WELCOME TO THINKING MAPS TRAINING
<table>
<thead>
<tr>
<th>Questions from Texts, Teachers and Tests</th>
<th>Thinking Processes</th>
<th>Thinking Maps as Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>How are you defining this thing or idea? What is the context? What is your frame of reference?</td>
<td>DEFINING IN CONTEXT</td>
<td>Circle Map</td>
</tr>
<tr>
<td>How are you describing this thing? Which adjectives would best describe this thing?</td>
<td>DESCRIBING QUALITIES</td>
<td>Bubble Map</td>
</tr>
<tr>
<td>What are the similar and different qualities of these things? Which qualities do you value most? Why?</td>
<td>COMPARING and CONTRASTING</td>
<td>Double Bubble Map</td>
</tr>
<tr>
<td>What are the main ideas, supporting ideas, and details in this information?</td>
<td>CLASSIFYING</td>
<td>Tree Map</td>
</tr>
<tr>
<td>What are the component parts and subparts of this whole physical object?</td>
<td>PART-WHOLE</td>
<td>Brace Map</td>
</tr>
<tr>
<td>What happened? What is the sequence of events? What are the substages?</td>
<td>SEQUENCING</td>
<td>Flow Map</td>
</tr>
<tr>
<td>What are the causes and effects of this event? What might happen next?</td>
<td>CAUSE and EFFECT</td>
<td>Multi-Flow Map</td>
</tr>
<tr>
<td>What is the analogy being used? What is the guiding metaphor?</td>
<td>SEEING ANALOGIES</td>
<td>Bridge Map</td>
</tr>
<tr>
<td>Thinking Map</td>
<td>Thought Process</td>
<td>Key Words</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Circle</td>
<td>Defining in Context Brainstorming</td>
<td>Context, Context clues, List, Define, Tell everything that you know, Brainstorm, Identify, Relate prior knowledge, Tell About, Explore the meaning, Discuss</td>
</tr>
<tr>
<td>Bubble</td>
<td>Describing</td>
<td>Describe, Use vivid language, Observe using the 5 senses, Describe feelings, Attributes, Characteristics, Properties, Adjectives, Qualities</td>
</tr>
<tr>
<td>Double Bubble</td>
<td>Comparing and Contrasting</td>
<td>Compare / Contrast, Discuss similarities / differences, Distinguish between, Differentiate</td>
</tr>
<tr>
<td>Tree</td>
<td>Classifying</td>
<td>Classify, Sort, Group, Categorize, Give sufficient and related details, Types of, Kinds of, List and Elaborate, Taxonomy</td>
</tr>
<tr>
<td>Brace</td>
<td>Part to Whole Relationship</td>
<td>Parts of, Take apart, Show structure, Physical components, Anatomy</td>
</tr>
<tr>
<td>Flow</td>
<td>Sequence</td>
<td>Sequence, Put in order, Order, Recount/Retell, What happens next, Cycles, Patterns, Processes, Change, Solve multi-step problems</td>
</tr>
<tr>
<td>Multi-Flow</td>
<td>Cause and Effect</td>
<td>Causes and effects, Discuss consequences, What would happen if, Predict, Change, Identify motives, Why, Results, Outcomes, Benefits</td>
</tr>
<tr>
<td>Bridge</td>
<td>Seeing Analogies</td>
<td>Identify the common relationship, Guess the rule, Interpret symbols, Simile, Metaphor, Allegory, Ratio</td>
</tr>
</tbody>
</table>
Instructional Shifts for College and Career Readiness

**LITERACY**
- Building knowledge through content-rich nonfiction and informational texts
- Reading and writing grounded in evidence from text
- Regular practice with complex text and its academic vocabulary

**MATH**
- Focus strongly where the Standards focus
- Coherence: Think across grades and link to major topics within grades
- Rigor: Require conceptual understanding, procedural skill and fluency, and application with intensity
What are the defining characteristics of Thinking Maps?
What are Thinking Maps?

Visual Patterns

Based on 8 Cognitive Skills

Thinking Maps®

Used in combination for depth and complexity

Used by all teachers

Applied in all content areas
What is the source?

ALL OF THE SPACE IN YOUR BRAIN THAT IS DEVOTED TO THE 5 SENSES

75%

25%

ALL OTHER SENSES

How does this information impact teacher instruction and student learning?
What are Thinking Maps?

Visual Patterns

Based on 8 Cognitive Skills

Used by all teachers

Used in combination for depth and complexity

Applied in all content areas
DRAW AN ILLUSTRATION OF A PATTERN

PATRiar Hearts ELL Help WihH PREDICTION.
Graphic organizers do not provide students with predictable patterns for thinking.
This confusing variety of graphic organizers makes it impossible for students to own these tools.
“What is important is to allow all students to interact with challenging text on their own as frequently and independently as possible.”
What are Thinking Maps?

Thinking Maps®

Visual Patterns

Based on 8 Cognitive Skills

Used in combination for depth and complexity

Used by all teachers

Applied in all content areas
NEURONS THAT FIRE TOGETHER GET WIRED TOGETHER. THAT IS WHAT A PATTERN IS!
“The overwhelming need for learners is for *meaningfulness*... we do not come to understand a subject or master a skill by sticking bits of information to each other.

Understanding a subject results from perceiving *relationships*. The brain is designed as a *pattern detector*.

Our function as educators is to provide our students with the sorts of experiences that enable them to perceive *patterns that connect*.”

What are Thinking Maps?

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Applied in all content areas

Thinking Maps®
What are Thinking Maps?

Visual Patterns

Based on 8 Cognitive Skills

Used by all educators

Used in combination for depth and complexity

Applied in all content areas
What are Thinking Maps?

Visual Patterns

Based on 8 Cognitive Skills

Used by all teachers

Applied in all content areas

Used in combination for depth and complexity

Thinking Maps®
Integration of Knowledge and Ideas

“Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.”
What are Thinking Maps?

Thinking Maps®

Visual Patterns

Based on 8 Cognitive Skills

Used in combination for depth and complexity

Used by all teachers

Applied in all content areas
Better learning will come from Learner-Centered Teaching INSTRUCTION but, from giving the learner better ways to CONSTRUCT MEANING.

The maps should become STUDENT TOOLS FOR: INDEPENDENT THINKING AND COLLABORATION.
What is the purpose of each map and how do these visual patterns support critical and creative thinking?

Learning the Maps
Guiding Questions

• How do you know what you know about this topic?
• Did your information come from a specific source?
  • Is this information being influenced by a specific point of view or perspective?
• So what do you now understand about the information in your map?
• Why is this information important?
META-COGNITIVE FRAMES OF REFERENCE

What is framing your thinking?

Where did you get the information in your map?
- Is the information based on your prior knowledge?
  - What personal experiences have you had with this content or topic?
  - What background knowledge do you have that you could relate to this content or topic?
- Did the information come from a specific source?
  - What are the specific titles, page numbers, web addresses of the sources you referenced?
  - What specific textual evidence can you cite to support your inferences?

What is influencing the information in your map?
- Is a specific point of view influencing the information in your map?
  - Is there a specific point of view that is influencing the content/ideas in your map? Is that point of view biased?
  - Is the information in your map influenced by a primary or a secondary source?
- Are there any historic or social issues influencing the information in your map?
  - Does a specific time period influence your thinking about the information in your map?
  - Are there any cultural beliefs that are influencing your thinking?

What conclusions can you draw from your map?
- So what is the main idea for the information in your map?
  - So what do you now understand about this concept or topic because of the thinking you have done?
  - So how would you summarize the main idea of this information?
- So why is the information in your map important?
  - So why is this information important to you?
  - So why should this information be important to others?

A Language for Learning
The Common Core Standards
Rigorous State Standards and Assessments
21st Century Skills
The Frame of Reference encourages reflective thinking.
<table>
<thead>
<tr>
<th>Diagram Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle Map</td>
<td>For defining in context</td>
</tr>
<tr>
<td>Tree Map</td>
<td>For classifying and grouping</td>
</tr>
<tr>
<td>Bubble Map</td>
<td>For describing using adjectives</td>
</tr>
<tr>
<td>Double Bubble Map</td>
<td>For comparing and contrasting</td>
</tr>
<tr>
<td>Flow Map</td>
<td>For sequencing and ordering</td>
</tr>
<tr>
<td>Multi-Flow Map</td>
<td>For causes and effects</td>
</tr>
<tr>
<td>Brace Map</td>
<td>For analyzing whole objects and parts</td>
</tr>
<tr>
<td>Bridge Map</td>
<td>For seeing analogies</td>
</tr>
</tbody>
</table>
STORY TITLE: The Diary of Anne Frank

TREE
- Prisoners
- Helpers
- Anne Frank
- Hitler
- Nazi
- Soldiers
- Creative
- Resourceful
- Dark haired
- Chatty
- Optimistic
- Imaginative
- Surviving
- Recording
- 12 year old girl
- Teen
- Boy
- Peter
- Quiet
- Trapped
- 10 year old boy
- Jews
- Mutually attracted
- Strategies

CIRCLE
- Life changers
- Homecourt
- Trajectory
- Ending
- Hiding from nazi
- Diary of Anne Frank
- Chronicle

FLOW
- Moved to Amsterdam from Germany
- Went into hiding
- Went to concentration camp
- Returned to Amsterdam
-Couldn't leave
- No noise during day
- Ann escaped by writing

MULTI-FLOW
- Germany invaded Holland
- Jews in danger

BRACE
- Living quarters
  - 2nd Floor
  - Attic

BRIDGE
- Anne as Alex Haley
- The Holocaust
- Slavery
- Wrote about the time of
Which of these steps comes first? What are the stages of…?

Sequencing
Thought process: Sequencing

When do you use sequencing in:

ENGLISH?
FOREIGN LANGUAGE?
SCIENCE?
MATH?
HUMANITIES?
THE ARTS?
TECH?

In every instance, you could use a FLOW MAP
How to Write a Decimal as a Percent

1. Analyze the Problem
2. Find the decimal
3. Move the decimal two places to the right
4. Rewrite the new number
5. Add the percent sign

Example:
0.125 → 0.125 → 0.125 → 12.5 → 12.5%
Measure the mass of an empty container, such as a graduated cylinder.

Pour the liquid you want to measure into the graduated cylinder.

Measure the mass of the liquid plus the graduated cylinder.

Subtract the mass of the empty graduated cylinder from the mass of the graduated cylinder plus liquid. The answer will be the mass of the liquid.

46.9 g

96.9 g

96.9 g

46.9 g

50.0 g
Multi-Flow Map

Introduction

1st paragraph
  Introduces what the essay is about
  Topic/thesis statement

Body

Multiple paragraphs
  Main ideas
  Details/support
  Tells the reader what that paragraph is about

Conclusion

Last paragraph
  Summarize and make connections
  Restates thesis and main ideas
Flow Map that depicts the events from the start of the First Punic War to the start of the Second Punic War

1. Rome built a large fleet
2. Rome defeats Carthage at sea
3. War ends in 241BC – Rome encouraged Spanish to rebel
4. Gained control of Sicily
5. Gained control of Spain
Additional option: Choose one assembly and have students create a flowchart to detail the action steps in order to show mastery.
el tiempo
imperfecto

el empleo:

- acciones continuas en el pasado
- acciones repetidas en el pasado
- acciones habituales en el pasado
**DNA Replication**

- **DNA Helicase**
- **Replication Fork**
- **DNA Polymerase**
- **DNA Ligase**
- **SSB Protein**

**Semi-conservative replication**, in which each new molecule would contain one old strand and one new one.

The DNA double helix unzips as the hydrogen bonds between the bases break. This process is done by 'DNA Helicase'.

**Single-stranded binding proteins (SSB)** binds to single stranded regions of DNA to make sure that the DNA is uncoil.

**DNA Polymerase** links an incoming nucleotide to the growing new chain from 5' to 3' which forms a leading strand.

**Lagging Strand or Okazaki Fragment** proceeds by discontinuous synthesis of short stretches of DNA.

The lagging strand joins together by an enzyme called **DNA Ligase**, which seals the fragment.

**Replication occurs in both directions** forms a 'Replication Bubble'.
Iduna and the Magic Apples Flow Map

Iduna lives in the Everlasting Garden. She guarded the magic apples that kept the gods immortal.

Thiassi, a wicked giant, wanted to capture Iduna and take the magic apples.

Thiassi tricked Loki into luring Iduna out of her garden.

Loki finds Iduna and turns her into a bird. But soon Thiassi finds out that they have escaped and pursues them for three days and nights.

After three days and nights Loki and Iduna barely escape. Thiassi, who perished in a fire, the gods were ignited.

The other gods find out that Loki helped capture Iduna and is sent to go rescue her from Thiassi as a hawk.

Iduna gives the gods her apples so they would become immortal and she returns to the garden and lived happily ever after.

By: [Signature]
Causes of the American Revolution

- Proclamation of 1763
- Townshend Acts
- Stamp Act
- Taxes
  - paper
  - glass
  - tea
  - lead
- French and Indian War
- Boston Massacre
- Boston Tea Party
- French vs. British
- Indians vs. British

Multi-Flow Map
Given:

- Grams of Reactant
- Molar Mass (g/mol)
- Molarity (mol/L)
- Litres of Reactant

Mols of Reactant

Need to solve:

- Molar Ratio (from equation)
- Mols of Product
- Molar Mass (g/mol)
- Litres of Product

Molarity (mol/L)

Limiting Reagents:
Get all the reactants to this step then compare. The reactant that produces the smallest number of moles of product is the limiting reagent. Continue the flowchart using the moles from the limiting reagent.

You can only make as much as your smallest amount of "parts".
"What are the stages of mitosis?"

- **Interphase**
  - p99
  - Cell grows
  - Cell copies its organelles and chromosomes (genetic material)

- **Prophase**
  - p100
  - Nuclear membrane dissolves
  - Chromosomes condense (wind up X) and become visible

- **Metaphase**
  - p100
  - Homologous (matching) pairs of chromosomes line up along the equator (middle) of the cell

- **Anaphase**
  - p101
  - One of each pair of chromosomes moves to the opposite sides of the cell

- **Telophase**
  - p101
  - Nuclear membrane reforms
  - Chromosomes unwind
  - Cell pinches in two

How does mitosis ensure that a new cell is identical to the parent/original cell?
- Exact copies are made, then they move to opposite ends.
The Black Death

1. The Black Death began in China
2. Ships returning from Asia brought it to Italy
3. Spread to the rest of Europe along trade routes
4. 1/3 of Europe's population died
5. Not enough people to do the work

- Surviving peasants demanded better conditions and wages
- Feudal system began to break down
What are the stages of throwing on the Potter's Wheel?

**Steps to Throwing**

1. Wedge 2 pieces of clay
2. Center one of your pieces
3. Create a hole passing down in the center until you're 1” from wheel head
4. Pull wall open as wide as you'd like your pot
5. Begin pulling up your walls
6. Trim off your flare and even rim
7. Remove your vessel from the wheel head using a wire cutter

Where did you get your information?

- Textbook
- Teacher
- Experience
Identify terms in the Problem
Notice the operation that is in front of each term
Find the terms that are alike.
Perform operation to bring like terms together.
Include any terms that were not combined into answer.
Place terms in appropriate order (variables first, alphabetically)
Emperor Penguin Bubble Map

- large for a penguin
- adapted to the cold
- Antarctic
- black and white and yellow
- color shaded
- carnivorous
- strong swimmers
- group-minded and social
Circle Map

What is the definition of ____________?

Defining and Brainstorming
The Circle Map is used to define a concept, word or idea. It is a great map to use to diagnose prior knowledge, brainstorm before writing, or use as a lesson closure.
3rd, 4th, and 5th grade math class.

Fractions can be represented in many different ways.
E.Q. How do you define probability?

Internet

Previous teachers

Counting Principle

Impossible equally likely Certain

Event

Probability

Sample space

Mrs. Rogers

Independent event

I have

How many outfits can I come up with?

Counting Principle

Probability

Event

Sample space

Rolling a spinner

Outcomes

\[ \frac{3}{9} = \frac{1}{3} \]

\[ \frac{2}{9} \]

\[ \frac{4}{9} \]

Rolling a dice

Math, 8th Grade

Text books
Bubble Map

Which word best describes _________? What are the qualities of _________?

Describing
BUBBLE MAP
Thinking Skill: Describing in Detail

Main Idea or Concept

- Describing word or phrase (adjective)
- Describing word or phrase (adjective)
- Describing word or phrase (adjective)
- Describing word or phrase (adjective)
- Describing word or phrase (adjective)
English or Humanities

- Godly
- Poor
- Religious
- Determined
- Illiterate
- Focused
- Dedicated
- Young
- Influential
- French
- Whose POV?

Evidence from her life

Joan of Arc
Lab Observations

- metallic
- gray
- silver
- brittle
- plentiful

Tier 2

MANGANESE 25
STONEWALL JACKSON

- Hard-working
- Levelheaded
- Courageous
- Decisive
- Military General
- Loyal
- Studious
- Religious
- Ambitious
- Eccentric
- Clever
- Dependable

- Determined
- Serious
- Self-disciplined
- Faithful
- Logical
- Trustworthy
- Righteous
- Persistent
Source: What evidence is there to support your inferences?
**Bubble Map: Lady Macbeth**

**Concerned**

P.65, line 3
Lady Macbeth: "Say to the king, I would attend his leisure for a few words..." - William Shakespeare (speaking to the servant)

**Afraid**

P.15, line 52
Macbeth: "Give me the daggers. Keeping and the dead are pictures: 'tis the eye we childhood that fears a ted devil. If he do bleed, I'll be faces of the grooms within, must seem their guilt..." - William Shakespeare

**Guilt**

P.156, line 50
Lady Macbeth: "Here's the smell of the blood still. All the perfumes of Arabia will not sweeten this little hand. Oh, oh, oh!" - William Shakespeare

**Fake**

P.54, line 16
Lady Macbeth: "Help me, hence, ho!" (Lady Macbeth is carried out)

**Fake**

P.41, line 60
Lady Macbeth: "We fail? But screw your courage to the sticking-place. And we'll not fail!..." - William Shakespeare

**Determined**

Lady Macbeth: "We fail? But screw your courage to the sticking-place. And we'll not fail!..." - William Shakespeare

**Good!**
The POV of a northern abolitionist

John Brown
- committed
- visionary
- brave
- charismatic
- kind
- heroic

The POV of a southern slave owner

John Brown
- ideolistic
- violent terrorist
- rebellious
- dillusional
- crazy
Double Bubble Map

How are _____ and _____ alike? What is the most important difference in...?

Comparing and Contrasting
Aunque Ramona y Robbie tienen la misma edad y grado, también son muy diferentes en su forma de ser.

**Ramona**
- Oscura
- Impaciente
- Irresponsable
- Corajuda
- Tiene una hermana

**Robbie**
- Niño
- Timido
- Paciente
- Responsable
- Calmado
- No tiene hermanos

**Compara con las fotos en la página 32**
- Han cambiado en comportamiento
- Quieren quedarse bien con sus compañeros
- Toman el canión/autobús
- Hay bullies en su escuela

**Están en 3er grado**
- Quieren un buen año escolar
- Nuestra maestra es capaz

**Todos somos iguales y diferentes a muchas otras personas.**
I found out from my observation in lab.

I observed small, serration in leaves and noticed serration in leaves in lab.

I found out petals in monocots in groups of 3s and petals being in groups of 4s/6s.

http://www.botanicalsociety.org/online_conversation4.htm

Text: 2978
Support: Teacher support

Monocot Seeds

- One cotyledon
- Both leaves and petioles
- Parallel venation in leaves
- Both more food
- Both produce plants

Dicot Seeds

- Two cotyledons
- Both in groups of 4s/6s
- Veins end in leaves

One star by Jessica Lopez

Decay video
How plants grow
Informational Text

- They are both text.
- They both deal with reading standards.
- It gives true information.

Literary Text

- It tells a story.
- It deals with Narrative Writing.
- It is poem, poetry, adventure, mystery, and fairy tales.

Informational Text:
- It is Expository or Persuasive Writing.
- It is an example of biography, autobiography, encyclopedia, and newspaper.

*Teacher*

*Myself*

*Computer*
The Glorious, American, and French Revolutions

- Forced removal of government
  - No one died
  - Foreign aid
  - Protest against taxes
  - Reign of terror

Glorious Revolution
  - Brought back constitutional monarchy

American Revolution
  - Bills of Rights
  - Declaration Of Independence
  - A lot of people died

French Revolution
  - Only common people paid taxes
  - Took place in Europe
Which of the following is a detail about…?
A_________ is a member of which of following categories?

Main Idea and Details
Classifying
Non-Fiction Text Features

- Caption
- Index
- Photo
- Table of Contents
- Map
The Brand New Kid

Characters
- Lazlo
- Ellie
- Miss Kincaid
- Carrie
- Mrs. Gasky
- Ricky
- Susie McGraw

Setting
- School
- Desks
- Recess
- Walking home
- Lazlo's house

Problem
- Lazlo is getting teased.

Solution
- Ellie was nice to Lazlo.
The Cay

Character:
- curious
- young
- Phillip
- 11 yrs old

Setting:
- Caribbean
- on the island of Curacao
- in the city of Willemstad
- in 1942 during WWII

Problem:
- shipwrecked
- blind
- gets stuck on a raft with a black guy

Plot:
- see flow map

Solution:
- many aircrafts came by but a destroyer saved him
I will be able to classify sentence types.

**Sentence Types**

- **Statement**
  - My dog is named Trooper.
  - The dog caught the ball.
  - I like to eat pizza.
  - We live in North America.
  - Mrs. Cocke read a book.

- **Command**
  - Get out your reading book.
  - Go clean your room.
  - Take out your homework folder.
  - Go feed the dogs.

- **Question**
  - Do you like that story?
  - Do you like to go to the beach?
  - That was such a good book?
  - Do you know what time it is?
  - How many dogs do you have?
  - What continent do we live in?
  - How many kids are in your class?

- **Exclamation**
  - Help, there is a fire!
  - Yikes, watch out for the spider!
  - That car was fast as lightning!
  - Man, that roller coaster was scary!
<table>
<thead>
<tr>
<th>Customary Units</th>
<th>Pounds (lbs)</th>
<th>Tons (T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ounce (oz)</td>
<td>dog</td>
<td>car</td>
</tr>
<tr>
<td>penny</td>
<td>radio</td>
<td>pole</td>
</tr>
<tr>
<td>book</td>
<td>reindeer</td>
<td>bathtub</td>
</tr>
<tr>
<td>paper</td>
<td>overhead</td>
<td>airplane</td>
</tr>
<tr>
<td>poster</td>
<td>santa</td>
<td>boat</td>
</tr>
<tr>
<td>shoe</td>
<td>100 pennies</td>
<td>tree</td>
</tr>
<tr>
<td>pen</td>
<td>desk</td>
<td>person</td>
</tr>
<tr>
<td>cup</td>
<td>100 pennies</td>
<td>table</td>
</tr>
<tr>
<td>hairpick</td>
<td>shark</td>
<td></td>
</tr>
</tbody>
</table>
A. Choose appropriate graphs to be consistent with the nature of the data.

- Math 6th grade -
**Functions**

- **Linear**
  - Line
  - Largest exponent is 1
    - $f(x) = x$
  - Graph:
    - $x$: $-2$, $-1$, $0$, $2$
    - $y$: $-2$, $-1$, $0$, $2$

- **Quadratic**
  - U-shaped
  - Largest exponent is 2
    - $f(x) = x^2$
  - Values:
    - $x$: $-2$, $-1$, $0$, $1$, $2$
    - $f(x)$: $4$, $1$, $0$, $1$, $4$

- **Cubic**
  - S-shaped
  - Largest exponent is 3
    - $f(x) = x^3$
  - Values:
    - $x$: $-2$, $-1$, $0$, $1$, $2$
    - $f(x)$: $-8$, $-1$, $0$, $1$, $8$
Athens, Greece

Government
- Council (500 men)
- Assembly (6,000)
- Males over 18 yrs. participated
- Women and slaves not considered citizens
- Athenian citizens only

Economy
- Geographically based on trade
- Agora - Marketplace
- Pottery, Furniture
- Own coins

Education
- Purpose to produce good citizens
- Boys 6-7 yrs began formal education (reading, writing, math, literature)
- 18 yrs - Military
- Girls - homeschooled in cooking, cleaning, spinning thread, cloth
- Usually married at 15
Brace Map

What are the parts of...?

Part to Whole Relationships
Water on Earth Brace Map

Water on Earth

\{ Freshwater \}
\{ lakes \}
\{ groundwater \}
\{ rivers \}
\{ glaciers \}
\{ some lakes \}
\{ oceans \}

\{ Saltwater \}
Add the meaning of each part in parentheses.
BODY SYSTEMS

DIGESTIVE
- MOUTH
- ESOPHAGUS
- STOMACH
- SM. INTESTINE
- LG.

CIRCULATORY
- HEART
- VEINS
- ARTERIES
- CAPILLARIES

RESPIRATORY
- NOSE
- TRACHEA
- LUNGS

NERVOUS
- BRAIN
- SPINAL CORD
- NERVES
We need to know how to convert % to decimals.

We have to know that this is a two step problem.

A vice president took a client to lunch. The lunch cost $44.00. She left a 20% tip. What was the total cost of the lunch?

We could use 10%.

We need some prior knowledge about what a “tip” is.
Word Part Clues

uncomfortable

\[
\begin{align*}
\text{un-} & \quad \text{“not or opposite of”} \\
\text{comfort} & \quad \text{“when you feel relaxed or satisfied”} \\
\text{-able} & \quad \text{“able to or can be done”}
\end{align*}
\]

Meaning: “not able to feel relaxed or satisfied”

inaudible

\[
\begin{align*}
\text{in-} & \quad \text{“not”} \\
\text{aud} & \quad \text{“hear” (Latin)} \\
\text{-ible} & \quad \text{“can be done”}
\end{align*}
\]

Meaning: “not able to hear”
Multi-Flow Map

Why did ______? What are the benefits of ______?  

Cause and Effect
Observations from our experiment

The Lima Bean Plant Grows
Observations from our experiment

What if the lima bean plant doesn't get sunlight.
California Wildfires

- Lightening
- Very hot and dry weather
- Strong winds cause small fires to spread
- People misusing matches and lighters

- P.O.V. California Residents
  - Ashes everywhere
  - People have to leave their homes and things behind
  - Innocent people may be hurt or worse, die
  - Frustration
  - Harmful smoke and chemicals in the air

- P.O.V. Rescue Workers
  - Animals die or suffer
  - We lose trees and grass

- Time for kids news article

Online References
Causes

- America was no longer self-sufficient.
  
  - Giving cheap British supplies, we needed more factories.

- Science was popular and developed. So, ideas were born.

- There was a demand for machinery such as trains. To produce trains, more factories are needed.

- Everyone had the opportunity to succeed. This gave ideas another chance.

Effects

- The successful people became rich and famous.
  
  - Life was much more convenient with all the inventions.

- In the Civil War, the Union had an advantage in the factories.

- America became more advanced in technology.
Jonathan Livingston Seagull

Jonathan became outcast

- He learned to fly faster and better
- He learned how to catch 10 feet under water
- He learned how to find better food
- He became free from the other gulls

Jonathan became an instructor

- He taught other gulls to fly better

Aaron Clarke
Jon Stirerwalt
Jodi Swanson
Justin Wallace
Lizzy

Fletcher Lynn was his first student
Ziang made him an instructor
He with other gulls very hard

Causes
- Almost killed two gulls
- Did not act like the others
- Disobeyed other gulls

Effects

THINKING LIKE A MATHEMATICIAN
THINKING LIKE A MATHEMATICIAN
I THINK
(HYPOTHESIS)

RESULTS
BASED ON
LAB /
EXPERIMENTS

EXPERIMENT
VARIABLES

THINKING LIKE A
SCIENTIST

BASED ON MY RESEARCH,
I CONCLUDE...
THINKING LIKE A LITERACY CRITIC

POSSIBLE CAUSES OR CONTRIBUTING CAUSES

CONFLICT RESOLUTION

THEME
Multi-Flow Map :: for analyzing cause and effect

Native land was prime farm country—suitable for growing crops

Discovery of gold increased demand of whites to settle Cherokee lands

Indian Removal Act of 1830

Thousands of southwestern natives were forcibly moved west of the Mississippi

Cherokee’s sorrowful journey known as the “Trail of Tears”

Only a few thousand Natives left to live east of the Mississippi

Source: http://tinyurl.com/4e9msj
Pollution Multi-Flow Map

Cars burning fuel → The U.S. has a lot of air pollution.

Exhaust from factories → Acid rain

Mining → Respiratory issues

We obtained information from the EPA to present this information.
Bridge Map

How are _______ and _______ related?

Seeing Analogies Relationships
Drawing the Map

THE BRIDGE MAP

Relating Factor

as

First Pair
Second Pair
Note Taking Guide

Identify the THOUGHT PROCESS

SEEING ANALOGIES

KEY WORDS
Identify the Relationship, Guess the Rule, Symbolism, Metaphor, Allegory, Analogy, Simile
The Bridge Map helps students identify the relationships between words. As long as the relationship remains the same, the Bridge Map can be extended beyond 2 pairs of words.

An apple is a type of fruit as a carrot is a type of vegetable.
Relating Factor: Is the top part of...
a calf
an elephant

google.com/images

Whose Baby Am I?
by John Butler

a calf
a giraffe

a cub
a panda

a pup
the seal

an owlet
an owl

Relating factor: is the baby of
¿De dónde vienen los productos?
salsa de tomate
Banco
nuevo
miel
camiseta
tomate
albol
Guling
odeja
algodon
caterpillar as butterfly
seed as plant
frog as tadpole
acorn as tree
relating factor: grows into
Vocabulary Development

powers
Relating Factor

mitochondria

as

cell

as

Battery

Cell phone
is the middle of

Relating Factor

median set of data

as

cream an oreo cookie
In summer, it can be hot.

In fall, it is warm and windy.

In winter, it is cold and rainy or snowy.

In the spring, it is warm and rainy.

RF: it can be
RF: and so I wear:

shorts + a tee shirt.

a windbreaker + jeans.

a hat, a scarf, mittens, a coat, and pants.

*raincoat, boots, and pants.
Relating factor makes decisions in:

- elected representatives
  - Democratic State
- the leader
  - Fascist State
- the central party
  - Authoritarian State
Major events in history often have “trigger” causes.

Rosa Parks' refusal to give up her seat on the bus was a catalyst for the Civil Rights Movement.

www.behindthesceneshistory.com
Support structure relating factor

Spicules
  Support structure for
  Sponges

Shell
  Support structure for
  Mollusks

Exoskeleton
  Support structure for
  Arthropods

Internal shell
  Support structure for
  Echinoderms

Skeleton
  Support structure for
  Chordates

Understand support structures in animals

Simple → complex
Rules For Integer Operations
Multiplication and Addition

Results for
R.F

+ as adding 2 positives
(+)+(+)

as adding 2 negatives
(-)+(-)

as multiplying 2 positives
(+)*(+)

as multiplying a positive and a negative
(+)*(-)

as multiply 2 negatives
(-)*(-)

By using the number line
Ways for introducing some of the maps
MONDAY: Introducing the Circle Map

Create a Circle Map to help us all know important things about you.

In the Frame of Reference, include key people and things that influence who you are.

Pair with one other person and share your information.
Teacher: What do you know about a coordinate plane?

No response from students.

Teacher: What if I told you some of the real-life uses of coordinate planes. I will write these in the Frame of Reference. (Teacher adds examples to the Frame.)

Teacher: Now let’s try to define the coordinate plane based on these examples.

Teacher: Turn to your neighbor and tell him/her two of the defining characteristics of a coordinate plane.
Teacher: Before we start our lesson on geological formations, work with a partner to brainstorm everything you already know about the topic.

Add a Frame of Reference and write a brief definition based on the information in your Circle Map.

Be prepared to share your ideas with the whole group.
THURSDAY: YOU DO

Assignment:
Research a famous American or American symbol.

Take notes on the information and then choose key details to create a “Who Am I?” Circle Map.
FRIDAY:
Independent Choice

Use a Circle Map to summarize anything that you have learned this week.
Additional Examples
THINKING LIKE A HISTORIAN
Key Ideas and Details

“Ask and answer questions to demonstrate understanding…”

Remember the question you choose will determine the map that you use!
Asexual reproduction is reproduction that does not involve the union of sex cells and in which a single parent (original cell) produces offspring that are genetically identical to the parent (original cell).

Mitosis - a cell makes more cells by
1) copying its DNA
2) dividing into 2 new cells, each with a copy of the original DNA.

Original cell -> new cell

Some animals reproduce asexually by:
- Budding - part of the parent pinches off and makes a new, independent organism. (Ex: Hydra)
- Fragmentation - part of the parent breaks off and makes a new organism.
- Regeneration - when an organism loses a body part, that part may develop into an entirely new organism.

Plants that reproduce asexually don't need flowers to reproduce. Part of the root or stem produces a new plant.

- Plantlets - Tiny plants grow along the edges of a plant's leaves. These plantlets fall off and grow on their own.
- Tubers - underground stems or tubers, can produce new plants after a dormant season.
- Runners - Above ground horizontal stems from which new plants can grow.

DNA not in a nucleus - Ex: bacteria
“What are the advantages and disadvantages of asexual reproduction? What are the effects of the disadvantages?”
“What are the parts of a cell?”
Great lessons don’t happen by accident any more than gardens flourish without care.
Music Champion

Solfege Hand Signs

do
re
ti
fa
ARGUMENTS ARE REASONED, LOGICAL, AND INCLUDE EVIDENCE.
SLOPE + RATE of CHANGE

Relating Factor: can be interpreted as

**RISE**
- can be interpreted
- as Change in y
- can be interpreted
- as Quantity
- can be interpreted
- as Rate of Change
- change in quantity

**RUN**
- can be interpreted
- as Change in x
- can be interpreted
- as Time
- can be interpreted
- as rate of change
- change in time

m = \frac{y_2 - y_1}{x_2 - x_1}

m = \frac{\text{rise}}{\text{run}}

m = \frac{\text{change in y}}{\text{change in x}}
I have manners, nice to people.

I sing and play the drums.

I look like my mother.

I take care of my family.

I have homemade rolls.
Frame: How do I know this?

Advanced Functions or Advanced Math

$y = 2x^2 + 4$

- Solutions
- Decreasing $(-\infty, 0]$ (Infinitely)
- Increasing $(0, \infty)$
- Parabolic
- Even
- Continuous
- Graph
- Calculator
Christian Knight trained warriors protect the ruler believed that it was a sin to commit suicide.

swords trained warriors protect the ruler

Europe

Samurai

suicide believed to be honorable

follow a code of honor armor

Japan

Buddhist

believed that it was a sin to commit suicide

armor
The Bohr Model

Bohr Model

- Based on Rutherford's model
- Electrons in a specific orbit
- 1913

Protons

- Atoms make up everything
- Atoms can combine to form compounds

Neutrons

Wave Model

- Based on Wave Mechanics
- Electrons are not in a specific orbit
- Present
**Direct Variation**
- Graph must go through the origin
- Will always create a straight line
- The relationship between the variables is expressed through division $K = \frac{y}{x}$

**Inverse Variation**
- $K$ represents the constant
- Relationship between variables has a constant change
- Can be expressed in a table, graph, formula, or word problem
- Graph never goes through origin
- Will always be a curved line
- The relationship between the variables $x + y$ is expressed through multiplication $K = y \cdot x$
It is important to know what animals are: Mammals, Birds, Reptiles, Amphibians, and Fish.

I can classify different animals into 5 categories according to their traits.

- **Mammals**: dolphin, penguin, cat, duck, elephant
- **Birds**: snake, alligator, turtle, toad
- **Reptiles**: salamander, frog, elonw fish
- **Amphibians**: puffertfish
- **Fish**: elephant, duck, toad, shark
Real Numbers!

Rational
- 2,222
- \sqrt{49}
- -10
- \frac{\sqrt{81}}{3}
- 0.55
- \frac{18}{\sqrt{2}}
- -3.25

- 0.45
- -212
- 0.123123...
- \frac{35}{5}
- 3.64
- \frac{42}{6}
- -0.3
- \sqrt{49}

- \sqrt{144}
- \sqrt{18}
- \sqrt{163}
- \sqrt{91}

Irrational
- 2.364123...
- \sqrt{5}
- -\sqrt{37}
- -\frac{\sqrt{181}}{12}
- 0.313111...
Types of Figurative Language

- Alliteration
- Simile
- Metaphor
- Hyperbole
- Personification
- Onomatopoeia

- The puppy's bark was as loud as thunder.
- The puppy was as small as a kitten.
- The puppy ran as fast as a rocket.
- The puppy was as happy as a monkey.
- The puppy was as lazy as a bear.
- The puppy was as playful as a kitten.
- The puppy was as cute as a button.
- The puppy was as brave as a lion.
- The puppy was as strong as an ox.
- The puppy was as funny as a clown.
- The puppy was as smart as a parrot.
- The puppy was as quiet as a mouse.
- The puppy was as mischievous as a monkey.
- The puppy was as lively as a squirrel.
- The puppy was as gentle as a lamb.
- The puppy was as wild as a wolf.
- The puppy was as strong as a bear.
- The puppy was as clever as a fox.

- Whimper
- Whine
- Woof
- Howl
- Howdy
- Yip
- Yowl
- Yodel
- Yippee
- Yawn
- Yodel
- Yodel
- Yodel
"The Raven" by Edgar Allen Poe

Imagery Chart

Auditory
- "gently rapping, rapping"

Visual
- "rare and radiant maiden"
- "this ebony bird"

Tactile / Auditory
- "to still the beating of my heart"

Tactile / Visual
- "cushion's velvet lining"

Olfactory
- "air grew denser, perfumed"
Symbiosis

- Mutualism: both species benefit, ants/acacia, +/+
- Commensalism: one species benefits, the other is unaffected, demodics/humans, +/-
- Parasitism: one species benefits, the other is harmed, tapeworm/human, +/−
SYSTEMS OF LINEAR EQUATIONS

2 INTERSECTING LINES
- SLOPES ARE DIFFERENT
- 1 POINT OF INTERSECTION
  - (X, Y)
  - CONSISTENT AND INDEPENDENT

2 PARALLEL LINES
- SLOPES ARE EQUAL, Y INTERCEPTS DIFFERENT
- NO POINTS OF INTERSECTION
- NO SOLUTION

2 COINCIDING LINES
- SLOPES AND Y INTERCEPTS ARE THE SAME
- INFINITE POINTS OF INTERSECTION
- {(X, Y): Y = MX + B
  - CONSISTENT AND DEPENDENT
Math II Circles

diameter $\overline{AX}$
Tangent $\overrightarrow{ZW}$
Radius $\overline{QW}$ $\overline{QX}$ $\overline{QA}$
chord $\overline{AW}$ $\overline{AX}$
Secant $\overrightarrow{ER}$
Central $\angle WQX$
Inscribed $\angle WAX$
Center $Q$

arcs $\overline{AW}$ $\overline{AWX}$ $\overline{AXW}$
Adding and Subtracting Matrices (MATH 3)

Make sure Matrices have the same dimension

If not, can't add

Add/subtract corresponding entries

Pay attention to your signs

Resulting Matrix is your answer

Matrix should have same dimension

\[
\begin{pmatrix}
2 & -5 \\
11 & 4
\end{pmatrix} + \begin{pmatrix}
-3 & -9 \\
14 & 1
\end{pmatrix} \rightarrow \begin{pmatrix}
2+(-3) & -5+(-9) \\
11+14 & 4+1
\end{pmatrix} \rightarrow \begin{pmatrix}
-1 & -14 \\
25 & 5
\end{pmatrix}
\]

\[
\begin{pmatrix}
2 & -5 \\
11 & 4
\end{pmatrix} - \begin{pmatrix}
-3 & -9 \\
14 & 1
\end{pmatrix} \rightarrow \begin{pmatrix}
2-(-3) & -5-(-9) \\
11-14 & 4-1
\end{pmatrix} \rightarrow \begin{pmatrix}
5 & 4 \\
-3 & 3
\end{pmatrix}
\]
750-650 BC
Monarchy (rule by one)

Monarchy is replaced by Oligarchy

650-580 BC
Oligarchy (few rule over many)

Oligarchy is replaced by Tyrant

580-510 BC
Tyrant (one ruler who takes power by force)

Tyrant does not fulfil promises

510-430 BC
Democracy (people rule)

people have power

people can rule themselves

ATHENS GOVERNMENT

The rich ruled for rich not for the people

Famine

General unrest

Monarch needed resources from Nobles

Nobles wanted more power
Act One

- the three witches tell Macbeth that he's going to be a king.
- (Banquo's sons will be king)
- Macbeth becomes a war hero (Throne of Cawdor)
- Macbeth sends a letter to Lady Macbeth saying that the witches said he's going to be king!
- Lady Macbeth forcefully wants to kill the king & tells Macbeth that she's going to do the murder.
- Macbeth talks to the king about coming over to their house.
- King plans to come over!
- Macbeth's perfect set up!!
Given from the picture on page p. 232 in problem #8

\[ \angle N \cong \angle Q \]
\[ \overline{NM} \cong \overline{PQ} \]
\[ \angle NLM \cong \angle QPL \]

\[ \triangle MNL \cong \triangle QPL \]

对应角对应边相等

对应角对应边相等

对应角对应边相等
Y = 10X is in the form y = kx

Y = 10X IS A DIRECT VARIATION

If X increases then y increases

If X decreases then y decreases

The graph is linear with a y intercept of 0

Y/X = 10

The constant of variation is 10
THE SLOPES ARE THE SAME

THE Y INTERCEPTS ARE THE SAME

THE LINES ARE COINCIDING

THERE ARE INFINITE POINTS OF INTERSECTION

THE SOLUTION TO THE SYSTEM IS EVERY POINT ON THE LINE

THE SYSTEM IS CALLED CONSISTENT AND DEPENDENT
We watched a video.
Photosynthesis

A plant is a PRODUCER. During photosynthesis, plants make their own food.
Meaningful Parent-Teacher Conferences

- Comfortable setting
- Not just a sharing of grades
- Two-way communication
- Goal-oriented
- Develop personal relationships
- Teacher is prepared
- Positive assumptions
- Welcome families into the children's school life

Build trust
Improve communication

K-12 teachers, MS Curriculum Specialist, Asst. Principal
WHAT INFLUENCED MACBETH'S CHARACTER?

"Double, double, toil and trouble
Fire burn and cauldron bubble"
4.1.10-11 Macbeth

"Life is a tale
told by idiots"
Macbeth

THE THREE WITCHES
PROPHETY

"Hell is murky"

LADY MACBETH
MANIPULATION

"Why should I play the Roman fool?"

MACBETH

KING DUNCAN

UNCERTAINTY

STANDS IN WAY OF AMBITION

BRAVERY
AMBITION
SELF DOUBT

WHO INFLUENCED MACBETH'S CHARACTER

SOURCE: (MACBETH TEXT)
Real-life uses of coordinate plane skills.

- Grocery stores
- Aislemarkers
- Drug store
- Sporting events
- Large theme parks
- Parking
- Travel: maps, globes, bus routes, navigation
- Weather: hurricane, doppler radar
- Computers: graphics, spreadsheets
- Mall - store director (color coded)
- Store, level 4

The Coordinate Plane

- X-axis
- Y-axis
- Number lines
- Containing + and - numbers
- 4 quadrants
- 4 - 90° angles
- Intersection is called the origin

4 quadrants:
- Point of intersection is 0 on both number lines
PLACE VALUE: ORDERING NUMBERS

3 X 5 cards

is greater than
Definition
A relation is a set of input/output values.
Relation

Order Pair

[(0,1), (1,1), (2,3)]

Definition

(x, y)

Graphing

Mapping

Table

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Relating Factor can be interpreted as:

- Domain \( \rightarrow \) Range \( \rightarrow \) Relation
- Set of \( x \)-coordinates \( \rightarrow \) Set of \( y \)-coordinates \( \rightarrow \) Ordered Pairs
- Input \( \leftrightarrow \) Output
REFLECTIVE THINKING

What if...

Bill of Rights not included in the Constitution

Predict the effects

What if...

A Specific Amendment wasn't included in the Bill of Rights

Predict the effects
Options for Cafeteria noise level

- Play calming music
- Harsher consequences for misbehavior
- Eat in classroom
- Incentives
- Yakker Trakker: red, yellow, green light
- Have EAs supervise
- Recruit parent volunteers
- Increased training of adult supervisors
- Mix level students
- Play instructional videos
How much would it cost for the class to eat pizza?

- How many people are in our class?
- How much does each pizza cost?
- How many slices are in one pizza?
- How many slices of pizza will each student eat?
- Where will we get it?
- We could get menus from several restaurants.
- We could go online to look at prices or just call.

- How much tax will we have to pay?
- What kind of pizza will we order?
- How much will the drinks cost?
- How much will the plates and napkins cost?
- We could get prices from a grocery store.
- We could look at advertisements in the newspaper.