Writing and Science in Action

Georgia Association of Literacy Advocates

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Welcome

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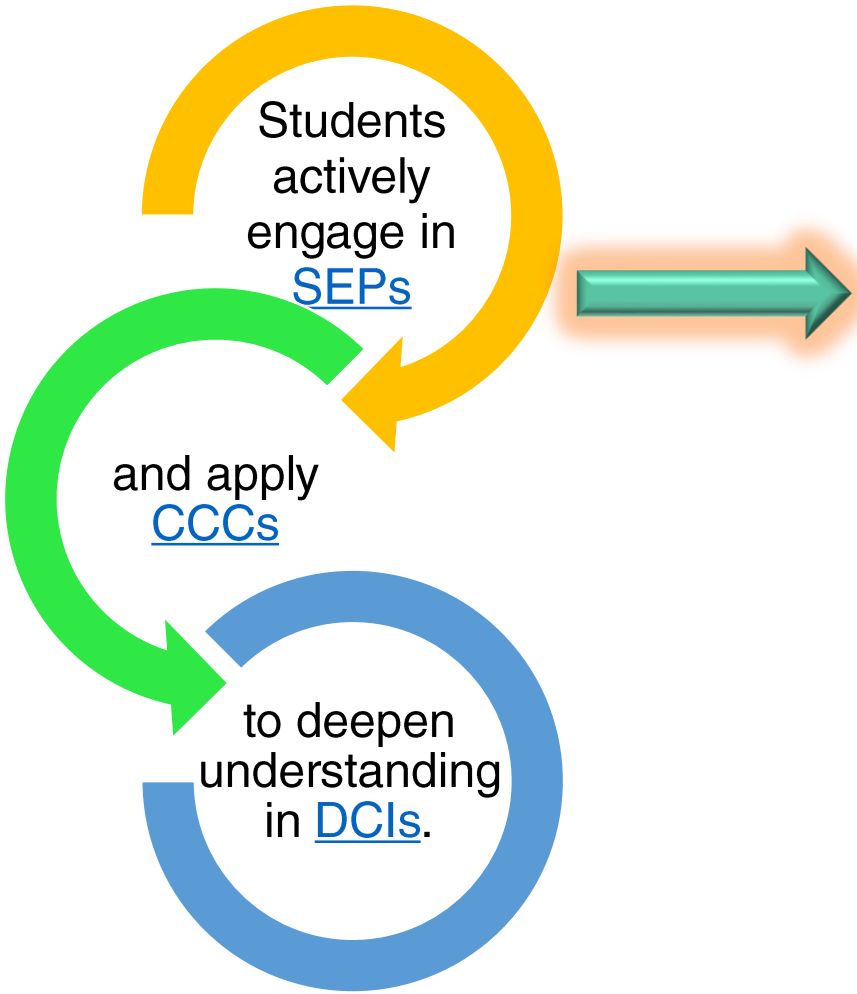
What do you know?

Integration for Science and Writing

- Firsthand experience provides students with a context to write.
- Both subjects benefit when explicit writing instruction is embedded in the content areas.
- Encourages student's ability to make connections to the content and synthesize information.

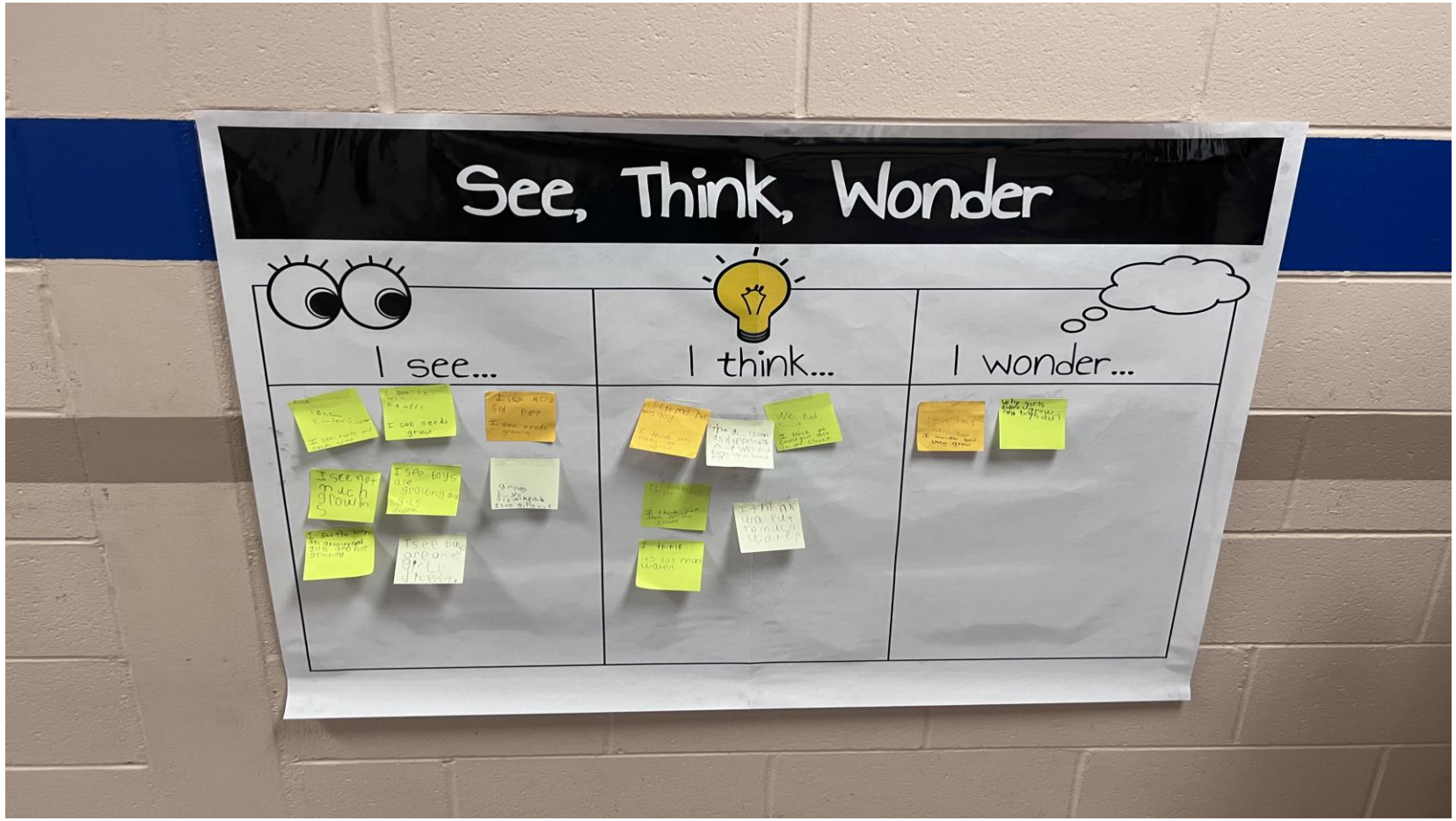
The 3 Dimensions of Science



Science and Engineering Practices

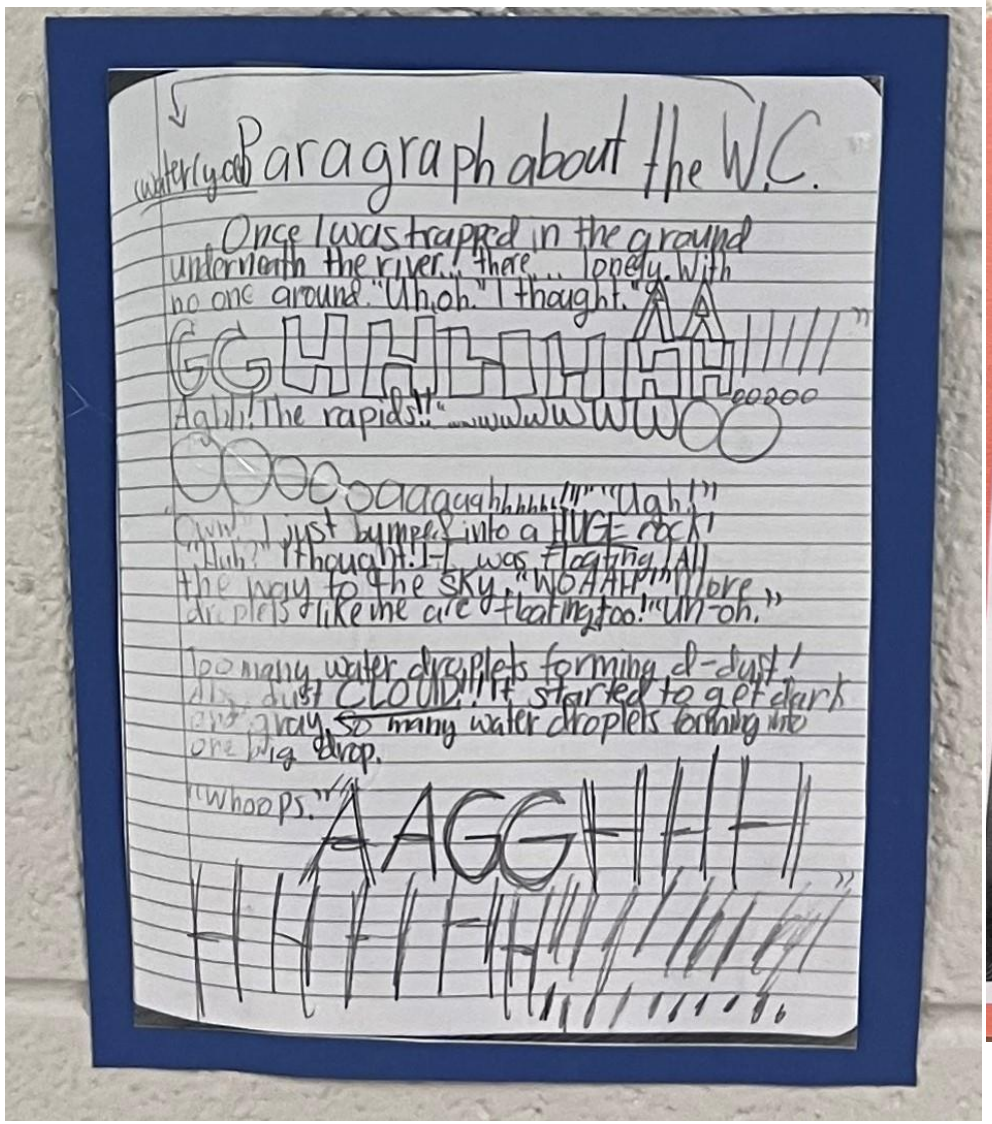
- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investinvestigations
- Analyzing and interpreting data
- Using mathematics, information and computer technology, and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

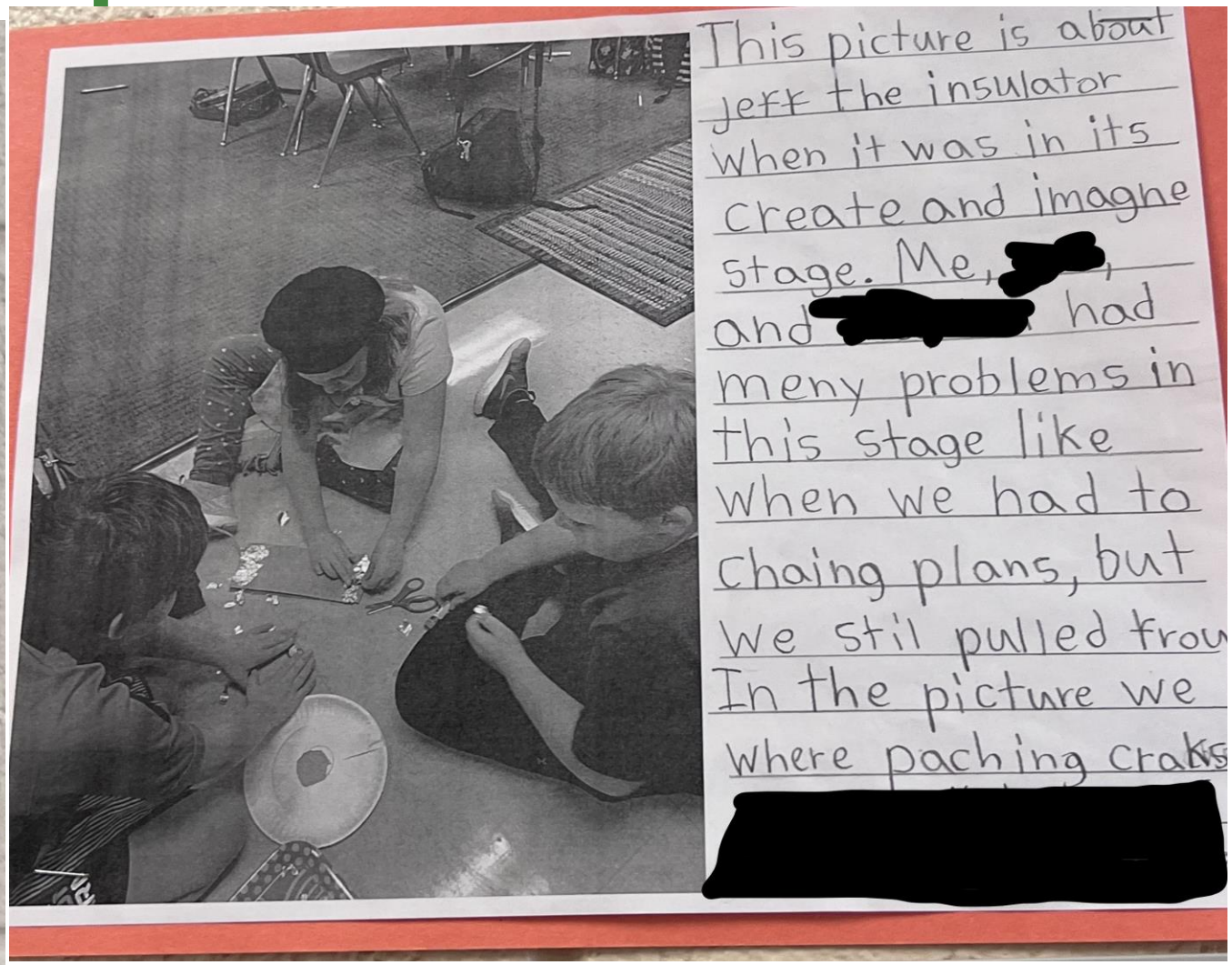
Asking Questions



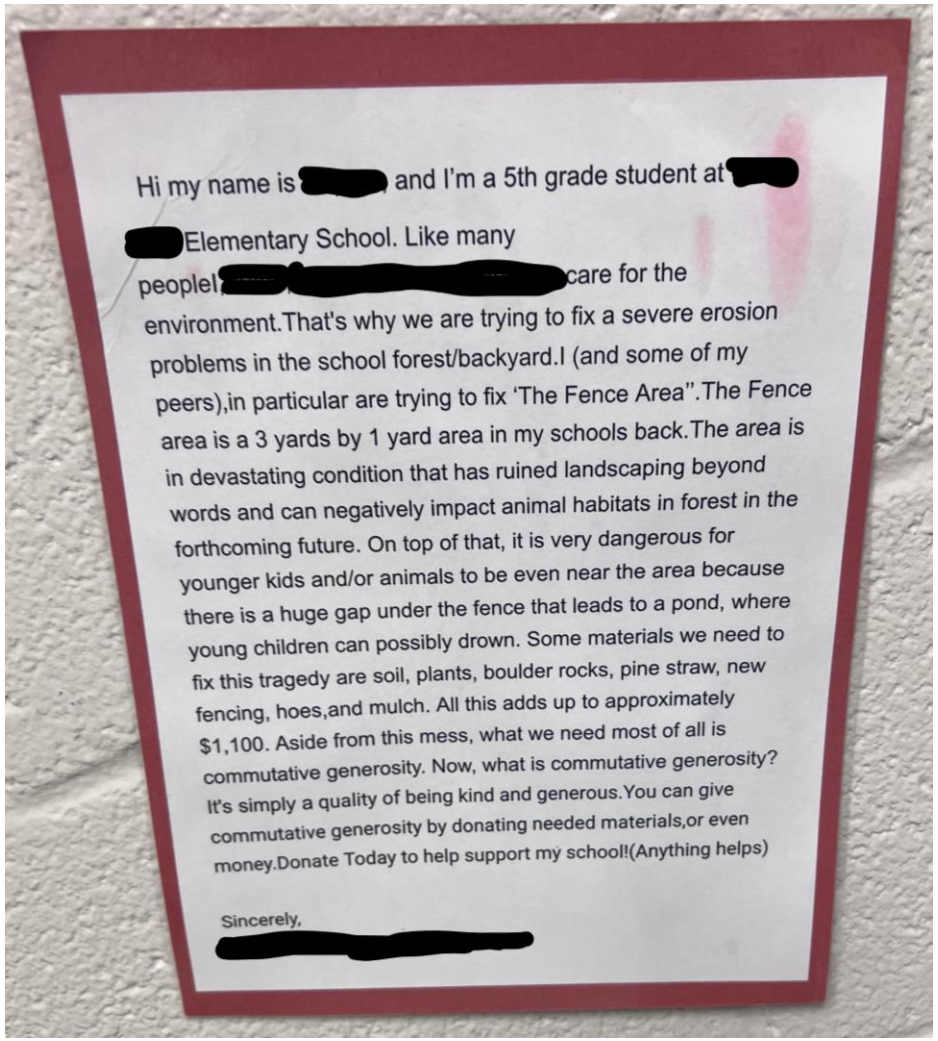
Planning and Carrying Out Investigations

Constructing an Explanations



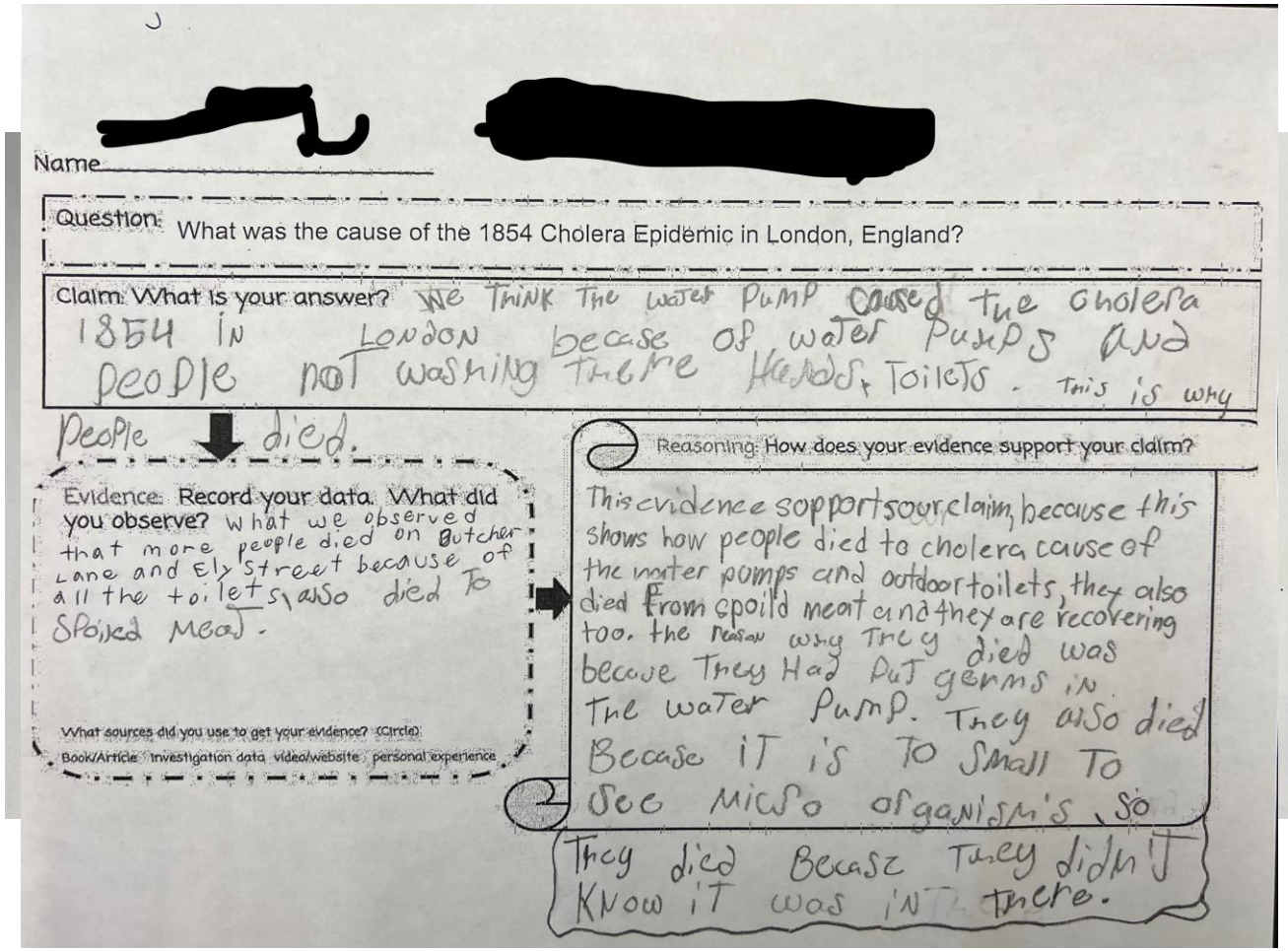


Engaging in Argument from Evidence



Hi my name is [redacted] and I'm a 5th grade student at [redacted] Elementary School. Like many people! [redacted] care for the environment.That's why we are trying to fix a severe erosion problems in the school forest/backyard.I (and some of my peers),in particular are trying to fix 'The Fence Area".The Fence area is a 3 yards by 1 yard area in my schools back.The area is in devastating condition that has ruined landscaping beyond words and can negatively impact animal habitats in forest in the forthcoming future. On top of that, it is very dangerous for younger kids and/or animals to be even near the area because there is a huge gap under the fence that leads to a pond, where young children can possibly drown. Some materials we need to fix this tragedy are soil, plants, boulder rocks, pine straw, new fencing, hoes,and mulch. All this adds up to approximately $1,100. Aside from this mess, what we need most of all is commutative generosity. Now, what is commutative generosity? It's simply a quality of being kind and generous.You can give commutative generosity by donating needed materials,or even money.Donate Today to help support my school!(Anything helps)

Sincerely,
[redacted]



Name [redacted]

Question: What was the cause of the 1854 Cholera Epidemic in London, England?

Claim: What is your answer? We think the water pump caused the cholera 1854 in London because of water pumps and people not washing there Hands, Toilets. This is why People died.

Evidence: Record your data. What did you observe? what we observed that more people died on Butcher Lane and Ely Street because of all the toilets, also died To Spoiled Meat.

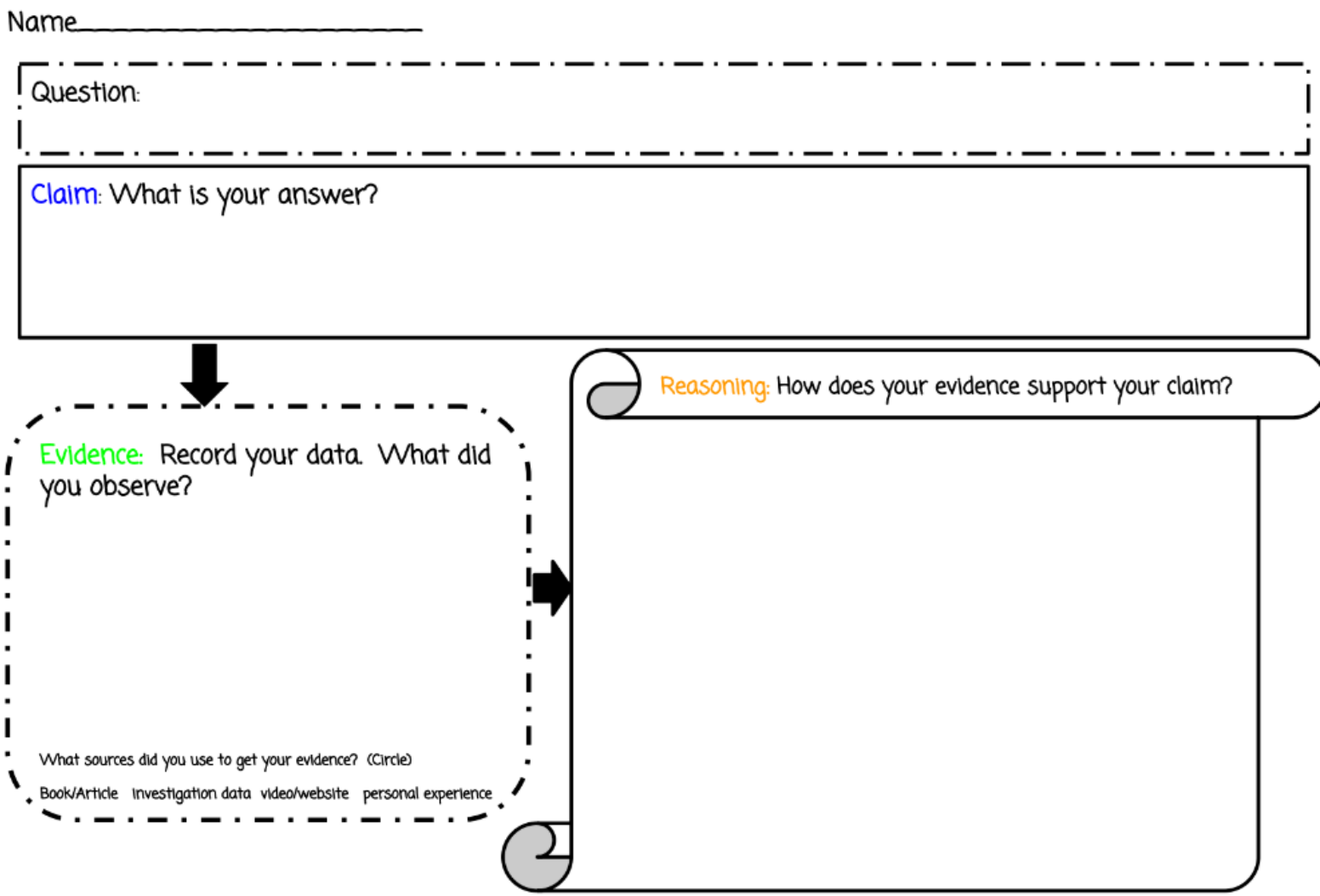
What sources did you use to get your evidence? (Circle)
Book/Article Investigation data video/website personal experience

Reasoning: How does your evidence support your claim?

This evidence sopportsour claim, because this shows how people died to cholera cause of the water pomps and outdoor toilets, they also died from spoild meat and they are recovering too. the reason why They died was becaue They Had Put germs in The water Pump. They also died Because it is To Small To See Micro organism's, So They died Becasc They didn't Know it was in there.

What is Claim, Evidence, and Reasoning or CER?

- A Framework for argumentation/opinion writing
- **Claim**- Answer to the question
- **Evidence**- Data from investigations or other resources that is relevant to the claim.
- **Reasoning**- statement(s) that connect the evidence to the science concepts

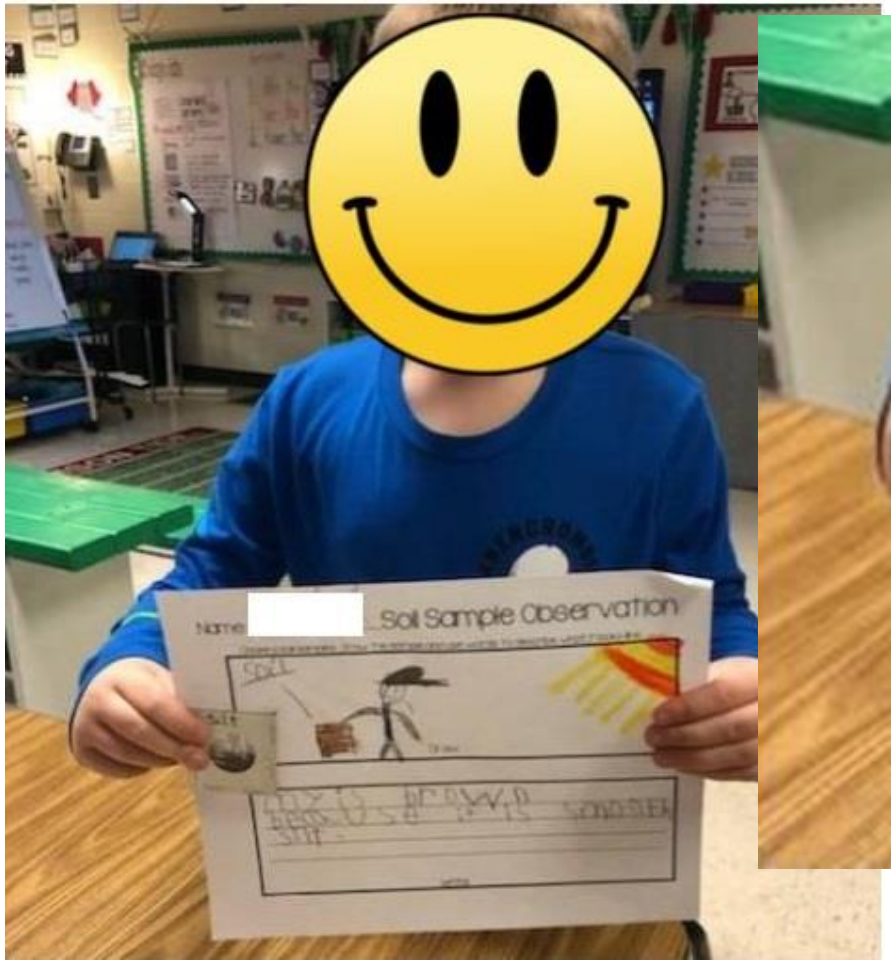


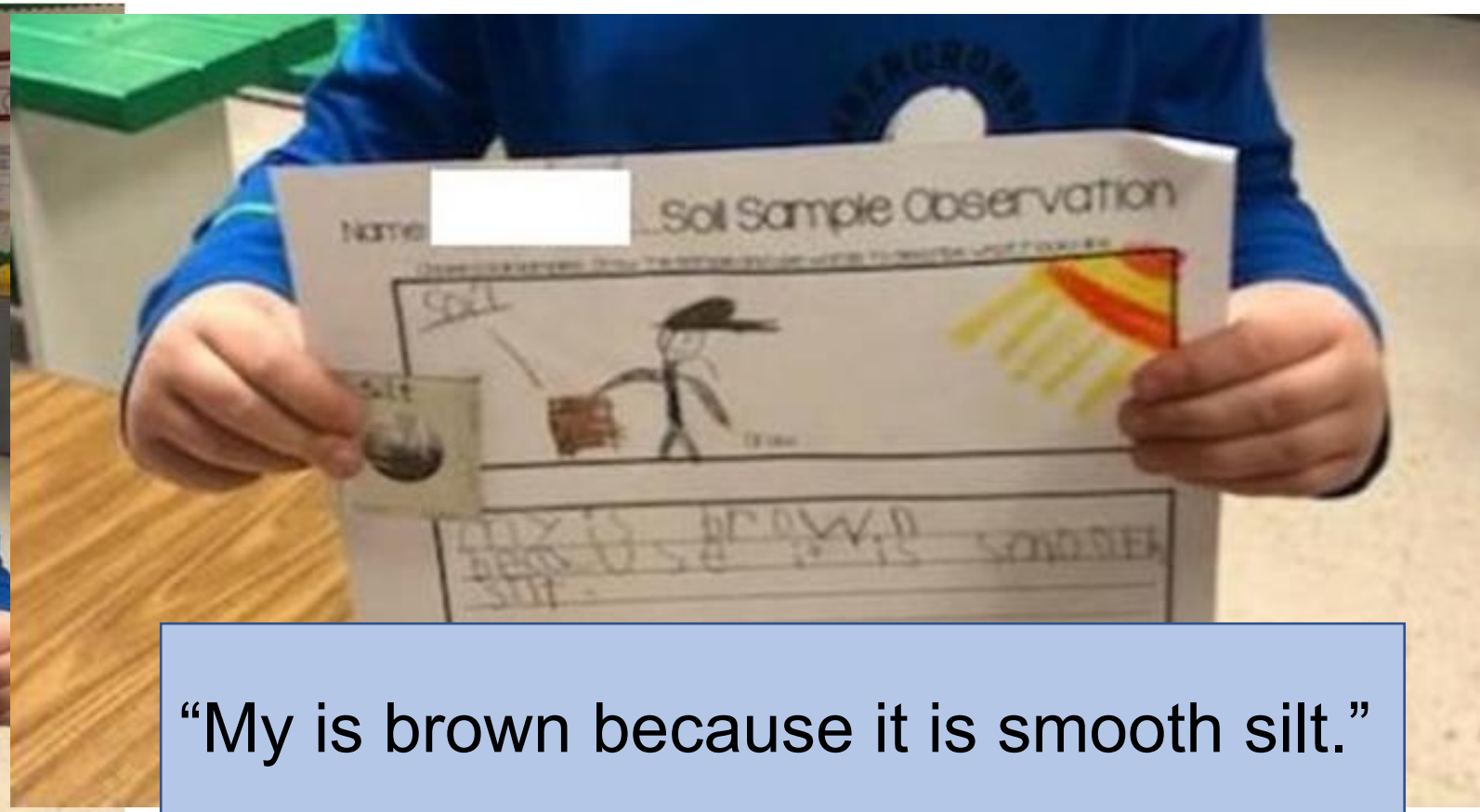
Scaffolding CER

Most Scaffolding → **Least Scaffolding**

Claim	**Choose One**	**Fill-in-the-Blank**	**Sentence Starter**	**Word Bank**
	Provide 2 or more prewritten claims for the students to choose between.	Provide a prewritten claim with a blank for them to write in the key concept.	Rewrite the guiding question into a sentence starter for the student to build a claim.	Provide some key terms in a word back or word wall but the student generates the claim.
Evidence	**Displayed Data Set**	**Single Data Set**	**Relevant Sources**	**List of Data Sources**
	Gather and display relevant data collected by the class as a single source.	Focus the DER on data gathered from a single experiment/source.	Provide a list of source of relevant data sources.	Provide students the opportunity to review their notes to identify relevant data sources.
Reasoning	**Provided Samples**	**Finish the Statement**	**Sentence Starter**	**Structured Reminder**
	Display samples of unrelated reasoning statements that clearly connect a question, claim, and evidence.	Provide targeted sentence starters for each source of data.	Provide general sentence starters for reasoning statements.	Remind students to use a reasoning statement to connect cited evidence back to the guiding question and claim.

Obtaining, Evaluating, and Communication Information





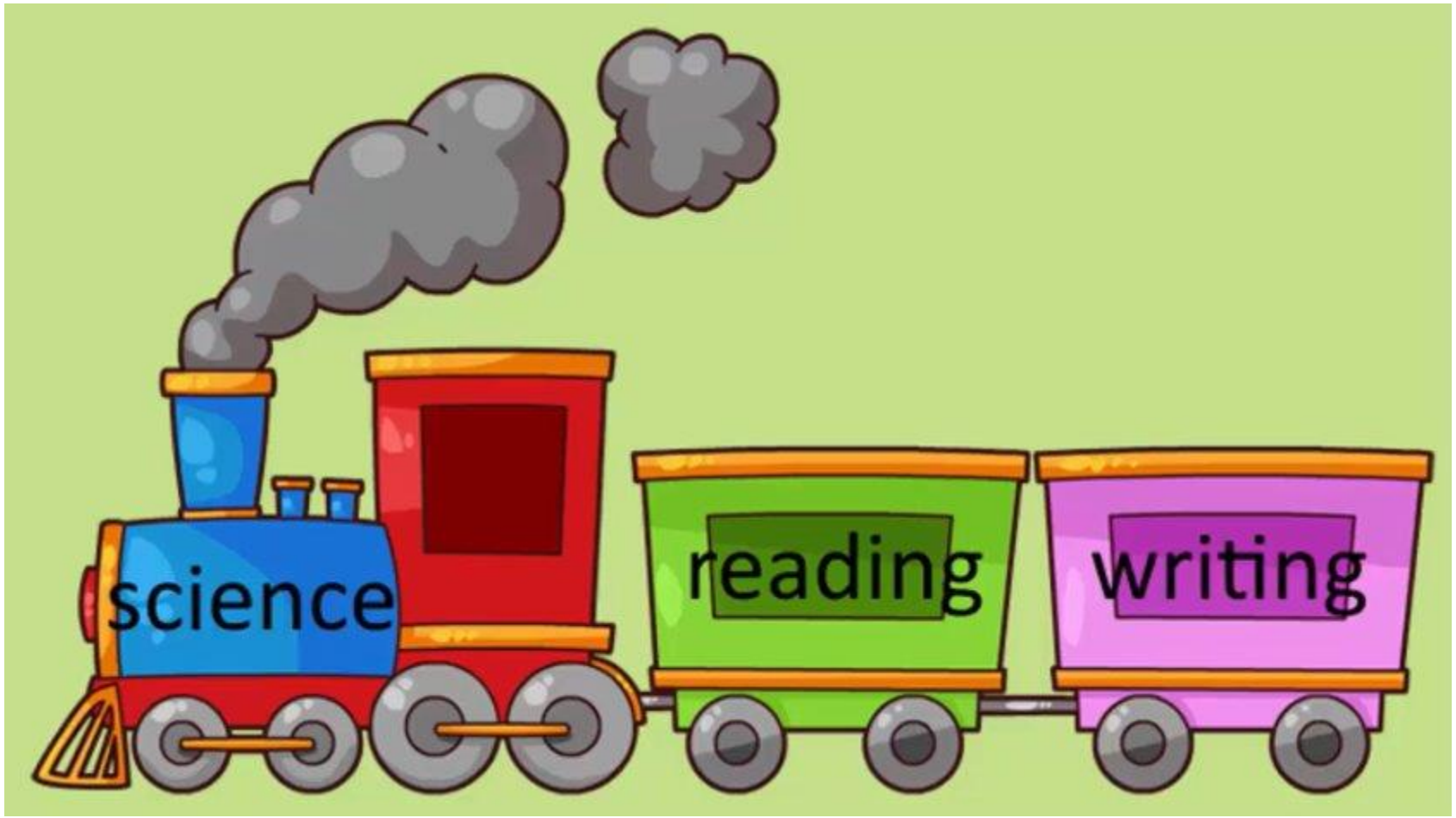
"My is brown because it is smooth silt."

Because, But, So

Literacy-Based Science Tasks

Kindergarten – 8th Grade

What are Literacy-Based Science Tasks?



Example Lesson

2nd Grade

S2E2. Obtain, evaluate, and communicate information to develop an understanding of the patterns of the sun and the moon and the sun's effect on Earth.

a. Plan and carry out an investigation to determine the effect of the position of the sun in relation to a fixed object on Earth at various times of the day.

b. Design and build a structure that demonstrates how shadows change throughout the day.

2nd Grade

ELAGSE2RI2: Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text

ELAGSE2W3: Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.

MGSE2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes

MGSE2.MD.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard-length unit.

Pre-Reading- Activity 1

Shadow on the wall

- Allow students or demo for students making shadow puppets

Pre-Reading- Activity 1

- Shadow on the wall

Making Shadows

Directions:
Draw what you observed during the activity in the box below.

What did you see?

_____

_____.

Fill in the following sentence:

When the flashlight moved closer to the object _____

_____ happened to the

dark spot on the wall.

Pre-Reading- Activity 2

- Shadows during the day
  - Have students work with a partner
  - Make a prediction about shadow size and shape
  - Go outside at 3 points during the day
    - Morning
    - Noon
    - Afternoon
  - While outside trace shadows with chalk of each partner

Pre-Reading- Activity 2

- Shadows during the day
  - Measure shadow and record data
  - Give students time to discuss what they noticed
  - Have students compare shadow measurement data

Shadows During the Day

Descriptive Words			
Long	Short	Tall	Skinny
Wide	Small	Large	

Use the descriptive words to make a claim about your shadow at different times during the day.

Morning

Claim: My shadow will be _____ in the morning.

Now draw what you saw outside below

Pre-Reading- Activity 3

- The Earth Turns
  - Set up a light source
  - Place a sticky note on a globe where we are (Georgia, USA)
  - Turn the sticky note toward the light source
  - Slowly turn the globe making marks where the brightest light is as you move the globe
  - Discuss

Reading

- Introduce the reading
- Reading skills:
  - Using diagrams and illustrations to support understanding

ELAGSE2RI7 Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

  - Identify the main idea

ELAGSE2RI2: Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text

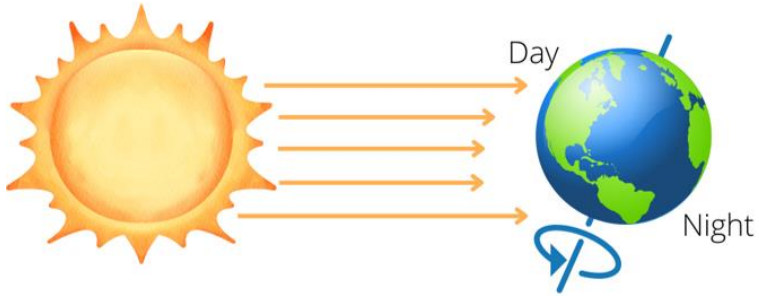
Reading

Changing Shadows

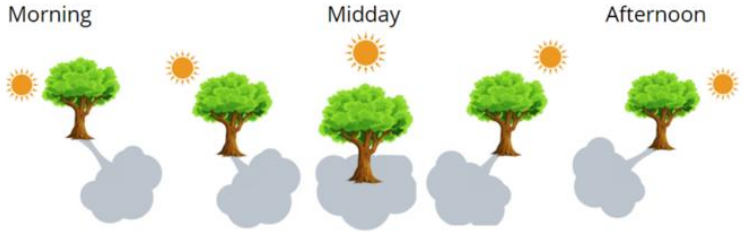
Stand outside in the sun. You can see your shadow. Your shadow is the dark shape where your body blocks the sunlight.

Notice that your shadow does not exactly match your body. In the morning you have a long, skinny shadow. It may look like a superhero. At noon your shadow will be short. It may look like a puddle around your feet. Late in the afternoon, your shadow will be the long, thin superhero again. This time, your superhero self will be facing the other direction! Your body does not change like that. So, what is happening with your shadow?

Look at the diagram below. It shows that the Earth is turning. It takes one day for the Earth to rotate all the way around. The sun does not move. But from Earth, it looks like the sun is moving. It looks like the sun comes up in the East. The sun rises and gets higher and higher in the sky. Then it looks like the sun moves down. The sun sets in the West.



As the sun appears to move, our shadows change. Look at the next diagram. When the sun is low in the sky, the tree blocks a lot of the light. Its shadow is long. As the sun gets higher, the tree blocks less light. The shadow gets shorter.



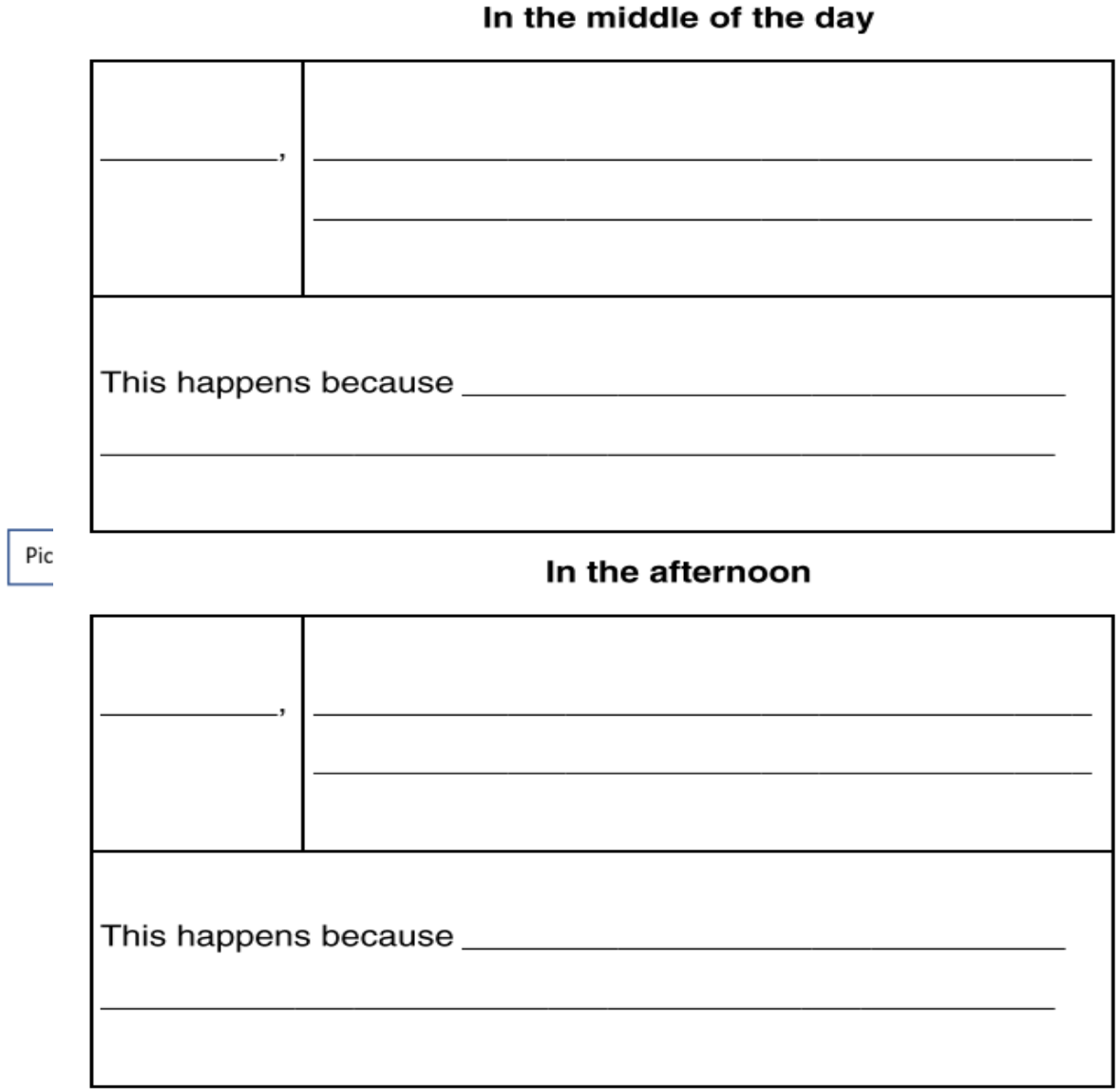
In the middle of the day, the Earth has rotated to face the sun completely. The sun appears directly overhead. Notice that the shadow of the tree is like a puddle. Only the top of the tree is blocking the light.

As the Earth continues to rotate, the shadow will shift again. It will grow longer. But it will face the other direction as the sun sets.

You can watch your shadow change. You can watch a tree's shadow change. Shadows change because the Earth rotates and faces the sun from different directions.

Post Reading

- Build a Shadow Structure
  - Test it
- Write about it
  - How does your structure work?
  - How does the shadow change?
  - How does the structure give us a way to tell time?



Current Literacy-Based Science Tasks

Kindergarten- Day and Night Sky, Sink and Float, Living or Nonliving, Soil

1st Grade- Light, Magnets, Needs of Plants and Animals, Weather

2nd Grade- Shadows, Structures

3rd Grade- Fossils, Water Pollution

4th Grade- Ecosystems, Energy Flow

5th Grade- Erosion

6th Grade- Tornadoes

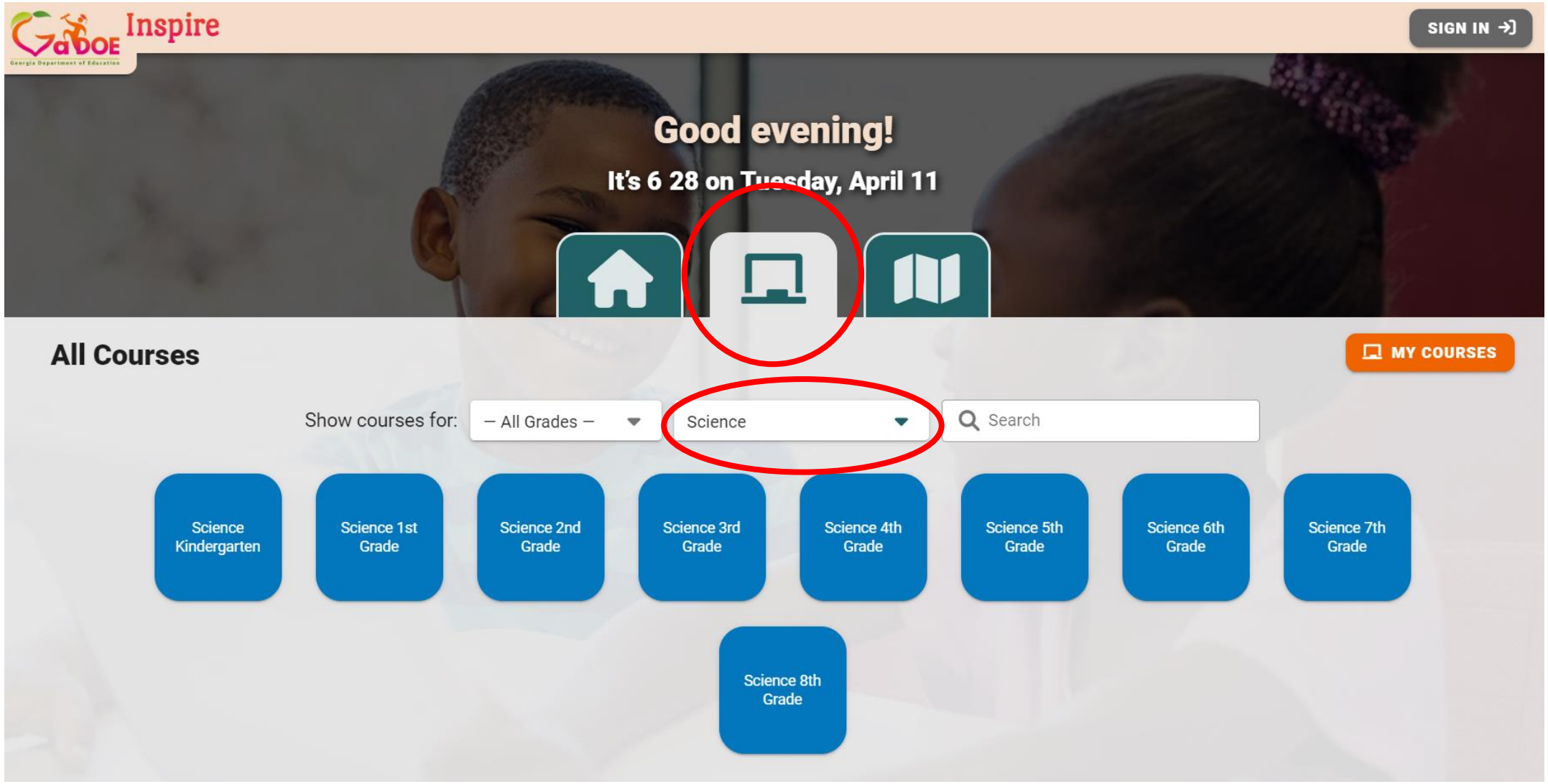
7th Grade- Cells

8th Grade- Mixtures

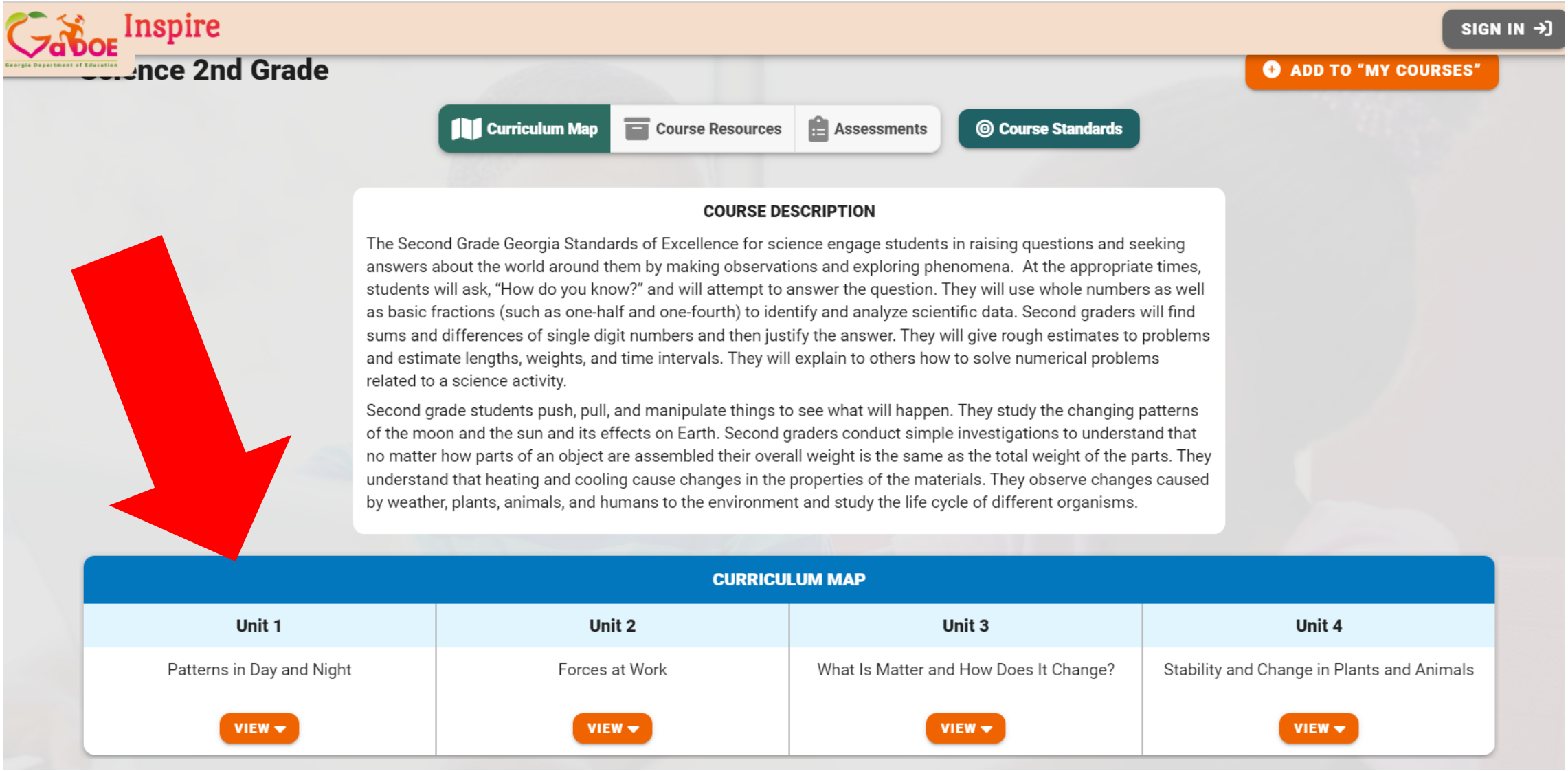
More Literacy-Based Science Tasks Coming Soon!

Where do I find these resources?

GaInspire



Public Link https://inspire.gadoe.org/


Inspire
SIGN IN
nce 2nd Grade
ADD TO "MY COURSES"
Curriculum Map
Course Resources
Assessments
Course Standards
COURSE DESCRIPTION
The Second Grade Georgia Standards of Excellence for science engage students in raising questions and seeking answers about the world around them by making observations and exploring phenomena. At the appropriate times, students will ask, "How do you know?" and will attempt to answer the question. They will use whole numbers as well as basic fractions (such as one-half and one-fourth) to identify and analyze scientific data. Second graders will find sums and differences of single digit numbers and then justify the answer. They will give rough estimates to problems and estimate lengths, weights, and time intervals. They will explain to others how to solve numerical problems related to a science activity.
Second grade students push, pull, and manipulate things to see what will happen. They study the changing patterns of the moon and the sun and its effects on Earth. Second graders conduct simple investigations to understand that no matter how parts of an object are assembled their overall weight is the same as the total weight of the parts. They understand that heating and cooling cause changes in the properties of the materials. They observe changes caused by weather, plants, animals, and humans to the environment and study the life cycle of different organisms.
CURRICULUM MAP
Unit 1
Patterns in Day and Night
VIEW
Unit 2
Forces at Work
VIEW
Unit 3
What Is Matter and How Does It Change?
VIEW
Unit 4
Stability and Change in Plants and Animals
VIEW

Q and A

Our Contact Information

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