

**Jerrold Wiebe
Jared Sliger**

Building Thinking Classrooms in Science

New Haven, CT
June 29 - 30, 2026

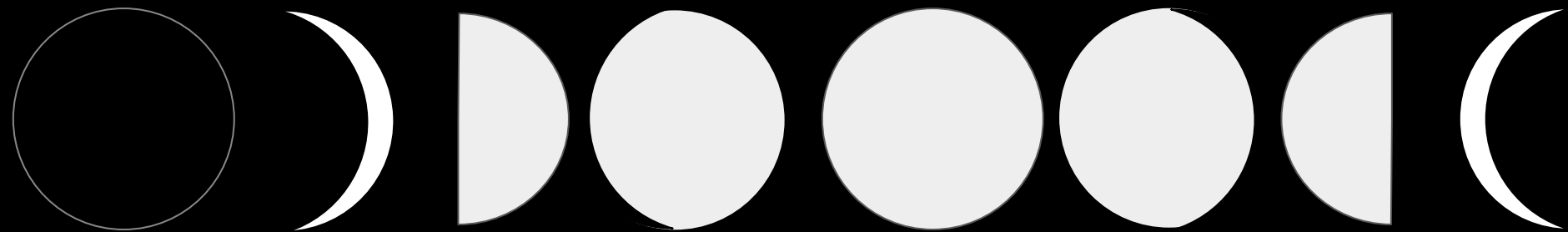








What we think





Does the
Moon
generate
its own
light?

If this is
what you
see,
where is
the Sun?



- The Moon does not have its own light
- Moon is a sphere that has a shadow on the side that faces away from the sun. (so no actual darkside, only a far side.)
- Moon revolves around the Earth. (~ 28.5 degrees of the equatorial plane)
- Earth rotates

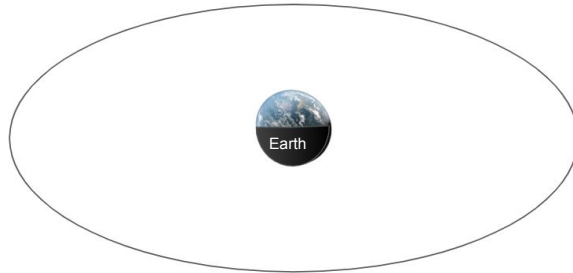
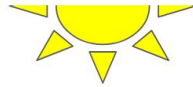
How big is the moon
compared to the Earth?

How far away is the Moon
from the Earth?



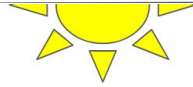
What we think

Add this to the bottom of your board

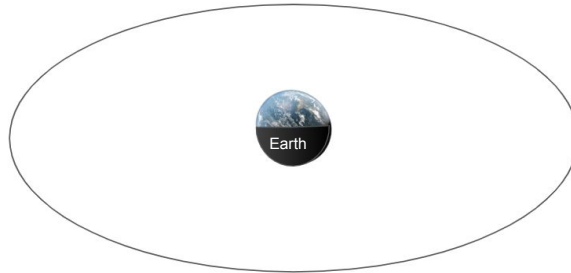


What we think

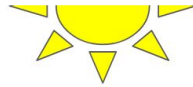
Draw where
would the Moon
be in its orbit if
Earth sees a full
moon.



- Convince yourself
- Convince a friend
- Convince a skeptic

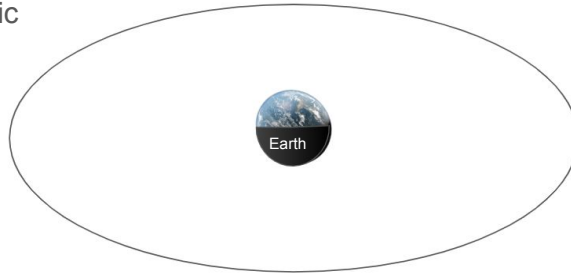


What we think



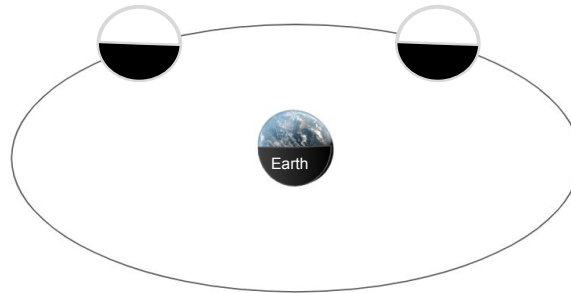
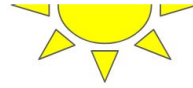
Mark where The Moon is when these phases are visible?

- Convince yourself
- Convince a friend
- Convince a skeptic



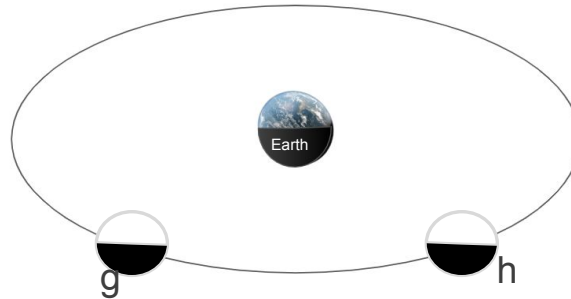
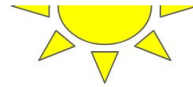
What we think

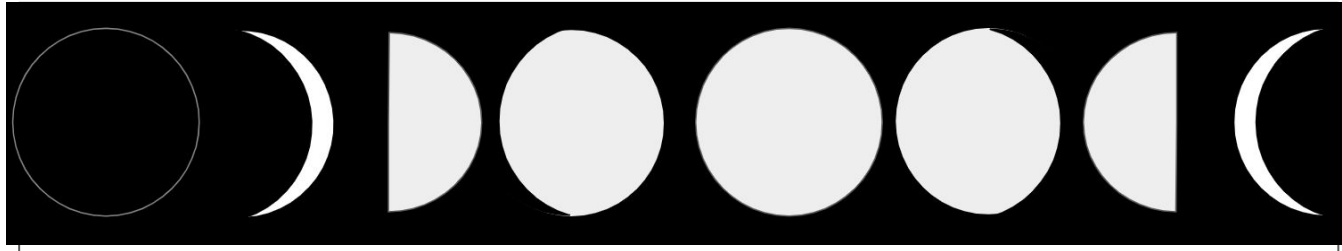
Draw the
phase that
we see when
the moon is
at these
locations



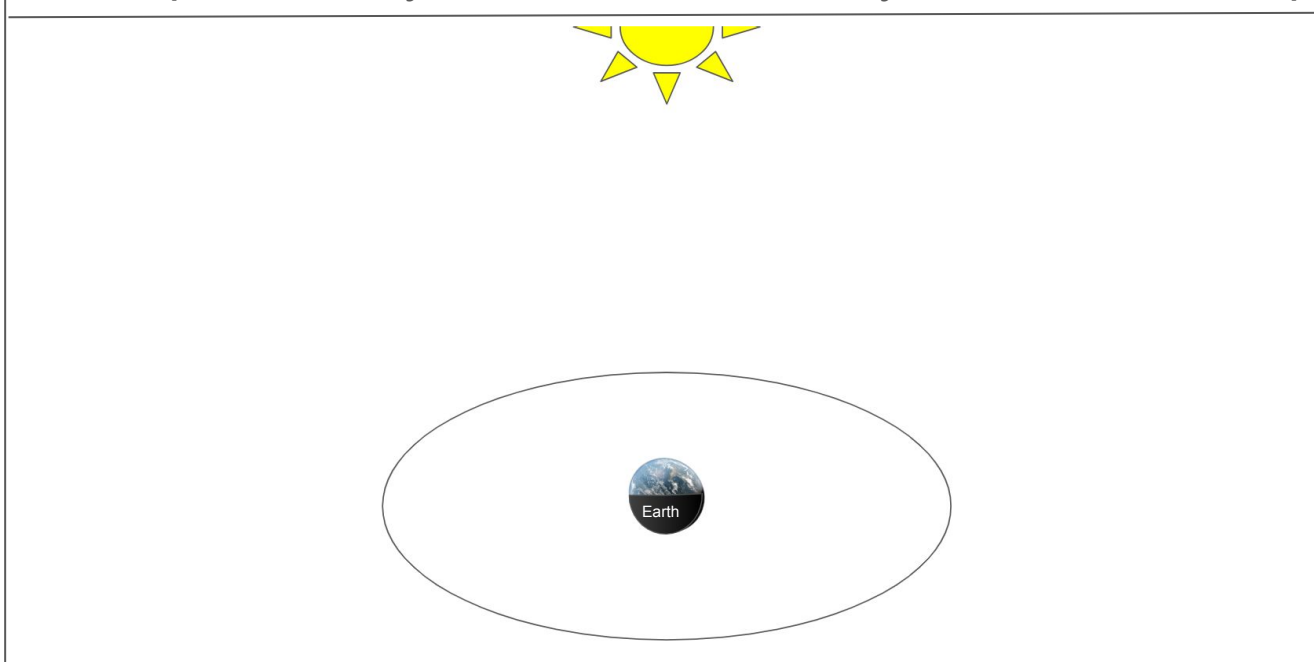
What we think

What is the
view from
Earth?





Are these 8 phases on your board? Prove they are in the correct place

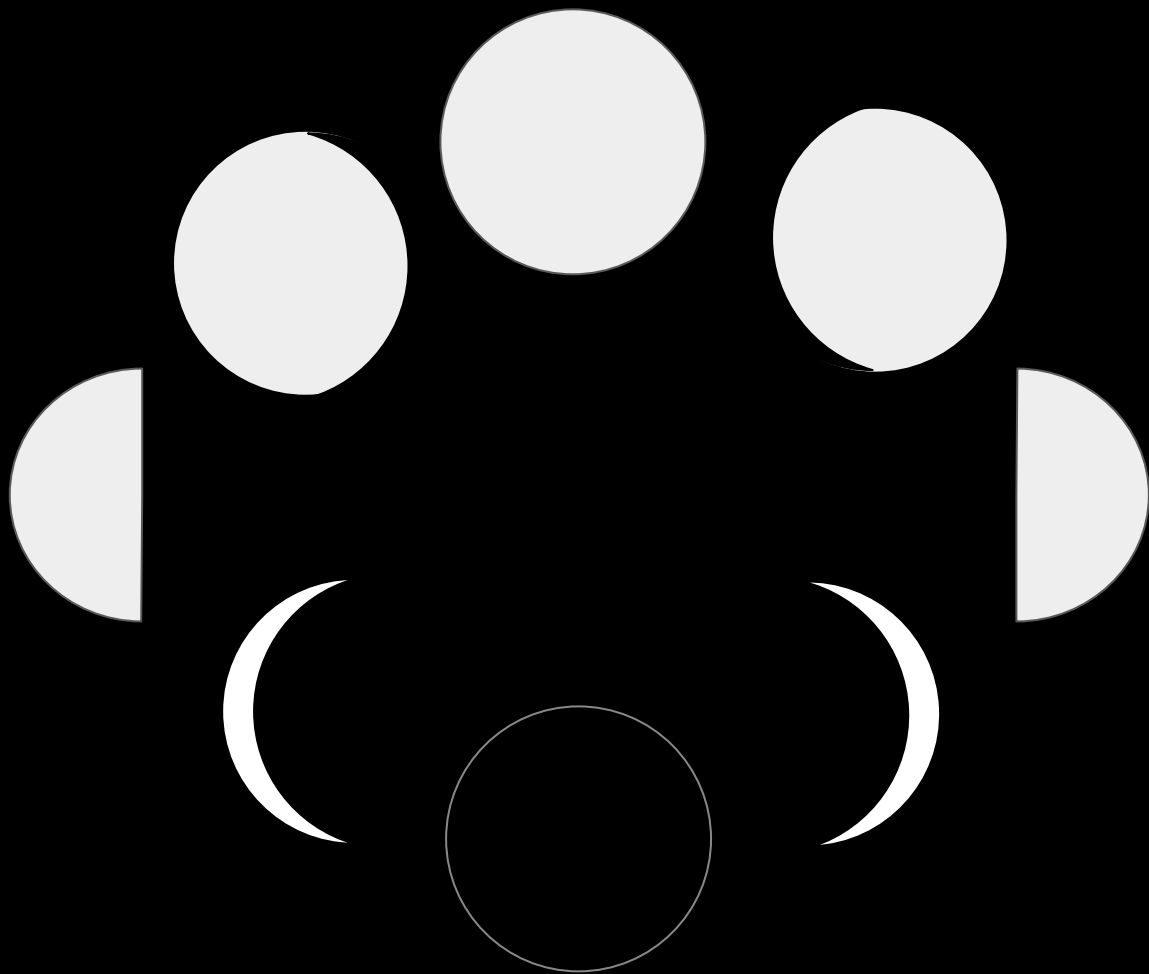


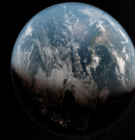
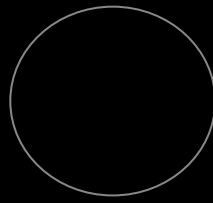
As you read
this NASA
article, what
is it about
your board
you like ✓

What would
you add or
delete?

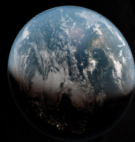


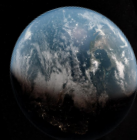
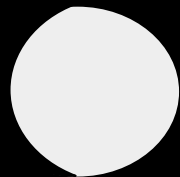
About The Moon

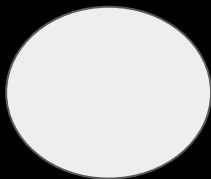
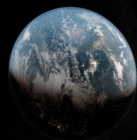


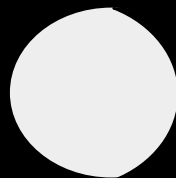


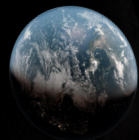


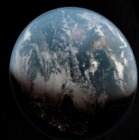


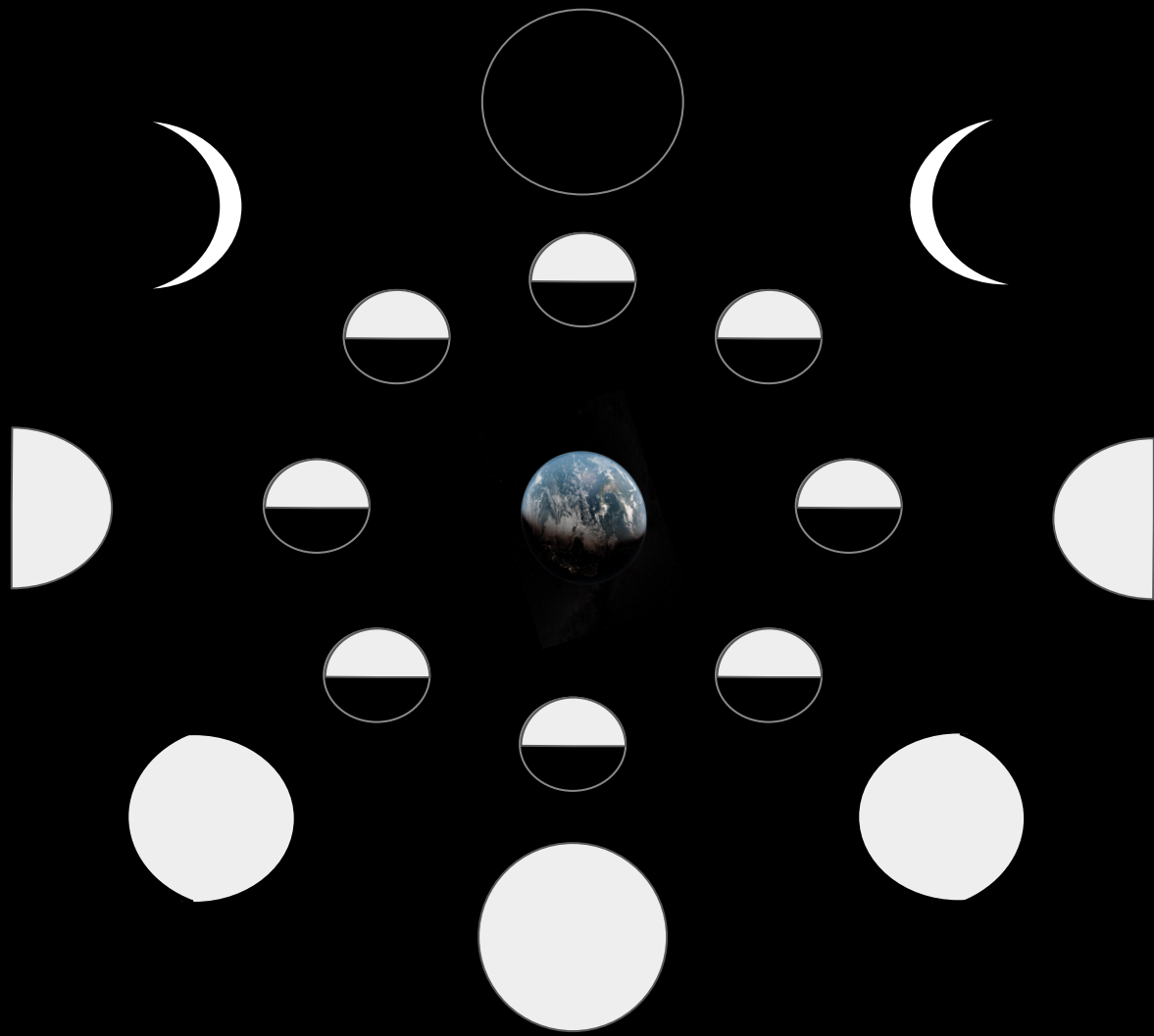


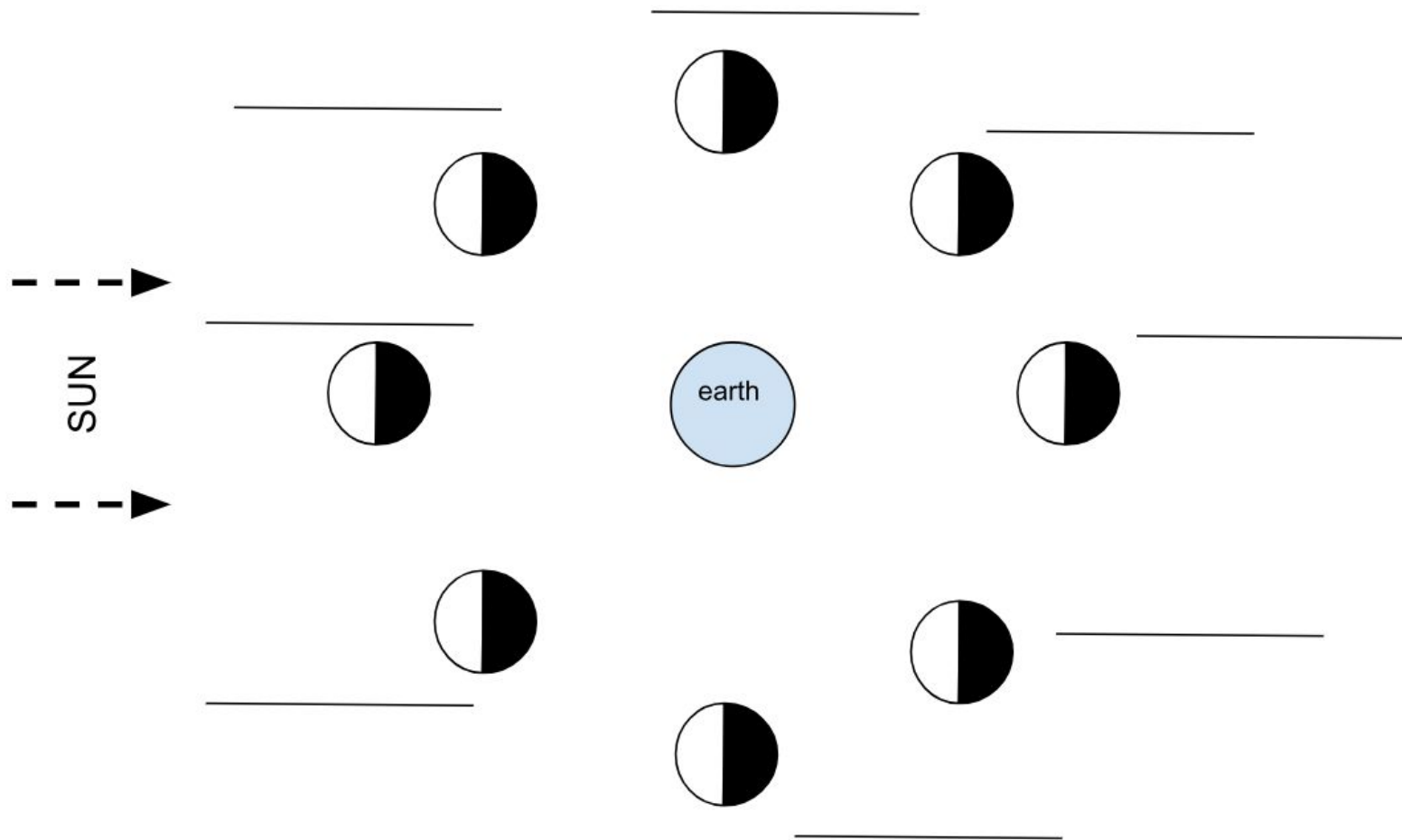




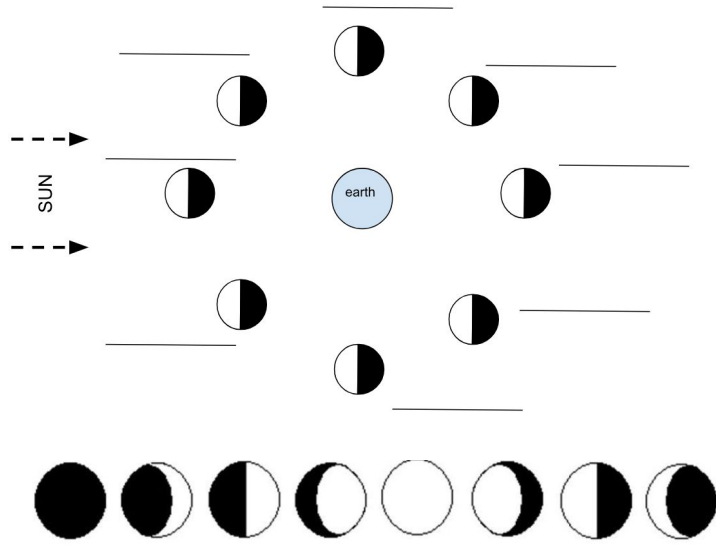








What shape would you see ?



Definitions

wanning

waxing

eclipse

Notes to future self....

Questions I still have....

Your experience

LAUNCH



Competency
self-assessment

BODY

CLOSING

Consolidation from
the bottom

Meaningful notes

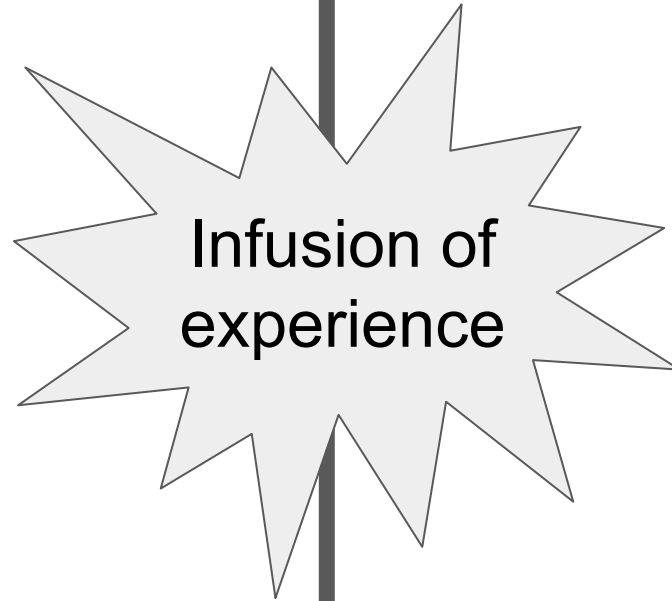
Check your understanding
questions

6 types of learning

- Deductive - reasoning and rationalizing
- Analytical - analysis reaction
- Exploratory - Generate your own data - an extension of Analytical
- Creative - ELA, Art, Performing Arts
- Apprenticeship
- Factual - hardest to make into a “thinking question”.

We Think

We Know



We Think

Evolution - Part 1 of 7 - Darwin's Dangerous Idea (PBS ...

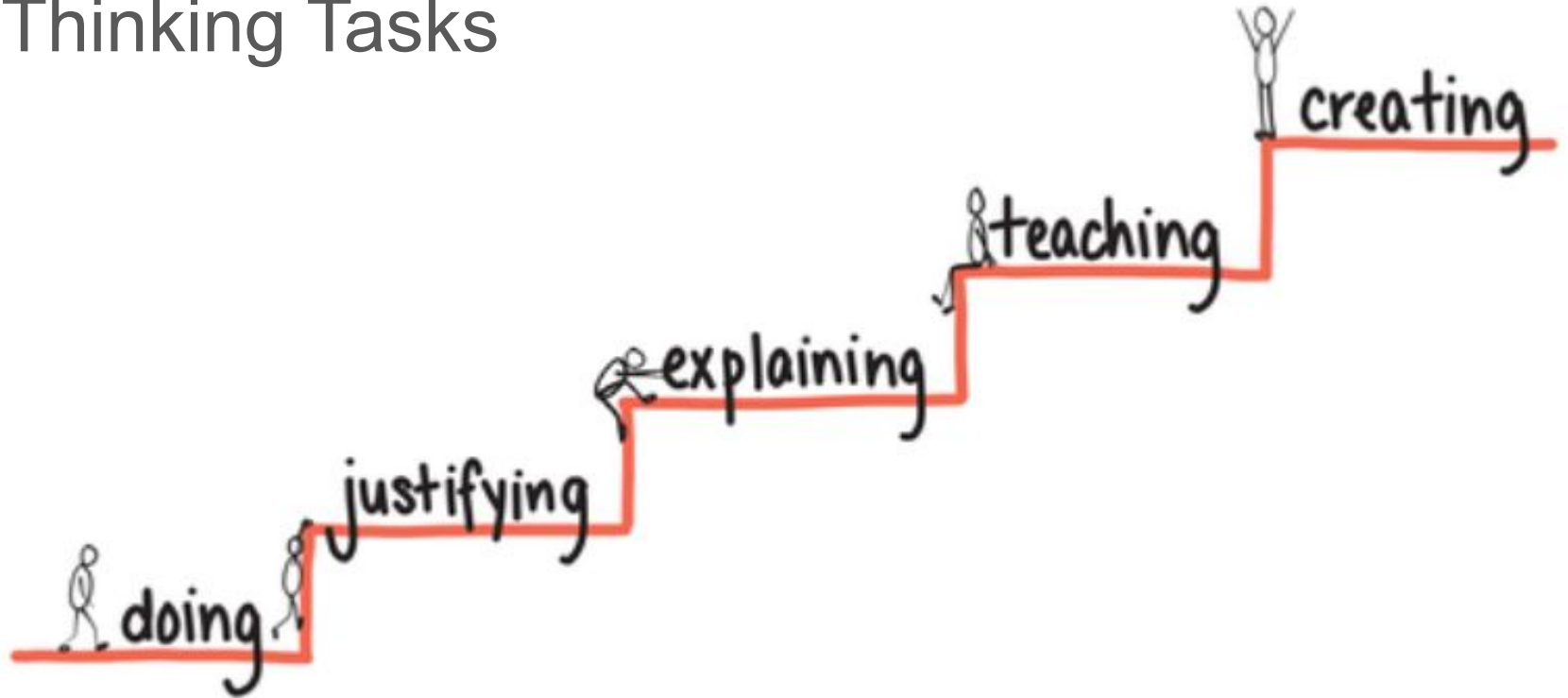
YouTube · cocokoreena · Jul 28, 2012

YouTube

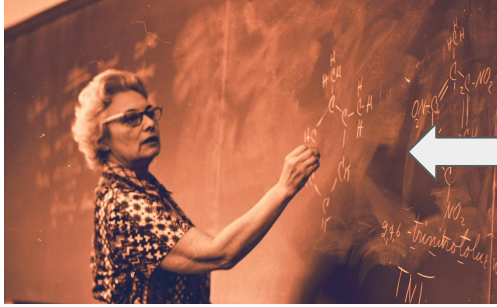


We Know

Thinking Tasks



Characterization of the Pedagogical Narrative



Where does TC fall?

- Trading control for responsiveness
- Seeking to develop responsibility over accountability
- Balancing the effective and the efficient

How could we maximize this experience across the disciplines?



Moon Myths



A Short Course

Atchakosuk, First Nations Astronomy (PDF)

A presentation by science facilitator Wilfred Buck that teaches about the night sky from a First Nations perspective.

DOWNLOAD

If you met someone who claimed to be an Moon expert and they told you about the Phases of the Moon, what words might you hear? List them.

In what order might you hear these words?

Write a script about what they might say

Cut these sentences apart or display them out of order for students to rearrange.

- Next, it reaches the First Quarter, followed by the mostly lit Waxing Gibbous, and finally the fully illuminated Full Moon.
- Looking down from above the North Pole, the Moon always travels in a counterclockwise direction.
- Finally, the cycle finishes with the thin Waning Crescent right before it resets completely.
- The cycle begins with the invisible New Moon, which then grows into a silver sliver called the Waxing Crescent.
- After this peak, the light begins to shrink, moving through the Waning Gibbous and the Third Quarter.
- The Moon does not make its own light, so we only see the parts reflecting sunlight as it orbits Earth every 29.5 days



Active

Consumer

Producer

Passive



Think back to the original task,

What could mild, medium and spicy questions look like?

The Thin Slice



Tools.kylewebb.ca

Thank You

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