OA Summer PD 2020

Presenter:
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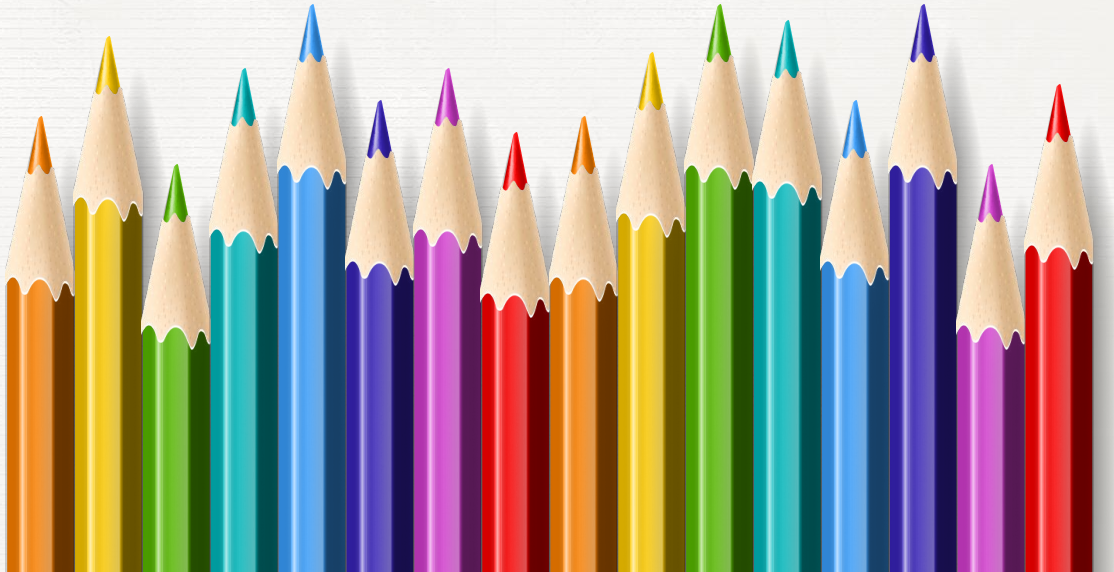
You will find the materials and presentation in a Shared folder called: **K - 6 Summer Work 2020**



Agenda:

- Build Vertical Knowledge (Math)?
- What the next grade level needs to know?
- How will we prioritize?
- Reading/Unpacking the new science standards!

Prime The Mind:

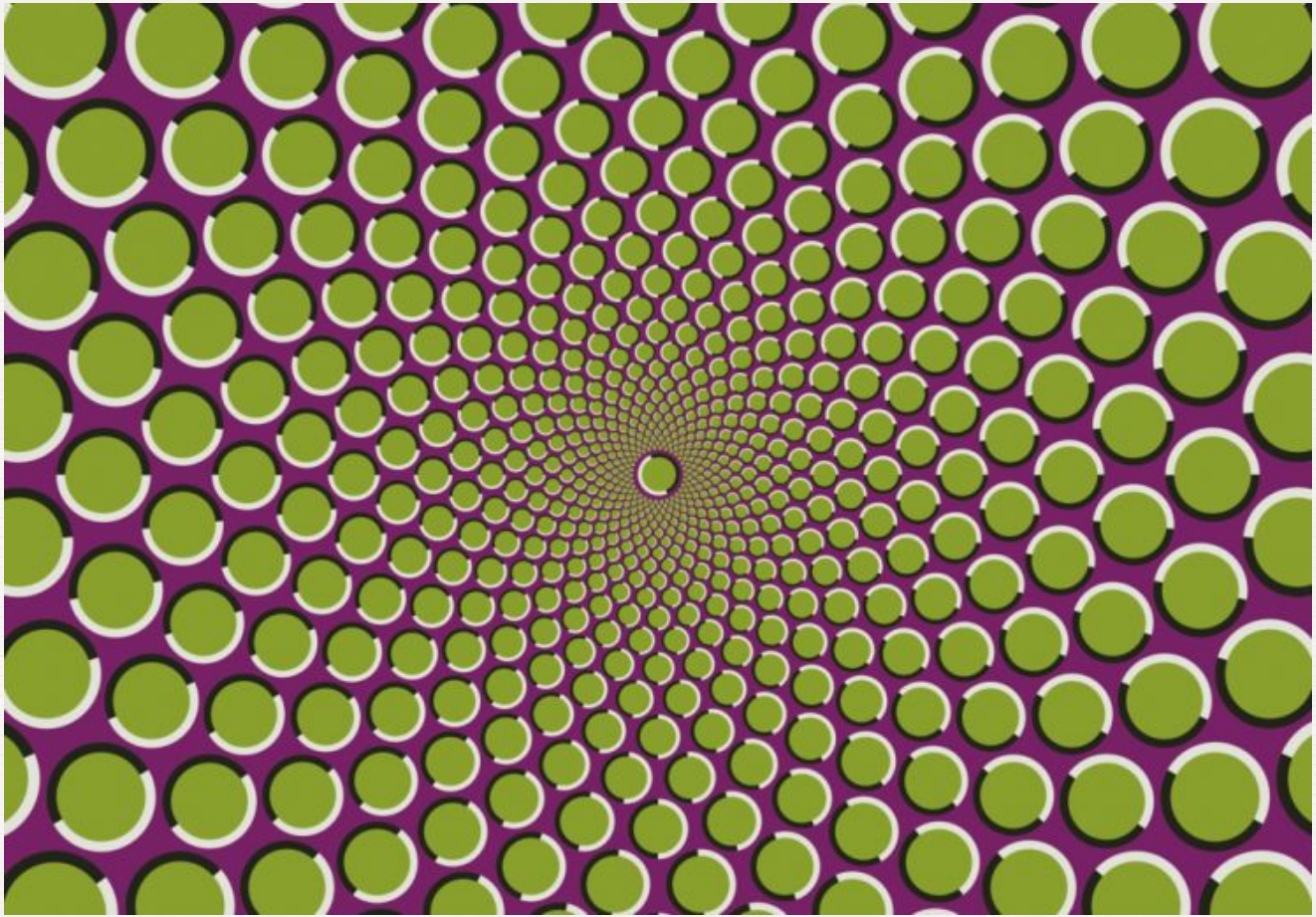
- ➔ Given what we're doing today in our session, and given whatever is on your mind, I'd like you to set an intention.

- ➔ An intention is an aspiration for how you might think, feel, and engage with others or in your learning.
  - ★ "I want to be fully present"
  - ★ "I want to connect with others"
  - ★ "I don't want to be grumpy"

An intention reflects whatever might be most helpful for you, right now, to get the most from today.

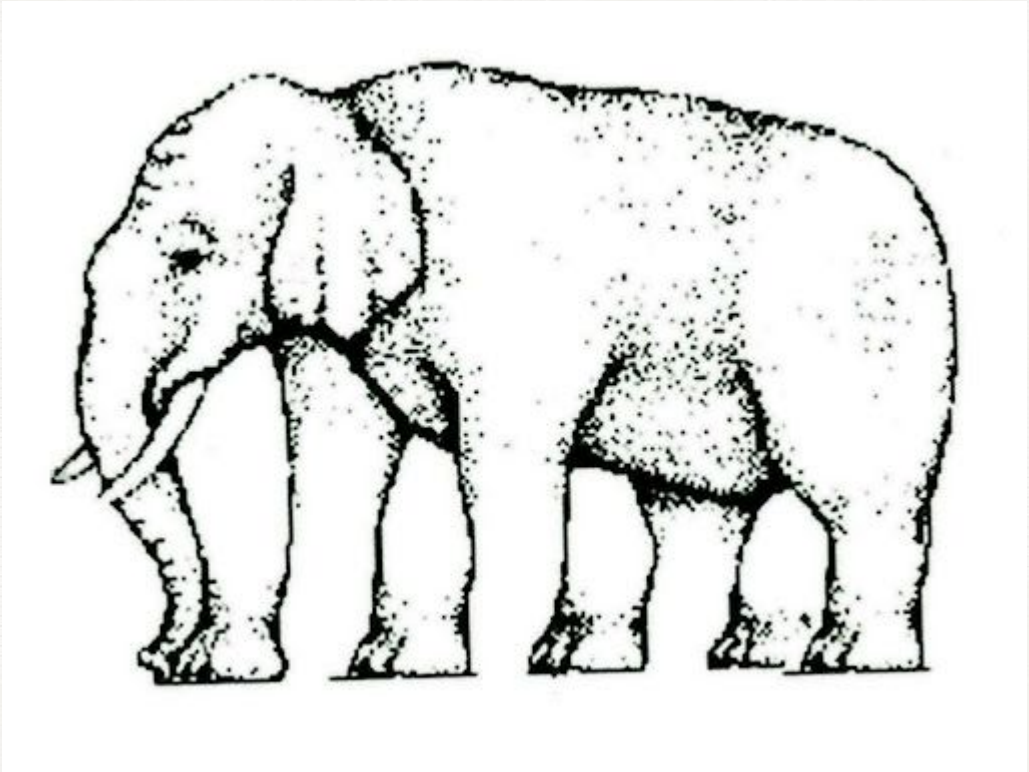
Norms for today:

- We need to set these for today's work.
- Reflect on a past experiences working with groups and think of one positive and one negative.



What do you see?

How many legs?



During this Closure

So Why Math?

Estimates suggest students will return in fall 2020 with roughly 70% of the learning gains in reading relative to a typical school year.

However, in mathematics, students are likely to show much smaller learning gains, returning with less than 50% of the learning gains and in some grades, nearly a full year behind what we would observe in normal conditions.

Dr. Megan Kuhfeld and Dr. Beth Tarasawa
NWEA, April 2020

Solution Tree


TV LAND
ARE YOU READY

Building Vertical Knowledge

- Using your outline you brought today: Please fill in the document (Shared Drive - k-6 summer work 2020)

OA Vertical Knowledge Chart Grades K-6:
MATH: Units & Topics

K	1	2	3	4	5	6

- **This is a shared doc**

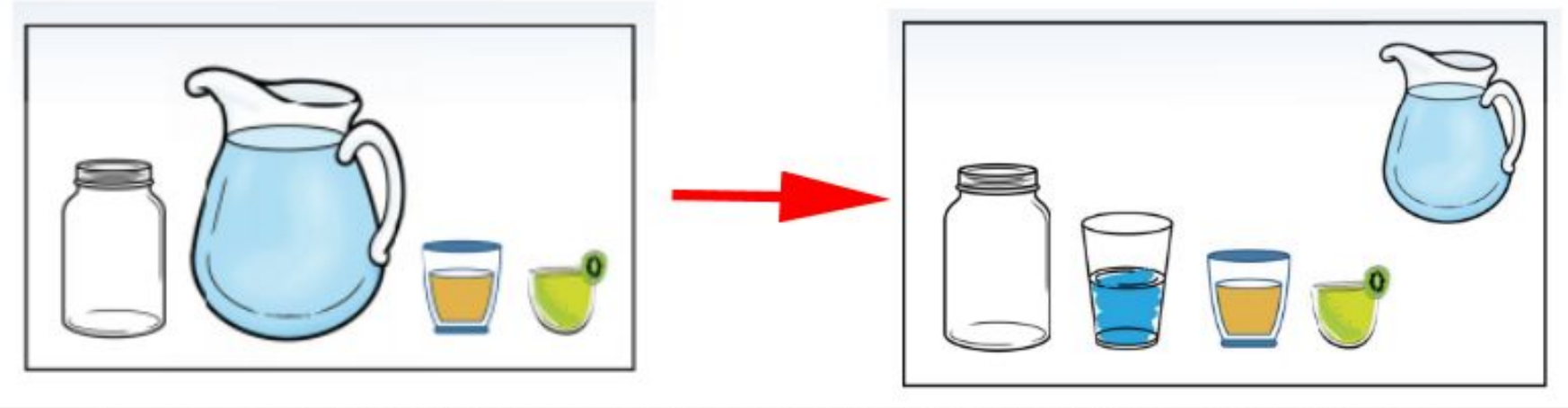
Look Over The Doc!

- Once you finish - talk with partners
  - Discuss **what** I teach and **why** you do.
  - Discuss any thing that stood out to you as interesting

Here is what the next grade level needs to know:

- What I normally do during the time of the closure.
- What I did & confident my students can do.
- Concerns that the next grade level should know.

Prioritize Standards (Learning Targets) - Why?



Criteria For Prioritizing Standards

Readiness
(for next level learning)

Endurance
(concepts and skills that last over time)

External Exams
(national, state, college, career)

Leverage
(interdisciplinary connections)

Larry Ainsworth, *Prioritizing the Common Core*, 2013, p. 26

How do we priortize?

- In order to do this, what will be some things we need to keep in mind?
- Resources will we use?

Most Esstential Skills/Knowledge

What are the essential skills a student should have when entering the 6th grade?

- A 6th grade teacher made a list
- Please think about your grade level and what skills should a student have entering the grade level you teach?
- **We will fill out the doc in Shared Drive**

New Science Standards

- Timeline pushed
- Good and bad - many are ready to take advantage of this time but still have 2021 exam
- NYSSLS - is the New State standards (really NGSS with a few additions from the state)

How do I read this document?

- Let's look at the NYSSLS - in the shared drive
- State Learning Standards

Inside the *NYSSLS* Box

Title
The title for a set of performance expectations is not necessarily unique and may be reused at several different grade levels.

What Is Assessed

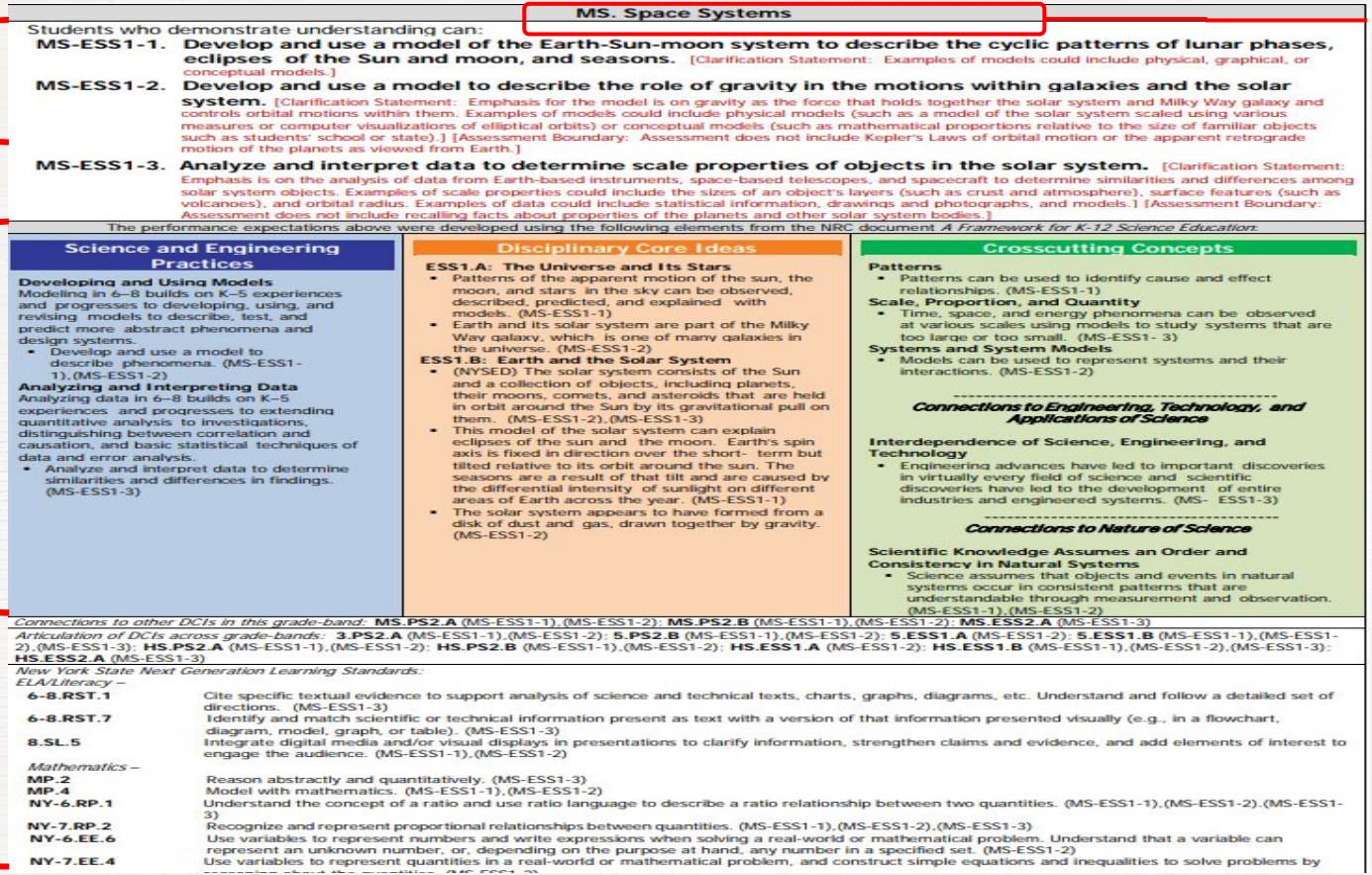
A collection of several performance expectations describing what students should be able to do at the end of instruction

Foundation Box

The practices, disciplinary core ideas, and crosscutting concepts from the *Framework for K–12 Science Education* that were used to form the performance expectations

Connection Box

Places elsewhere in *NYSSLS* or in the *Next Generation State Standards* (ELA and Math) that have connections to the performance expectations on this page



MS. Space Systems

Students who demonstrate understanding can:

MS-ESS1-1. **Develop and use a model of the Earth-Sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and moon, and seasons.** [Clarification Statement: Examples of models could include physical, graphical, or conceptual models.]

MS-ESS1-2. **Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.** [Clarification Statement: Emphasis for the model is on gravity as the force that holds together the solar system and Milky Way galaxy and controls orbital motions within them. Examples of models could include physical models (such as a model of the solar system scaled using various measures or computer visualizations of elliptical orbits) or conceptual models (such as mathematical proportions relative to the size of familiar objects such as students' school or state).] [Assessment Boundary: Assessment does not include Kepler's Laws of orbital motion or the apparent retrograde motion of the planets as viewed from Earth.]

MS-ESS1-3. **Analyze and interpret data to determine scale properties of objects in the solar system.** [Clarification Statement: Emphasis is on the analysis of data from Earth-based instruments, space-based telescopes, and spacecraft to determine similarities and differences among solar system objects. Examples of scale properties could include the sizes of an object's layers (such as crust and atmosphere), surface features (such as volcanoes), and orbital radius. Examples of data could include statistical information, drawings and photographs, and models.] [Assessment Boundary: Assessment does not include recalling facts about properties of the planets and other solar system bodies.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models
Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.
- Develop and use a model to describe phenomena. (MS-ESS1-1),(MS-ESS1-2)

Analyzing and Interpreting Data
Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.
- Analyze and interpret data to determine similarities and differences in findings. (MS-ESS1-3)

Disciplinary Core Ideas

ESS1.A: The Universe and Its Stars
- Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models. (MS-ESS1-1)
- Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe. (MS-ESS1-2)

ESS1.B: Earth and the Solar System
- (NYSED) The solar system consists of the Sun and a collection of objects, including planets, their moons, comets, and asteroids that are held in orbit around the Sun by its gravitational pull on them. (MS-ESS1-2),(MS-ESS1-3)
- This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short- term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year. (MS-ESS1-1)
- The solar system appears to have formed from a disk of dust and gas, drawn together by gravity. (MS-ESS1-2)

Crosscutting Concepts

Patterns
- Patterns can be used to identify cause and effect relationships. (MS-ESS1-1)

Scale, Proportion, and Quantity
- Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-ESS1- 3)

Systems and System Models
- Models can be used to represent systems and their interactions. (MS-ESS1-2)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology
- Engineering advances have led to important discoveries in virtually every field of science and scientific discoveries have led to the development of entire industries and engineered systems. (MS- ESS1-3)

Connections to Nature of Science

Scientific Knowledge Assumes an Order and Consistency in Natural Systems
- Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-ESS1-1),(MS-ESS1-2)

Connections to other DCIs in this grade-band: **MS.PS2.A** (MS-ESS1-1),(MS-ESS1-2); **MS.PS2.B** (MS-ESS1-1),(MS-ESS1-2); **MS.ESS2.A** (MS-ESS1-3)

Articulation of DCIs across grade-bands: **3.PS2.A** (MS-ESS1-1),(MS-ESS1-2); **5.PS2.B** (MS-ESS1-1),(MS-ESS1-2); **5.ESS1.A** (MS-ESS1-2); **5.ESS1.B** (MS-ESS1-1),(MS-ESS1-2),(MS-ESS1-3); **HS.PS2.A** (MS-ESS1-1),(MS-ESS1-2); **HS.PS2.B** (MS-ESS1-1),(MS-ESS1-2); **HS.ESS1.A** (MS-ESS1-2); **HS.ESS1.B** (MS-ESS1-1),(MS-ESS1-2),(MS-ESS1-3); **HS.ESS2.A** (MS-ESS1-3)

New York State Next Generation Learning Standards:

ELA/Literacy –

6-8.RST.1	Cite specific textual evidence to support analysis of science and technical texts, charts, graphs, diagrams, etc. Understand and follow a detailed set of directions. (MS-ESS1-3)
6-8.RST.7	Identify and match scientific or technical information present as text with a version of that information presented visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-ESS1-3)
8.SL.5	Integrate digital media and/or visual displays in presentations to clarify information, strengthen claims and evidence, and add elements of interest to engage the audience. (MS-ESS1-1),(MS-ESS1-2)

Mathematics –

MP.2	Reason abstractly and quantitatively. (MS-ESS1-3)
MP.4	Model with mathematics. (MS-ESS1-1),(MS-ESS1-2)
NY-6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (MS-ESS1-1),(MS-ESS1-2),(MS-ESS1-3)
NY-7.RP.2	Recognize and represent proportional relationships between quantities. (MS-ESS1-1),(MS-ESS1-2),(MS-ESS1-3)
NY-6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem. Understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (MS-ESS1-2)
NY-7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by

Science & Engineering Principles (SEPs)

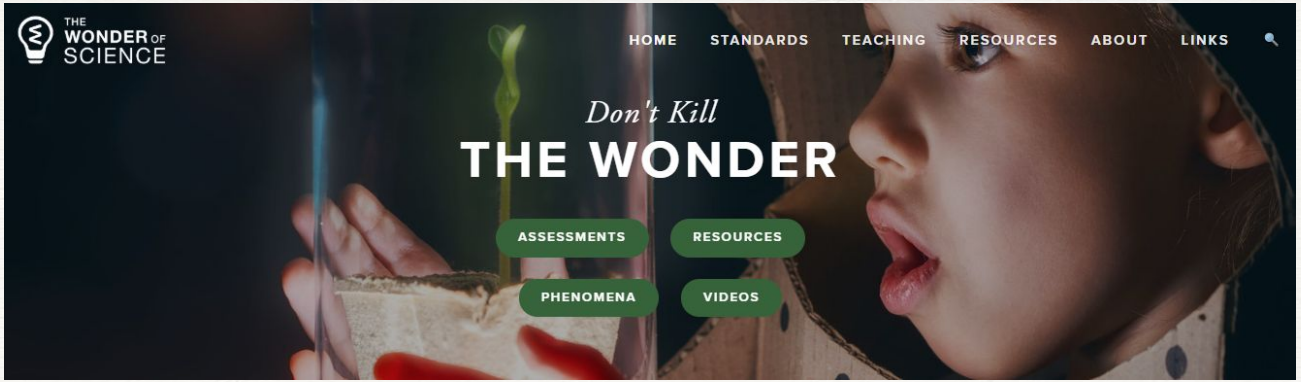
- Asking Questions
- Developing and Using Models
- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Mathematics & Computational Thinking
- Constructing Explanations & Design Solutions
- Engaging in Argument from Evidence
- Obtaining, Evaluating, and Communicating Information

Crosscutting Relationships (CCCs)

- Patterns
- Cause & Effect
- Scale, proportion, and quantity
- Systems and system models
- Energy and matter: Flows, cycles, and conservation
- Structure and function
- Stability and change

Great Resource!

https://thewonderofscience.com/



Please go to this site and surf around!

Let's Look at the Standard:

- In the Shared Drive you will this:

1-ESS1-1: Sun, Moon, and Star Patterns

Use observations of the sun, moon, and stars to describe patterns that can be predicted.

Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.

Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.

Earth Science Example: 1 -ESS1 -1

Volabulary is Important:

Sun

Moon (not phases)

Stars

Patterns

Night and Day

Sky

Name _____

1-ESS1-

Patterns in the Sky

Draw the sun in the sky at

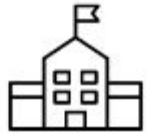
- ☐ Morning
- ☐ Lunch
- ☐ Afternoon

Position of the Sun During the Day

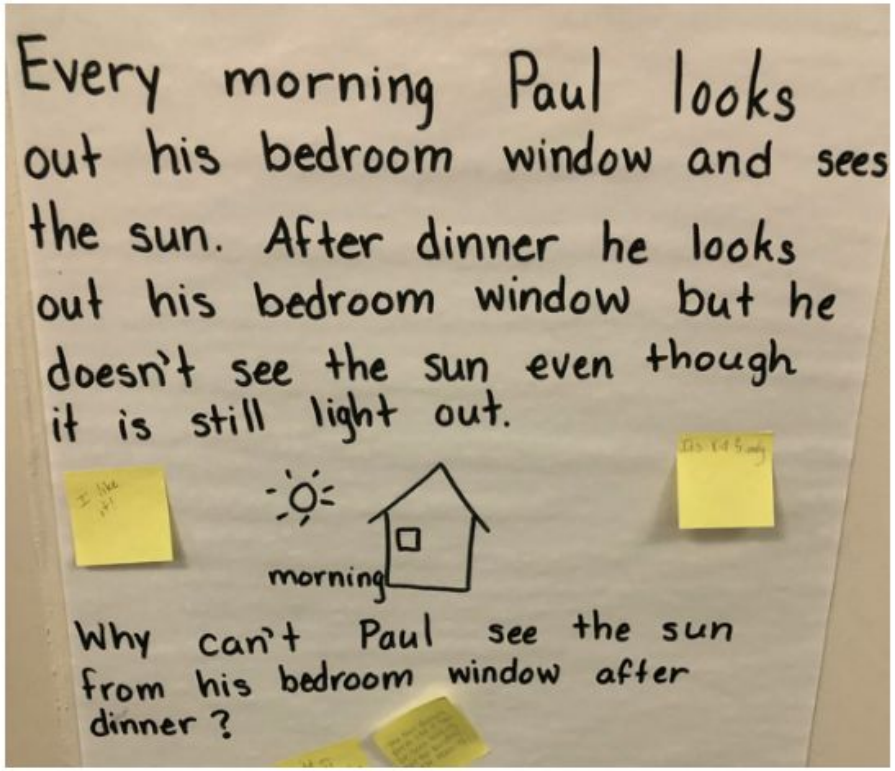
Draw the moon in the sky at

- ☐ Morning
- ☐ Lunch
- ☐ Afternoon

Position of the Moon During the Day



How might you assess?

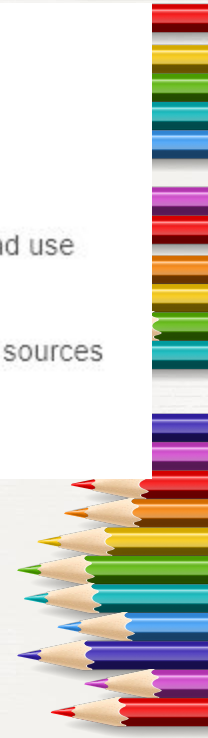


There are connections to Writing, Reading and Math

Common Core Connections

ELA/Literacy

- **W.1.7** - Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions).
- **W.1.8** - With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.



Look at a Grade Level Standard:

- Take a closer look at a grade level standard.
  - Unpack it with “Wonder of Science” website
  - Look up some other resources
  - What is a possible idea for a lesson?

Resource: Betterlesson.com

Article: In Shared Drive

- Please read: How K-12 Teachers Can Plan When They Don't Know What to Plan For

Thinking Job: Put a + sign next to things that you might consider when planning for the upcoming school year.

In August:

- Meet for 2 days with grade level
- Review the documents we build from the beginning of the day - how can embed this into the upcoming school year?
- PRIORITIZE - need to focus hard on a few! Build a document with those most essentials (need to share with all teachers)

Thanks!

Any questions?