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# Vocabulary Strategies for the STEM Classroom

South Carolina Middle School Association

March 2, 2013

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# Inquiring Minds: Reading to Learn and Innovate in Mathematics and Science

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# IQ-MS is:

- A three-year research project supported by a challenge grant from Boeing SC and various other funding partners.
- Focus: Enhancing STEM instruction with disciplinary literacy strategies.

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# Disciplinary Literacy

Advanced literacy instruction, embedded within content areas, that engages learners with content in ways that mirror what scientists and mathematicians do to inquire and gain understanding in their disciplines

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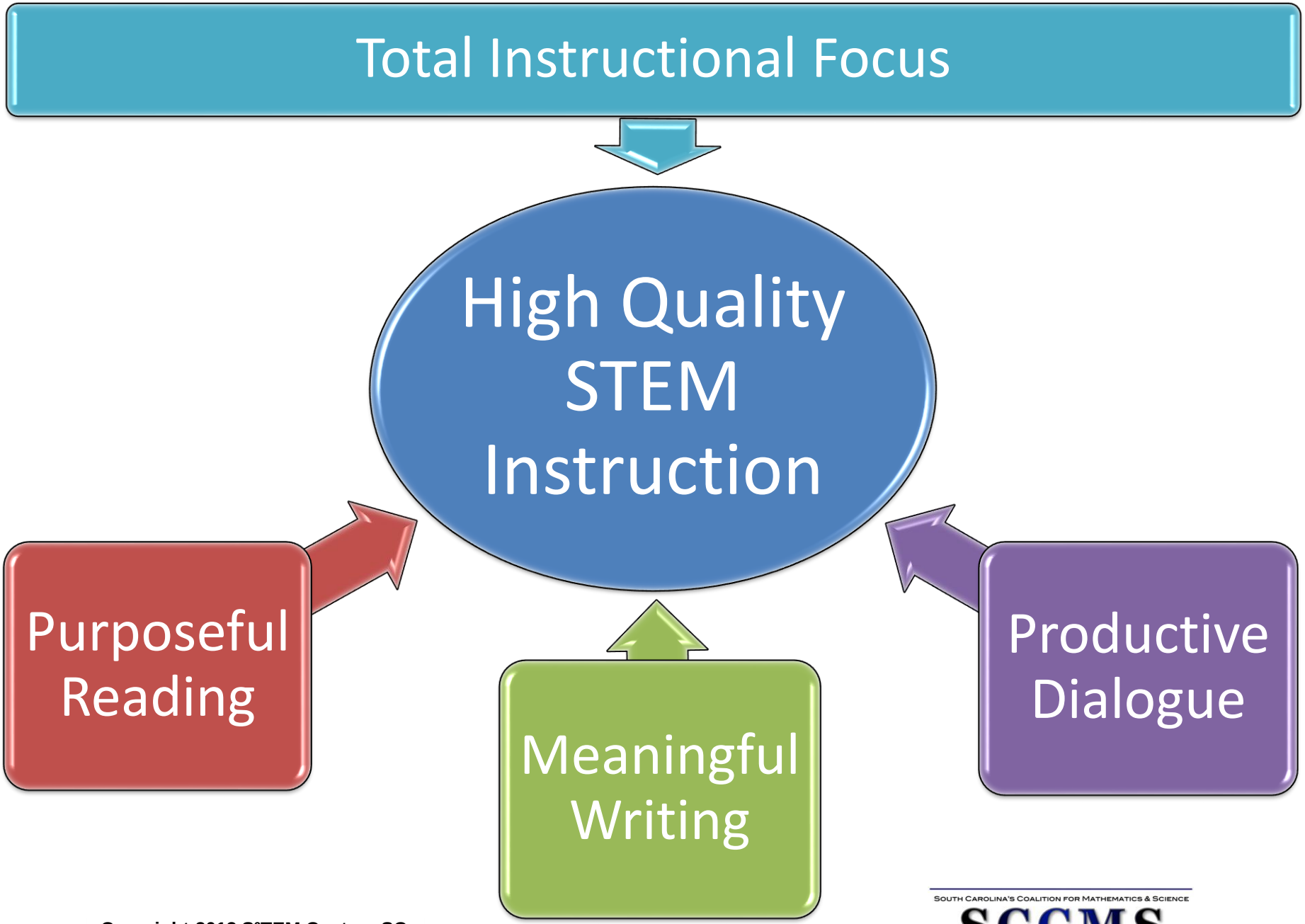


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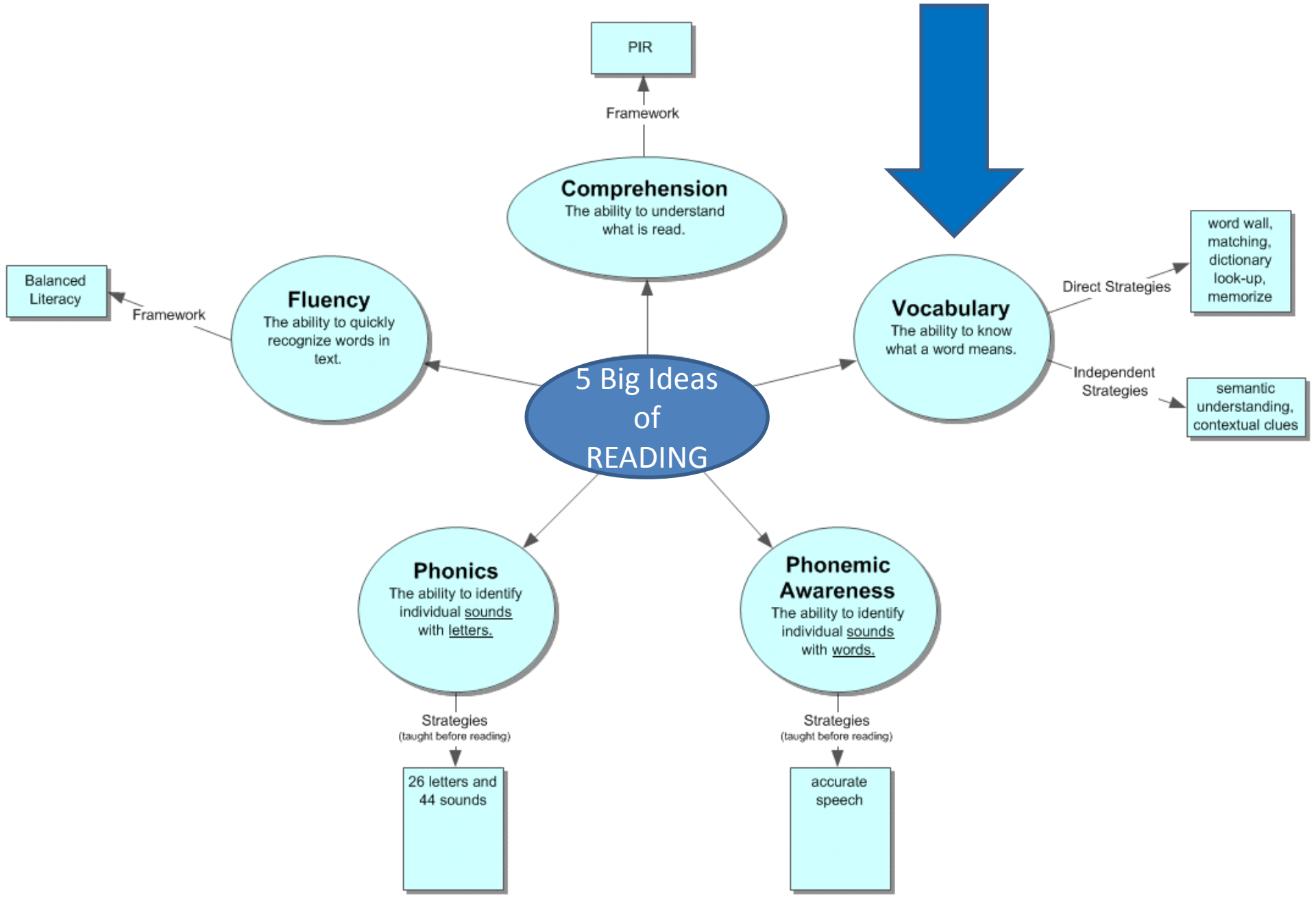
SCCMS
- Achievement By Design -

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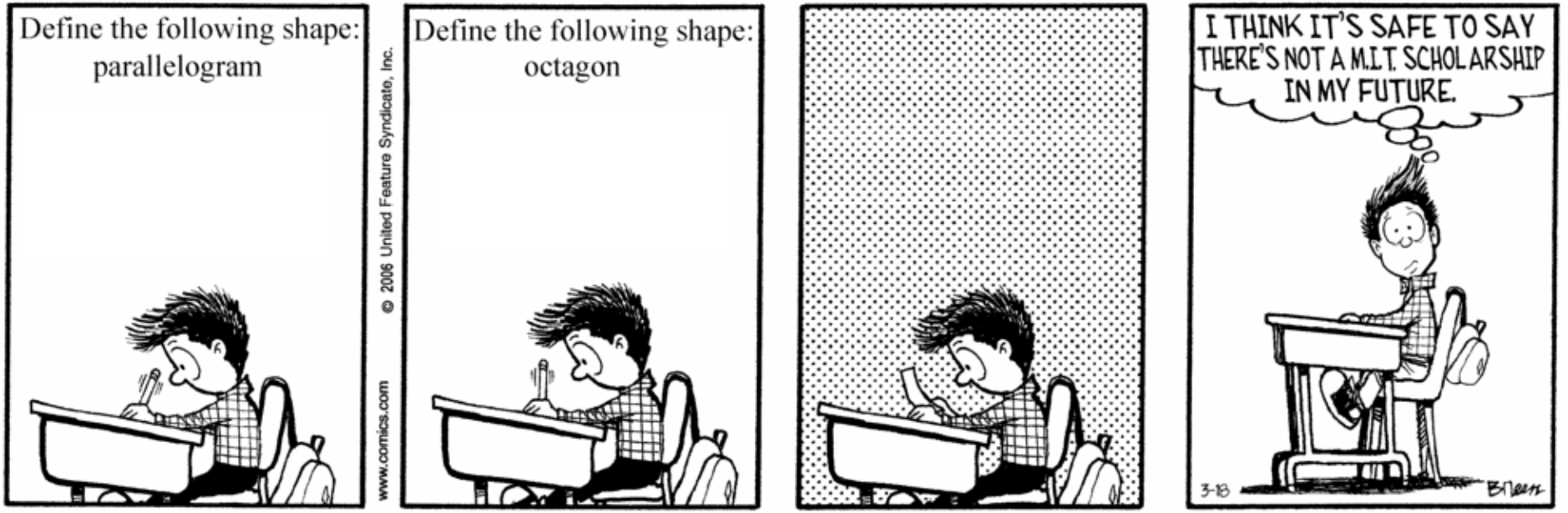
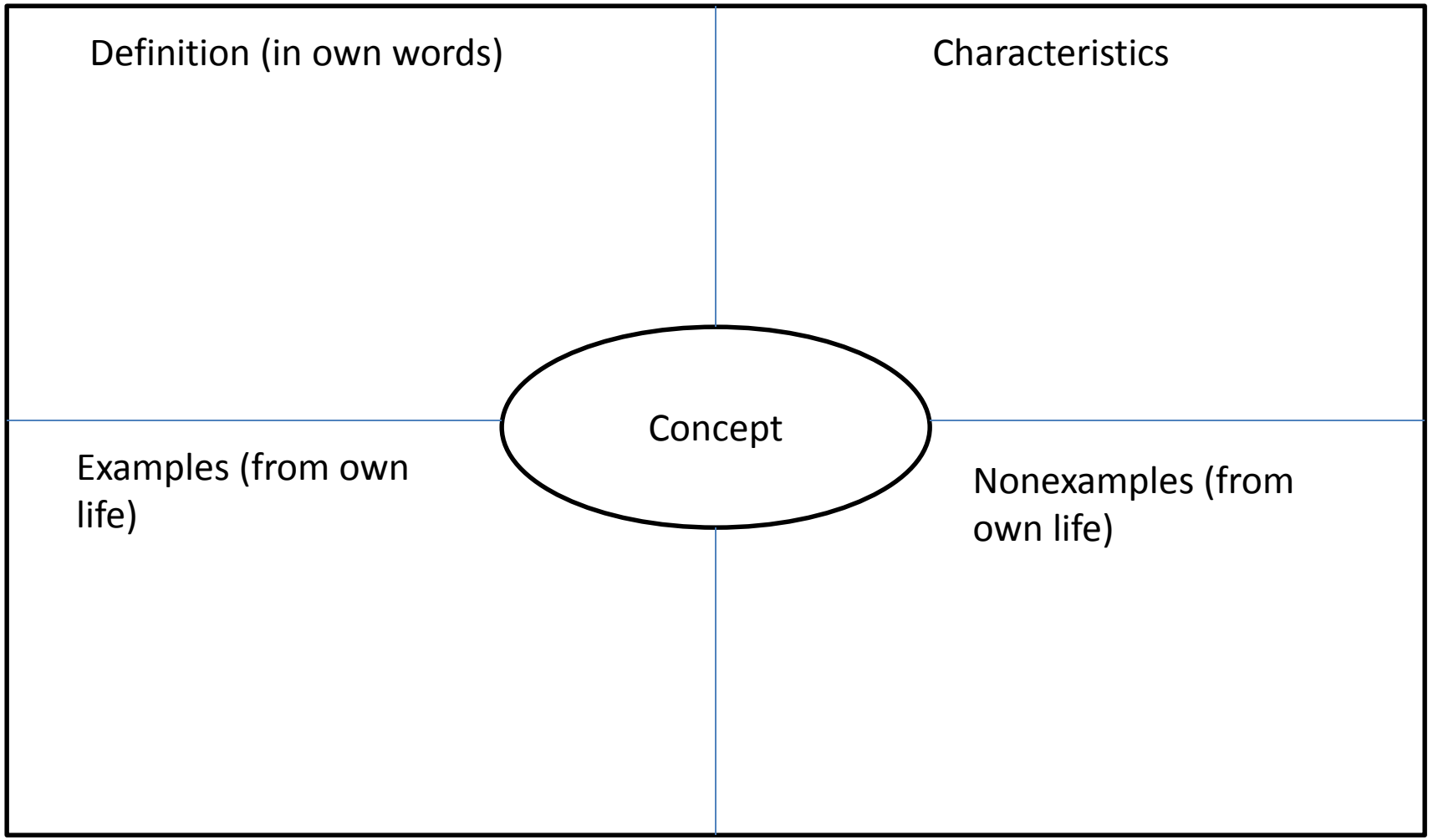
# Snoker

A snoker is produced by the initiation of a succession of compressive and rarefactive disturbances in a medium capable of transmitting these vibrational disturbances. Particles of the medium acquire energy from the vibrating source and enter the vibrational mode themselves. The wave energy is passed along to adjacent particles as the periodic waves travel through the medium.

Adapted from MacDougall, 2003
*Text from high school textbook Modern Physics, 1990*


Define the following shape:
parallelogram
© 2006 United Feature Syndicate, Inc.
www.comics.com
Define the following shape:
octagon
I THINK IT'S SAFE TO SAY THERE'S NOT A M.I.T. SCHOLARSHIP IN MY FUTURE.
3-18

# Frayer Model



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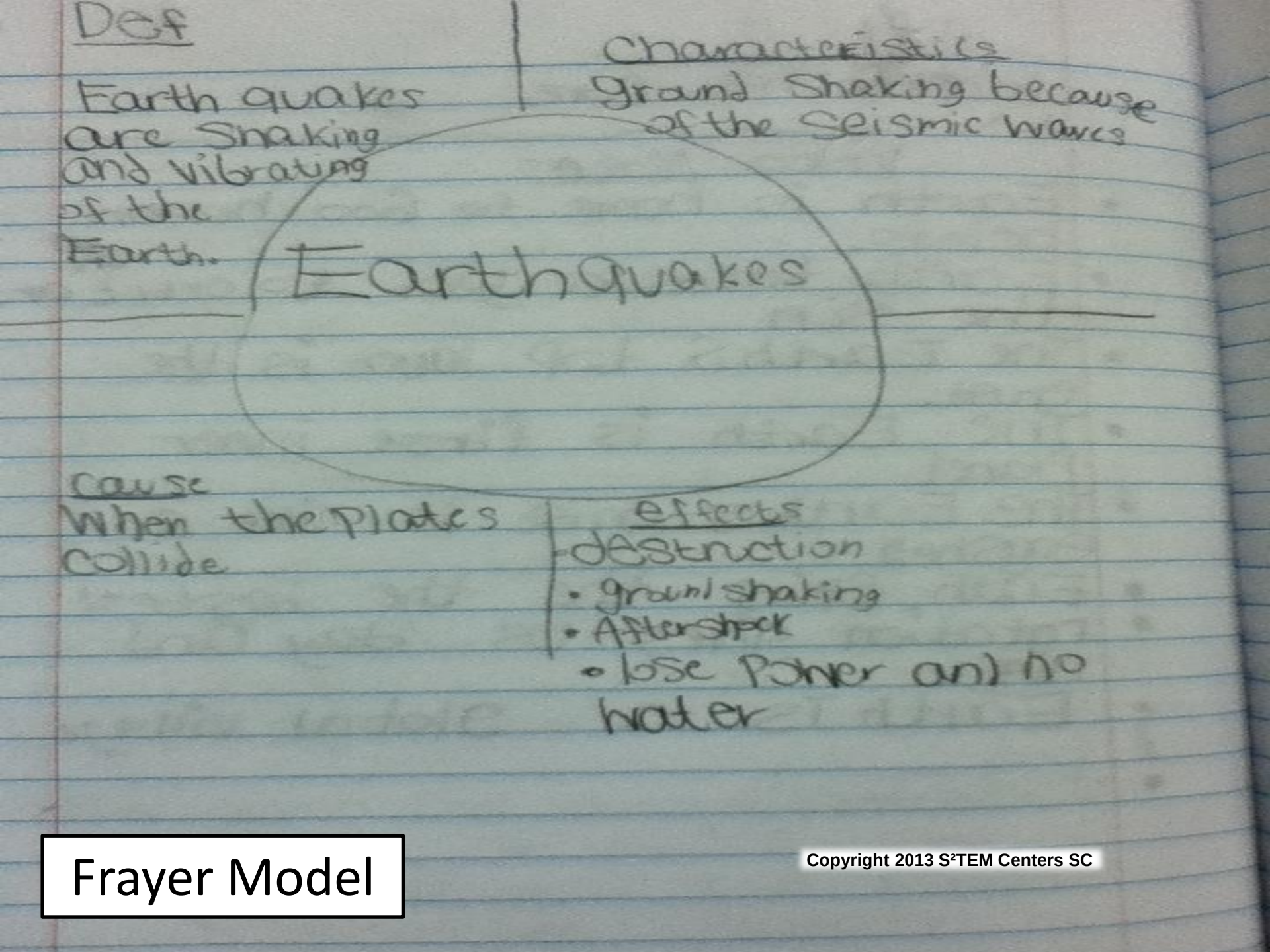


Frayer Model

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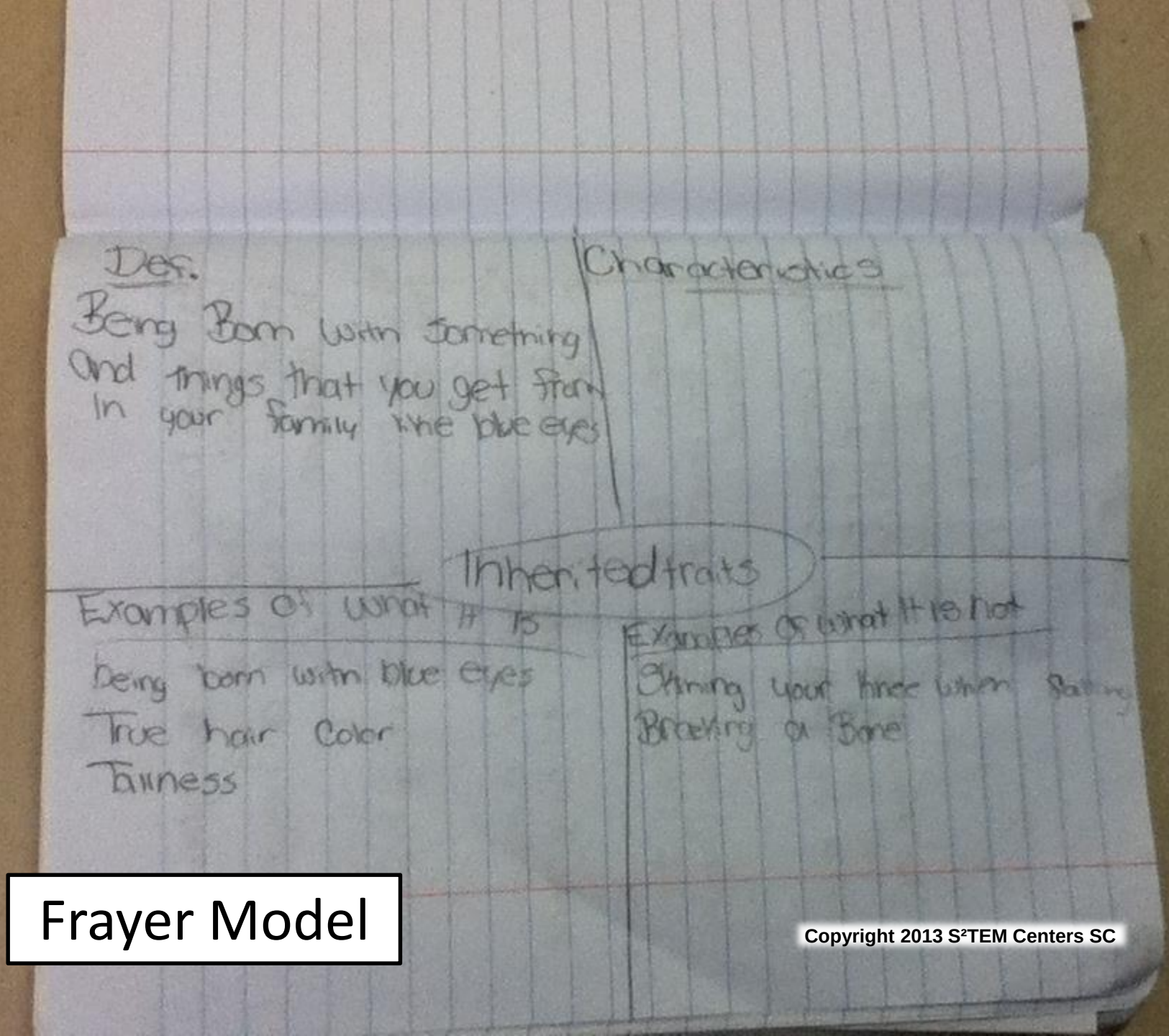


Frayer Model

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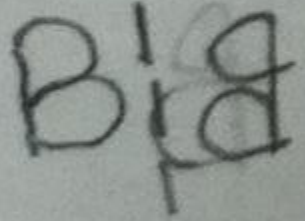
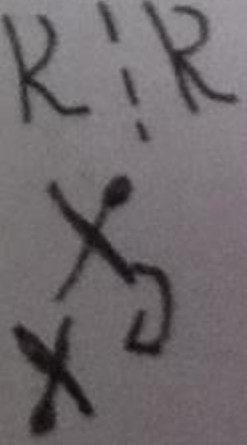
Position
toys
nt

When a figure flips over a line (line of reflection)

- Mirror Image
- Shape Stays Congru
- location and Positi Changes

Reflection





Frayer Model

ex

None ex

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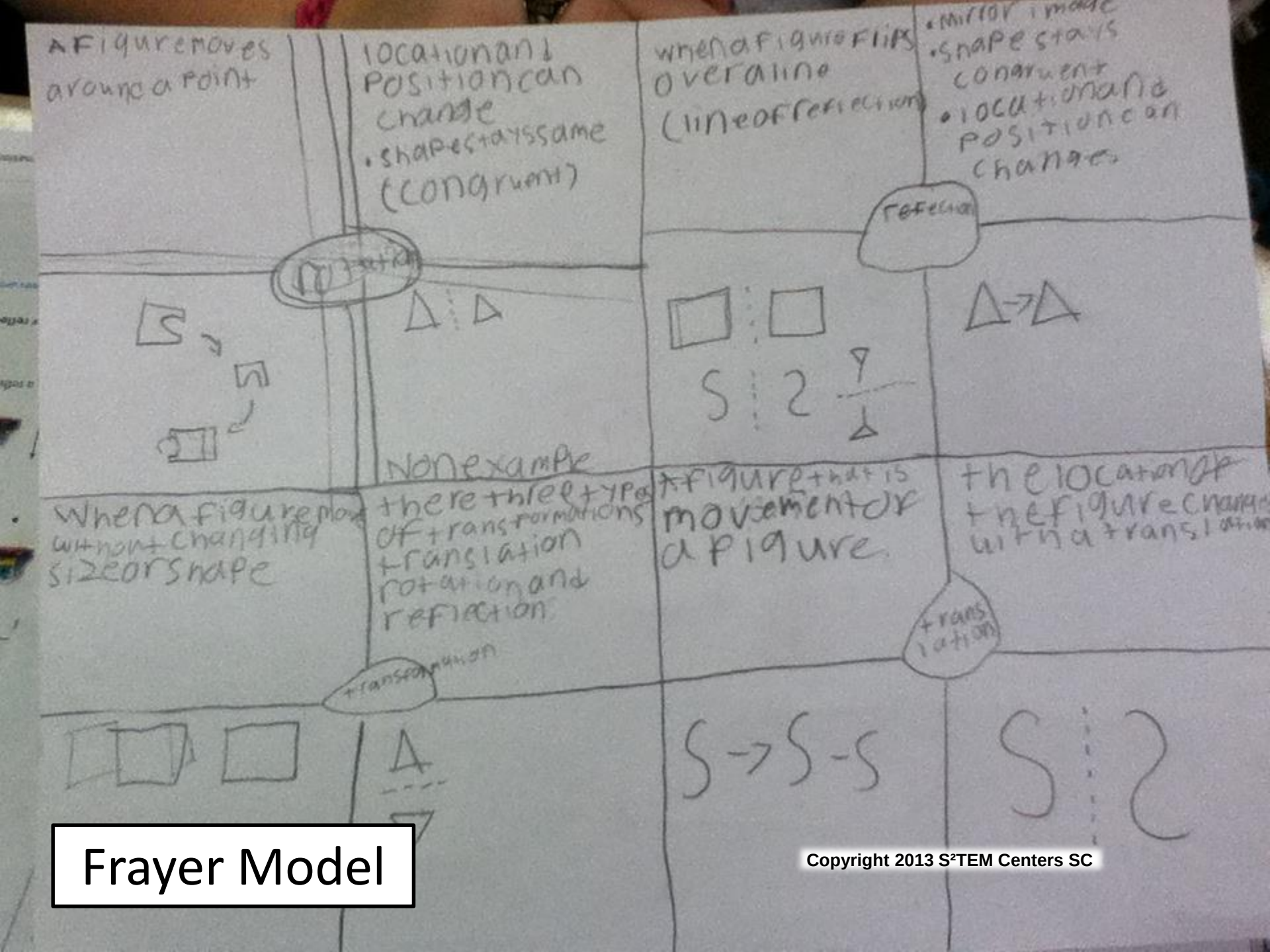
# Frayer Model

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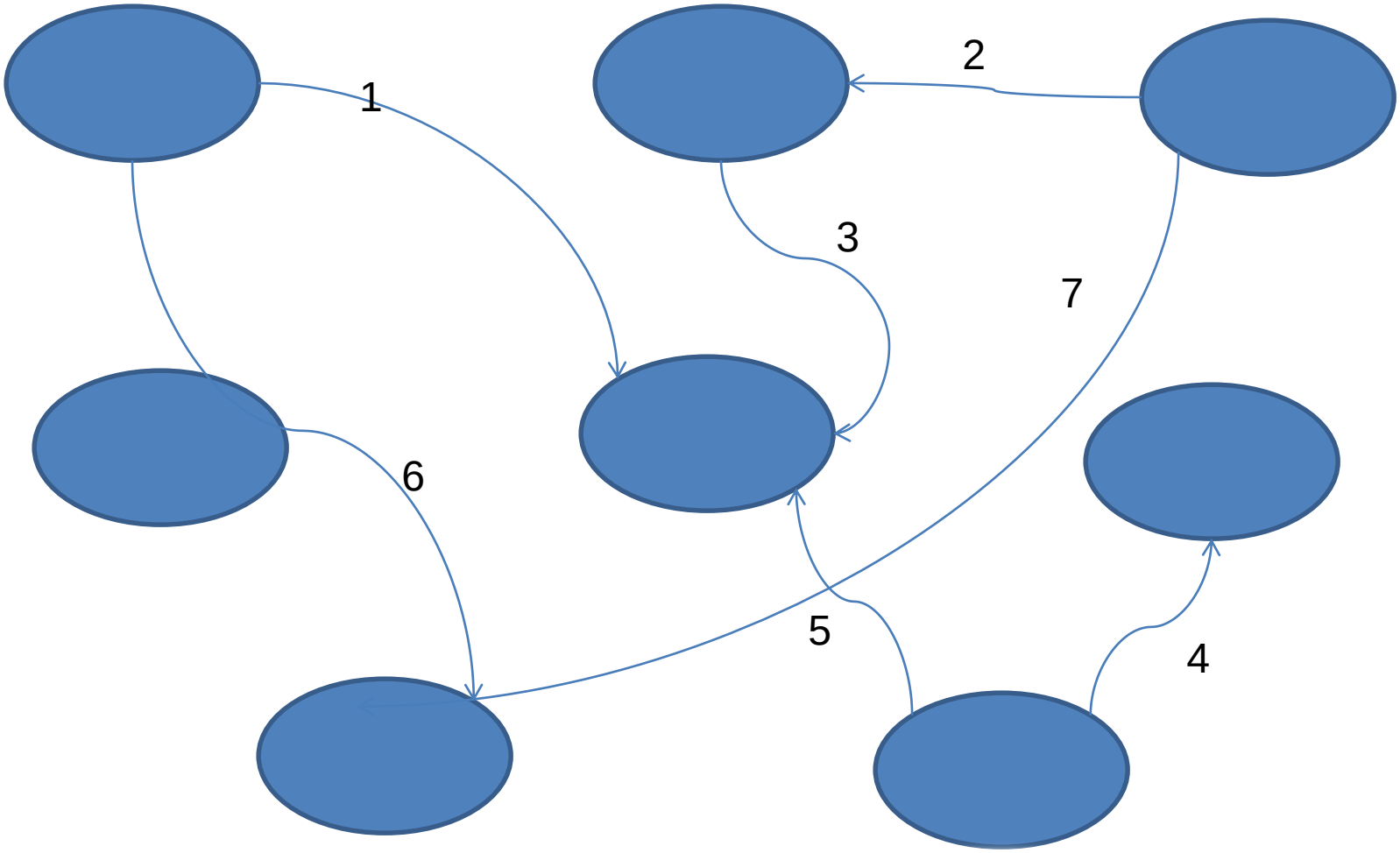
# Concept Map

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Kennedy, Hannah, Olivia, Jaylin

1.) The ribs protect the lungs.

2) The lungs are the main organ for breathing. The restpitory system deals with this.

3) The nutrients from the food goes through the circulatory system (the blood) and carries it to the digestive system.

4) They both get rid of waste in the body.

5) The cardiac muscle helps the heart beat and is a muscle.

6) Skeletal system has skeletal muscles that force the body to move using muscles.

7.) The skin covers the bone, helps prevent diesease and damage.

8) They both deal with breathing and are connected with eachother. Brings oxygen to bloodstream?

9) The heart pumps blood throughout the body.

10) The digestive system uses muscles to work or do their job in our body.

11.) The diaphram is a muscle below the lungs and it helps you breathe.

12) The bloodstream brings oxygen to the muscles.

13) The bonemarrow needs blood.

# Vocabulary Concept Map

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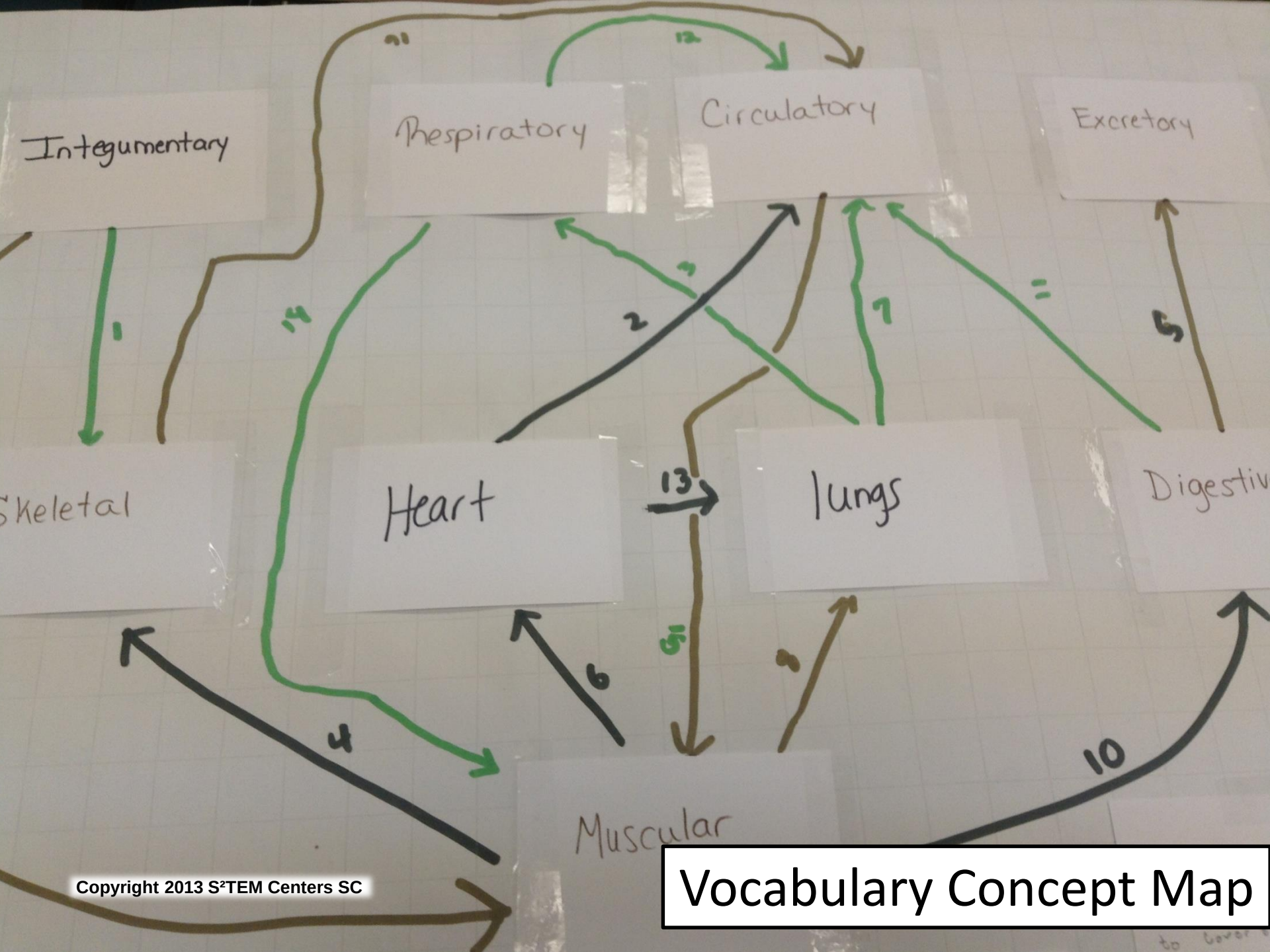


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# Vocabulary Concept Map

1) The integumentary is connected to Skelabal becaGause you have to have skin to cover the bones.

2) The heart is connected to the circulatory system because the the heart pumps the blood through body.

3) The lungs are connected the respiratory system because the lungs are the main organ in the respiratory system

4) Muscular system is connected to the skeletal system because muscles connect the bones.

5) The Digestive system is connected to the Excretory because the juices from the food has to come out the excretory as liquid wast.

6) The muscular system connects to the heart because muscles protect the heart.

7) The lungs are connected to the circulatory system because the lungs help pump the blood through

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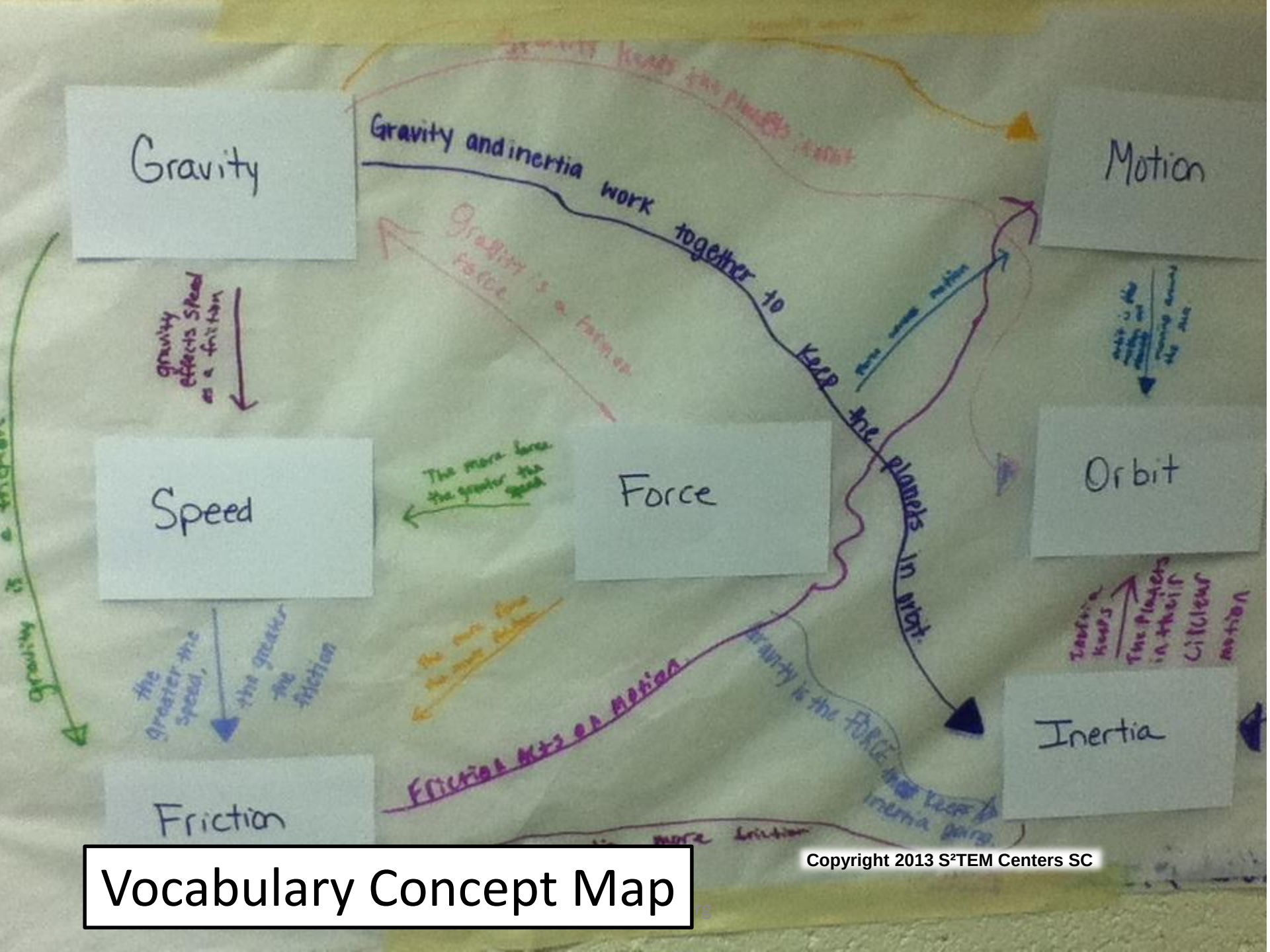


# Vocabulary Concept Map

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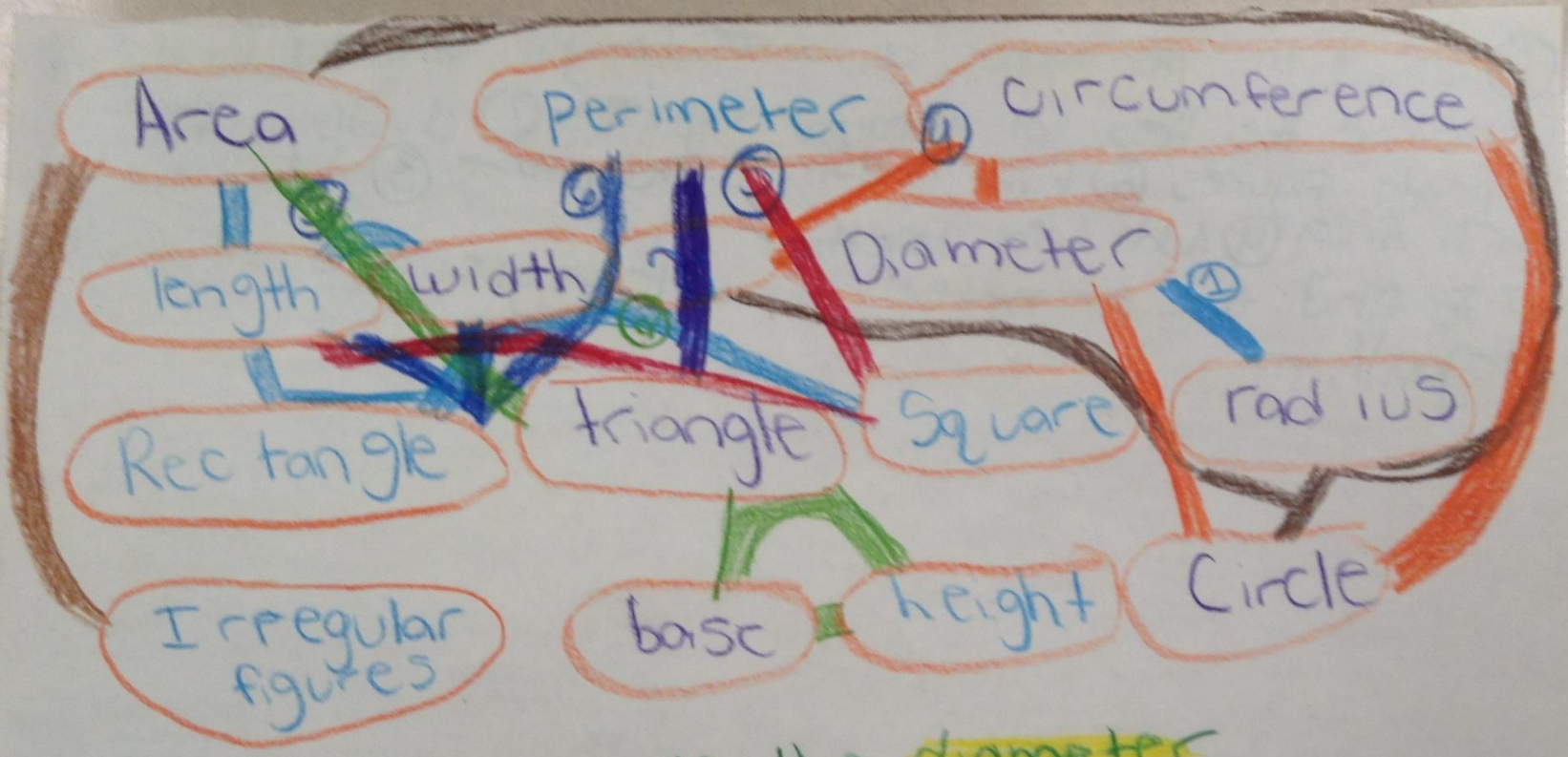


1. The radius is half the diameter
2. To find the area of a square or rectangle, multiply length time width
3. To find the Area of a triangle, Multiply 1 half time base times height
4. To find the circumference of a circle, multiply π Times Diameter
5. To find a perimeter of a square add all lengths and together

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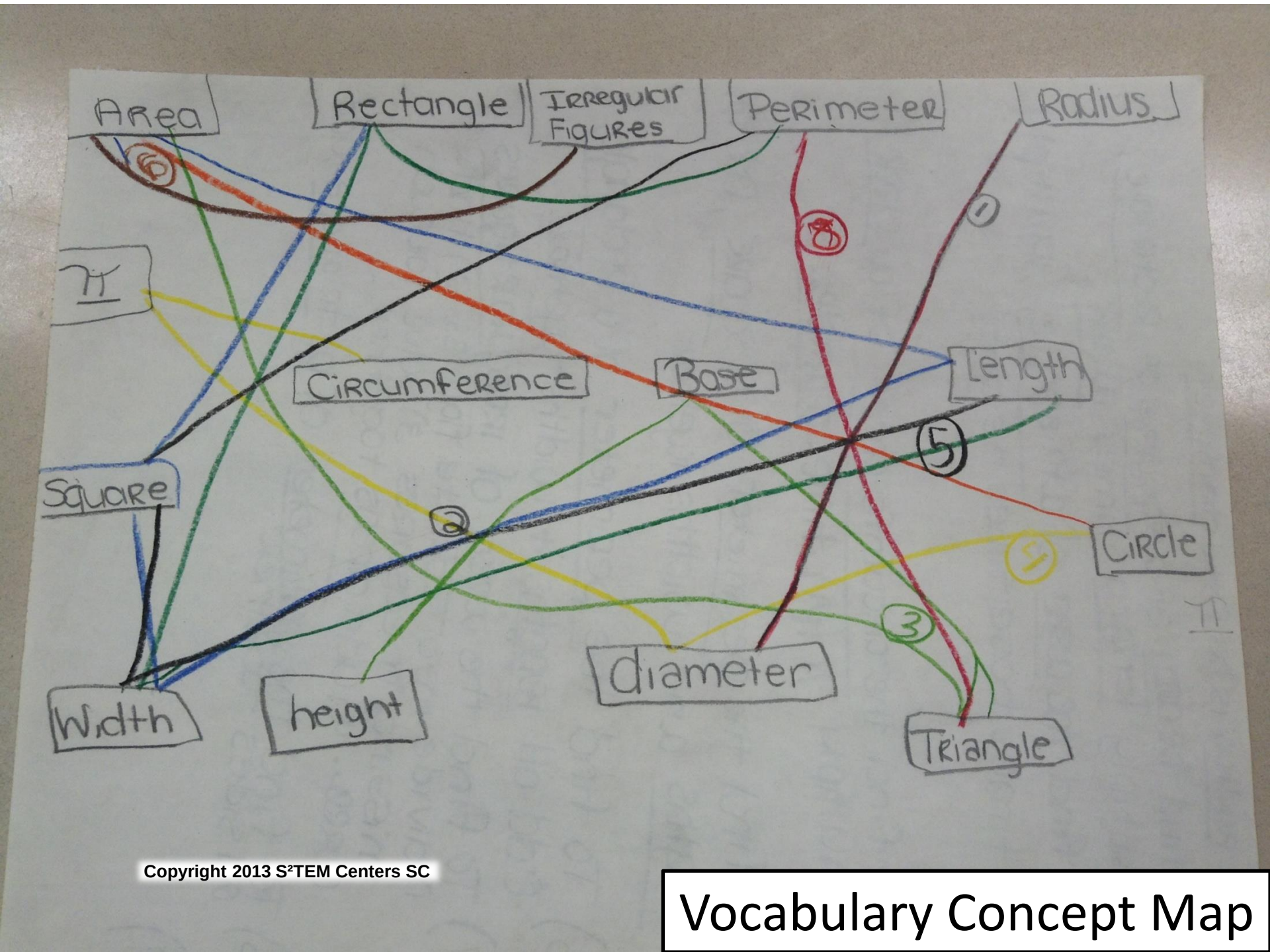
# Vocabulary Concept Map

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# Vocabulary Concept Map

① The radius is half the diameter

② To find the area of a Square or rectangle, multiply length times width.

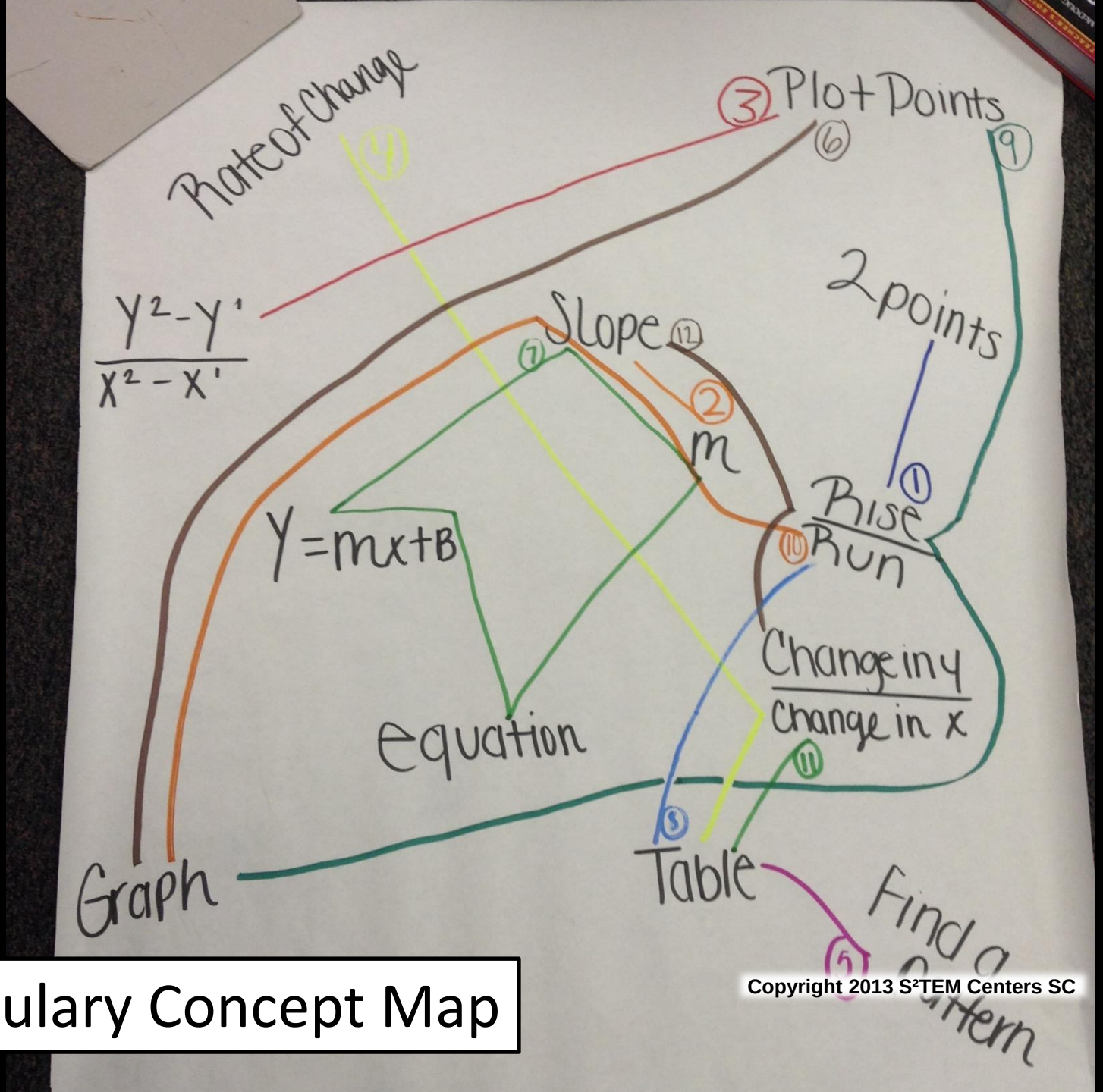
③ To find the area of a triangle.

④ To find the circumference of a Circle, multiply π (pi) times diameter.

⑤ To find the perimeter of a square, add all lengths and widths together.

⑥ To find the perimeter of a rectangle, add all lengths and widths together.

Vocabulary Concept Map




# Vocabulary Concept Map

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AG ① In order to find rise/run you have to have 2 points.

MB ② M is the varible for slope.

BC ③ In order to find $\frac{y_2-y_1}{x_2-x_1}$ you have to have 2 points

RA ④ By using a table you can find change in y / change in x + Rate of change.

AG. ⑤ You can use the table to find a pattern.

MB. ⑥ You can plot points on a graph.

BC ⑦ M is the varible ~~that equals the slope~~ that represents the slope in the equation $y=mx+b$.

RA ⑧ By using a table you can find rise/run

MB ⑨ By using 2 plot points on a graph, you can find rise/run

BC ⑩ By using the graph, you can find rise/run and that is slope.

RA ⑪ By using a table you can find change in y / change in x.

AG ⑫ Change in y ÷ x ÷ rise/run is the same thing as slope.

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# What's in a Tweet?

- Synthesize thinking in 140 Characters (includes punctuation and spaces)
- Reflective writing
- Answer to a focus question
- Writing definition/example of vocabulary terms

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## What is Inertia Tweet

My Mom hits the brakes and My head goes straight for the dashboard. I hate Inertia. Btw Inertia is what Makes you Keep going when the Car stops.

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## My Tweet on Inertia

My mom is driving too fast, and she slams on breaks but my body wants to just keep going! #inertia probz

#BecauseofInertia my dog runs into my house from not being cable to stop fast enough.

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## My Tweet on the Relationship between Friction, Gravity, and Inertia

Friction, Gravity, & Inertia all relate to motion. Friction slows [redacted] objects, Gravity pulls down. Inertia means objects move after motion stops.

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# It’s Your Turn to TWEET!

In what ways will you implement some of these strategies in your classroom?

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“A word is not a crystal, transparent and unchanged; it is the skin of a living thought and may vary greatly in color and content according to the circumstance and time in which it is used.”

Oliver Wendell Holmes, Jr.

# FYI

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