3- Students complete task with info. about Aztec Civilization. Added challenge will be to add two of their own ideas based on text. Re-sort at the end.

Laura Brando - Sort It Out - Intro to Ratios

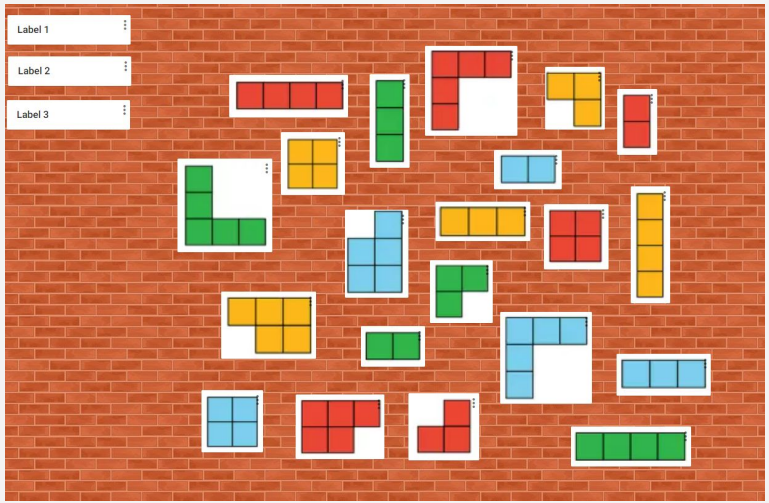
(based on Open Up Resources, Grade 6, Unit 2, Lesson 1.1)

Please access this Padlet for the Sort It Out Activity. Password: sortit

Sort the figures into 3 different categories.

Label each category.

(Teacher will then connect the work they did with writing ratios)



Continued on next slide →

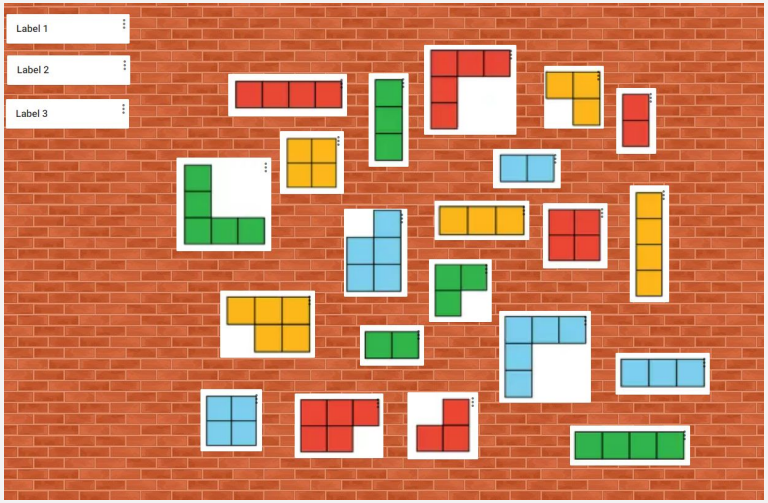
Sort It Out - (Continued)

(based on Open Up Resources, Grade 6, Unit 2, Lesson 1.1)

Note Catcher - Figure Sort

Google SlideShow (adapted from Brooke Power's presentation slides)

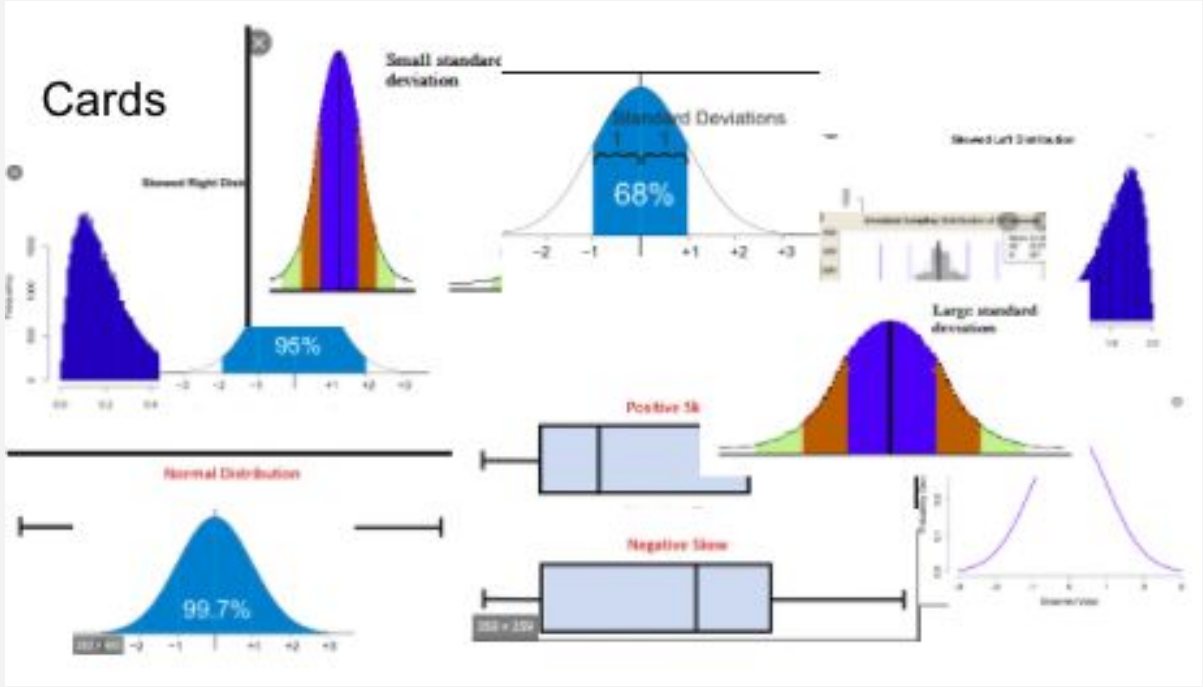
(make sure to change all links if you use these templates)



Sarah Ahmed - Sort it Out

Link to directions

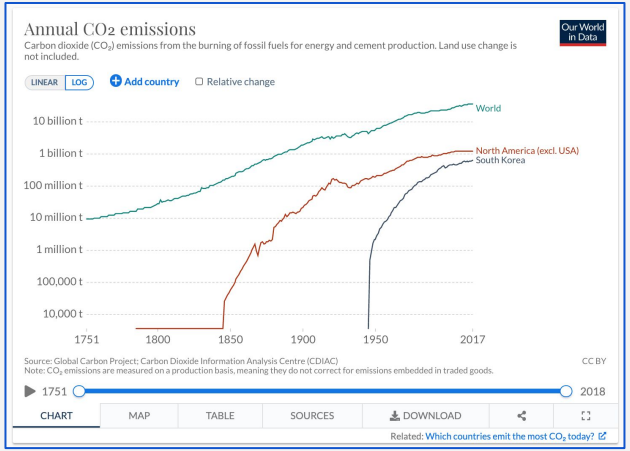
Link to student materials

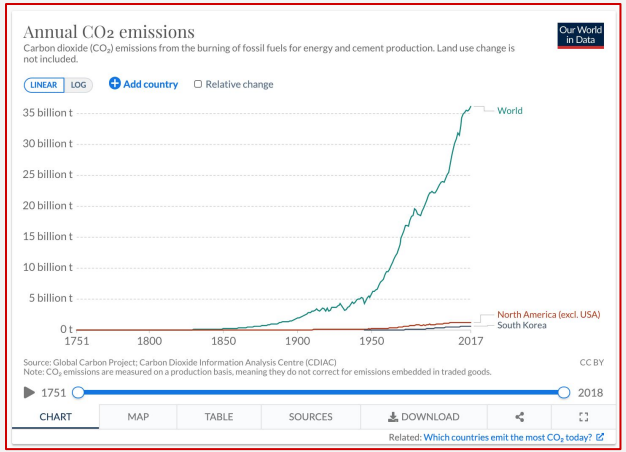


Domino Discover - Linear Scale vs. Log Scale

1. In individual google documents, students complete a see think wonder protocol with must haves and amazings about the enclosed picture on top (after having looked at the same graph on a linear scale on the bottom).
2. Before being divided into breakout rooms, students are informed that every person will share one thing they wrote and should be listening for a common idea that comes up in their group to share back to the large group.
3. In zoom breakout rooms, students take turns sharing one thing they wrote in their individual documents starting with the student whose name comes first in the alphabet.
4. Each group's ideas are typed into a slide that is being screen shared with the entire class. In a subsequent class, these shares will be used to foster an understanding of large numbers vs really large numbers and the implications for the increasing annual CO2 levels and our planet.

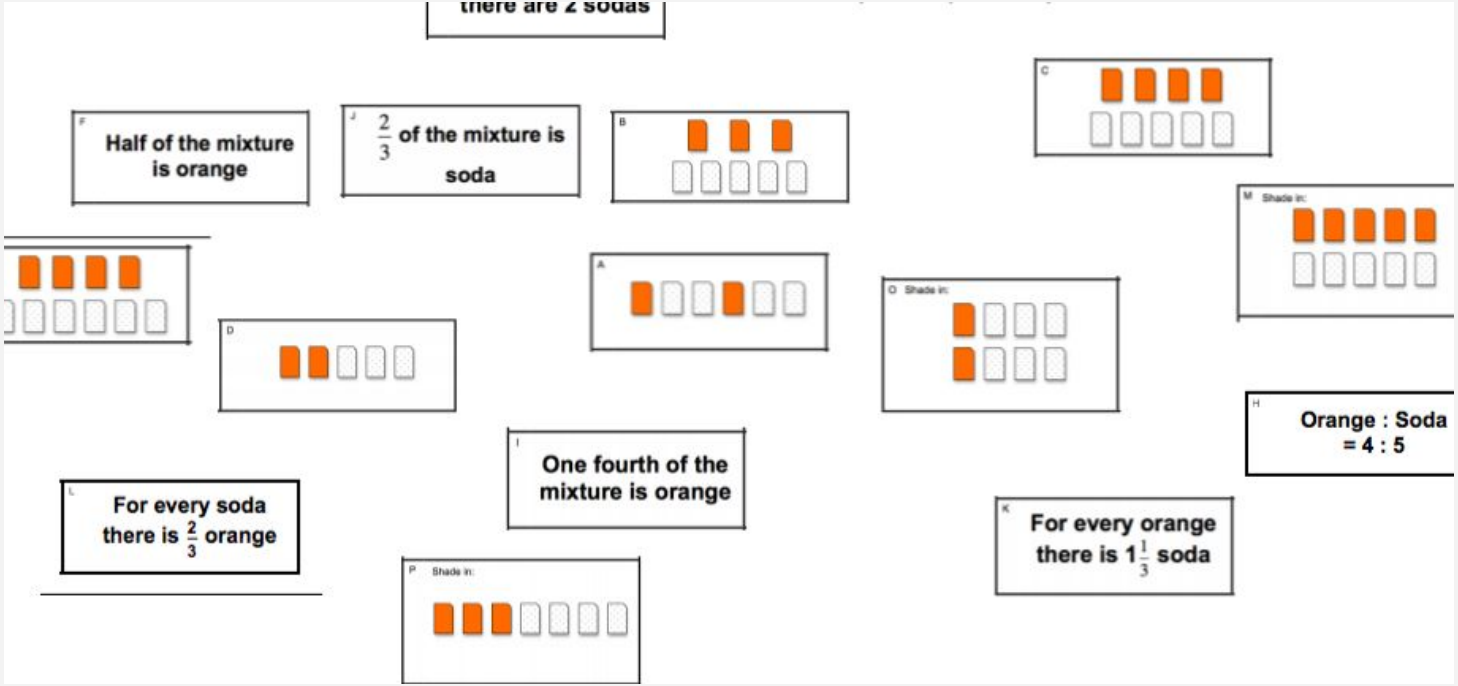
- Pearl Ohm





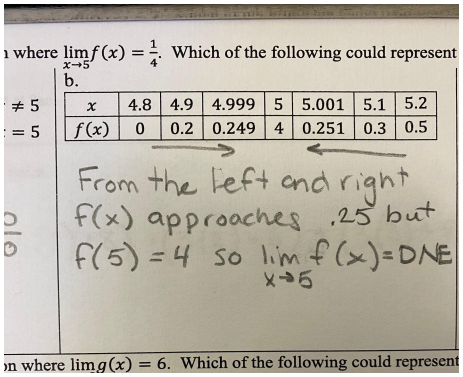
Sort it Out (Adapting a Mapshell activity) -Ishrat Ahmed

Link to Jamboard and directions



Jossie Forman: 12th Grade AP Calc Error Analysis Domino Discovery

Jamboard Link



1. Students will prepare by each looking at work with multiple mistakes in it. Each group will have a different piece of work to look at.
2. In breakout rooms with group roles they will each share a mistake they found.
3. They will then discuss as a group what they believe to be the most common mistake and come up with feedback to give students to help prevent this mistake in the future.
4. One students per group will be randomly chosen to share their group's most common mistake. We will collectively (teacher will write) create a list of mistakes as we prepare for the unit test.

Matt Baker - Sequences/Series Domino Share

1) Activate prior knowledge - Write down everything that you remember from our sequences and series last year
2) Small group - In alphabetical order by last name, go around your breakout room and share one thing from your list. The textpert should type what they hear in the document. You will have 5 minutes.
3) Keep going around the room until everyone's list is empty
4) When you hear the two minute warning, choose ONE thing to share. It MUST USE math vocabulary, and it would be AMAZING if you explain why it's important.
5) Whole group - Record ideas from each breakout room on a shared google doc. Speaker for each breakout room shares, then add to the list from whole group.
6) Based on the group list, on a scale of 0 - 5 how ready do you feel to start practice today?

Physics

Physics

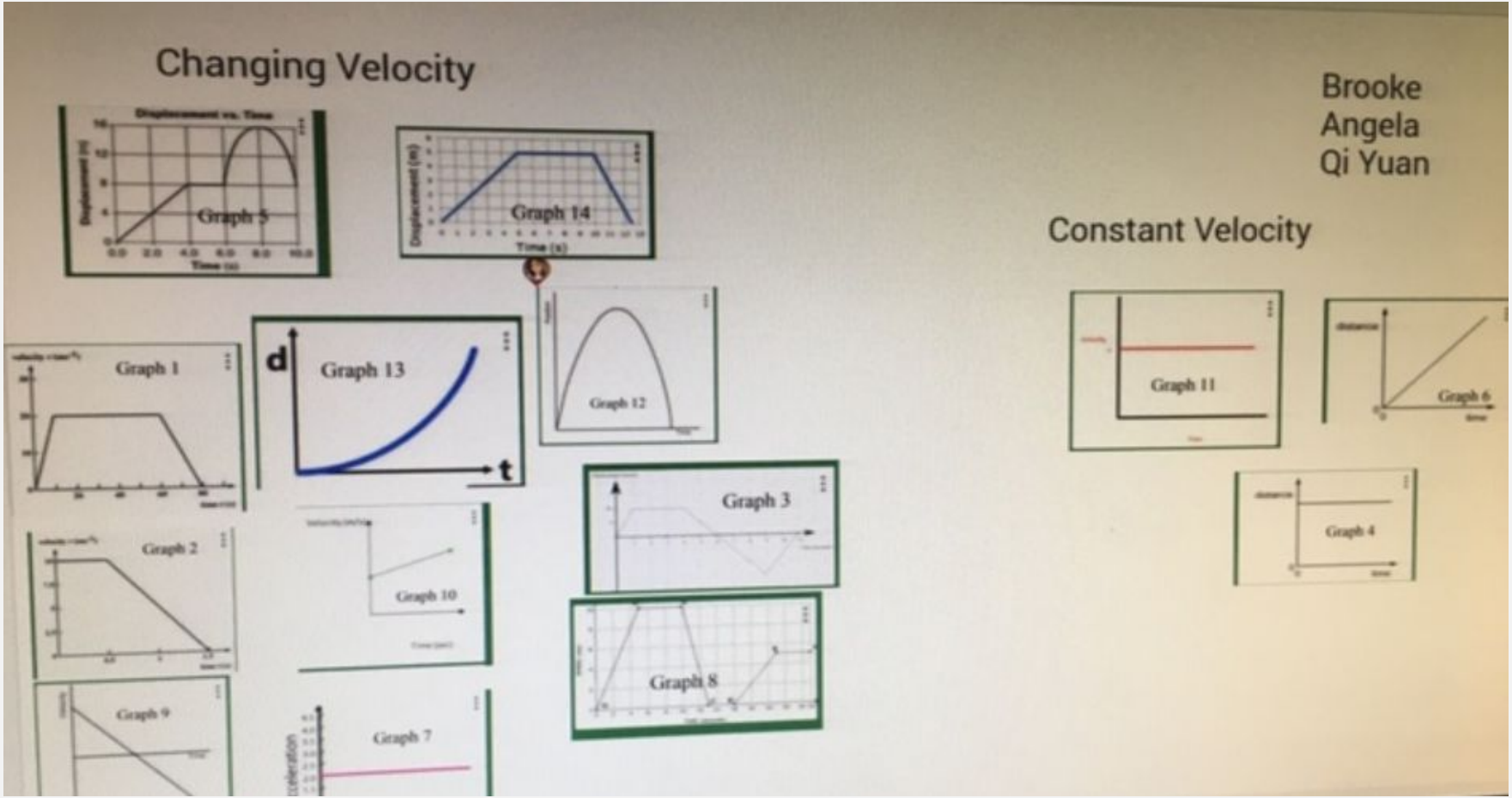
Grade	Teacher's Name	Routine & Link
High School	Robin Norwich	Sort It Out
High School	Katie Davey	Domino Discover / TTO
High School	Katelin Corbett	Sort It Out

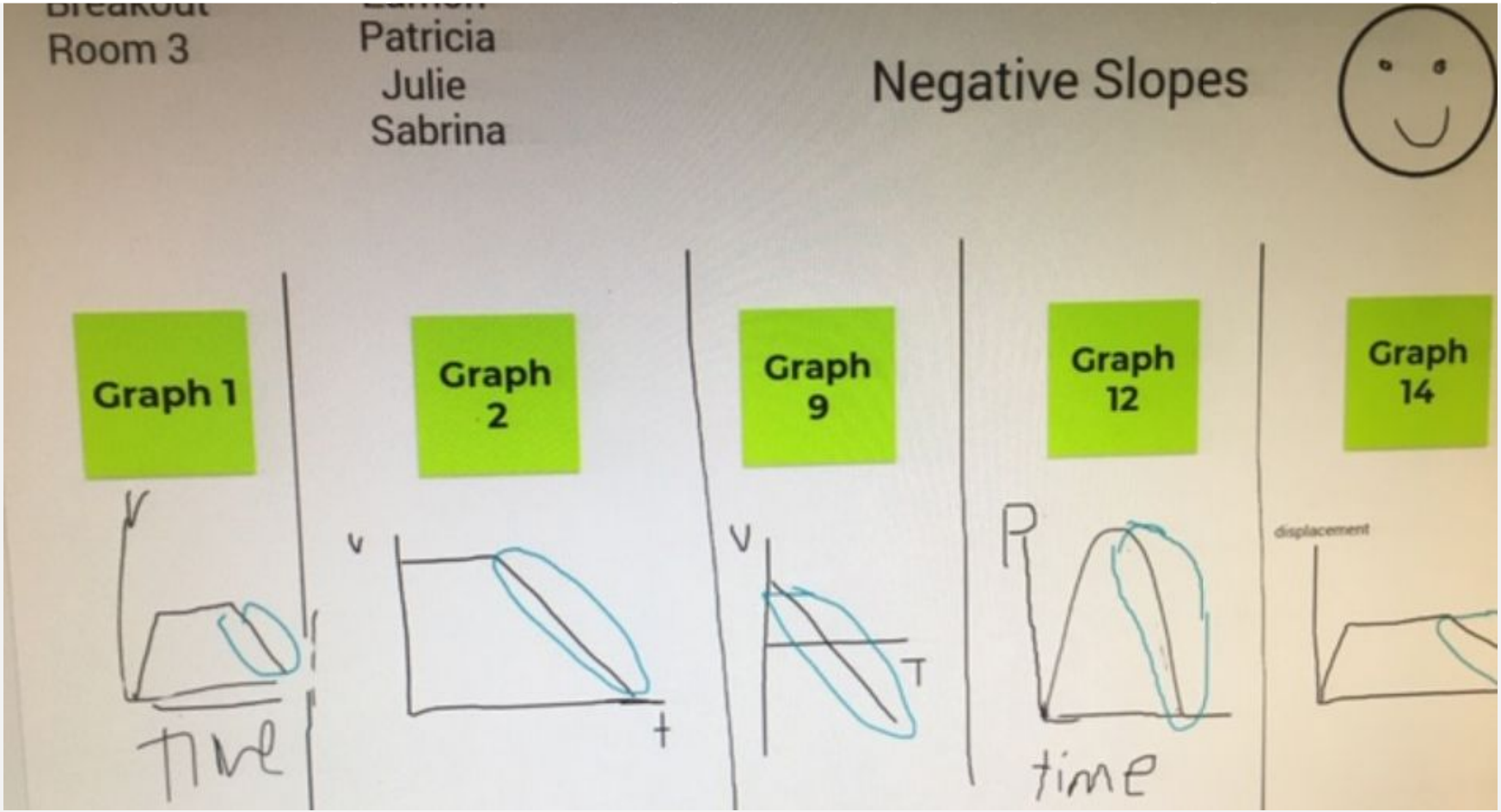
Physics	High School	Robin Norwich	Sort It Out

The following two slides were from a sort it out activity that I did today with my students. I ended up using a worksheet with graphs on it and I had them sort on a Jamboard. They had a good time doing it. I could watch them as they worked which was great for me since I could join their groups and help out where needed.

Robin Norwich

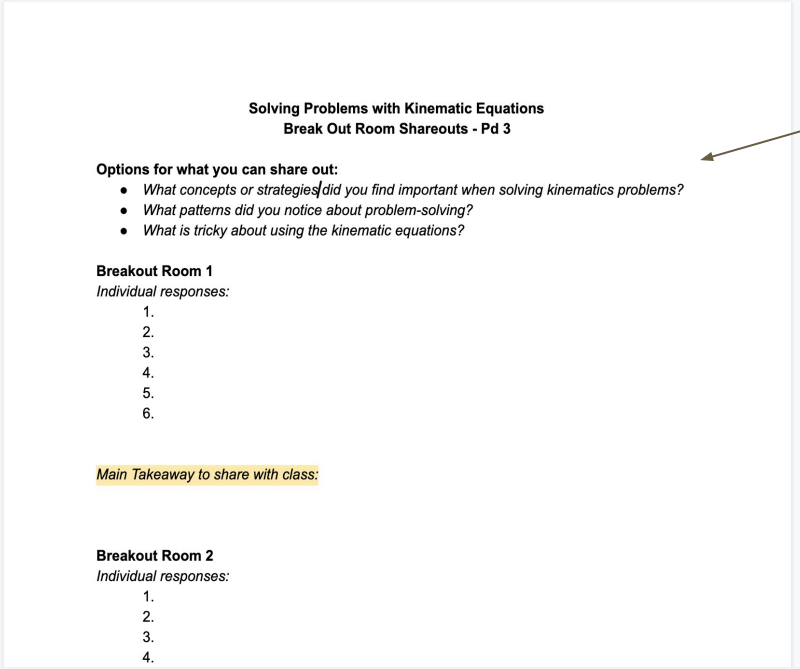
Physics	High School	Robin Norwich	Sort It Out




Breakout
Room 3
Patricia
Julie
Sabrina
Negative Slopes
Graph 1
Graph 2
Graph 9
Graph 12
Graph 14
v
t
v
T
P
time
displacement

Physics	High School	Katie Davey	Domino Discover / TTO

Katie Davey's Domino Share/TTO



Solving Problems with Kinematic Equations
Break Out Room Shareouts - Pd 3

Options for what you can share out:

- *What concepts or strategies did you find important when solving kinematics problems?*
- *What patterns did you notice about problem-solving?*
- *What is tricky about using the kinematic equations?*

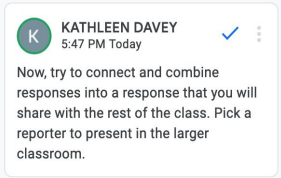
Breakout Room 1
Individual responses:

1.
2.
3.
4.
5.
6.

Main Takeaway to share with class:

Breakout Room 2
Individual responses:

1.
2.
3.
4.



After reviewing a worksheet on solving problems using kinematic equations, I tell the students to record answers *in their notes* to the following questions. Have the worksheet in front of you!

After 2 mins of think time, tell students to put a star next to the thing they would like to share with their group (and have a backup). I send out a link to a collaborative google doc (shown to the left) and put them into breakout rooms .

Students decide who in each group is the recorder and who is the reporter. Then, they each share something they wrote down. Students can emphasize a previous point if they starred the same idea, clarify a previous point using different language, or add a new idea.

After each person has shared, they will discuss openly and collaborate on **one idea** to share with the larger class. Reporter is picked to share with larger class. Breakouts last for ~5 mins.

As a class, we review the takeaway from each group (reporters report!) and look for patterns or connections.

This routine is an extension to what we've done so far the "Major Takeaway" and "Reporter" role, so I included instructions as a comment.

Students respond to each other's takeaways using the comment feature. The doc gets uploaded to our Google Classroom. Students amend their notes.

Physics	High School	Katie Davey	Domino Discover / TTO

Katie Davey's Domino Share/TTO

Solving Problems with Kinematic Equations
Break Out Room Shareouts - Pd 4

Options for what you can share out:

- *What concepts or strategies did you find important when solving kinematics problems?*
- *What patterns did you notice about problem-solving?*
- *What is tricky about using the kinematic equations?*

Main Takeaways

- Fully utilizing the reference table and the equations listed is difficult because of the large number of equations and variables they are and figuring out what equations to use and when.
- It's hard to use variables--can't visualize as well when it is just algebra. Be careful with your subscripts!
- It's hard to use variables--can't visualize as well when it is just algebra. Be careful with your subscripts!
- Analyze the problem carefully and make sure the equation being used is the right one. Use legends.
- Finding and choosing the correct equation, comfortable with the basics of algebra (manipulation the variables) and solve
- Chart is helpful.

Breakout Room 1

Individual responses:

1. Using parts of multiple equations to substitute for certain values is a useful strategy for solving kinematic equations.
2. You should list all the kinematics equations first so you substitute them quickly
3. Think of using all equations that involve the units stated in the question.
4. Find all the values given to you to find out which kinematics equation to use.
5. You should write all the known variables that are provided in the question to the side.
6. I think it's difficult when it comes to making sure that all the units go to their corresponding places within the equations

Main Takeaway to share with class: Fully utilizing the reference table and the equations listed is difficult because of the large number of equations and variables they are and figuring out what equations to use and when.

Katelin Corbett -Sort it out

Sort-it out

In your breakout rooms examine the motion functions.

Develop at least two categories and sort each of the functions into one of the categories that you have created.

$x(t) = t^3 + 3t + 2$	$v(t) = 3t^2 + 4t + 2$
$x(t) = t^3 + 3t^2 + 2$	$v(t) = 3t^2 + 6$
$x(t) = 2t^3 + 3t$	$v(t) = 3t^2 + 8$
$v(t) = 3t$	$a(t) = 3$
$v(t) = 3t + 8$	$a(t) = 6$
$v(t) = 3t + 6$	$a(t) = 3t$

Elementary School

Subject	Grade	Teacher's Name	Routine & Link
General Science	Elementary	Laurie Matthews	Domino Discover
Math	Elementary School	Martina Meijer	Sort It Out
Math	Elementary School	Meera Zucker	Sort It Out
Math	Elementary School	Ariel Thompson	Sort It Out

Middle School

Subject	Grade	Teacher's Name	Routine & Link
General Science	Middle School	Lynn Shon	Domino Discover
General Science	Middle School	Michael Fagan	Domino Discover
General Science	Middle School	Kelli Buck	Domino Discover
Biology	Middle School	Isabelle Giannella	Sort It Out
General Science	Middle School	Jesse Markowitz	Sort It Out
Math	Middle School	Laura Brando	Sort It Out

High School

Subject	Grade	Teacher's Name	Routine & Link
Biology	High School	Devin Sprague	Domino Discover
Biology	High School	Emily Birden	Domino Discover
Biology	High School	Lisa Homer	Domino Discover
Biology	High School	Elisa Margarita	Domino Discover
Biology	High School	Jessica Ross	Domino Discover
Biology	High School	Susie Kang	Domino Discover
Biology	High School	Camila Lock	Domino Discover
Biology	High School	Gijon Polite	Domino Discover
Chemistry	High School	Erin Ratz-Guinals	Domino Discover
Earth Science	High School	Aida Rosenbaum	Domino Discover
Physics	High School	Katie Davey	Domino Discover / TTO
Biology	Middle School	Isabelle Giannella	Sort It Out
Biology	High School	Kristin Azer	Sort It Out
Biology	High School	Stefanie Fier	Sort It Out
Chemistry	High School	Rosalie Malone	Sort It Out
Earth Science	High School	Samantha Adams	Sort It Out
Physics	High School	Robin Norwich	Sort It Out
Physics	High School	Katelin Corbett	Sort It Out