



Claim Evidence Reasoning NOW Symposium

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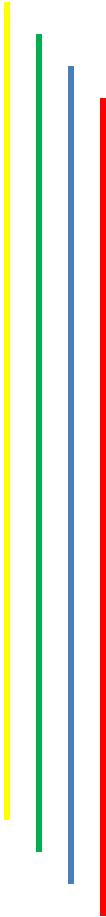


Agenda



Overall Driving Question:

How can we support our students in crafting evidence based arguments in science and across the curriculum?





Agenda



- Look at an example of evidence based argumentation
- Use I DO, WE DO, YOU DO scaffolding
- Use CER to justify the correct answer on released OAA questions
- Discuss classroom implementation
- Analyze standards across the curriculum

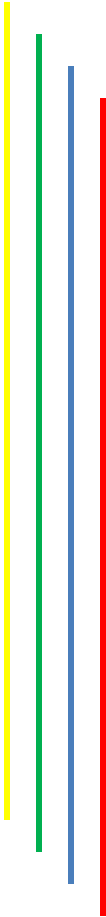


Agenda



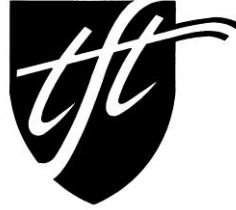
Learning Targets

- Identify claim, evidence, reasoning.
- Use evidence and reasoning to support a claim.
- Plan for classroom implementation
- Analyze standards across the curriculum

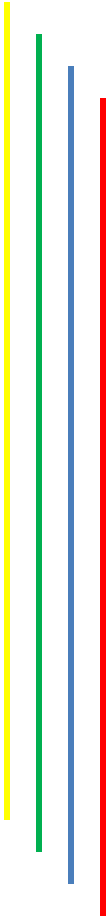




Group Norms



Use technology appropriately and respectfully
Take breaks as needed
Be conscious of “air time”
Keep side bars to a minimum
Comments & questions are welcome
(constructive, on topic)





Claim Evidence Reasoning



<http://www.youtube.com/watch?v=Ns4mnmNBk1Y>



Claim Evidence Reasoning

What does Vince want you to do?

Why is Vince so convincing?

We will watch the video again. Write down all the evidence that Vince uses to convince you to buy Sham Wow.



Claim Evidence Reasoning

What evidence does Vince use to convince you to buy Sham Wow?



<http://www.youtube.com/watch?v=Ns4mnmNBk1Y>



Group Norms

What evidence does Vince use to convince you to buy Sham Wow?

holds 20x its weight in liquid
demonstrations - dried off the counter
washable

better for the environment

\$20 a month on paper towels

change the size

different/multiple uses

10 year warranty

Made In Germany - Germans make good things



Claim Evidence Reasoning

What more could Vince do to convince you that you should buy Sham Wow? (hint: think like a science teacher)

Let's make Vince's presentation even better and add the reasoning to his evidence.



Claim Evidence Reasoning

Claim Evidence Reasoning is a framework for constructing scientific explanations.

- Claim – the main idea
- Evidence – the facts that support the claim
- Reasoning – explanation of the logic behind why the facts support the claim



Claim Evidence Reasoning

Claim –

- A statement.
- My hypothesis was proven correct (or incorrect).
- The answer to a multiple choice question.



Claim Evidence Reasoning

Evidence –

- Observations
- Experimental evidence
- Facts that led you to make the claim



Claim Evidence Reasoning

Reasoning

- Uses logic to tie evidence to the claim.
- Detailed explanation for why the evidence led you to make the claim.
- Deep explanation of the science concepts the science concepts
 - Why do the facts support the statement.
 - Why did my experiment turn out the way it did.
 - The scientific background knowledge that justifies why a multiple choice answer is the best answer.



Claim, Evidence, Reasoning

- Use it to discuss claims made in documentaries, videos, commercials.
- Use it after an experiment to explain why a hypothesis was proven correct or not.
- Use it to justify why an OAA question is correct.
- Use it to engage in structured, respectful, argumentation.



Claim Evidence Reasoning

- Does not necessary have to be stated in that order.
- There are multiple correct answers.



Claim Evidence Reasoning

Claim: You should buy a Sham Wow.

Evidence:

Does not drip.

Holds 20 times it's weight in liquid.

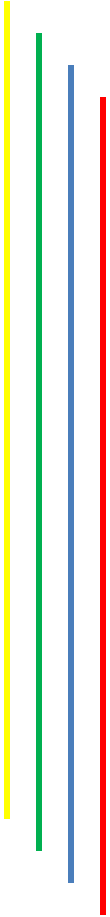
Absorbs all liquid from a carpet.

Reasoning: Next page



Claim Evidence Reasoning

I D O





Claim Evidence Reasoning

What more could Vince do to convince you that you should buy Sham Wow? (hint: think like a science teacher)

Let's make Vince's presentation even better and add the reasoning to his evidence.



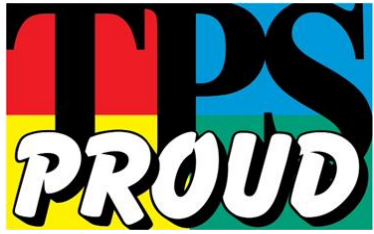
Claim, Evidence, Reasoning

Reasoning:

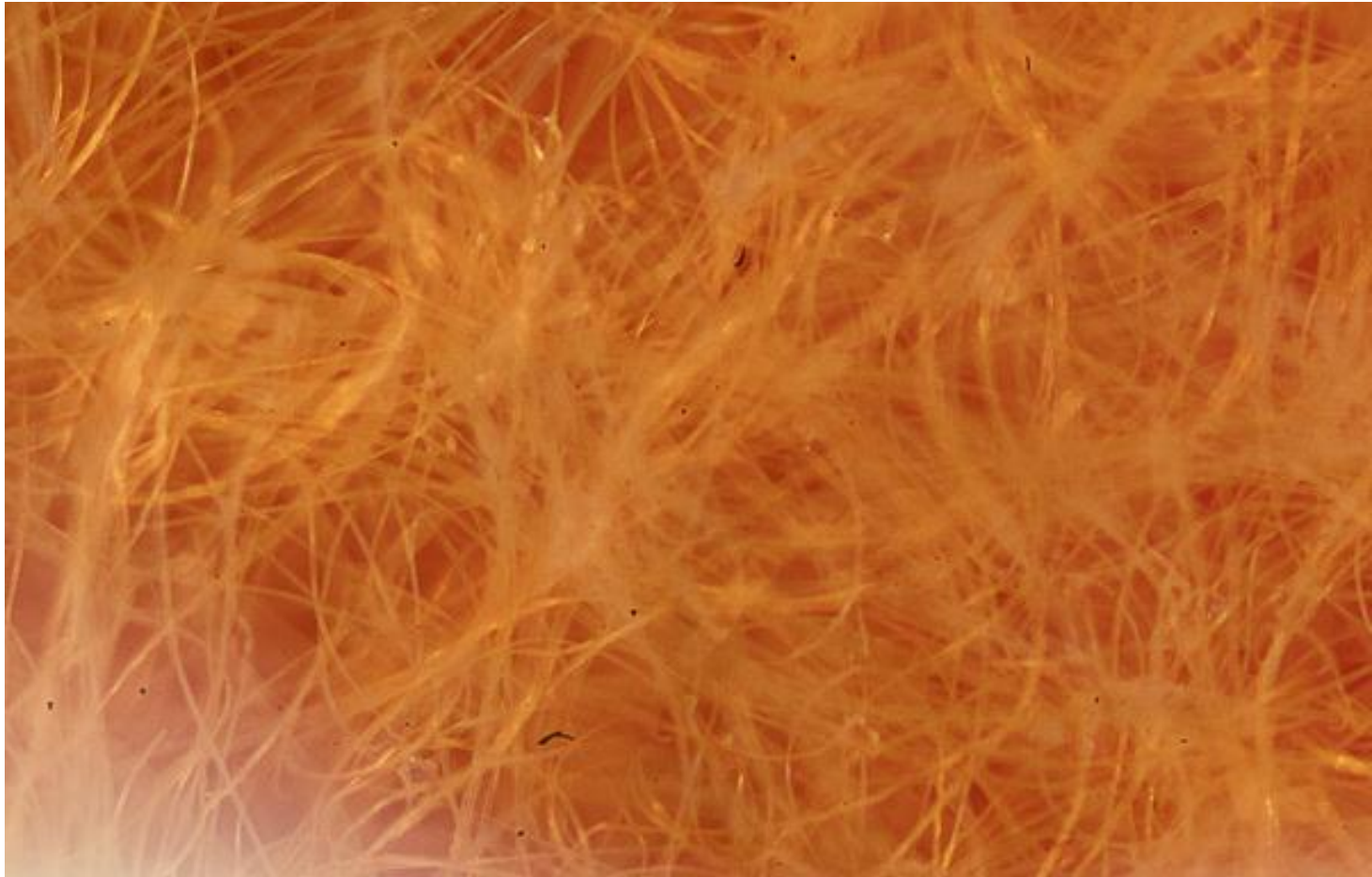
The Shan Wow towel works so well because it contains micro fibers. Micro fiber towels are made from two synthetic (man made) materials, usually nylon and polyester. The fibers are treated with chemicals and mechanically changed to make them very small, smaller than $1/100$ th the diameter of a human hair. This gives the towel a lot of surface area to make contact with the spill and absorb the liquid. The tiny fibers get into small places where most towel fibers cannot reach.

Source:

<http://www.cleanlink.com/cp/article/Microfiber-101-The-Science-of-Tiny-Threads--3488>



Claim Evidence Reasoning



<http://www.behance.net/gallery/Micro-Macro-V2/4594421>

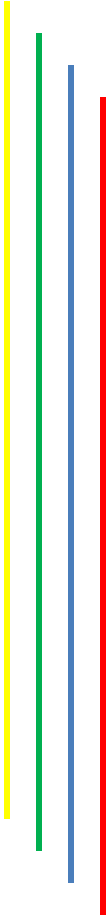


TOLEDO FEDERATION
OF TEACHERS



Claim Evidence Reasoning

WE DO





Claim Evidence Reasoning

- Smile Video – ABC news report about research into smiling.

Look for the claim, the evidence, the reasoning

(Hint – ideas will not be presented in that order.)



Claim Evidence Reasoning



<http://abcnews.go.com/WNT/video/smiling-proven-make-us-happier-14822785>



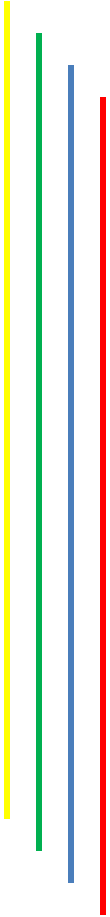
Claim, Evidence, Reasoning

- What is the claim the reporter is making?
- What evidence does she cite in the report that supports that claim?
- What is the scientific explanation?
 - Physiological reason smiling makes you happy
 - Physiological reason people who smile feel better



Claim Evidence Reasoning

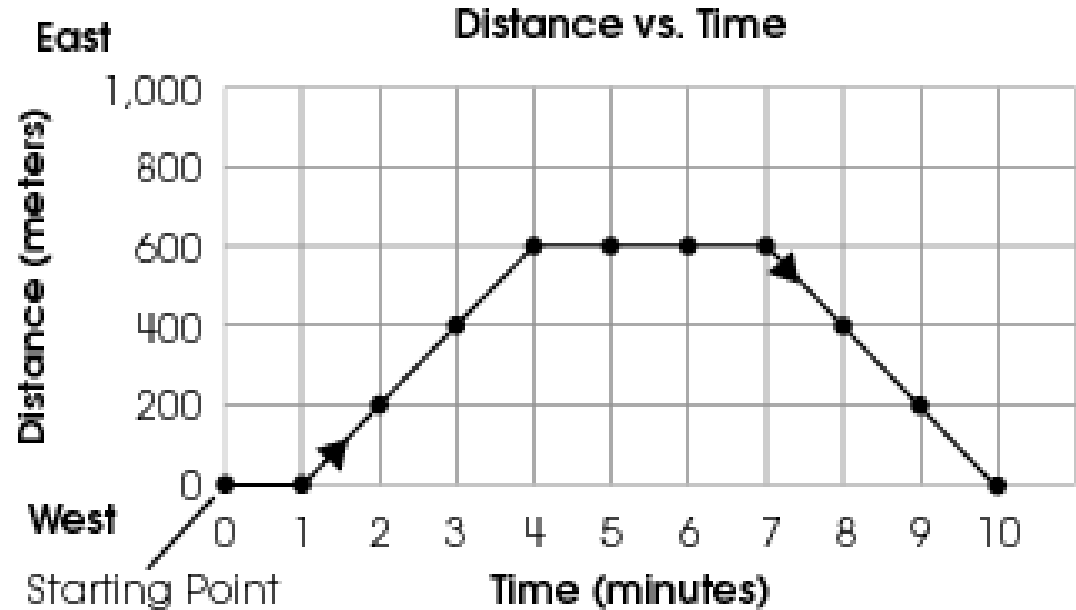
WE DO





Released OAA

What is the car's motion relative to the starting point at time = 8 minutes?



- A. at rest at the starting point
- B. in motion at the starting point
- C. moving toward the starting point
- D. moving away from the starting point



Claim Evidence Reasoning

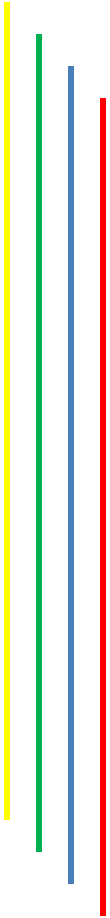
Multiple Choice Question

- Claim – What is the correct answer
- Evidence –
 - data from the graph
 - facts from background information
 - reasons for excluding other answer choices.
- Reasoning –
 - Scientific background knowledge
 - Deep explains about why the answer is correct beyond what is given in the graph, table or background information.



Claim Evidence Reasoning

YOU DO





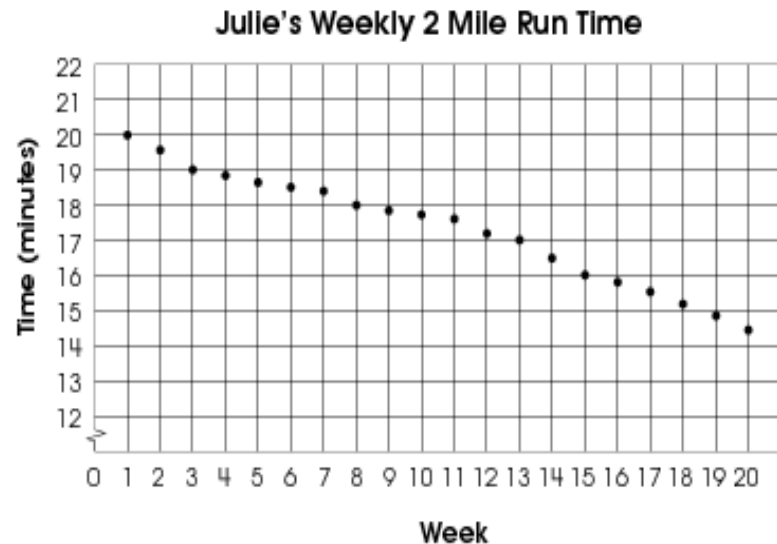
Released OAA

2010-2011: Grade 8: Math: Data Analysis and Probability: Question 2

Each Friday, Julie's track club runs two miles. The graph shows the amount of time that it takes Julie to run the 2 miles each week over a period of 20 weeks.

Which describes the relationship between the number of weeks Julie practices and her running time?

- A. Julie is running at a slower rate each week.
- B. Julie decreases her time by about 20 seconds each week.
- C. Julie decreases her time by about one minute each week.
- D. Julie is likely to run the 2 miles in 12 minutes during the 21st week.





Released OAA

2010-2011: Grade 5: Math: Number Sense: Question 32

Which fraction is equivalent to $\frac{1}{3}$?

A. $\frac{1}{6}$

B. $\frac{9}{3}$

C. $\frac{4}{6}$

D. $\frac{3}{1}$



Released OAA

2010-2011: Grade 5: Science: Earth and Space Sciences: Question 33

Which explains the pattern of day and night?

- A. Earth orbits the sun.
- B. Earth spins on its axis.
- C. The sun only transmits light energy during the daytime.
- D. The sun only transmits light energy above the equator.



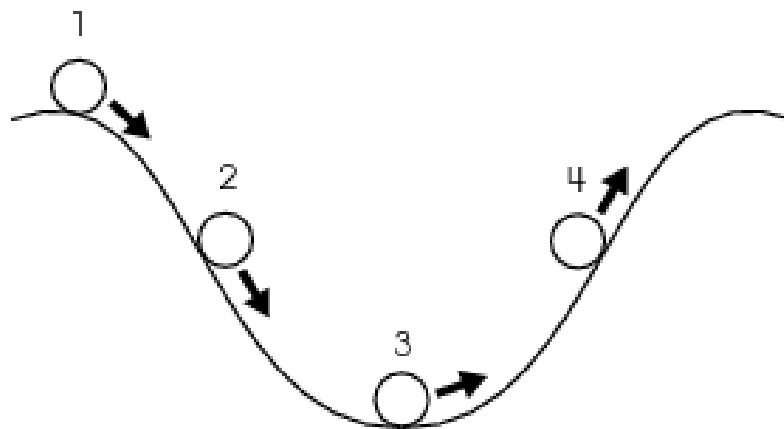
Released OAA



A ball is released from rest at position 1. The diagram shows the ball in four positions as it rolls along a track from left to right.

In which position does the ball have its minimum gravitational potential energy and maximum kinetic energy?

- A. 1
- B. 2
- C. 3
- D. 4





Claim Evidence Reasoning

- It can be done.
- It will take time.
- Give yourself time to get used to this framework!
- Practice makes perfect.
- Start dropping the works “claim, evidence, reasoning” informally.



Claim Evidence Reasoning

- Use scenarios that are real to students
 - Who is the best vocal artist?
 - What time should you get up on the weekend?
 - What is a reasonable allowance for a junior high student?
 - Mysteries “Who done it?”



Claim Evidence Reasoning

- Scaffolding
- Look at examples as a class.
- I do, we do, you do
- Peer review
- Feedback
- For reasoning – let students paraphrase information from the text or internet research.



Claim Evidence Reasoning

- 4th & 5th grade – claim & evidence only
- 6th grade and above – start to uses explanation
- Mid to late high school – counter claims & arguments



Claim Evidence Reasoning

- What cross curricular connections can be made with this strategy?
- Give an example of how this writing strategy can be used in math? social studies?
- Why do students struggle writing in depth explanation?
- How does this strategy help our students develop critical thinking skills?
- How could this writing strategy serve as a formative assessment tool?
- How could the claim, evidence, reasoning strategy help students when they disagree?



Closure

- Roll the dice
 - Dice number corresponds to a set of standards
 - Use the highlighter to highlight standards that could be supported by CER
 - Report out, how many standards & what standards
1. ELA – Science & Technical
 2. ELA – Social Studies
 3. ELA- Writing
 4. Science Inquiry & Application
 5. Mathematical Practices
 6. Choice!



Claim Evidence Reasoning

Thank

You