

We are surrounded by symbols.

SYMBOLS:

- share information
- create expectation
- convey emotion
- tell us what to do/not do
- can change meaning

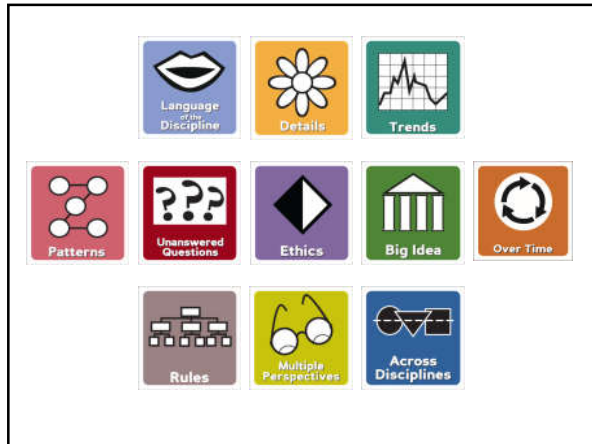


Think of a Symbol.

Criteria:

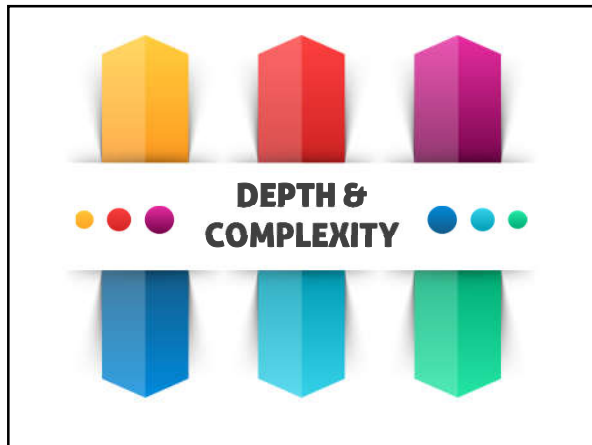
- easily recognizable
- emotion level ≥ 6
- be able to describe its effect (create expectation; convey info, etc.)

We're going to use a particular set of 11 symbols to help us engage with our learning.



And they will...

- share information
- create expectation
- give common vocabulary
- tell us what to do/not do
- change meaning



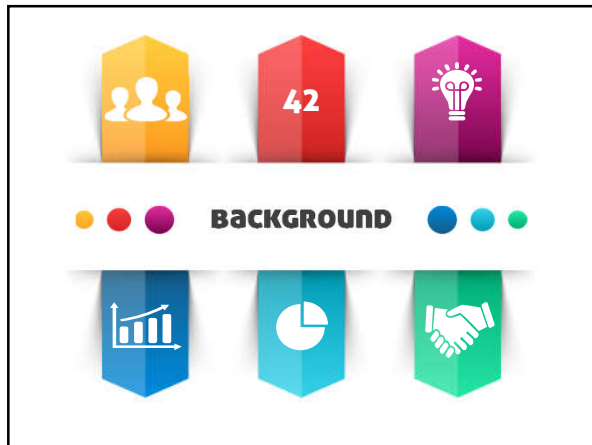
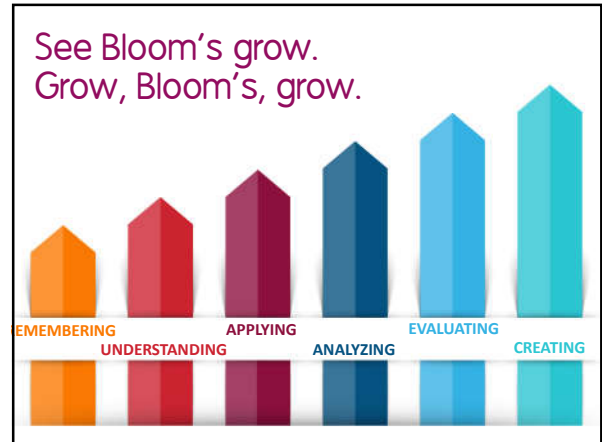
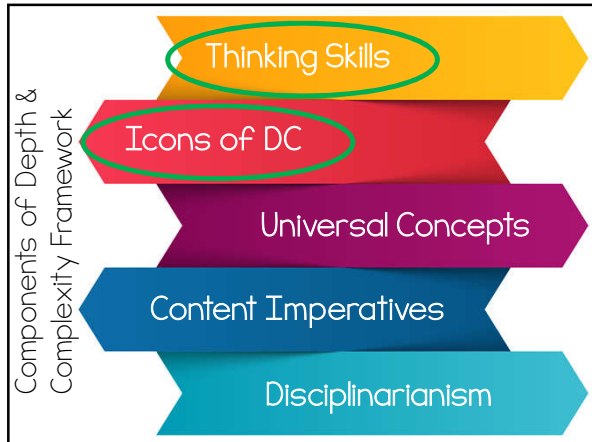
bit.ly/intro-icons

DEPTH & COMPLEXITY

a **FRAMEWORK** for academic exploration to help raise thinking skills

Why it's so great

- differentiation made easy
- standards alignment
- all ages & content areas
- robust thinking toolbox



We are looking through a lens that pivots .

DEPTH & COMPLEXITY

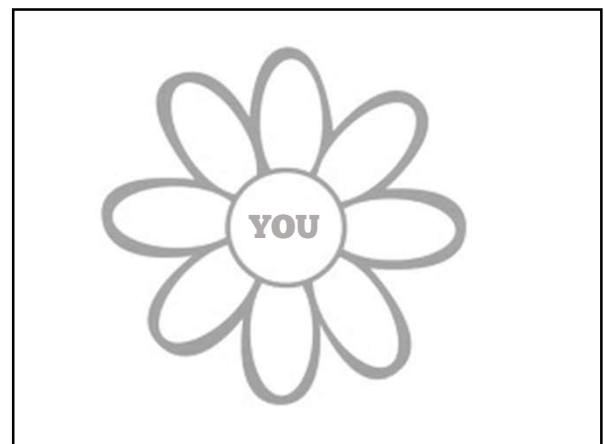
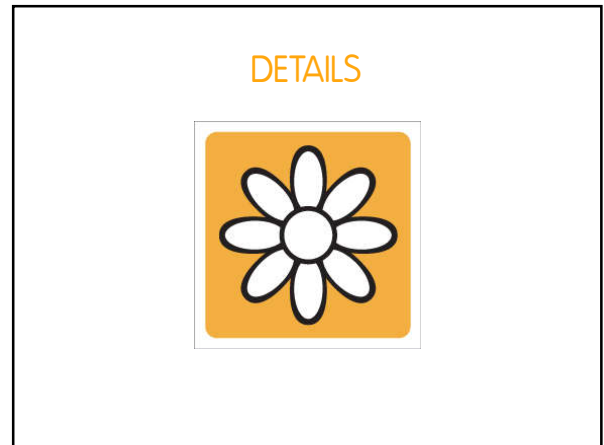
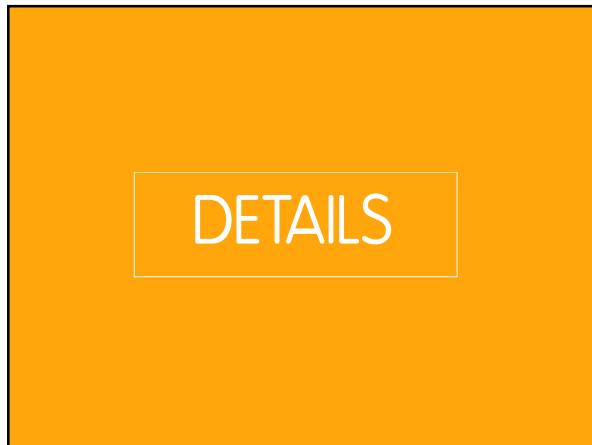
the icons are a path to understanding the thinking lens we're using for that experience

DEPTH & COMPLEXITY


The eleven elements are not in any particular order.

WHAT WE'LL DO TODAY:


- Understand the eleven elements of the framework represented by the icons
- Apply them to our content
- Know how to introduce them to students




iMPLEMENT: Social Studies

List at least 8  details about Abraham Lincoln.

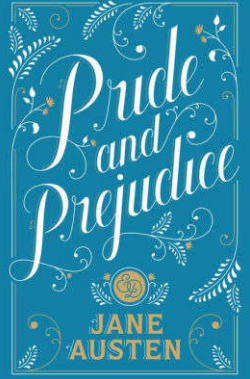
Which  details are most important? How can you support that opinion?


What ideas do we most associate with him? 



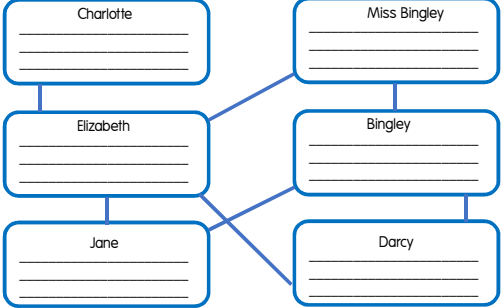
iMPLEMENT: ELA 

Using a sociogram with Details





iMPLEMENT: ELA 


List three traits of each character and then show how that character is connected to the character(s) with whom they share connectors.




iMPLEMENT: Social Studies

List at least 5 details about Davy Crockett 

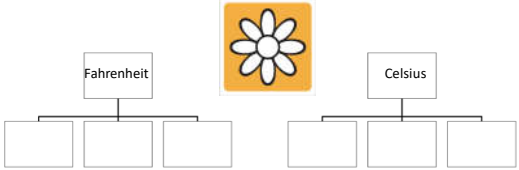
Which  details are most important? How can you support that opinion?

Which  details are true of both Davy Crockett and General Santa Ana?



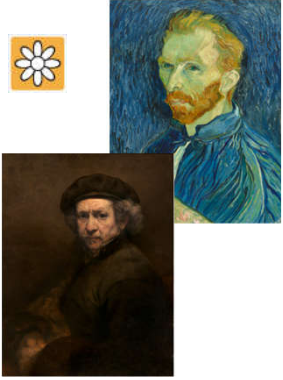
iMPLEMENT: Science

Identify the boiling and freezing /melting points of water in Fahrenheit and Celsius and the average temperature of the world's oceans.




iMPLEMENT: Art

Compare the attributes of the self-portraits of Rembrandt & Van Gogh. Include line, shape, form, texture, color, value, and space.




IMPLEMENT: Math

Place Value:
 The tens' column is _____ times the value of the ones' column and _____ the value of the hundreds column.




IMPLEMENT: Math

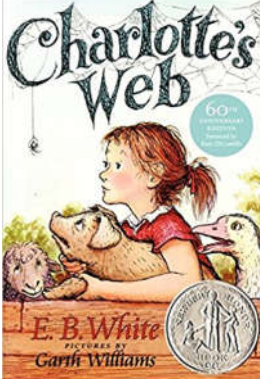
Place Value:
 In the number 5,496, which number is in the column that is one-tenth the value of the column that has the 4?



IMPLEMENT: ELA

How was Fern a friend to Wilbur?
 How was Templeton a friend to Wilbur?







SMART THINKERS

PAY ATTENTION TO DETAILS


POWER

What are the defining features or characteristics?

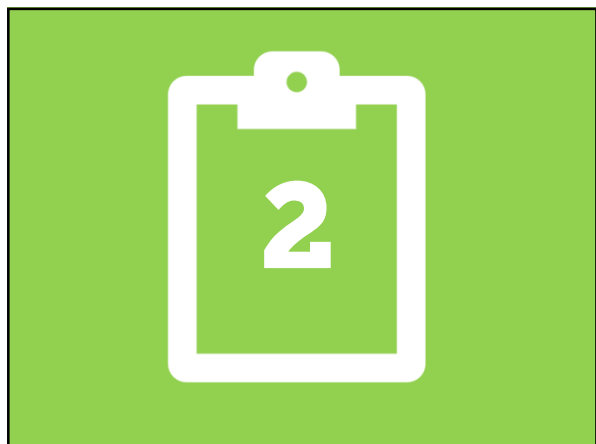
→ examples & evidence to support opinions & ideas

PARTS - FACTORS - ATTRIBUTES - DISTINGUISHING TRAITS

- ★ Elaborate on _____
- ★ Provide evidence to substantiate _____
- ★ What are the characteristics of _____?
- ★ What can be added to what we know about _____?
- ★ What distinguishes _____ from _____?
- ★ What specific elements define _____?
- ★ What factors contributed to _____?
- ★ How does _____ (or _____) affect _____?
- ★ What variables would change _____?
- ★ What are the parts to whole relationships _____?

Combine with  For analysis

Character Change Over Time



WHAT AM I?

Always wear your seatbelt.

Obey the speed limit.

You must have a license.

Signal 100 feet before a turn.

Yield to
pedestrians.

WHAT AM I?

"i" before "e"
except
after "c"

{& a bunch of other exceptions}.

Use the
possessive
in front of
a gerund.

Sentences
begin with a
capital
letter.

Sentences
begin with a
capital
letter.

WHAT AM I?

Waft, don't inhale.

Do not return unused chemicals to their original container.

Tie long hair back.

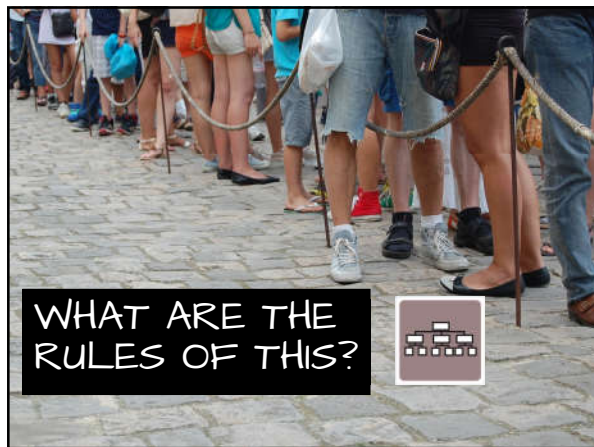
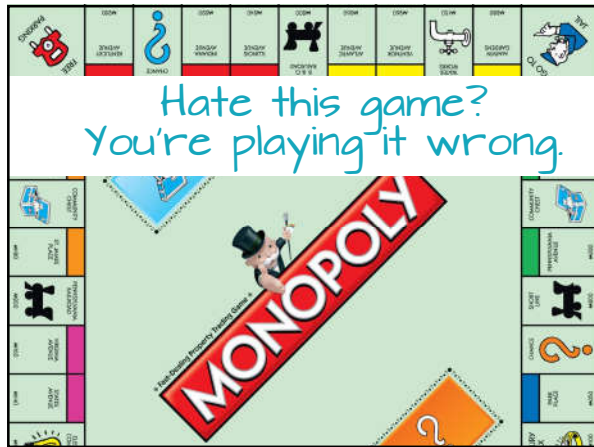
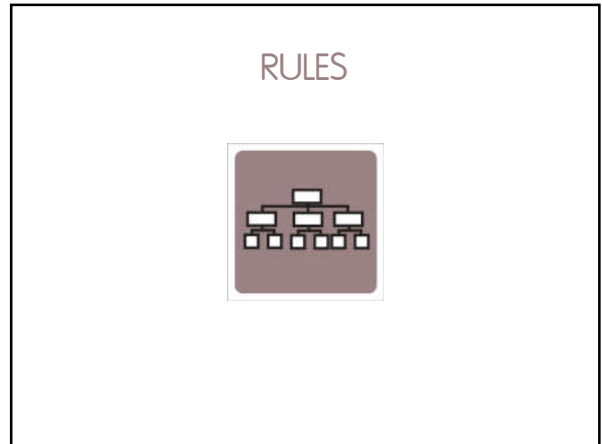
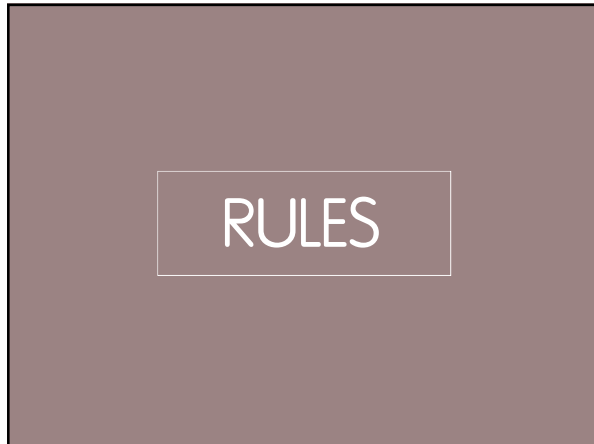
Never look into a container that is being heated.

I have to have three sides.

I have to have three angles.

If one of my angles is 90° , I'm right.

The sum of my interior angles is 180° .



IMPLEMENT: ELA

What spelling rule is being used in these words?

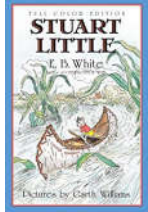
canned (consonant doubling when adding an ending)

racing (dropping final "e" when endings are added)

cavities (changing y to i before adding an ending)

IMPLEMENT: Secondary ELA

How is the behavior of Stuart Little different from that of real mice?

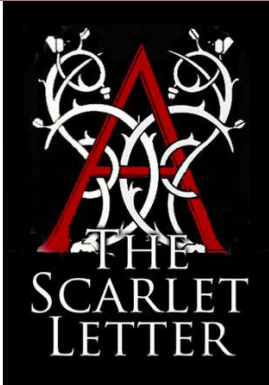


IMPLEMENT: Secondary ELA

In *The Scarlet Letter*, are the rules society imposes on women fair?

How does it punish the breaking of those rules?

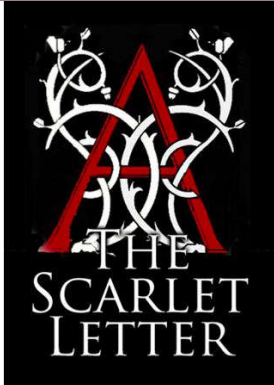
Who else is punished besides the rulebreaker and how?



IMPLEMENT: Secondary ELA


Differentiate it:

Compare the rules society imposes on women in *The Scarlet Letter* to contemporary mores. Argue either that a) the rules have changed or b) the punishments are more subtle.




IMPLEMENT: Middle School PE

What constitutes a legal underhand serve for net & wall games such as badminton, volleyball or pickleball? Demonstrate three legal serves & one illegal serve.



https://commons.wikimedia.org/wiki/File:3APickleballs_on_Court.jpg

IMPLEMENT: Elementary Math



845

Say: What does the 8 stand for in this number? It's 8 what?

iMPLEMENT: Elementary Math



6

Say: How could we make this say 600? What would have to add?

iMPLEMENT: Elementary Math

Differentiate (dep. upon ability):

Create 6-digit numbers, following these rules:

- 1) At least one number must be odd.
- 2) At least one number must be able to be skip-counted by 3.
- 3) The number must end in with a digit that was not used in the number before.

iMPLEMENT: Elementary Math

Differentiate (dep. upon ability):

What rule of Roman numerals are these numbers breaking? Fix them.

19 = XIII
100 = VV

iMPLEMENT: Elementary Math

Differentiate (dep. upon ability):

What rule about Roman numerals do you see in both of these statements?

XL = 40
IX = 9

iMPLEMENT: Elementary Math

Differentiate (dep. upon ability):

Research how to write "36" in both Mayan and Babylonian numerals.

iMPLEMENT: ELA

Identify the phrases in the following sentences.


Label the underlined words: par = participial
ger = gerund inf = infinitive appos = appositive prep = prepositional



____ 1. There was no talk in all England but of the new baby, Edward Tudor, Prince of Wales, who lay lapped in silks and satins, unconscious of all this fuss, and not knowing that great lord and ladies were tending him . . .

____ 2. The windows were small, glazed with little diamond-shaped panes, and they opened outward, on hinges, like doors.



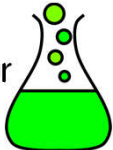
 IMPLEMENT: Secondary Science

Correct the names of these common chemical compounds.

NaClO is sodium hyperchloride


$C_{12}H_{22}O_{11}$ is fructose


$MgSO_4 \cdot 7 H_2O$ is magnesium sulfur quadrahydrate




Differentiate it:

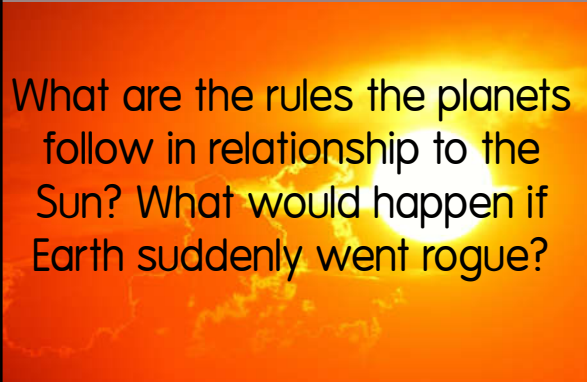
Create a chemical compound (using symbols only ☺) that has at least 6 elements, two of which must be carbon & hydrogen (bonus: Why would I ask that?).


Write it using Hill System Order & name the compound, following all naming rules. 

Invent a reasonable use for it. 

 IMPLEMENT: Science

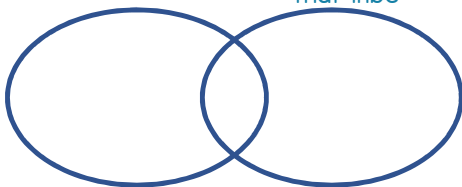
What are the rules the planets follow in relationship to the Sun? What would happen if Earth suddenly went rogue?



 IMPLEMENT: Social Studies

Compare and contrast the ways of life of American Indian groups in Texas and North America before European exploration.

This Tribe That Tribe



What is a rule in your discipline?

[write it down]



FILL ME IN

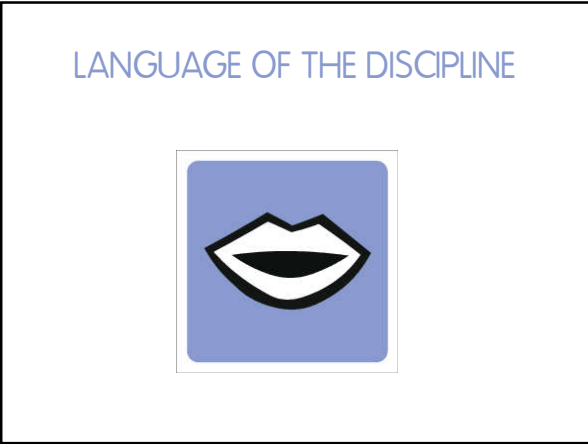
The questions that p_____ face as they raise ch_____ from in_____ to adult life are not easy to answer. Both fa_____ and m_____ can become concerned when health problems such as co_____ arise any time after the e_____ stage to later life. Experts recommend that young ch_____ should have plenty of s_____ and nutritious food for healthy growth. B_____ and g_____ should not share the same b_____ or even sleep in the same r_____.

The questions that **poultrymen** face as they raise **chickens** from **incubation** to adult life are not easy to answer. Both **farmers** and **merchants** can become concerned when health problems such as **cough** arise any time after the **egg** stage to later life. Experts recommend that young **chicks** should have plenty of **sunshine** and nutritious food for healthy growth. **Banties** and **geese** should not share the same **barnyard** or even sleep in the same **roost**.



In school: 3,000 per year

Pre-school: 840 per year

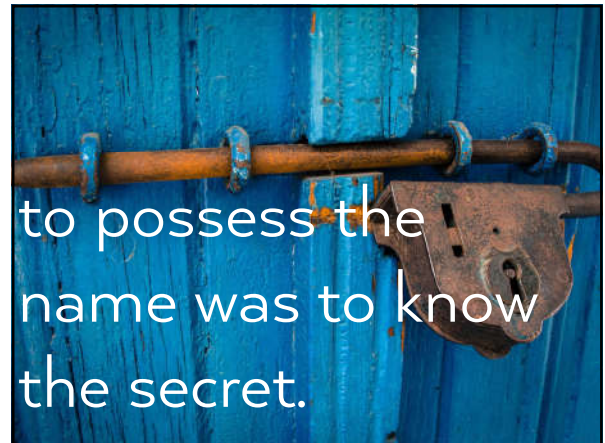




“But always he lacked the essential tool without which the workman can never attain true mastery:

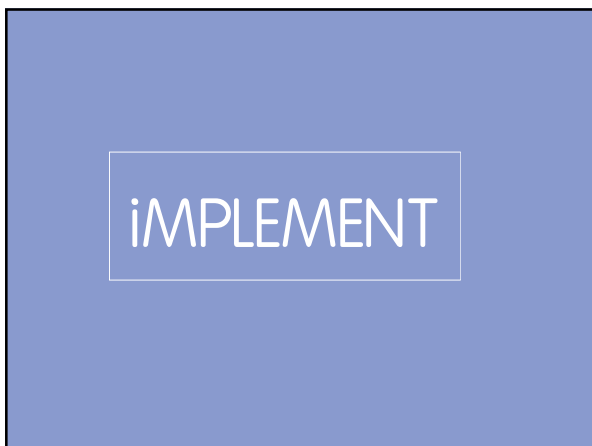
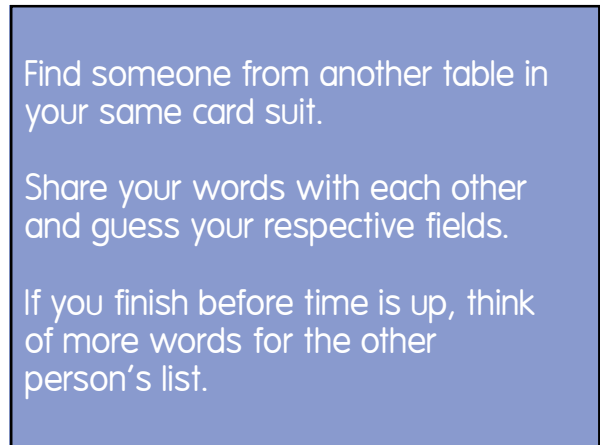
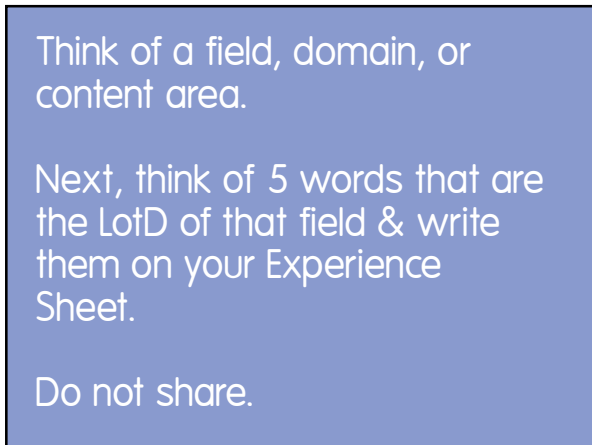
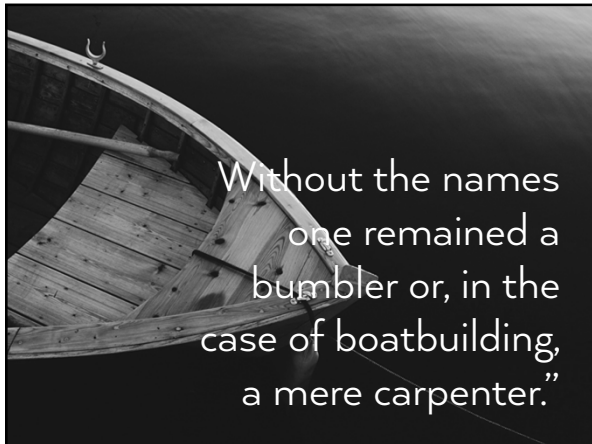
he did not know the names of any of the parts he was building, and without the name he was artistically incomplete.

It was not by accident that doctors and lawyers and butchers invented specific but secret names for the things they did;



With correct names one entered into a new world of proficiency, became the member of an arcane brotherhood,


a sharer of mysteries, and in the end a performer of merit.



iMPLEMENT: Elementary Science


What do these words have in common?

- cirrus
- stratus
- cumulonimbus
- stratocumulus



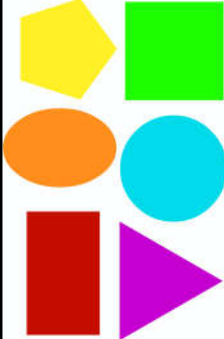
1. What are two words that are missing that should be on the list?
2. Draw a picture of one you think would not be good if you were at a picnic.

IMPLEMENT: Secondary Math



1. Why is this funny?
2. Draw the shape that best reflects this comic.
3. Think of another number that would work in this comic.

IMPLEMENT: Math



1. What are the three most important words you'd need to describe these shapes?
2. If you couldn't use the word "triangle", what would be a word you could use to describe that shape?

IMPLEMENT: Middle School ELA

Word Interview: Word conflict

What words mean the same as you?

What makes you happy?

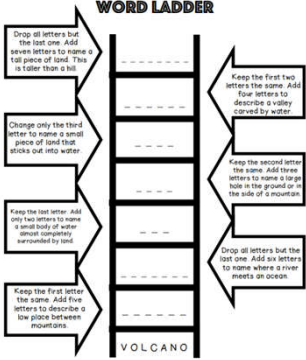
Who or what is your best friend?

What do you dislike most?

If you could give anyone advice, who would you give it to and what would you say?

IMPLEMENT: Elementary Science

WORD LADDER



Drop all letters but the last one. Add seven letters to name a tall piece of land. This is taller than a hill.

Change only the third letter to name a small piece of land that sticks out into water.

Keep the last letter. Add only two letters to name a small body of water almost completely surrounded by land.

Keep the first letter the same. Add five letters to describe a low plane between mountains.

Keep the first two letters the same. Add four letters to describe a valley carved by water.

Keep the second letter the same. Add three letters to name a large hole in the ground or in the side of a mountain.

Drop all letters but the last one. Add six letters to name where a river meets an ocean.

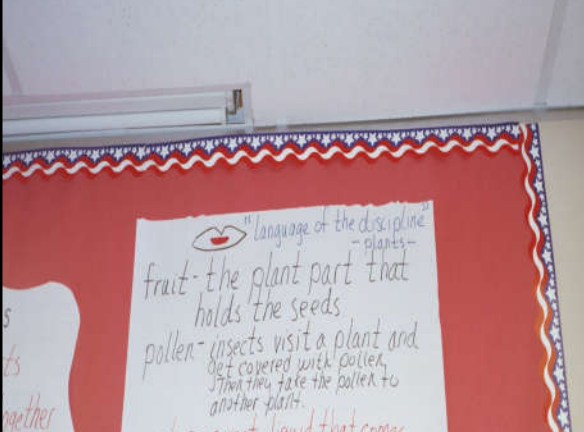
VOLCANO

IMPLEMENT: World Languages

Change "tengo" to first person plural.

Write three nouns that begin with the fifth letter of the new conjugation.

Write an acrostic poem with one of the nouns using at least one verb, one noun, and one adjective.

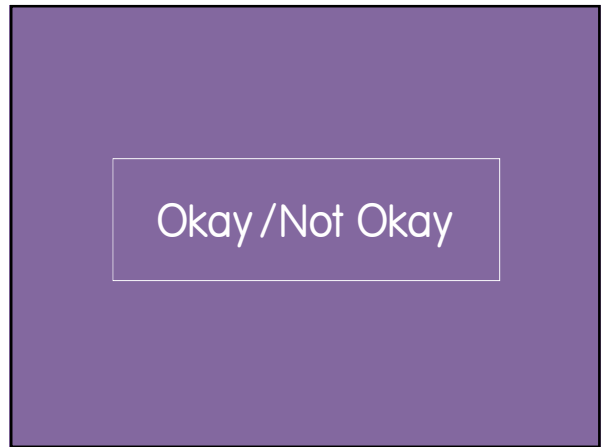
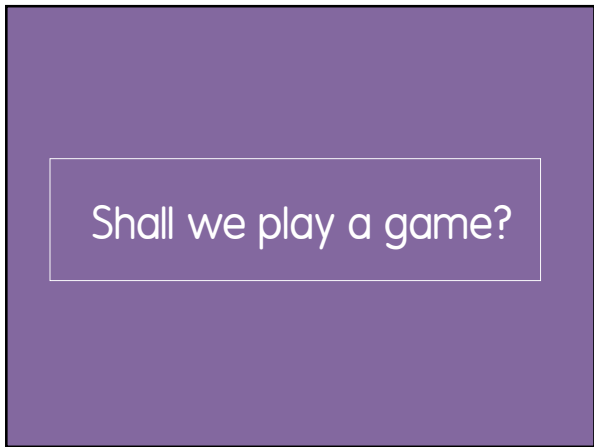


"Language of the discipline"

fruit - the plant part that holds the seeds

pollen - insects visit a plant and get covered with pollen. They then take the pollen to another plant.

nectar - sweet liquid that comes

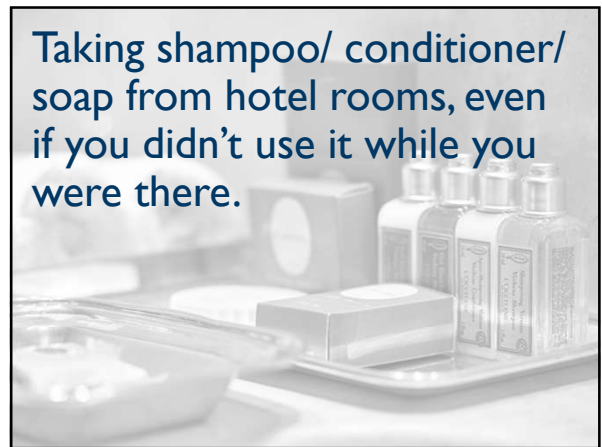


Ordering something you don't really want to get your order to qualify for free shipping, knowing you're going to send it back.

© ATHLETA **FREE SHIPPING ON ORDERS OF \$50 OR MORE. DETAILS**

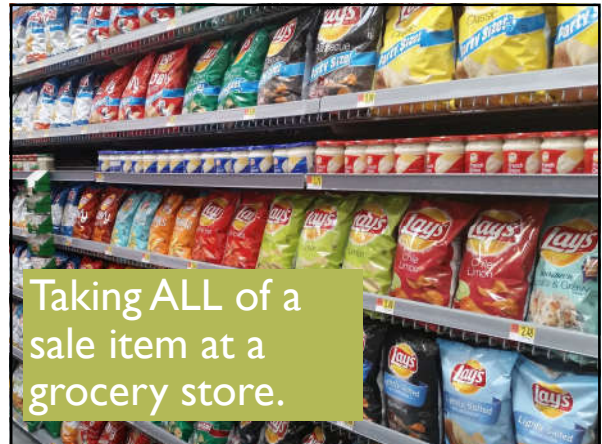
OLD NAVY

WOMEN WOMEN'S PLUS MATERNITY MEN GIRLS





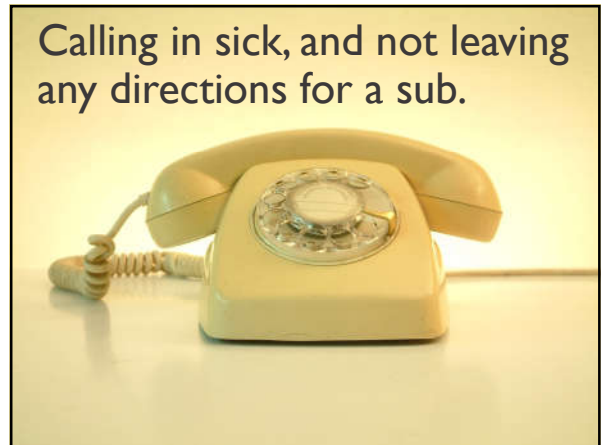
Not really stopping at a stop sign out in the middle of nowhere.



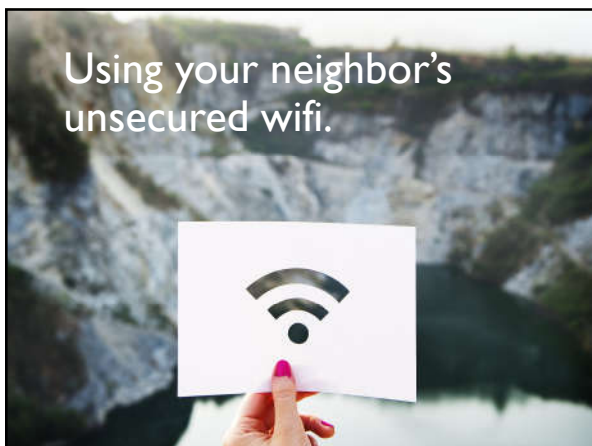
Taking ALL of a sale item at a grocery store.



22-year-old son says, "That's just capitalism."



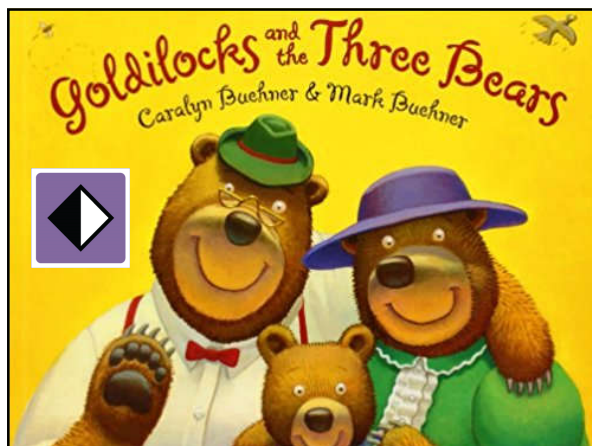
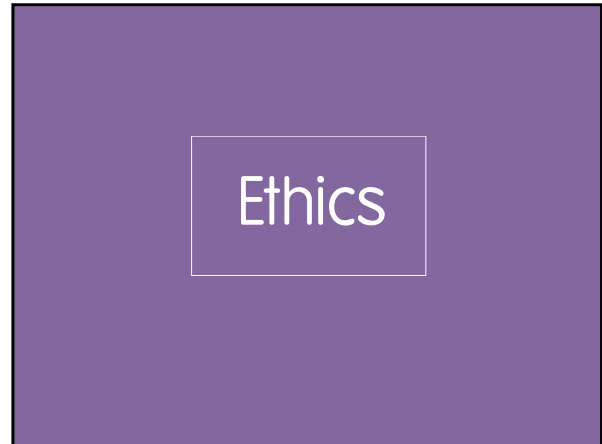
Calling in sick, and not leaving any directions for a sub.

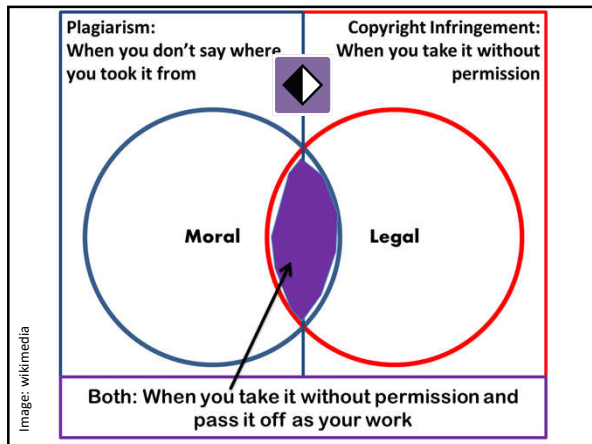


Using your neighbor's unsecured wifi.



Telling your friend you know his/her spouse is having an affair (it's true).





People accuse me of

plagiarism.

Their words, not mine.

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Accurate, professional, online

Find the length of each line segment. For each graph give an ordered pair to extend each of the line segments.

Find the length of each line segment **without** graphing.

(2, 5) (2, 11) _____
 (-6, 2) (-6, 9) _____
 (7, -5) (3, -5) _____

AB _____ Ordered pair _____ RS _____ Ordered pair _____
 UT _____ Ordered Pair _____ MN _____ Ordered Pair _____ FG _____ Ordered Pair _____

Joe took a taxi across town for a meeting. The coordinates are shown below. (Each unit on the grid = 1 city block.)

The taxi company Joe used charges \$2 per city block of travel. The driver charged Joe \$15 for the fare.

Was this a fair price for the fare? How do you know? Prove your answer with evidence.

Find the length of each line segment. For each graph give an ordered pair to extend each of the line segments.

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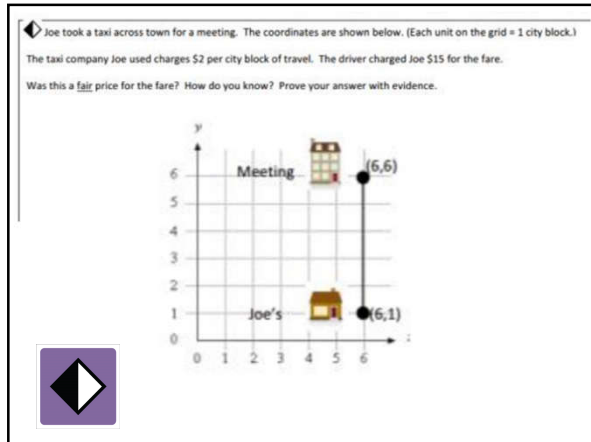
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Prove your answer with evidence.



IMPLEMENT: ELA

The perfectly puzzling mystery of a hidden masterpiece.

Should great art belong to private owners or public institutions? Cite a character for each position and, using examples from the text, defend their point of view.

debate the ethics

IMPLEMENT: Elementary Science

3-LS2 Ecosystems: Interactions, Energy, and Dynamics

Interactions, Energy, and Dynamics

the understanding can:

in an argument that some animals form groups that help members survive.

These expectations above were developed using the following elements from the NRC document: *A Framework for K-12 Science Education*

Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Evidence Evidence in 3-5 builds on K-2 by critiquing the scientific claims of natural and designed world(s) using evidence, data, and/or a model.	LS2.D: Social Interactions and Group Behavior • Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size. (Note: Moved from K-2). (3-LS2-1)	Cause and Effect Cause and effect relationships are identified and described.

3rd grade: N/A
4th levels: **1.LS1.B** (3-LS2-1); **MS.LS2.A** (3-LS2-1); **MS.LS2.D** (3-LS2-1)
Connections:

First, intro content in your fave way.

{Here's an example}

99 strange collective animal names

Whether it's a shrewdness of apes or a zeal of zebras, lots of animals have bizarre names when they cluster into crowds.



1st, we'll have a little fun with crazy names for groups of animals.

Living in Groups
SOCIAL BEHAVIOR

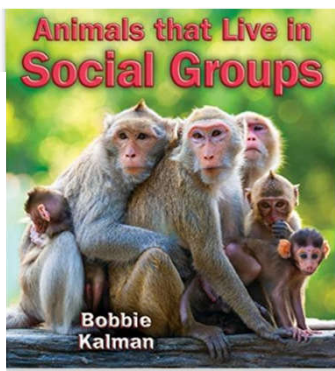
17

0:24 / 14:17

I'll flip the classroom & have them watch this video at home.

Next, they'll come back to class & we'll read this book, looking for connections between it and the video.



Why Live in Groups

There are several major disadvantages to living in groups:



1. Greater competition for food, mates, sleeping sites
2. Increase parasite and disease load.

There is an incidental reason why some animals live in groups: individuals. E.g., birds don't nest on cliffs because they are attracted by a scarce resource: cliff ledges.



How do individuals benefit by living in groups?

1. **Cooperative food collection.** Wolves hunt together. By doing so each can more easily track and catch a large game. Although the individual has to share meat, each still benefits from group hunting. Cooperative hunting is less important in primates. Chimps hunt some but meat is not a major part of their diet. Cooperative hunting is important in many human societies, however.
2. **Sleeping together to conserve warmth.** This explains why individuals form groups at night but not during the day.
3. **Shared information.** By forming groups, individuals can share information. For example, frugivores let each other know where fruit trees are.
4. **Protection from predators.** There are three reasons why individuals form groups to avoid predation.

My advanced learners will read a scholarly article instead.

Next, the students will create a tree map classifying animals by the reasons they group.

```


graph TD
    Root[ ] --- Safety[safety]
    Root --- Food[food]
    Root --- Social[social]
    
```


My advanced students will create a persuasive piece (brochure or commercial) encouraging the polar bear to begin living in groups.








And then....enter ETHICS.

Students will debate: 

Resolved: It is fair for packs of animals to hunt in order to kill a solitary animal.

 **IMPLEMENT: Secondary Science**



Ethics of... cloning ... nomenclature ...
 climate change ... animal dissection ...

IMPLEMENT: social studies

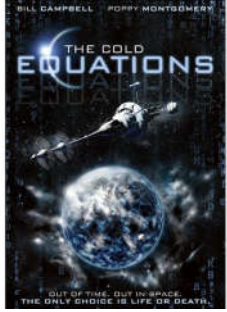


To what extent is it fair for humans to modify their environment if it impacts plants and animals?

IMPLEMENT: ELA

What is the ethical dilemma faced by Barton in *Cold Equations*?

So shallow; go deeper.




IMPLEMENT: ELA

Find a solution to Barton's ethical dilemma in *Cold Equations*.

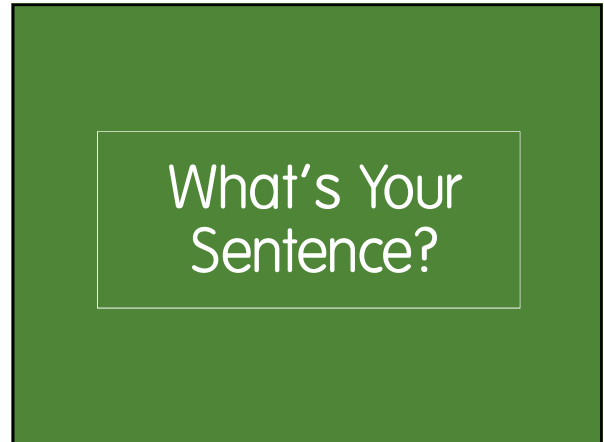
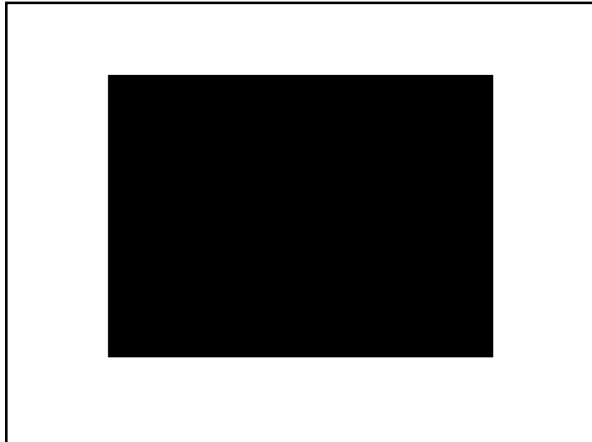


IMPLEMENT: ELA


Hold a mock trial for Barton.



What's Your Sentence?




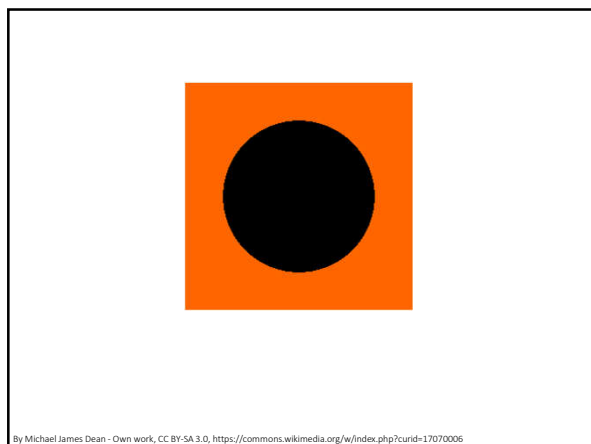
Capture everything you know about something in one sentence.



- Lab safety
 - Multiplication
 - Democracy
 - Poetry
 - The treble clef
 - Irregular verbs
- 



Can be complicated, even for things that seem simple...and the reverse is also true.

Mandelbrot set

From Wikipedia, the free encyclopedia

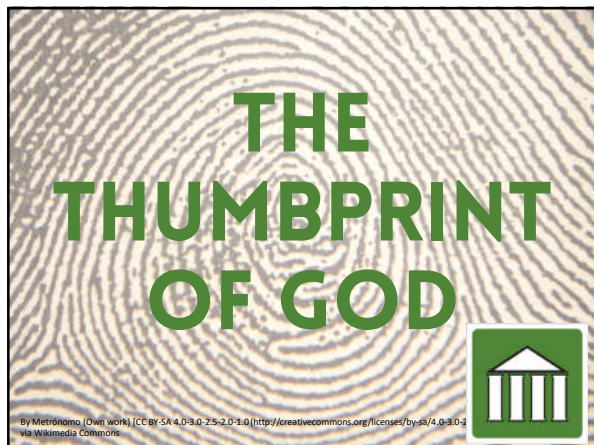
The **Mandelbrot set** is the set of complex numbers c for which the function $f_c(z) = z^2 + c$ does not diverge when iterated from $z = 0$, i.e., for which the sequence $f_c(0), f_c(f_c(0)),$ etc., remains bounded in absolute value.





The Mandelbrot set is an example of a complex structure arising from the application of simple rules.

It is one of the best-known examples of mathematical visualization.





It can get you
into trouble.

God is love.
Love is blind.
Stevie Wonder is blind.
Stevie Wonder is God.




iMPLEMENT


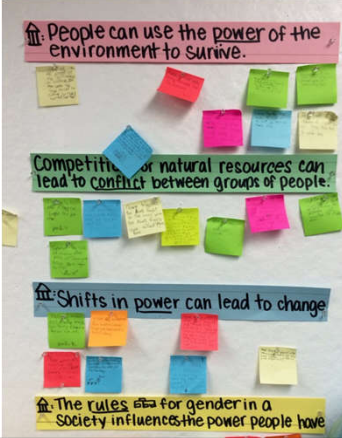
ALWAYS SUPPORT BIG IDEA WITH DETAILS.


Ian's idea...



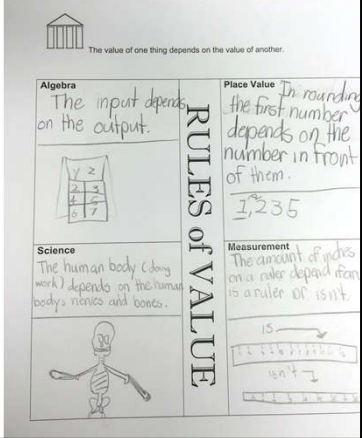


It can be used as a group or whole class activity.

<http://www.school-website.com/grade-four/relating-the-big-idea>

Lead students to or through Big Idea by integrating with Across Disciplines.

<http://www.school-website.com/grade-four/relating-the-big-idea>

Lead students to or through Big Idea by integrating with Across Disciplines.

Algebra
The value of x on the value of y on the value of the input on value of and put

Place Value
The value of a number depends on its place
Digit 8, 2, 1, 1
not the same place

Science
The moon of the sea depends on the moon

Measurement
The area of the room/the width and length.
15 area
12

???: How does the moon affect the water in the sea?

Identifying Theme

Title Significance?
Title: Wilfred Gordon MacDonell Partridge - no clues

Character(s)
↳ Lessons learned
↳ Tragic
↳ Motivation

Theme
Wilfred Gordon MacDonell Partridge
↳ caring & trans-ship

Tone/Mood
↳ and etc

Details Converge to reveal theme

Examining ⚙️ Allows us to See ⚙️ and Relationships

Fractions, Decimals, and Percents

Geometry

Statistics and Data Analysis

Fractions, Decimals, and Percents

Geometry

Statistics and Data Analysis

IMPLEMENT: Elementary Math

Ian's example...

Ask students to group up (or **work solo**). Give them these examples:

- $5^2 = 25$
- $4^2 = 16$
- $3^2 = 9$

Ask them to determine the job of that *incredible flying two*.

IMPLEMENT: Elementary Math


Lisa's example...

IMPLEMENT: Middle Math (8th)

Why can't these systems of linear equations be solved?
(eyes & brains only)

$3x + 2y = 5$ and $3x + 2y = 6$

$2x + 6y = 12$ and $2x + 6y = 10$




IMPLEMENT: Middle Math (8th)

Can these be solved?

$3x + 2y = 5$ and $3x + 2y = 6$


$2x + 6y = 12$ and $2x + 6y = 10$



Differentiate it (need support):


Big Idea: Some _____
can be _____ through
_____ and don't
need to be calculated.


Word Bank:
solved inspection problems



Differentiate it (advanced):

Which of the two Big Ideas
below have the most application
to other math problems as well?

 Some problems can be solved by inspection and don't need calculation.

 Variables must have unique values in a system of equations.


IMPLEMENT: Elementary ELA

What can you say about the importance of outdoor spaces based on this book alone?




IMPLEMENT: Elementary ELA

What other texts have we read this year that have the same or similar Big Idea?




IMPLEMENT: World Languages 






How is a Big Idea in *Les Trois Petits Cochons* similar to a Big Idea in *Le Petit Chaperon Rouge*?



Il était une fois une maman cochon qui avait trois petits cochons. Elle les aimait beaucoup, mais comme il n'y avait pas assez de nourriture pour qu'ils puissent tous manger à leur faim, elle les a envoyé tenter leur chance dans le vaste monde.



IMPLEMENT: Science

Option 1: The teacher can give students the Big Idea and ask them to support it.

 Support with  Ethics and  Change Over Time the Big Idea that recycling shows respect for other people.




IMPLEMENT: Social Studies


Option 2: The teacher can ask students to generate Big Ideas.


-  What are three possible Big Ideas of the Indian way of life?
-  What is the Big Idea of the US Constitution?

IMPLEMENT: Science


Option 1: The teacher can give students the Big Idea and ask them to support it.


 Support with  Details and  Change Over Time the Big Idea that a change in the environment that causes one organism to thrive may cause another to perish.


IMPLEMENT: ELA 


 Another way to solve the problem of _____ might have been to _____

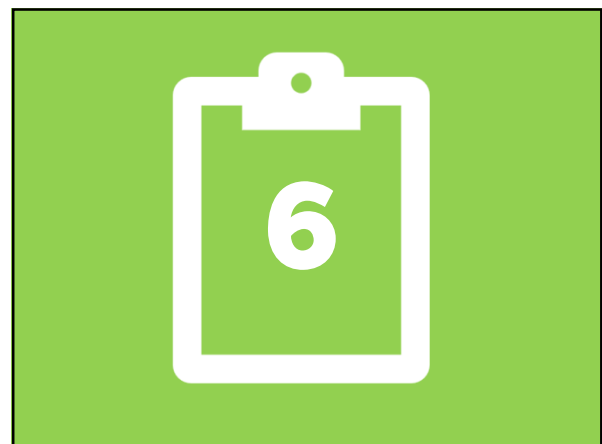
An item that was really important to _____ was _____ because _____

 By the end of the story, _____ learned that _____

 It seemed unfair that _____









Titanic WAS NOT sunk by Iceberg – new evidence suggests shock theory to disaster

THE Titanic was NOT sunk after striking an iceberg. It has sensationally been claimed more than a century since the ship disaster.

By SEAN MARTIN
PUBLISHED: 04:12, Wed, Jan 4, 2017 | UPDATED: 07:40, Wed, Jan 4, 2017

SHARE f TWEET 2K 103

Titanic NOT sunk by iceberg documentary claims

Millennium Problems

Yang–Mills and Mass Gap
Experiment and computer simulations suggest the existence of a "mass gap" in the solution to the quantum versions of the Yang–Mills equations. But no proof of this property is known.

Riemann Hypothesis
The prime number theorem determines the average distribution of the primes. The Riemann hypothesis tells us about the deviation from the average. Formulated in Riemann's 1859 paper, it asserts that all the "non-obvious" zeros of the zeta function are complex numbers with real part 1/2.

P vs NP Problem
If it is easy to check that a solution to a problem is correct, is it also easy to solve the problem? This is the essence of the P vs NP problem. Typical of the NP problems is that of the Hamiltonian Path Problem: given n cities to visit, how can one do this without visiting a city twice? If you give me a solution, I can easily check that it is correct. But I cannot so easily find a solution.

Navier–Stokes Equation
This is the equation which governs the flow of fluids such as water and air. However, there is no proof for the most basic questions one can ask: do solutions exist, and are they unique? Why ask for a proof? Because a proof gives not only certitude, but also understanding.

Hodge Conjecture
The answer to this conjecture determines how much of the topology of the solution set of a system of algebraic equations can be defined in terms of further algebraic equations. The Hodge conjecture is known in certain special cases, e.g., when the solution set has dimension less than four. But in dimension four it is unknown.

Poincaré Conjecture
In 1904 the French mathematician Henri Poincaré asked if the three dimensional sphere is characterized as the unique simply connected three manifold. This question, the Poincaré conjecture, was a special case of Thurston's geometrization conjecture. Perelman's proof tells us that every three manifold is built from a set of standard pieces, each with one of eight well understood geometries.

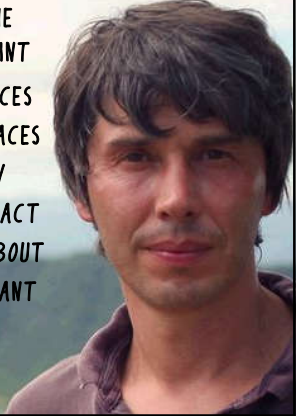
Birch and Swinnerton-Dyer Conjecture
Supported by much experimental evidence, this conjecture relates the number of points on an elliptic curve mod p to the rank of the group of




??? DID TONY SOPRANO DIE?



"I'M COMFORTABLE WITH THE UNKNOWN—THAT'S THE POINT OF SCIENCE. THERE ARE PLACES OUT THERE, BILLIONS OF PLACES OUT THERE, THAT WE KNOW NOTHING ABOUT. AND THE FACT THAT WE KNOW NOTHING ABOUT THEM EXCITES ME, AND I WANT TO GO OUT AND FIND OUT ABOUT THEM."



AND THAT'S WHAT SCIENCE IS. SO I THINK IF YOU'RE NOT COMFORTABLE WITH THE UNKNOWN, THEN IT'S DIFFICULT TO BE A SCIENTIST... I DON'T NEED AN ANSWER. I DON'T NEED ANSWERS TO EVERYTHING. I WANT TO HAVE ANSWERS TO FIND." - PHYSICIST BRIAN COX



???

???


What do you not know the answer to because that answer is not available?







???

What is something you do not know the answer to but you could find with currently available knowledge?

???

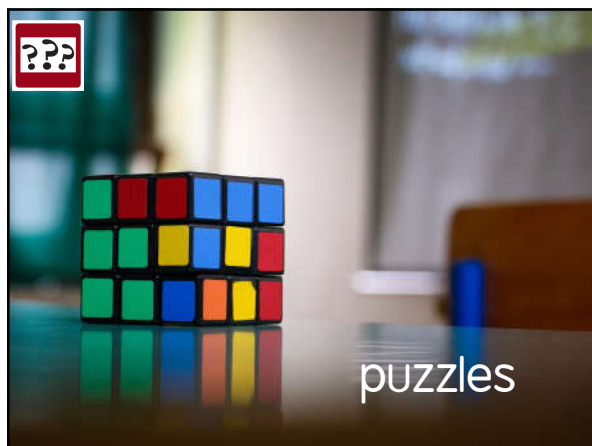
What is something you know, but other people disagree with you about?

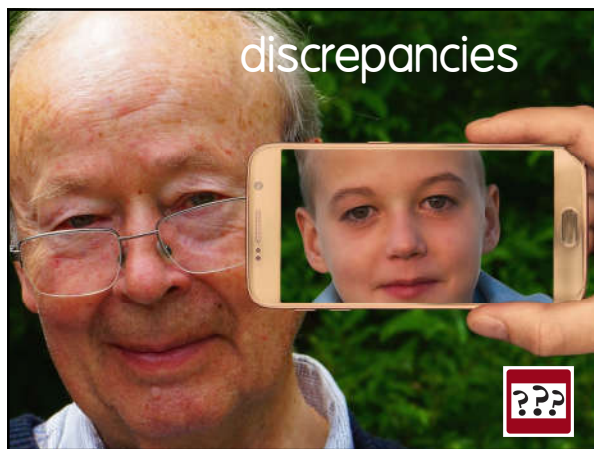
Dice Game 

-  Share your unanswerable question.
-  What is your go-to answer source?
-  What kinds of ?s cause disagreement?
-  What do you think happened to Amelia?
-  What is something your SS often think that is wrong?
-  What something parents often think that is wrong?


UNANSWERED QUESTIONS

Unanswered Questions

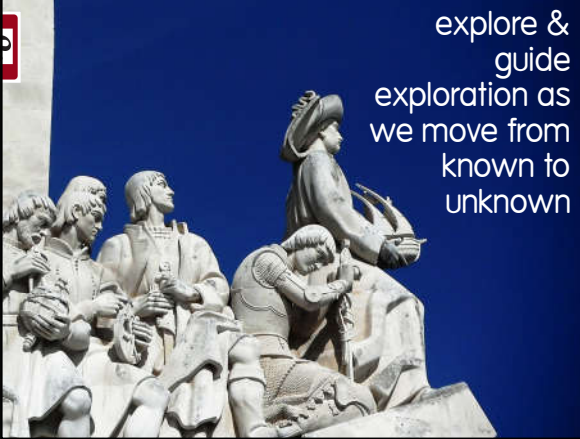




comfort with ambiguity
and a sense of wonder



key factor in being a
disciplinarian





explore &
guide
exploration as
we move from
known to
unknown



Research /
Research
Questions /
What
resources are
most likely to
answer this
question?




Always circle
back to available
resources.




"You dig deeper
and it gets more and more complicated,
and you get confused,
and it's tricky,
and it's hard, but...
It is beautiful."

— Brian Cox




??? IMPLEMENT: Elementary SS



Low Level :
What unanswered questions guided the Corps of Discovery?

??? IMPLEMENT: Elementary SS




Mid Level:
Compare the unanswered questions that guided L&C with those that guided another explorer.

??? IMPLEMENT: Elementary SS



High Level:
Should Lewis be considered a failure for not finding something that did not exist?

??? IMPLEMENT: Elementary SS



High Level:
What evidence exists that there was another presidential agenda?

Discovery *Quests* Clark

Home → The Return Home → Nathaniel Poyth's Mission

← Patriotic

Questions for Consideration

by Robert Hunt, Seattle, Washington

Concerning Lewis's mission and orders, it is true enough to say, as Jefferson himself did, rather soldierly in a special context, that the mission was "single"—"the direct water communication from sea to sea." But, despite this statement and the liberal terms of Jefferson's instructions, should the matter be left at that?

Was Lewis's task solely, even primarily, to find a Northwest Passage? Or the shortest route for commerce? Can he be faulted, or his mission considered a failure, for not finding something which did not exist? And was Jefferson's overriding premise "wrong," or his "rationale for the entire expedition . . . inherently flawed" on that account? Must not the surrounding historical and political circumstances of the Expedition come into focus here?

One turns to related documents for references about the mission. For example, the background for the British passport: the British Chargé d' affaires, Edward Thornton, noted in his report that the "ostensible object" of the voyage was "extending the

Remember: direct to quality resources

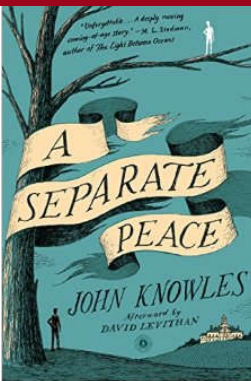
More questions:

Concerning the risk of dividing the party into smaller "undefensible units," one recalls that the original concept of the Corps was for a body of not more than 8 or 10 men. In that light, was the Expedition "undefensible" at the outset? Jefferson himself felt that "such numbers will be sufficient to secure . . . against opposition of individuals or of small parties," but, with due admendment for safety's sake, left to Lewis's discretion "the degree of danger" to be risked knowing full well that, as Lincoln had commented, "Capt. Lewis . . . will be much more likely, in case of difficulty, to push too far, than to

???

IMPLEMENT: HS ELA


Mock Trial:
Did Gene shake the branch on purpose?



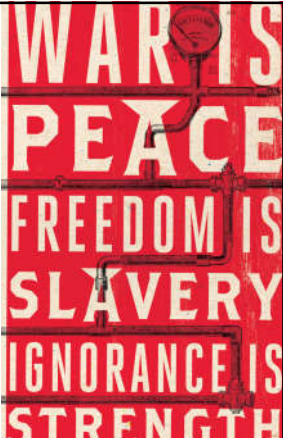
"Undergrowth . . . A deeply moving coming-of-age story" —St. L. Stearns, author of The Light Between Oceans

JOHN KNOWLES
Illustrated by DAVID LEVYTHAN

???



Create an illustration of what was in Julia's room 101.







Make a reasonable, supported argument that Kitty marries in a 3-minute video.



Clare Higgins, 1980 Polly Maberly, 1995 Carey Mulligan, 2005 Florence Hoath, 2008

IMPLEMENT: math


How could the government pay for things if we didn't have taxes? Consider the fairness of your idea.

IMPLEMENT: science


If moons serve an important purpose, why don't all planets have them? Would you rather live on a planet with zero, one, or many moons?



 **IMPLEMENT: HS AP Chem**

Create a sophisticated, persuasive scientific poster evaluating the validity of the following unanswered questions in chemistry. Which of them is the most important to be answered?

Why can't we design chemical systems more efficient than **photosynthesis**? We know how it works but we do not know how to build one! Despite the efforts of several decades, artificial photosynthesis has failed to replicate the chemistry of reaction center of photosynthesis. Prashant Kamat, Editor-in-Chief of ACS Energy Letters



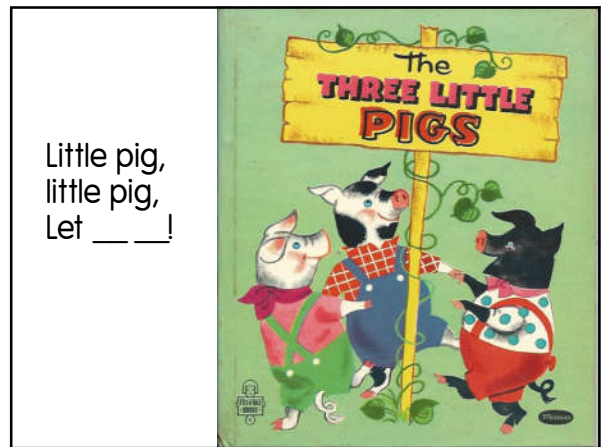
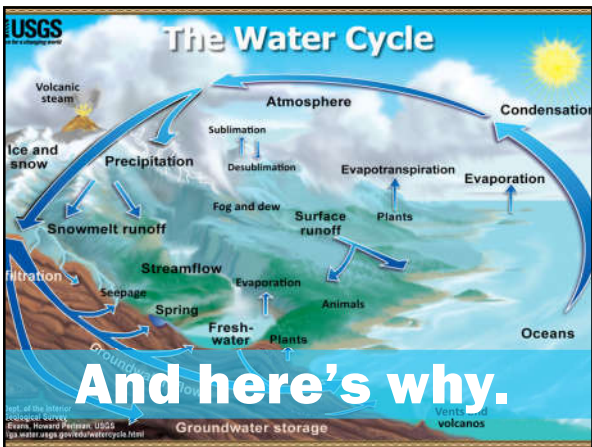
Biochemistry on earth is based on abundant water being available, hydrocarbon-based biochemistry, and temperatures in the vicinity of 300 K, plus or minus 50 degrees. Could there be life forms in the universe that are based on **radically different chemistry** than the biochemistry of earth and that might thrive under conditions far more 'extreme' than even the most extreme conditions supporting life on earth? - Charles Sanders, Interim Editor of Biochemistry

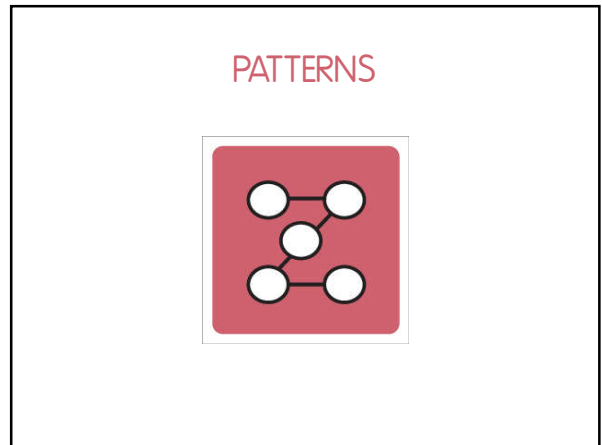
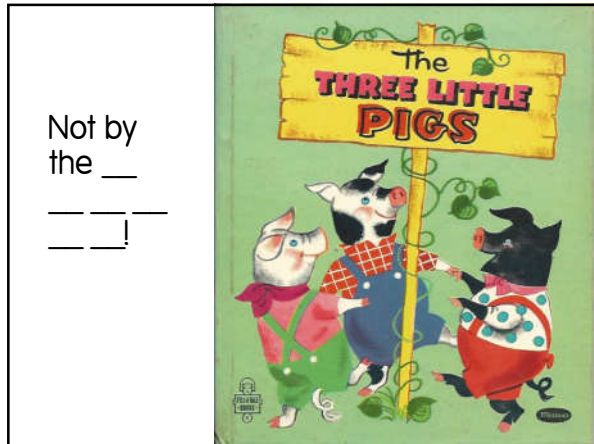


How does using a graph clarify this problem?



What new questions does the solving of this problem create?





AGREE/DISAGREE:

Patterns can be replicated.

AGREE/DISAGREE:

A cycle is not a pattern.

AGREE/DISAGREE:


If you see repetition, look for a pattern.

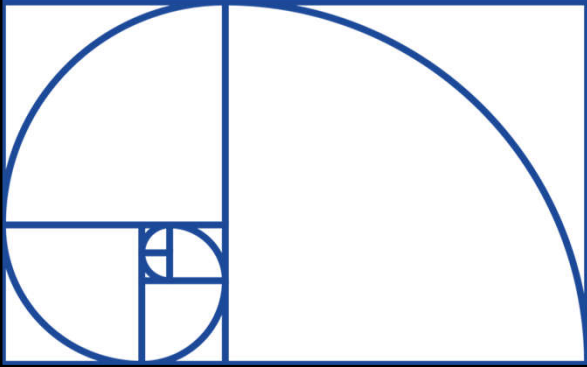
AGREE/DISAGREE:

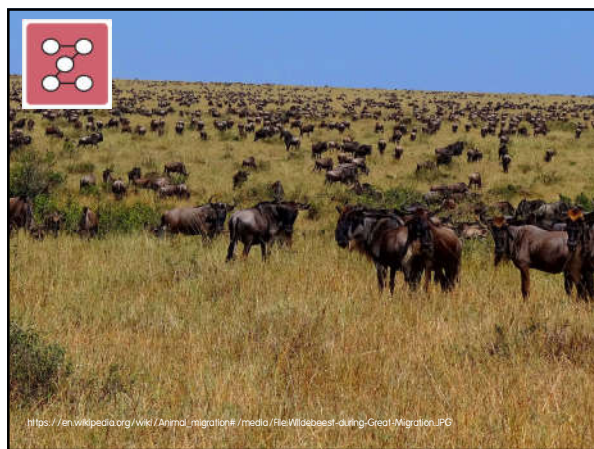
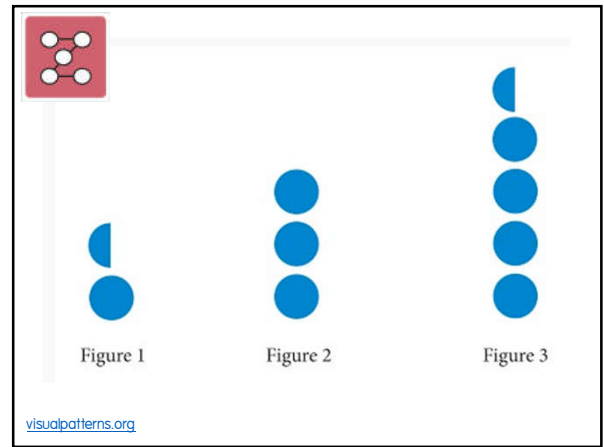
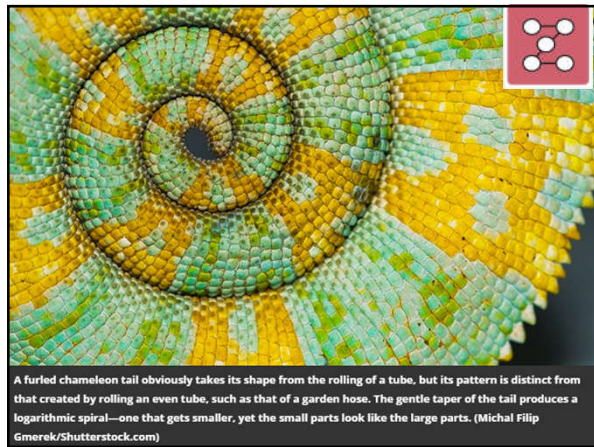
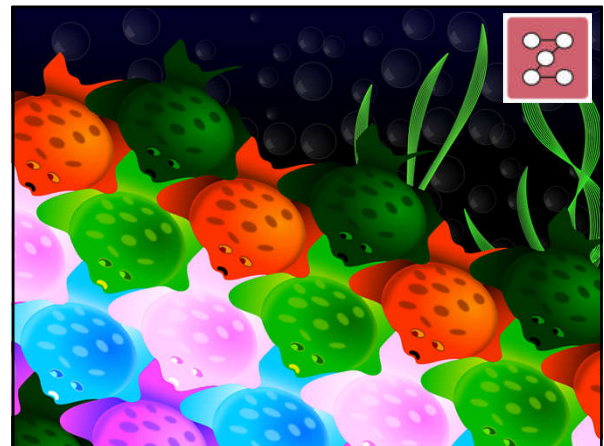
Patterns cannot be man-made. They can only be natural.

AGREE/DISAGREE:

A recurring element could be considered a pattern.

 Patterns occur in all domains.





LH PATTERNS FOR THE 12-BAR BLUES

WHOLE NOTES

C F G

BLOCKED 5THS & 6THS

C F G

<http://colorinmyplane.com>

CONJUGAISON DES VERBES RÉGULIERS AU PRÉSENT		
ER PARLER	IR FINIR	RE ATTENDRE
JE PARLE TU PARLES IL/ELLE PARLE NOUS PARLONS VOUS PARLEZ ILS PARLENT	JE FINIS TU FINIS IL/ELLE FINIT NOUS FINISSONS VOUS FINISSEZ ILS FINISSENT	J'ATTENDS TU ATTENDS IL/ELLE ATTEND NOUS ATTENDONS VOUS ATTENDEZ ILS ATTENDENT

What is a pattern in your discipline?

[stand when you can think of one]

Could you ask them to

DESCRIBE THE PATTERN?




Could you ask them to

EVALUATE THE PATTERN'S IMPORTANCE?




Could you ask them to

COMPARE THE PATTERN TO ANOTHER PATTERN?



Could you ask them to

IDENTIFY PRIMARY AND SECONDARY PATTERNS?




Could you ask them to

RECOGNIZE WHEN/WHERE A PATTERN BREAKS?



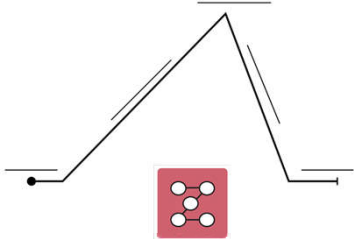
Could you ask them to

SEE THE PATTERN OUT OF SEQUENCE AND FIX IT?



IMPLEMENT: ELA

Outline the plot of your story.





















IMPLEMENT: Math

How does this pattern allow you solve the problem?

Multiplication Arrays

Directions: Circle the problem shown by the array.

 $4 \times 5 = 20$	 $5 \times 7 = 50$
 $6 \times 3 = 18$	 $7 \times 7 = 49$
 $4 \times 6 = 24$	 $5 \times 7 = 35$
 $6 \times 3 = 18$	 $4 \times 5 = 20$
 $6 \times 5 = 30$	 $5 \times 5 = 25$
 $4 \times 6 = 24$	 $5 \times 5 = 20$
 $8 \times 2 = 16$	 $4 \times 7 = 28$
 $9 \times 2 = 18$	 $8 \times 4 = 32$
 $9 \times 2 = 18$	 $4 \times 8 = 32$

IMPLEMENT: Social Studies

Trace the progress of European colonization in America.

1565 founding of St. Augustine → →

↓

→ →

↓

→ →



IMPLEMENT: Secondary Music

Identify patterns of opposites in Beethoven's 5th Symphony.



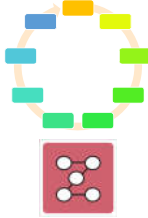
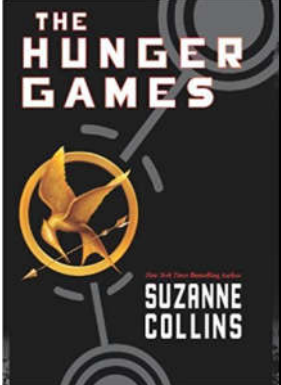

IMPLEMENT: Secondary Music

Differentiate it:
Create a chart comparing the patterns of opposites in Beethoven's 5th Symphony to those in *Fur Elise*.


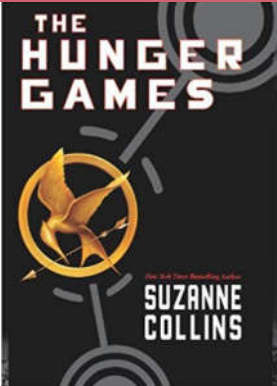
IMPLEMENT: ELA

How does / does not Katniss follow the pattern of the heroic archetype?


IMPLEMENT: ELA

Differentiate It:
Compare and contrast the heroic journey of Katniss with that of Theseus.





IMPLEMENT: Elementary Science

Using the following elements from the NRC document *A Framework for K-12 Science Education*:

Disciplinary Core Ideas	Crosscutting Concepts
<p>LS1.B: Growth and Development of Organisms</p> <ul style="list-style-type: none"> Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1) 	<p>Patterns</p> <ul style="list-style-type: none"> Patterns of change can be used to make predictions. (3-LS1-1) 

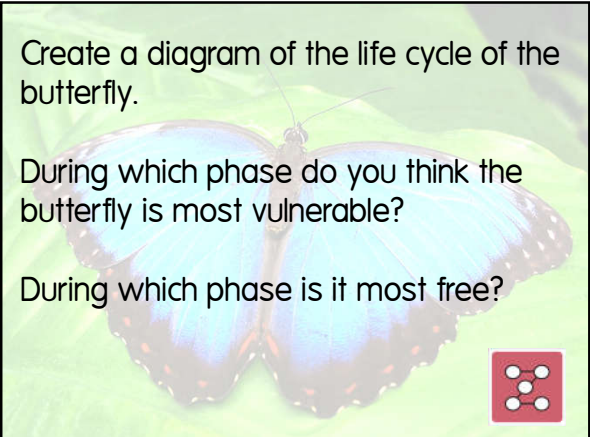

3-LS1-1. DEVELOP MODELS TO DESCRIBE THAT ORGANISMS HAVE UNIQUE AND DIVERSE LIFE CYCLES BUT ALL HAVE IN COMMON BIRTH, GROWTH, REPRODUCTION, AND DEATH



Create a diagram of the life cycle of the butterfly.


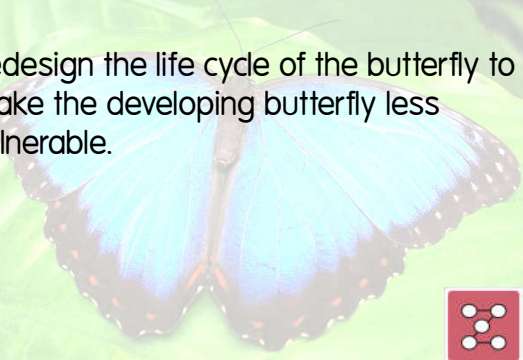
During which phase do you think the butterfly is most vulnerable?

During which phase is it most free?


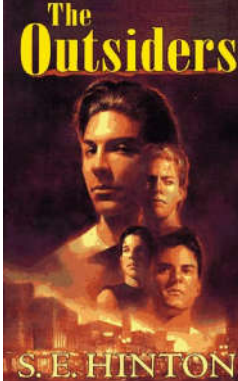
Differentiate it...

Redesign the life cycle of the butterfly to make the developing butterfly less vulnerable.



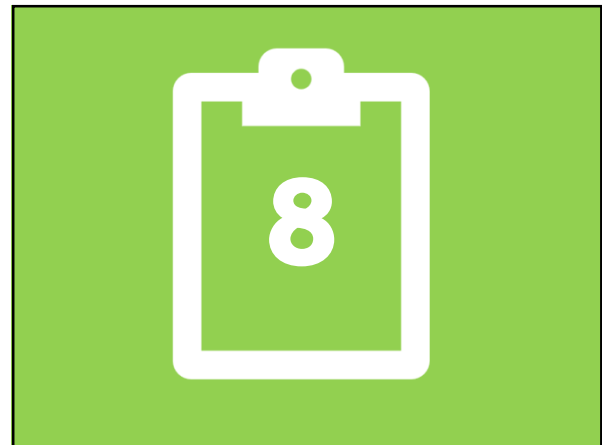


iMPLEMENT: Middle School ELA

Create an image essay illustrating the archetypes found in *The Outsiders*.



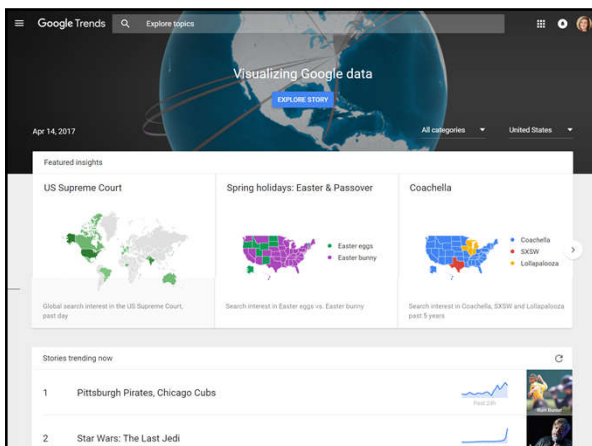
iMPLEMENT: Middle School ELA

Differentiate it:
Create an image essay contrasting the archetypes found in *The Outsiders* to those found in *A Wrinkle in Time*.





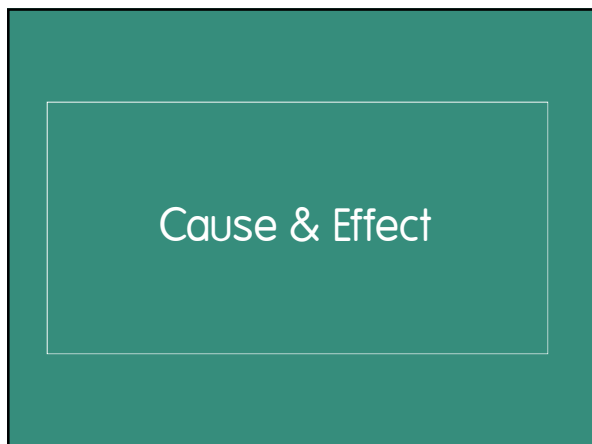
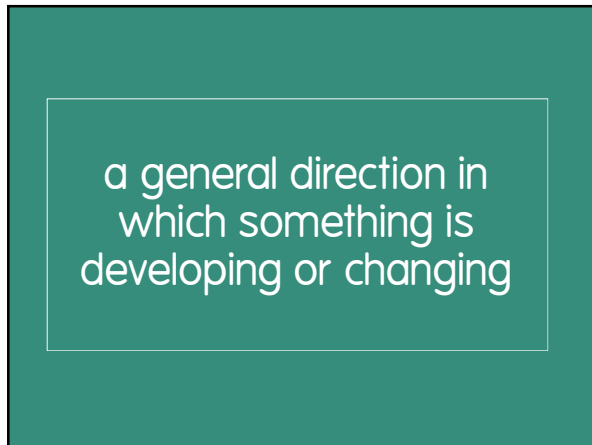

53 minutes ago	1 hour ago	2 hours ago
#GoodFriday	#GoodFriday	#GoodFriday
#TheLastJedi	36 ISIS	36 ISIS
36 ISIS	#TheLastJedi	#IdGiveUpThisForThat
#LiteraryTypos	Dean Blandino	Dean Blandino
#FlashbackFriday	Joseph Jakubowski	Joseph Jakubowski
Dean Blandino	#ViernesSanto	#FlashbackFriday
#EasterWeekend	#LiteraryTypos	#ViernesSanto
Morehouse	#EasterWeekend	36 Islamic State
Joseph Jakubowski	Chad Carr	#FineWomenFriday
Brett Brown	U.S.-North Korea	U.S.-North Korea

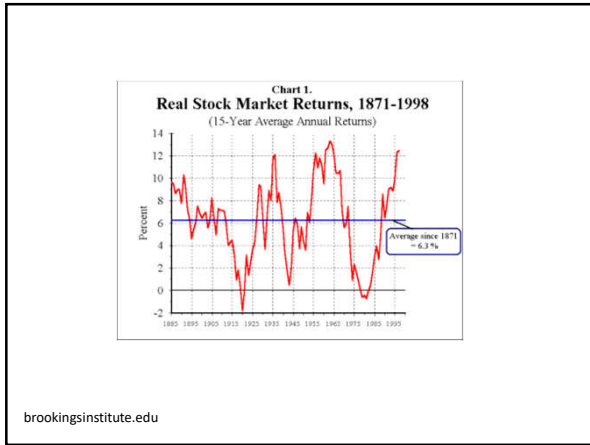
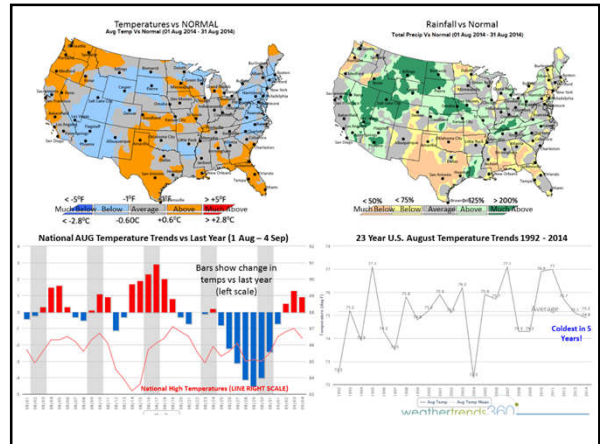
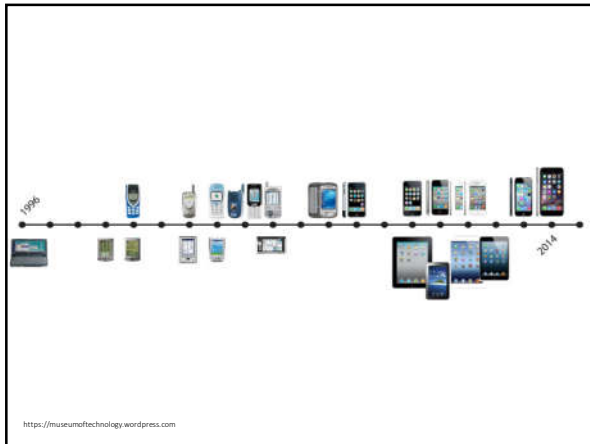


What's the difference between a fad & a trend?

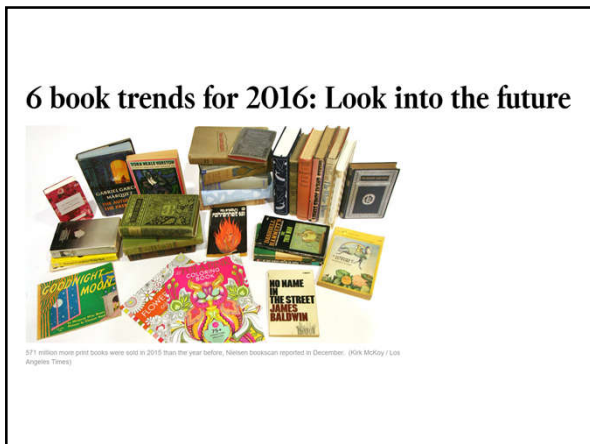
Go to www.menti.com and use the code **82 63 98**

What is your least favorite fashion trend in history?

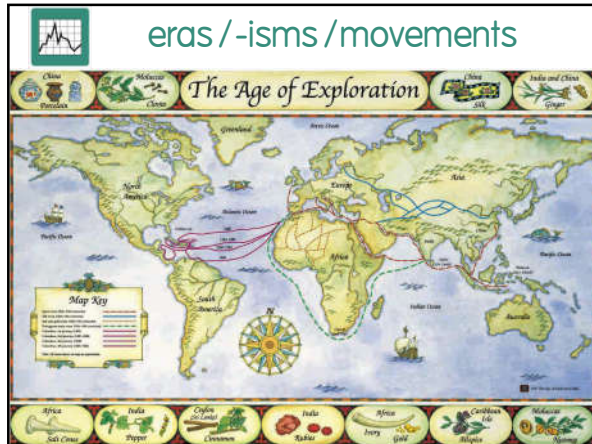


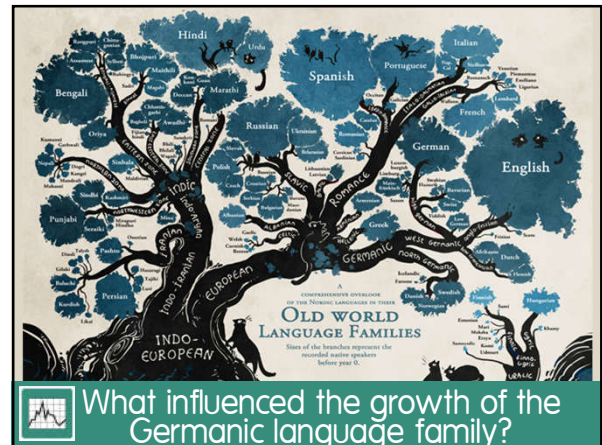
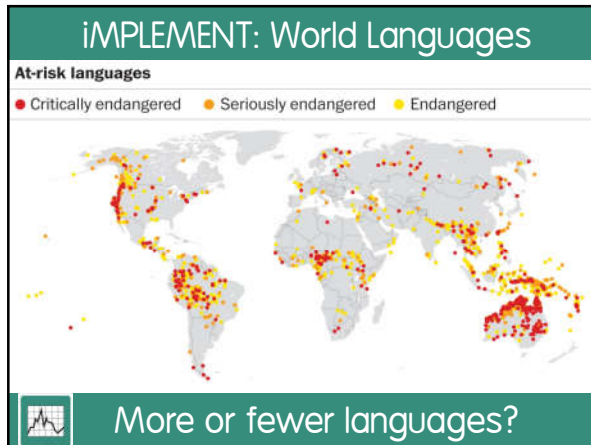
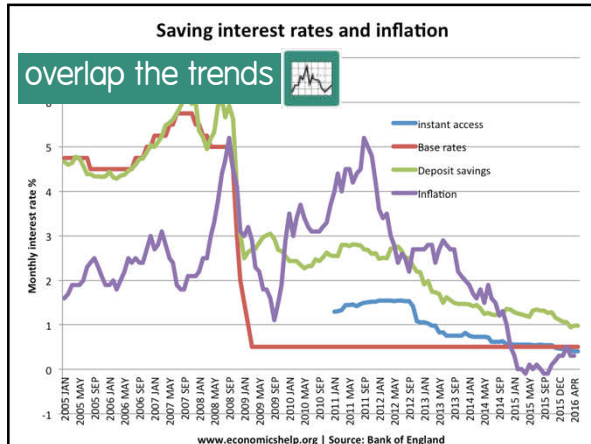


Trends exist in every industry and content domain.



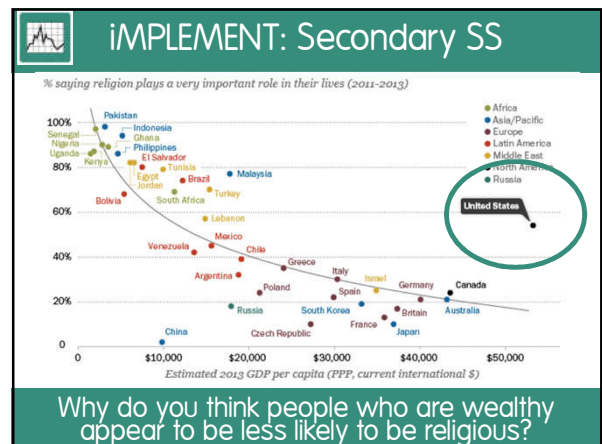
Some disciplines are a natural fit.

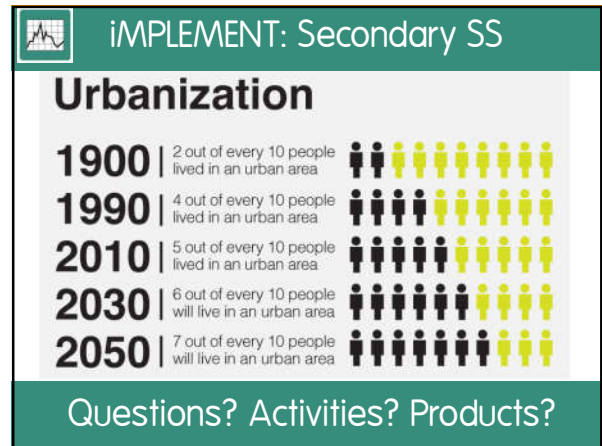
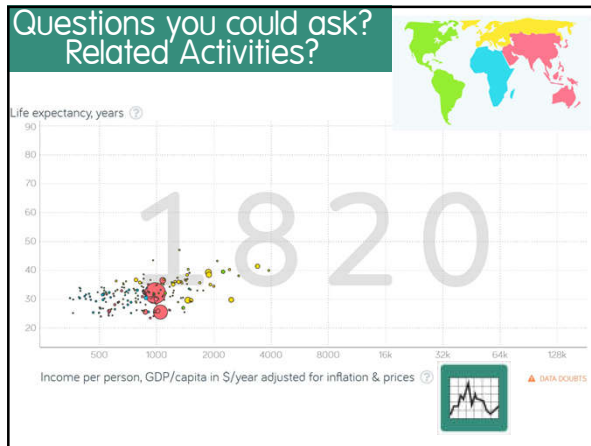




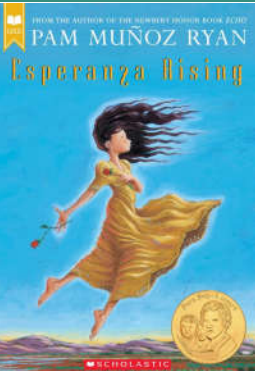
Some events have multiple consequences. On the bow, identify a cause. On the arrows, list consequences of that cause/action.

IMPLEMENT: ELA


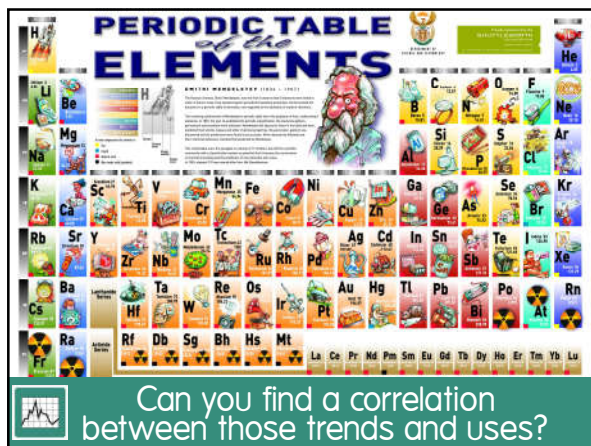
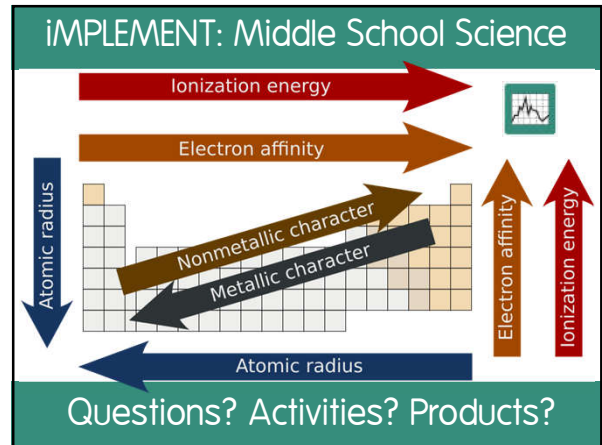




IMPLEMENT: ELA



Evaluate the political, social, and economic factors that influenced Esperanza's journey. Which had the greatest impact on her and her family? Which had the least? Which affect you?

IMPLEMENT: Social Studies

Analyze the way the trends in Spanish rule of Texas led to the Texas Revolution.



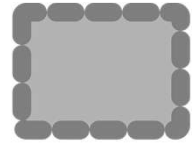
iMPLEMENT: Science

Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.



iMPLEMENT: Math

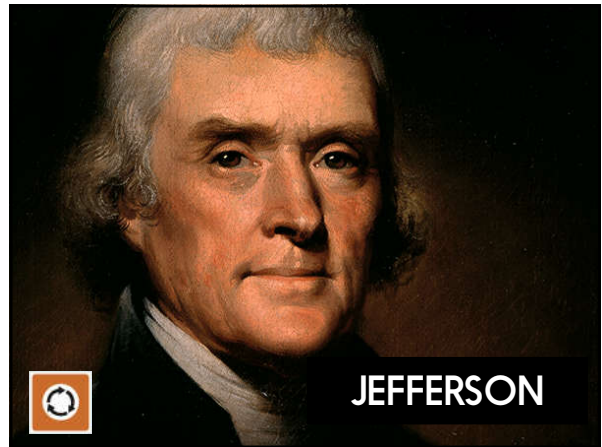
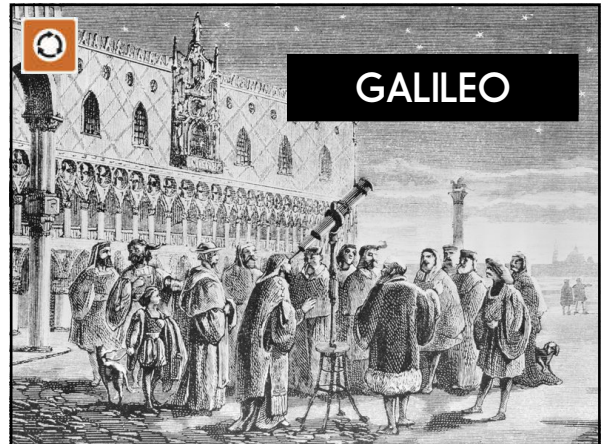
Describe the trend toward larger or smaller denominators when you divide fractions.

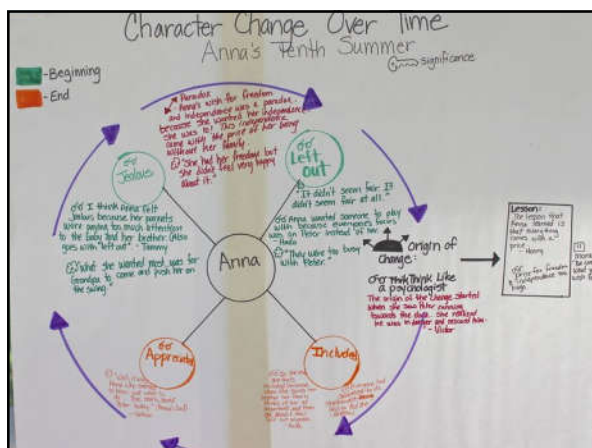
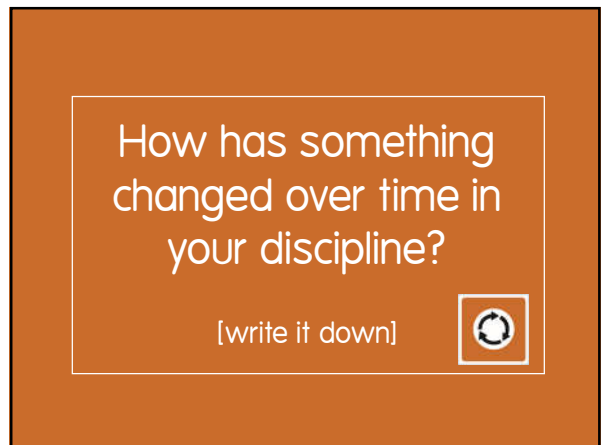
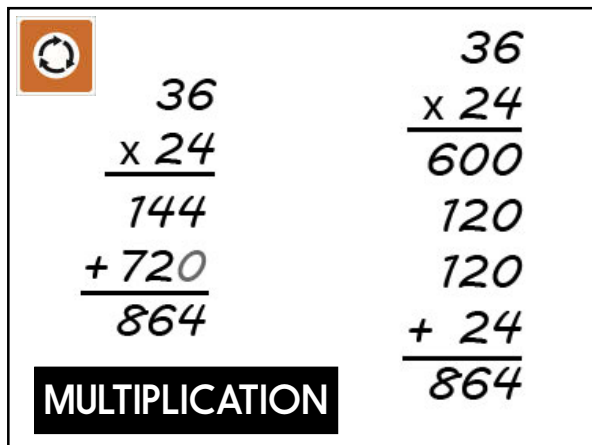
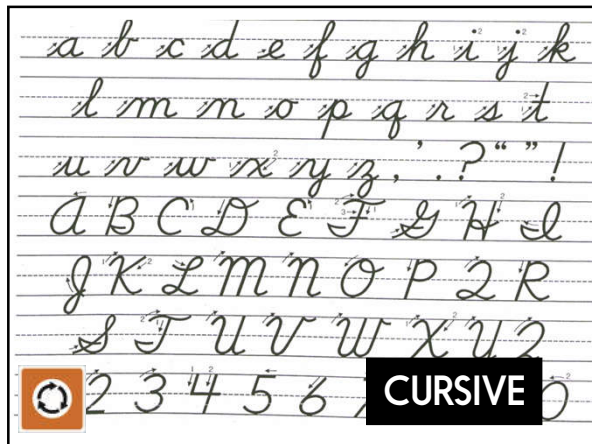


OVER TIME

THINK OF AN
OBSOLETE PROBLEM.

THINK OF A NEW
PROBLEM.





IMPLEMENT: Secondary Math

Set up a uniform rate table for the challenge below:

A 555-mile, 5-hour plane trip was flown at two speeds. For the first part of the trip, the average speed was 105 mph. Then the tailwind picked up, and the remainder of the trip was flown at an average speed of 115 mph. For how long did the plane fly at each speed?

	DISTANCE	RATE	TIME
1st PART	d	105 mph	t
2nd PART	$555 - d$	115 mph	$5 - t$
TOTAL	555 miles	-----	5 hours



What happens over time to the plane?

Would it be fair to charge passengers more for planes that fly faster?

Differentiate it:

What would your hourly pay rate have to be to justify paying an extra \$150 for the faster rate of speed?

(trickstier than it looks)



IMPLEMENT: ELA

How would Esperanza's story have been different had it happened during World War II or the current day versus during the Great Depression?

iMPLEMENT: ELA

Trace the changes in Esperanza's character over the course of the novel. Identify ways in which she changes and ways in which she stays the same.

Support your claim that she is either a static or dynamic character.

iMPLEMENT: Kinder Math

Which of these could be a bedtime?
A dinner time?
Sleeping time?

Differentiate it:

Think of something you would not be likely to do at these times.

When it's these times for you, what time is for people in Sydney, AU?

iMPLEMENT: Social Studies

Identify and explain how changes resulting from the Industrial Revolution led to conflict among sections of the United States.

iMPLEMENT: Science

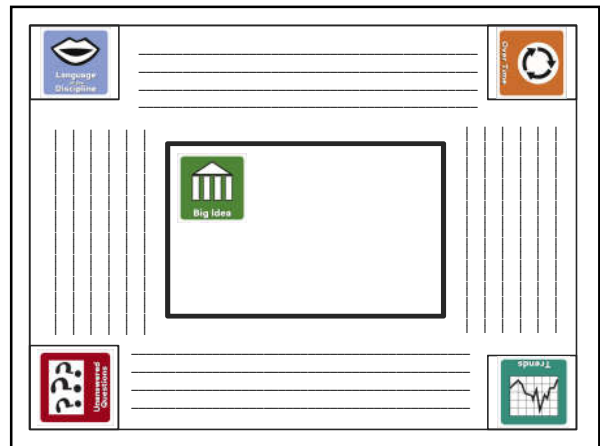
Explain the processes that led to the formation of sedimentary rocks and fossil fuels.

iMPLEMENT: Secondary ELA

Use the Thinking Map of your choice to compare and contrast a character as he/she changes from the beginning of the novel to the end.

IMPLEMENT: Secondary ELA

Imagine that there were a sequel written. What conflict might exist at the beginning of the sequel? Design a movie poster that uses a one-line slogan highlighting that conflict.

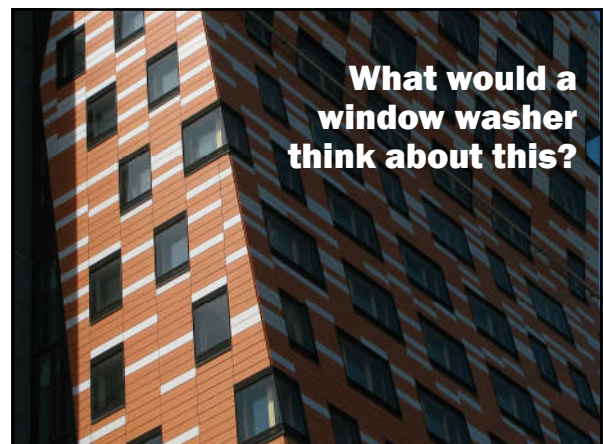
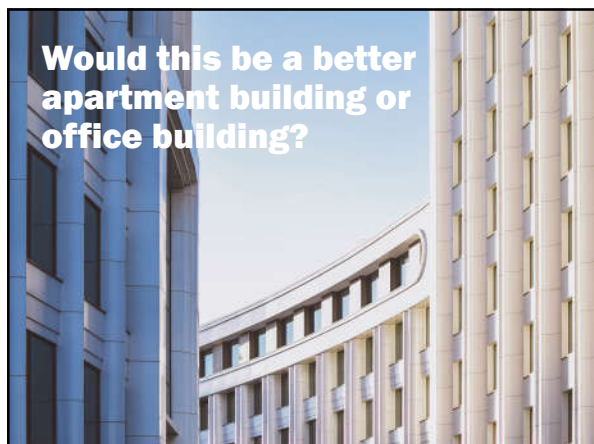
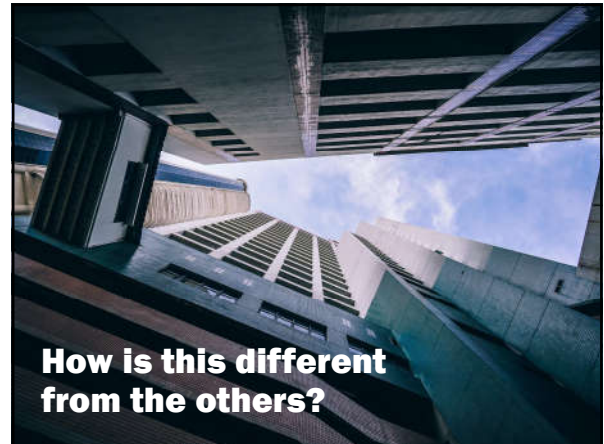



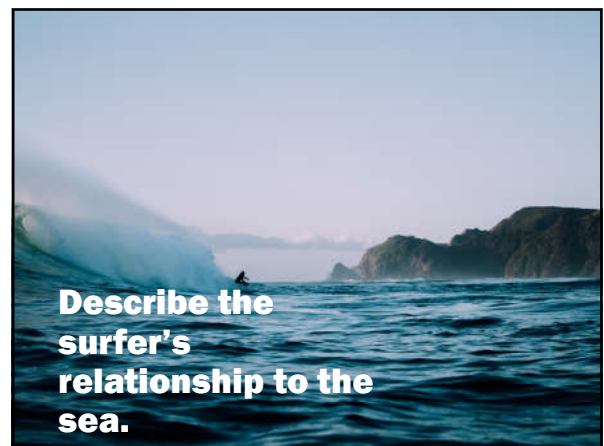
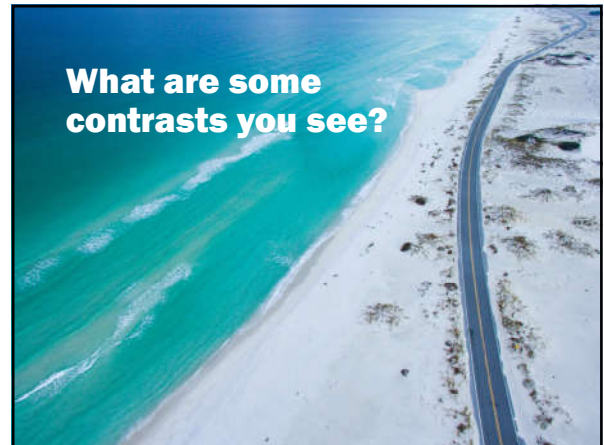
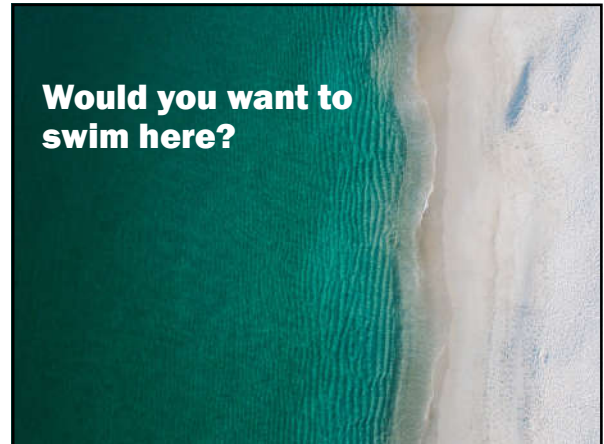
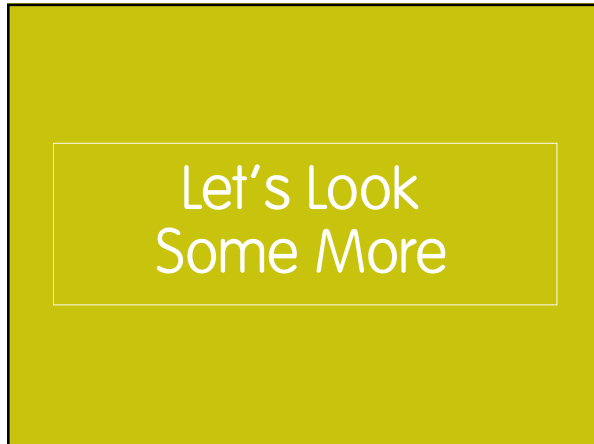
- Which academic vocabulary words are your students most likely to confuse or misunderstand?
- What is the most important change that needs to occur in your students over the course of the year?
- Identify a positive trend in your teaching skill or style.
- What is something that other teachers misunderstand about your content or grade level?

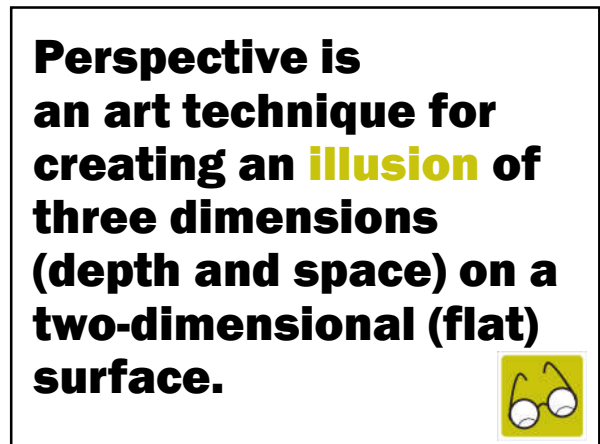
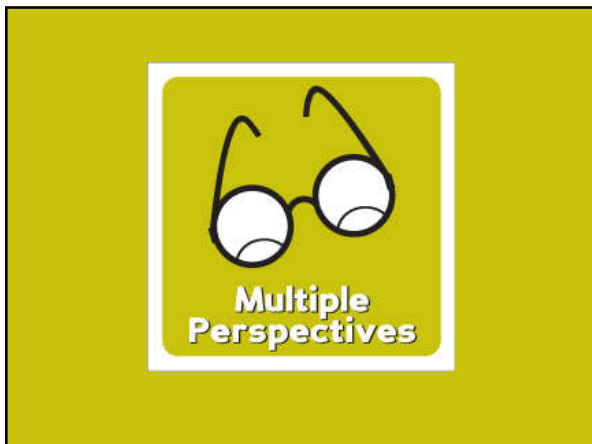
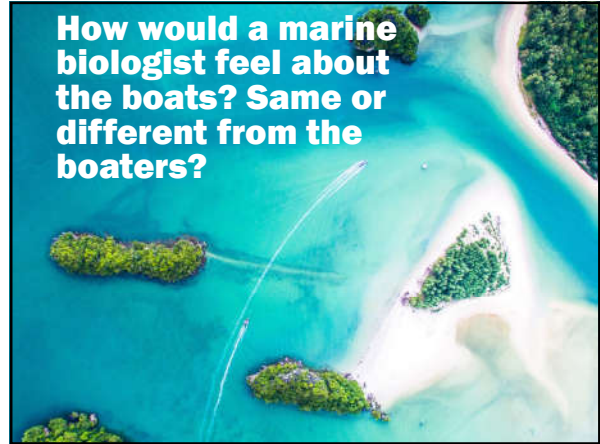


Let's Look

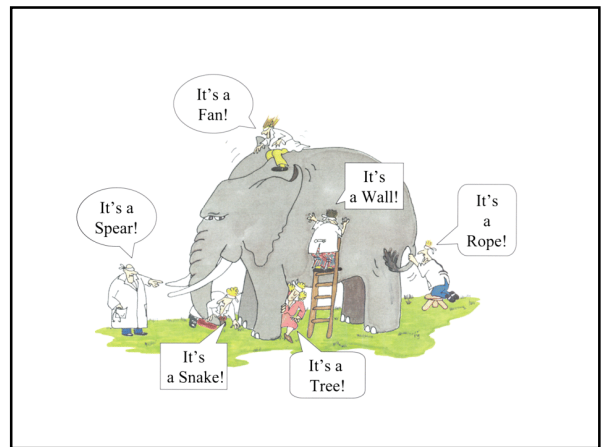


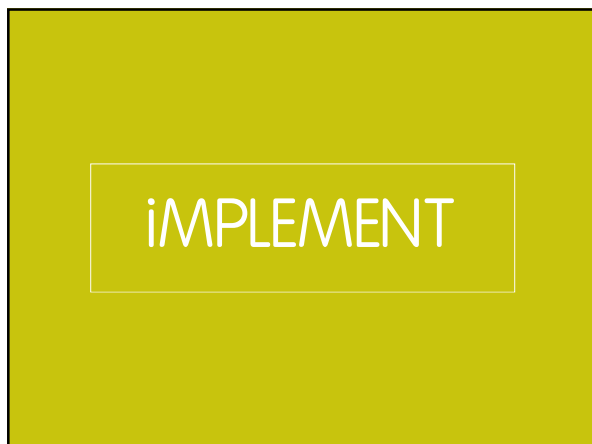
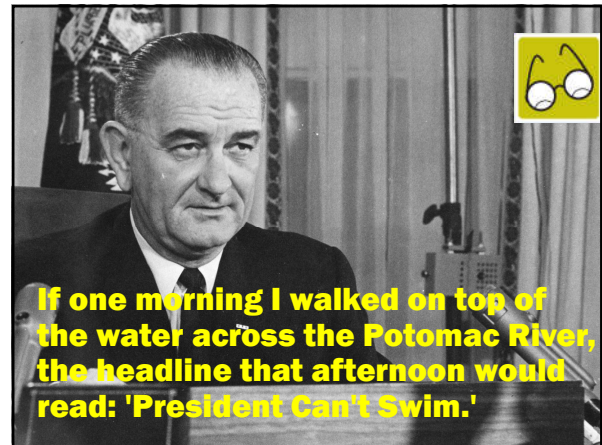






Perspective is what makes a painting seem to have **form, distance, and look **"real"**.**





IMPLEMENT: Elementary Science

5-PS2 Motion and Stability: Forces and Interactions

5-PS2 Motion and Stability: Forces and Interactions

Students who demonstrate understanding can:

5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down. [Clarification Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.] [Assessment Boundary: Assessment does not include mathematical representation of gravitational force.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Engaging in Argument from Evidence Engaging in argument from evidence in 3-5 builds on K-2 experiences and progresses to crafting the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). • Support an argument with evidence, data, or a model. (5-PS2-1)	PS2.B: Types of Interactions • The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)	Cause and Effect • Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)

Connections to other DCIs in 5th grade: *MS-PS2.A* (5-PS2-1), **3-PS2.A** (5-PS2-1), **3-PS2.B** (5-PS2-1), **MS-PS2.B** (5-PS2-1), **MS-ESS1.B** (5-PS2-1), **MS-ESS1.C** (5-PS2-1)


Common Core State Standards Connections:

ELA/Literacy –

RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-PS2-1)

RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-PS2-1)

W.5.1 Write opinion pieces on topics or issues, supporting a point of view with reasons and information. (5-PS2-1)



IMPLEMENT: Elementary Science


5-PS2 Motion and Stability: Forces and Interactions

and Stability: Forces and Interactions

Disciplinary Core Ideas

PS2.B: Types of Interactions



- The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)



Which is more affected by gravity, the moon or Earth?





Debate: Because of gravity, planets with large masses are bossier than planets with a smaller mass.

IMPLEMENT: Secondary Math

The concepts of congruence, similarity, and symmetry can be understood from the perspective of geometric transformation. Fundamental are the rigid motions: translations, rotations, reflections, and combinations of these, all of which are here assumed to preserve distance and angles (and therefore shapes generally). Reflections and rotations each explain a particular type of symmetry, and the symmetries of an object offer insight into its attributes—as when the reflective symmetry of an isosceles triangle assures that its base angles are congruent.

Perspective is a central tenet of geometry.

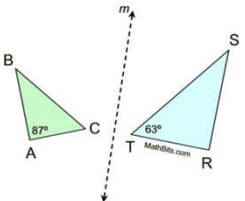


7. $\triangle RST$ was dilated and then reflected over line m to create image $\triangle ABC$.

a) Which angle in the image is 63° ?

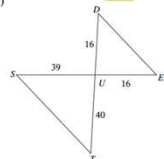
Choose:

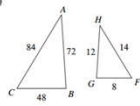
- $\angle C$
- $\angle S$
- $\angle B$
- $\angle R$

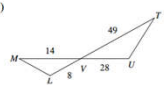



You can be very simplistic, but please don't stop there.

State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

1)  $\triangle DUE \sim \triangle TUV$ —

2)  $\triangle CBA \sim \triangle ______$

3)  $\triangle MUV \sim \triangle ______$

4)  $\triangle VUT \sim \triangle ______$

How would a landscape architect use this?

7. $\triangle RST$ was dilated and then reflected over line m to create image $\triangle ABC$.

a) Which angle in the image is 63° ?

Choose:

- $\angle C$
- $\angle B$
- $\angle S$
- $\angle R$

What words would a five-year-old use to describe this?

Things can be very different from each other, and yet be similar in very important ways.

+

IMPLEMENT: Secondary ELA

Analyze two conflicts in the story from the perspectives of Finny and Gene.

Don't forget the product piece:

Create a cause and effect chain that explores the origins of the conflicts.

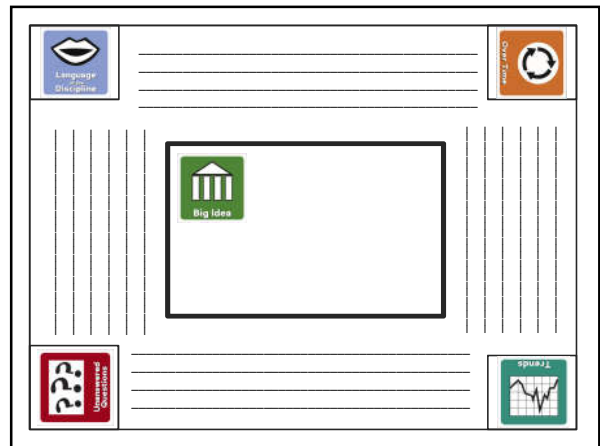
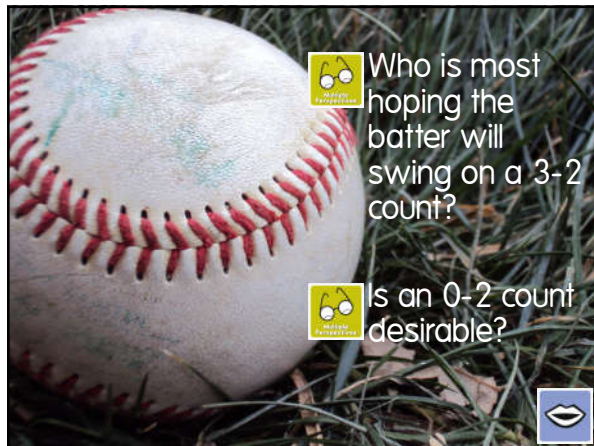
Differentiate it:

Choose one the following artists and select three of their works that best represent the narrative style of Gene. [poster]

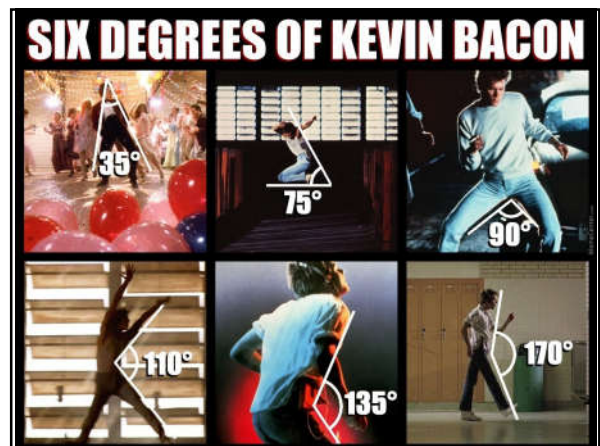
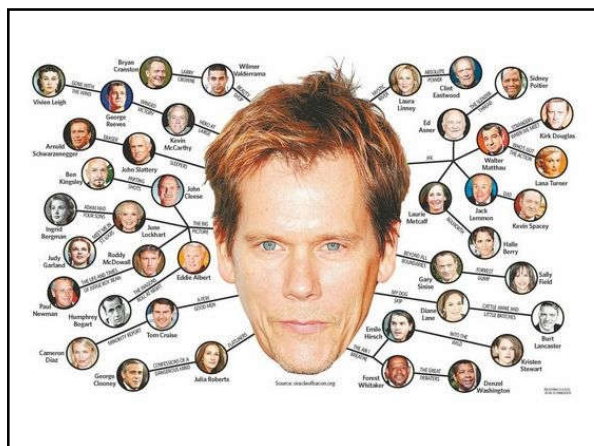
- M.C. Escher
- Van Gogh

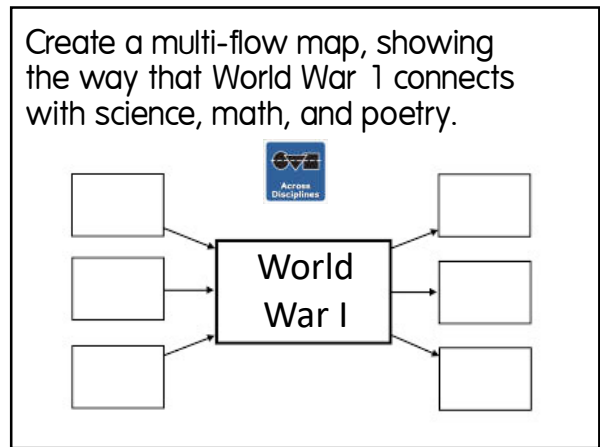
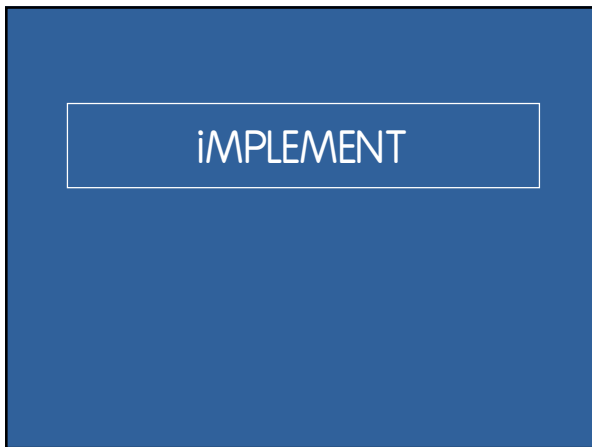
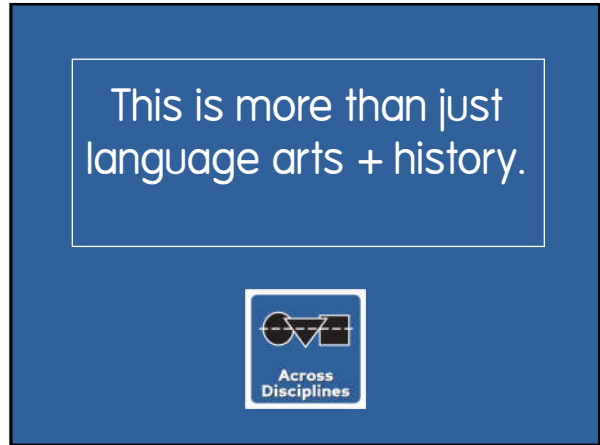
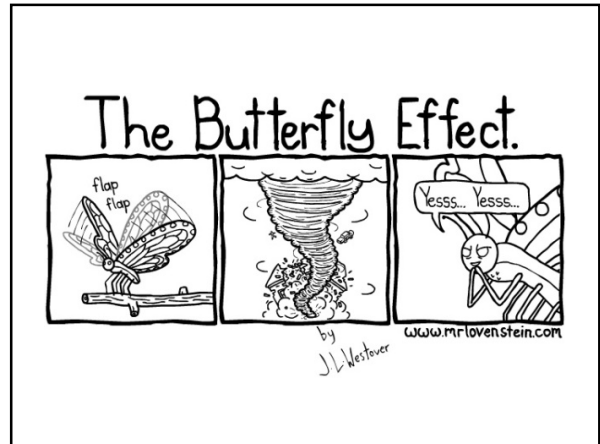
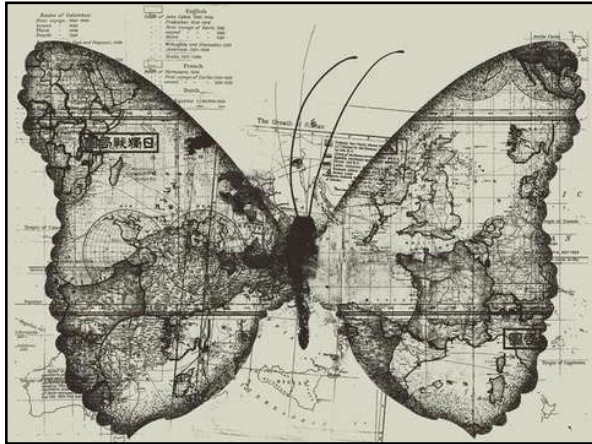
IMPLEMENT: Physical Education

Describe the rules of baseball from the perspective of the ball.



- Which academic vocabulary words are your students most likely to confuse or misunderstand?
- What is the most important change that needs to occur in your students over the course of the year?
- Identify a positive trend in your teaching skill or style.
- What is something that other teachers misunderstand about your content or grade level?



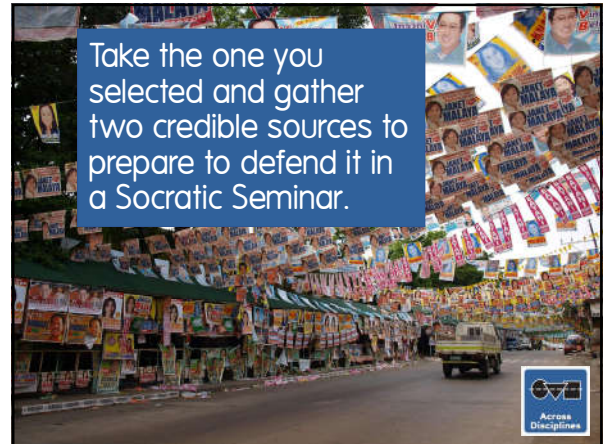




Which topic most relates to the concept of standard deviation?

- Intelligence?
- Baseball?
- Height?
- Elections?

Across Disciplines



Take the one you selected and gather two credible sources to prepare to defend it in a Socratic Seminar.

Across Disciplines

IMPLEMENT: Kinder Social Studies

Would a sailor rather have a map or a globe?



Across Disciplines

How about an astronaut?



Across Disciplines

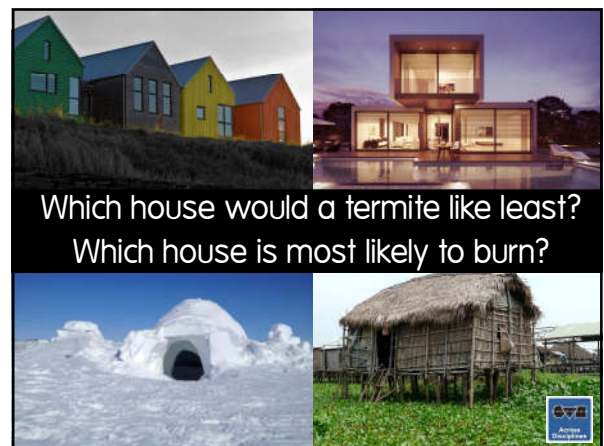
IMPLEMENT: Kinder Social Studies

What can we tell about who lives in these houses?




Across Disciplines




Which house would a termite like least?
Which house is most likely to burn?





Across Disciplines



Is the number of colored houses greater or less than the other houses?



Put the houses in order of how much you'd like to live in them, from 1st to 4th.




IMPLEMENT: Secondary PE




Across the Disciplines of Math, Photography, Art, Speech, Social Studies, and Physics



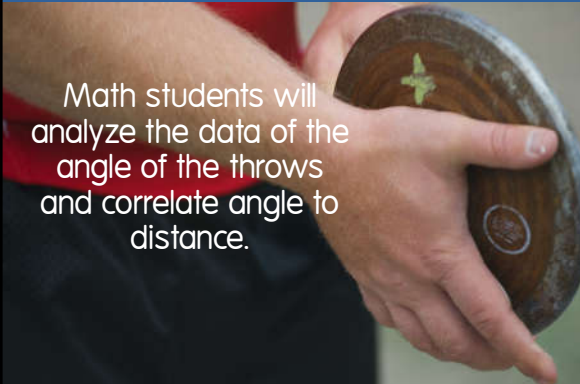
IMPLEMENT: Secondary PE




Photography students will videotape PE students throwing the discus.



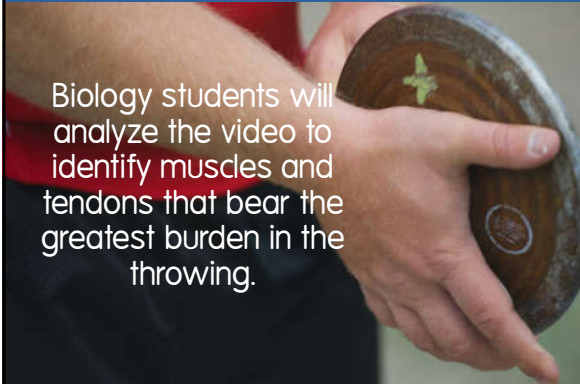
IMPLEMENT: Secondary PE




Math students will analyze the data of the angle of the throws and correlate angle to distance.



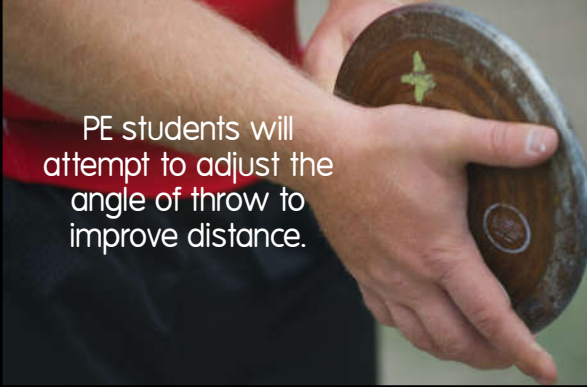
IMPLEMENT: Secondary PE



Biology students will analyze the video to identify muscles and tendons that bear the greatest burden in the throwing.

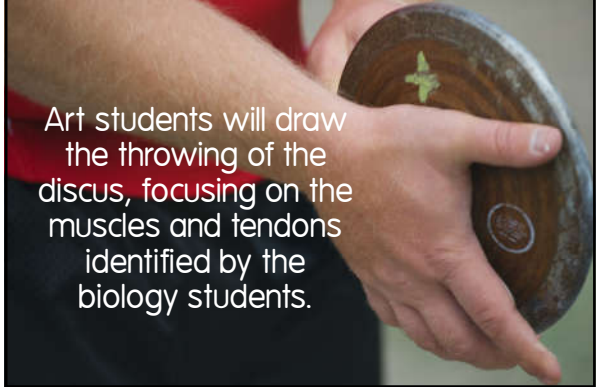


iMPLEMENT: Secondary PE



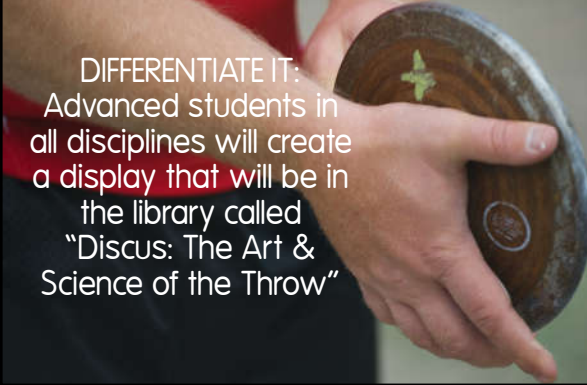
PE students will attempt to adjust the angle of throw to improve distance.

iMPLEMENT: Secondary PE



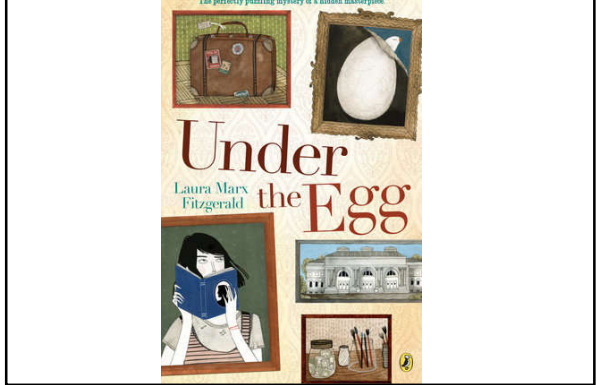
Art students will draw the throwing of the discus, focusing on the muscles and tendons identified by the biology students.

iMPLEMENT: Secondary PE



DIFFERENTIATE IT:
Advanced students in all disciplines will create a display that will be in the library called "Discus: The Art & Science of the Throw"


iMPLEMENT: ELA



The personality puzzling mystery of a hidden masterpiece

Under the Egg
Laura Mary Fitzgerald


iMPLEMENT: ELA



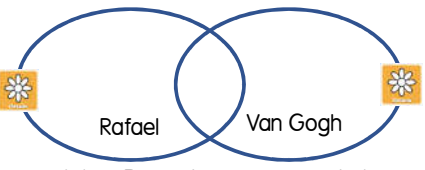
Turn the "School of Athens" into flap art citing

- FOUR references from the novel
- THREE artistic techniques


iMPLEMENT: ELA



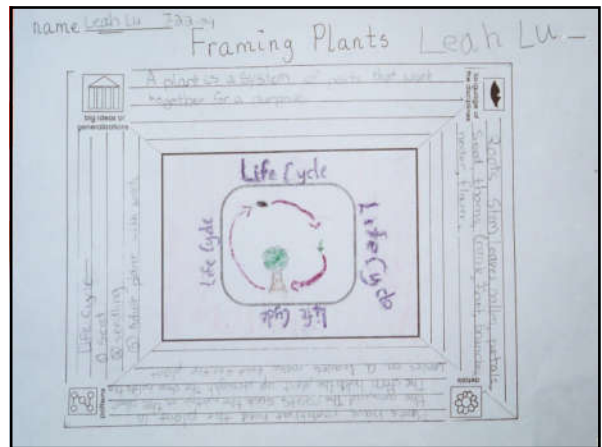
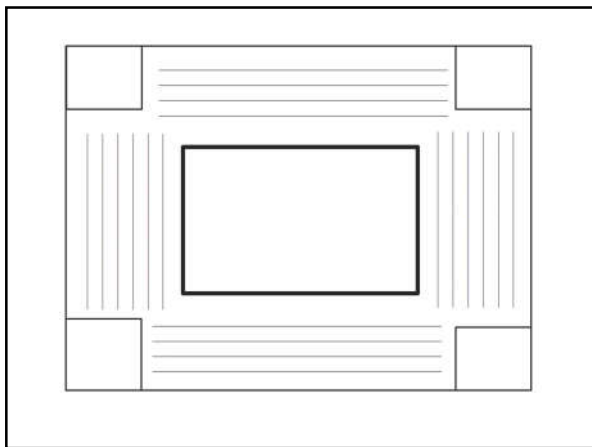
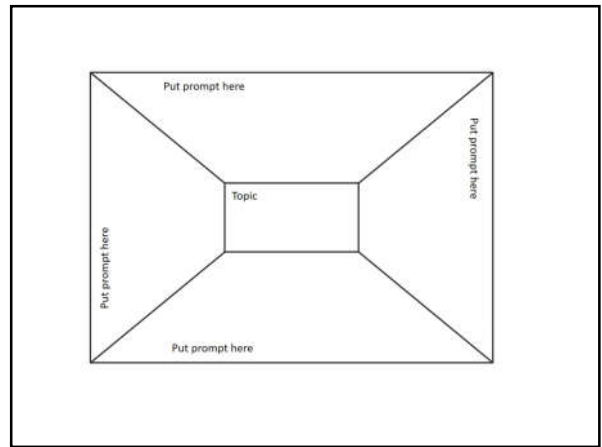
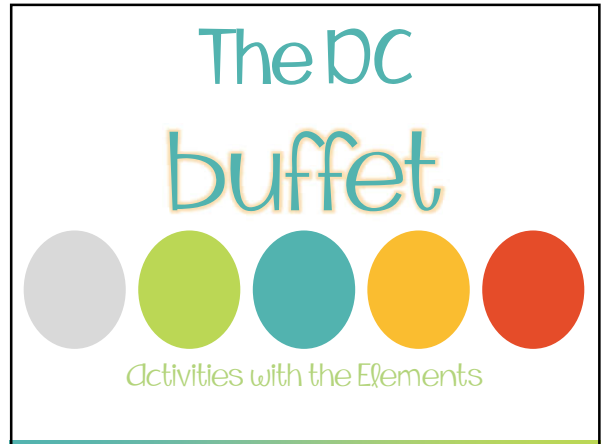
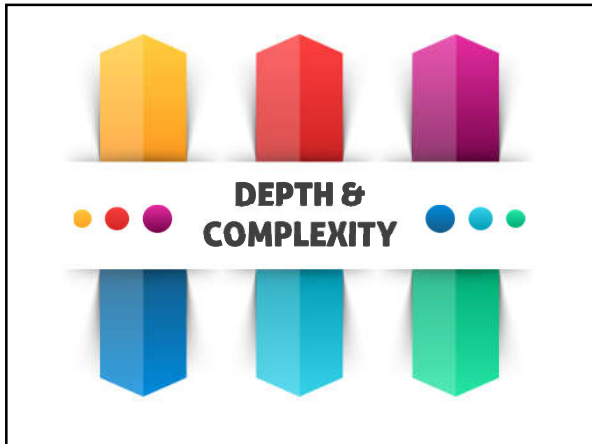
Compare the self-portrait of Raphael to the one of Van Gogh using what you've learned about art from the novel.



Raphael Van Gogh



How would a Renaissance painter view Van Gogh's work?



content in the center

The Gettysburg Address

1863

Four years after the Constitution was drafted, the nation was divided into two warring camps. In 1863, Abraham Lincoln delivered this address at the dedication of a portion of the battlefield at Gettysburg, Pennsylvania. The address is one of the most powerful speeches in American history. It is a masterpiece of brevity and clarity. Lincoln's words are still heard and read today.

Four years after the Constitution was drafted, we are now engaged in a great civil war, testing whether that Union, or any other so conceived and so adopted, can endure. We are now engaged in a great civil war, testing whether that Union, or any other so conceived and so adopted, can endure. We are now engaged in a great civil war, testing whether that Union, or any other so conceived and so adopted, can endure.

The Preamble

1787

We the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America.

1787

Close Reading with Icons of Depth and Complexity

The Gettysburg Address

1863

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1787

1. Read through entire and record unknown words.
2. Determine the unknown words using resources.
3. Read through again and record unknown questions.
4. Read through a 3rd time and generate a Big Idea for the passage.

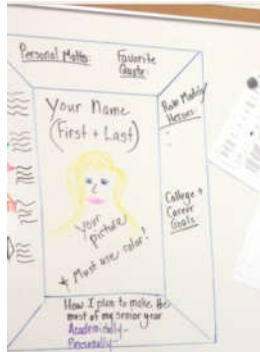
affective domain

give one as an example

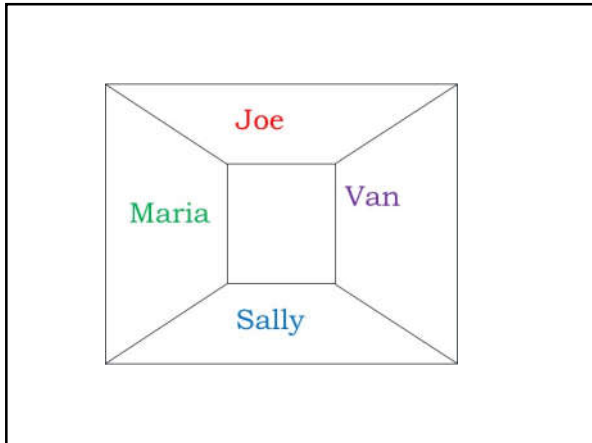
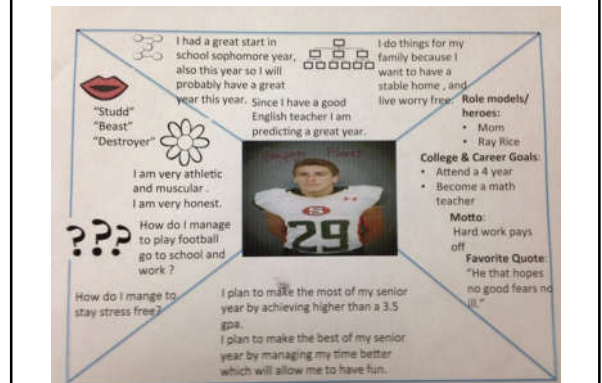
<http://teach2learncoach.blogspot.com/2016/07/using-depth-and-complexity-frames-in.html>

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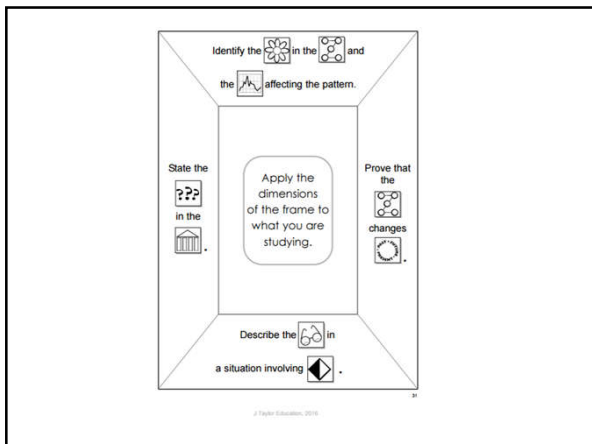
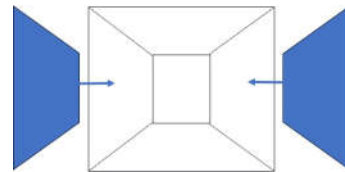
what not to do:
only taking it halfway



are we using elements...or not????

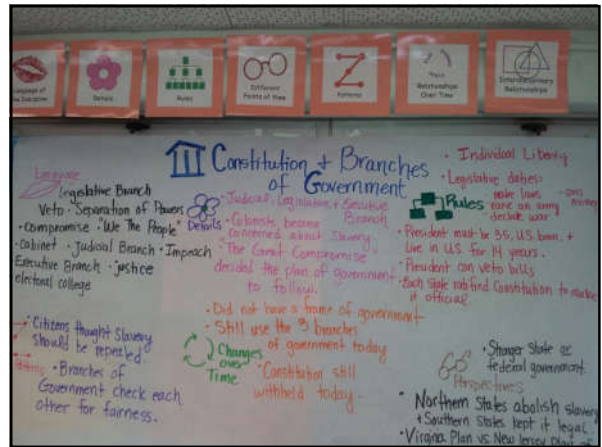
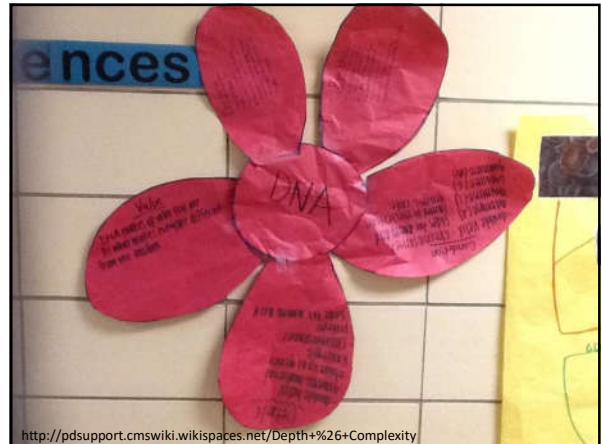


Break Apart Strategy- Give each group 2 copies of the frame. Have them cut one into the different sections and keep one for the final product.



- 1 FRAMES
- use to:
- ✓ highlight
 - ✓ extend
 - ✓ enhance
 - ✓ focus attention

2 Differentiate



3 Centers/ learning stations

1. Find a center activity that you want to use.

www.123homeschool4me.com/2015/03/free-grocery-task-cards-money-games.html

★ Bookmarks: Library, Ancestry, FanSearch, Arthur L. Gates, Sr. (1), Church, Genealogy, Pi

- Use laminator for durability
- Real or play money will make it a more genuine shopping experience.
- Scrap paper and pencil (for jotting down prices)

A grocery task card is shown. The card is titled "How much for these?" and features several items with prices: a bottle of water for \$2.00, a bottle of juice for \$3.00, a box of cereal for \$2.00, a box of cereal for \$2.00, and a box of cereal for \$2.00. The card is placed on a wooden surface.

2. Incorporate the elements of Depth & Complexity.



Would it be fair to give \$3.00 change back if someone paid you \$10 for all of these items?



3. Differentiate by combining elements or adjusting challenge.



Would it be fair to give \$3.17 change back if someone paid you \$10 for all of these items?



Estimate the volume of each of the three containers, assuming the pitcher is 800 ml.



Would it be fair to charge three times as much for the pitcher as the smallest container?



Describe the perspectives of dairy farmers, grocery store owners and shoppers to a rise in milk prices.



4 Set up classwork or homework

Algorithm	Model
Explain	Work it Out
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
MS Bove 2015	

Algorithm		Model																																																					
	<p>Estimate</p> <table border="1"> <tr> <td>10000</td> <td>10000</td> <td>1000000</td> <td>1000000</td> </tr> <tr> <td>100000</td> <td>100000</td> <td>10000000</td> <td>10000000</td> </tr> <tr> <td>1000000</td> <td>1000000</td> <td>100000000</td> <td>100000000</td> </tr> <tr> <td>10000000</td> <td>10000000</td> <td>1000000000</td> <td>1000000000</td> </tr> <tr> <td>100000000</td> <td>100000000</td> <td>10000000000</td> <td>10000000000</td> </tr> <tr> <td>1000000000</td> <td>1000000000</td> <td>100000000000</td> <td>100000000000</td> </tr> <tr> <td>10000000000</td> <td>10000000000</td> <td>1000000000000</td> <td>1000000000000</td> </tr> <tr> <td>100000000000</td> <td>100000000000</td> <td>10000000000000</td> <td>10000000000000</td> </tr> <tr> <td>1000000000000</td> <td>1000000000000</td> <td>100000000000000</td> <td>100000000000000</td> </tr> <tr> <td>10000000000000</td> <td>10000000000000</td> <td>1000000000000000</td> <td>1000000000000000</td> </tr> <tr> <td>100000000000000</td> <td>100000000000000</td> <td>10000000000000000</td> <td>10000000000000000</td> </tr> <tr> <td>1000000000000000</td> <td>1000000000000000</td> <td>100000000000000000</td> <td>100000000000000000</td> </tr> <tr> <td>10000000000000000</td> <td>10000000000000000</td> <td>1000000000000000000</td> <td>1000000000000000000</td> </tr> </table>	10000	10000	1000000	1000000	100000	100000	10000000	10000000	1000000	1000000	100000000	100000000	10000000	10000000	1000000000	1000000000	100000000	100000000	10000000000	10000000000	1000000000	1000000000	100000000000	100000000000	10000000000	10000000000	1000000000000	1000000000000	100000000000	100000000000	10000000000000	10000000000000	1000000000000	1000000000000	100000000000000	100000000000000	10000000000000	10000000000000	1000000000000000	1000000000000000	100000000000000	100000000000000	10000000000000000	10000000000000000	1000000000000000	1000000000000000	100000000000000000	100000000000000000	10000000000000000	10000000000000000	1000000000000000000	1000000000000000000		<p>Estimate</p> <p>(10) 9430</p> <p>Actual ?</p> <p>13 9430</p>
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	<p>Explain</p> <p>In the "Mystery" section we divided 9430 by 13 first 13 and into 90 times but 94 times so 384 times 90 is we brought down the 3 in 30 and 19 goes into 39 two times 12 is a remainder 384 x 2 = 768 then bring down the 0 and 70 goes into 384 six times 12 x 6 = 72 for a remainder of 72580.</p>		<p>Work it Out</p> <table border="1"> <tr> <td>13</td> <td>(10)</td> <td>13</td> <td>90</td> </tr> <tr> <td>x 7</td> <td>x 9</td> <td>x 2</td> <td>x 4</td> </tr> <tr> <td>91</td> <td>90</td> <td>26</td> <td>40</td> </tr> </table> <table border="1"> <tr> <td>13</td> <td>(10)</td> </tr> <tr> <td>x 2</td> <td>x 3</td> </tr> <tr> <td>26</td> <td>30</td> </tr> </table>	13	(10)	13	90	x 7	x 9	x 2	x 4	91	90	26	40	13	(10)	x 2	x 3	26	30																																		
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	<p>Explain</p> <p>First I estimated 10 in 10 then I figured out that 80 goes into 944 11 times then I put 4 in the base place Next I did 4 x 10000 then I did 384 x 1000 then I did 384 x 100 then I did 384 x 10 in the base place Next I did 4 x 10000 then I did 384 x 1000 then I did 384 x 100 then I did 384 x 10 in the base place Finally I did 401 x 10000 to get my remainder of 1.</p>		<p>Work it Out</p> <table border="1"> <tr> <td>13</td> <td>(10)</td> <td>13</td> <td>90</td> </tr> <tr> <td>x 7</td> <td>x 9</td> <td>x 2</td> <td>x 4</td> </tr> <tr> <td>91</td> <td>90</td> <td>26</td> <td>40</td> </tr> </table> <table border="1"> <tr> <td>13</td> <td>(10)</td> </tr> <tr> <td>x 2</td> <td>x 3</td> </tr> <tr> <td>26</td> <td>30</td> </tr> </table>	13	(10)	13	90	x 7	x 9	x 2	x 4	91	90	26	40	13	(10)	x 2	x 3	26	30																						
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Which one does not belong?

31	28
23	29

Which one does not belong?

NATO	Treaty of Versailles
Truman Doctrine	Marshall Plan

What are the similarities between this and pre-WWI US policy?

Two solid spheres of radius R made of the same type of steel are placed in contact, as shown above. The magnitude of the gravitational force that they exert on each other is F_1 . When two other solid spheres of radius $3R$ made of this steel are placed in contact, what is the magnitude of the gravitational force that they exert on each other?

	Name the formula needed to solve this problem.		Write the formula needed to solve this problem & solve it.
	Newton's Law of Gravitation		$F = G \frac{m_1 m_2}{r^2}$ $81F_1$
	Evaluate Hooke's claims of plagiarism against Newton.		What is the Big Idea of inverse square laws?


5 Create Task Statements


Task Statements:




- 1 Thinking Skill [Bloom's]
- 2 Element of Depth & Complexity + Content
- 3 Resources + [Research] Skills
- 4 Product

A For the objective


The learner will calculate the likelihood of an earthquake on the San Andreas fault after evaluating the frequency of quakes  over the past 200 years. The learner will create one of three products to represent their findings.

Using information on the web, the learner will rank elements of the periodic table based on their potential problems and create one of three  products to represent their findings.

B For the students

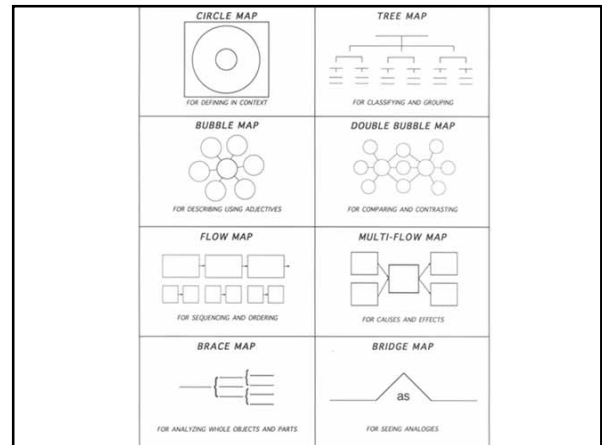
Calculate the likelihood of an earthquake on the San Andreas fault after evaluating the frequency of quakes  over the past 200 years using data from earthquake.usgs.gov/data.













Create ...
 a chart in PowerPoint
 an infographic
 an insurance company flier

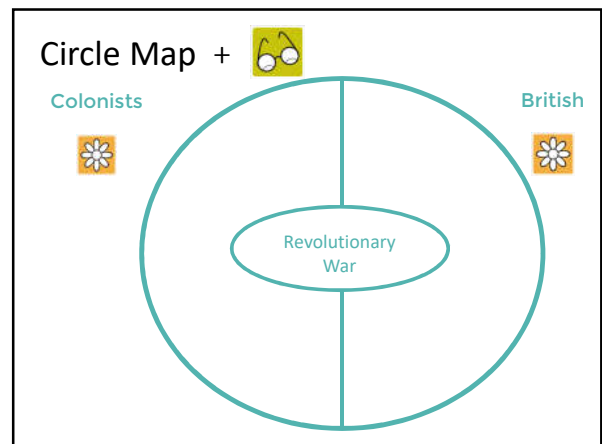
Using information you find at chemicalelements.com or chem4kids.com, rank ten elements of the periodic table based on their potential problems. 

Then create....
 a public service announcement
 a series of advertisements
 a story warning of these problems

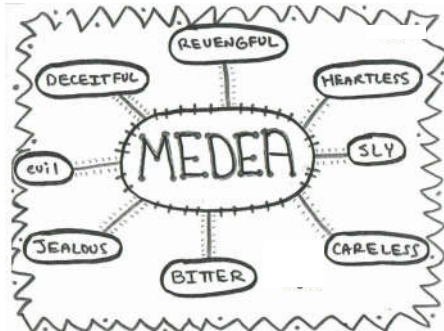
6 Combine with Thinking Maps



Learning Skill	Element[s]	Thinking Map
Main Idea		
Details		
Sequence	 	
Cause and Effect		
Compare/Contrast	 	



Bubble Map + 



Tree Map + 

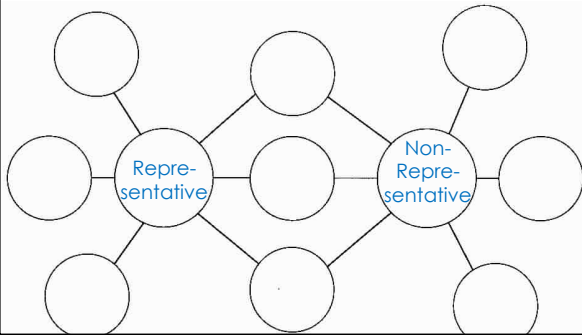
Roles of Citizens

Cont. Society #1 Cont. Society #2 Cont. Society #3

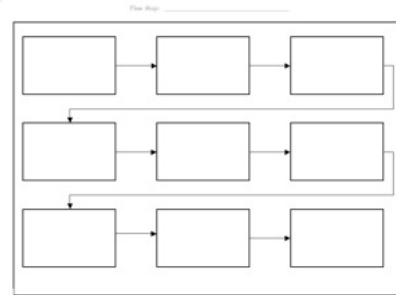
_____	_____	_____
_____	_____	_____
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Double Bubble +  

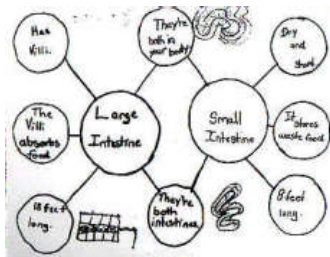
Roles of Citizens




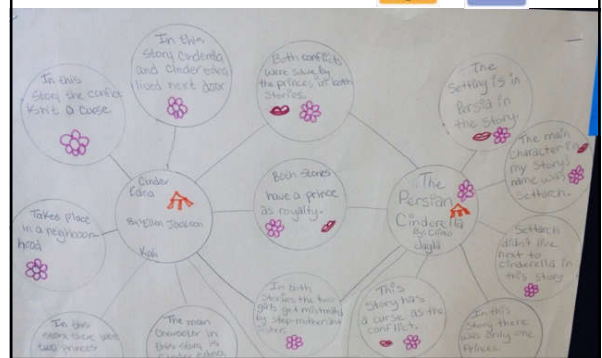
Using details from the article, trace the sequence of events that led to the conflict.

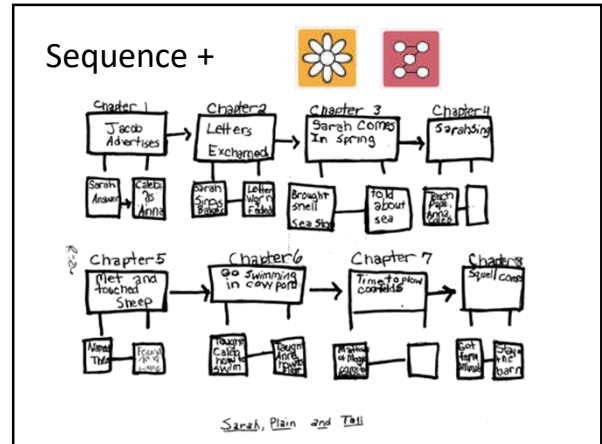


Double Bubble + 






Double Bubble +  

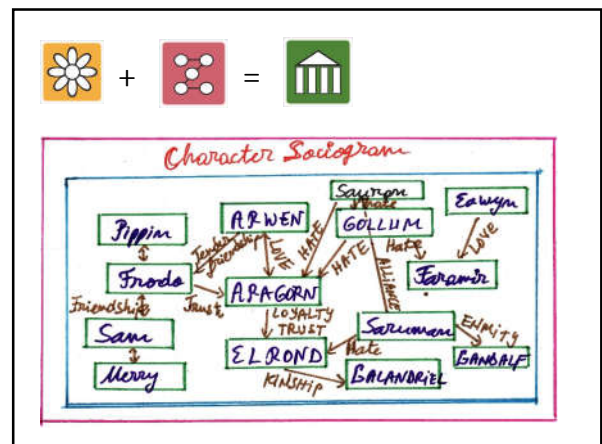
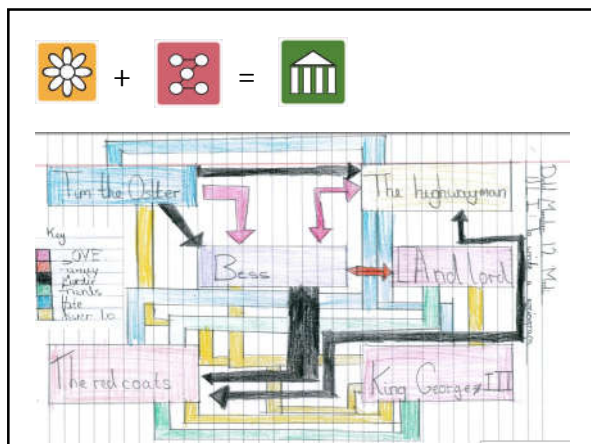


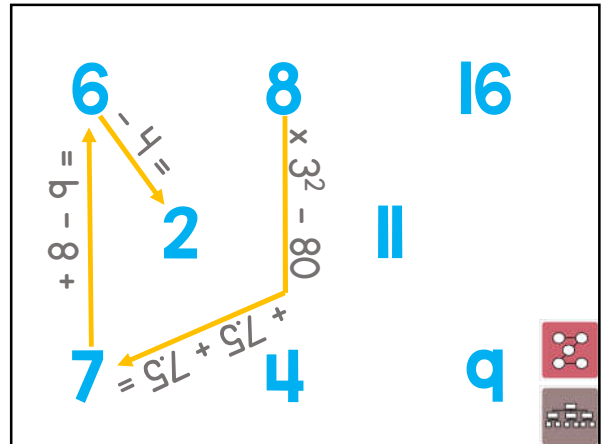
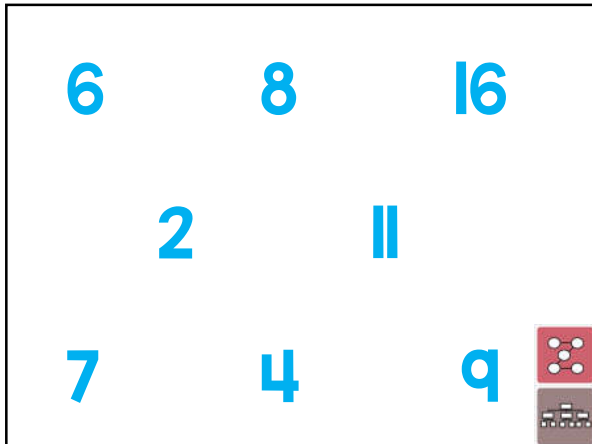


7 Sociograms [relationships between/among elements]

Using  details from the story, show the  patterns of the relationships between the characters.

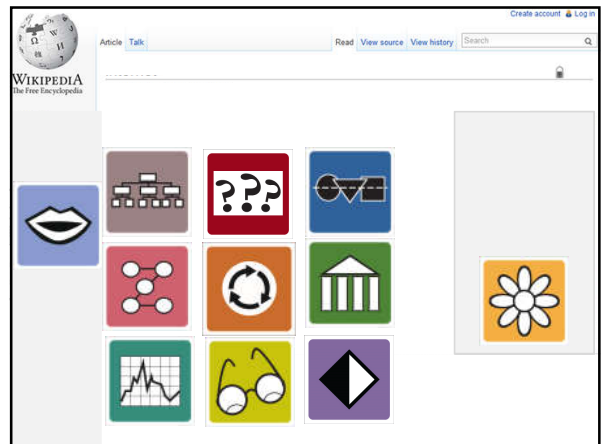
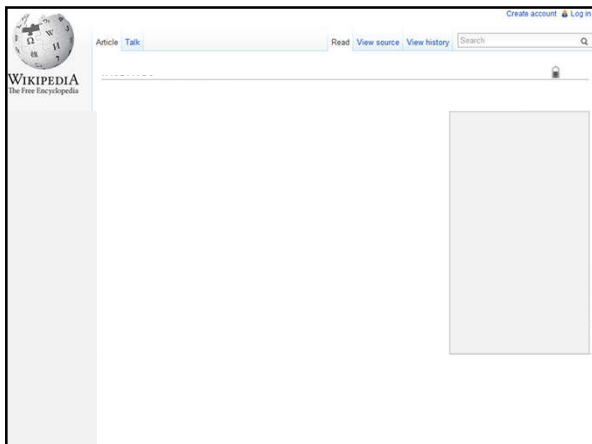
 Analyze those patterns to determine what they say about the difference between the bonds of friendship and family.

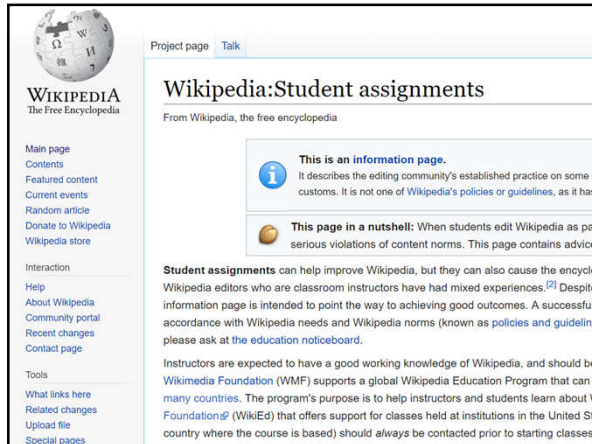




- Also use with:
- 1 Math (numbers & operators, steps in problems)
 - 2 Science (biological systems, planets, elements, etc.)
 - 3 Social Studies (historical figures, movements, and eras)
 - 4 Art (colors, line, form, etc.)

8 Create a Wikipedia-type page organized by elements





9 Folding & Interactive Notebooks

Where do you see triangles in other disciplines besides math?

triangles

List & draw 8 details about polygons.


polygons


What are words we use to talk about conflict?


conflict


What are the rules associated with maps? Put a star next to the most important rule.

maps


	 <p>Role of Government LIBERTARIAN & LEFT- WING</p>	





	 <p>FOREST FIRE animals & vegetation</p>	





	 <p>FOREST FIRE vegetation & Forest Service</p>	



 What rules have been enacted because of the Forest Service's perspective with regards to forest fires?

Other ideas:


OSCAR'S ENORMOUS PURR
 by Jeanne Richardson Rondoe

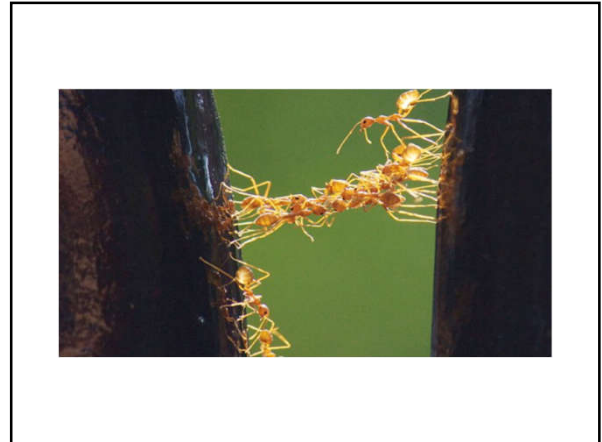





Words 	 How people felt about Oscar when he was a kitten	 How Oscar feels
Actions 		


Envision Gifted!
 Differentiation for Gifted & Talented Learners



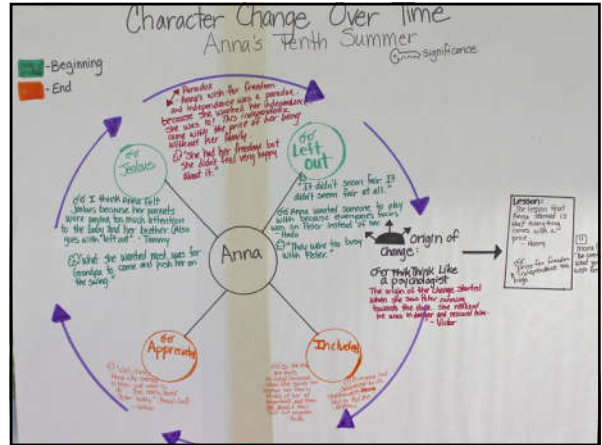
Teach students to "read" the cover of a book using Depth and Complexity.



Ethical Issues Paul Revere faced in his rides

During his midnight ride, he was captured by a few Redcoats. They warned him if he would go any further that they would destroy his house. One of the captives had the name of Redcoat's asking him what his name was, Paul answered "Revere."

Paul Revere and his ride



RELATIONSHIPS

Philip Lue, Sienna Chen, Victor Zapian, Tera Gilham
 Strong relationships can develop regardless of age, race, gender or religion.

BOO

Why do we go on Boo? We go on Boo because we are scared as a Boo in Boo's house. Boo is Boo's Boo. Boo is Boo's Boo.

Calculus

Calculus is the study of change. It is the study of how things change over time. It is the study of how things change over time.

Atticus

Atticus is a lawyer. He is a lawyer for all. He is a lawyer for all. He is a lawyer for all.

MILKMAULIE

Milkmaulie is a cow. She is a cow for all. She is a cow for all. She is a cow for all.

Name: _____

10 Things I've Learned This Year

Name: _____

How I've Changed this Year

At the beginning of the year, I was... Now, at the end of the year, I am...

The Big Idea of how I'm different now than I was at the beginning of the year is...

Name: _____

How I Will Be Next Year **Change Through the Year**

Beginning of the Year End of the Year

Based on the changes I've seen in myself this year, I predict that next year, I will...

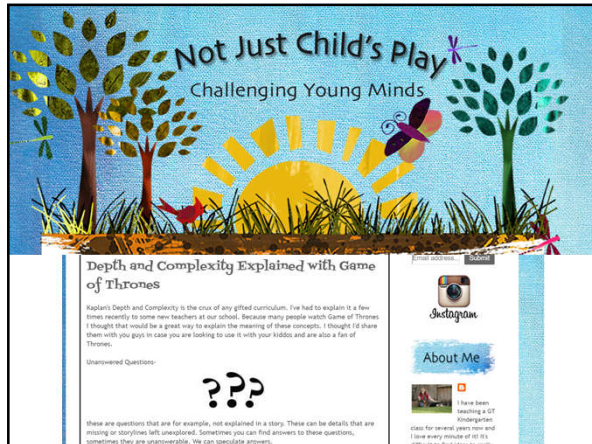
USE AS STRUCTURE

Weather				
Language of the Discipline	Details	Patterns	Change over Time	Trends
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300

Task Cards

 6 x 7	 4 x 8
 3 x 5	 1 x 8
 8 x 7	 5 x 9

For the little guys



Depth & Complexity augments and enriches **existing** projects and lessons.