CC Science Cycle 2
E. Nicole Yang
on CC Connected: "nicoleliem"

CC Cycle 2 Science Experiments & Projects: In-Class Lesson Plans & Visuals

I hope these make all the hard work you do a little easier!
(email: nicoleliemyang@gmail.com)

Notes to the Tutor/Teacher:

I have included the Foundations Guide information needed to do each project. My teaching notes are placed within the instructions to help students learn about the topics while they work on the projects.

What to Do Each Week in Class:

Always stress the **Scientific Method** in each experiment by getting the students to orally state what the purpose, hypothesis, materials etc. are in your experiment.

- State the Scientific Method

(ie: sing it to the tune of *Happy Birthday*- "Scientific Method, Purpose, Hypothesis, Materials, Procedure, Results, Conclusion.)

Purpose – stated in the Van Cleeve experiment verbiage
Hypothesis – Typed out as the first of my "More Talking Points".
Materials – Hold them up to the students and ask them to name the materials
Procedure – Go through the steps listed in the experiment together
Results – The "what happened?" of the experiment. Talk about what you saw and if your hypothesis was right or wrong.
Conclusion – The "why did that happen?" of the experiment. Found partially in the Van Cleeve "Why?" segments, and explained more fully in my talking points and images.

Relate it back to Cycle 2: mention how we are studying Ecology, Astronomy and Physics in our experiments and our new grammar pegs. I have done some for you in blue. Find your best way to explain how learning about God's creation is learning more about God's character and what He's done for us.

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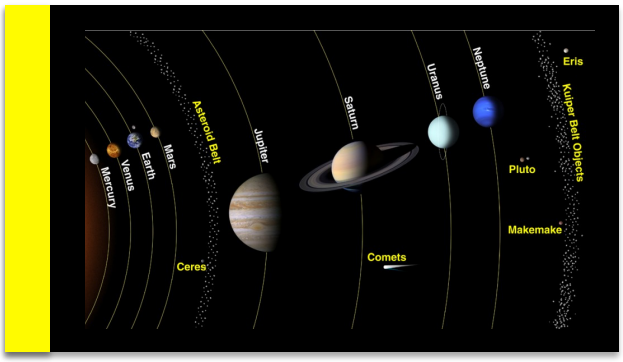
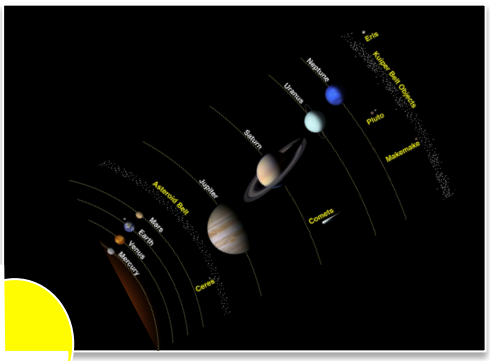
Week 8
Project: Solar Model

- **Purpose**: To build a proportional solar system on paper. To learn a bit about the characteristics of the planets and our solar system.

- **Materials Needed**:

-Black 22" long paper, or Black 9"x12" paper for the background
-Yellow piece of paper for the Sun-
For a 22" long black background paper: cut a 2" wide yellow strip of paper and paste it down the left edge of the black horizontal paper (with planets pasted straight out to the right)
For a 9"x12" black background paper: cut a yellow paper quarter circle and paste in the bottom left corner of the black paper (with planets pasted diagonally and staggered up to the top right corner.)
-half-jewels/beads/marbles for planets (flat on one side to glue onto paper)
-glitter glue or glitter/confetti with glue for asteroid belt and planet rings
-glue, scissors, rulers, white paper labels or metallic ink pens to label the planets





- **Procedure**:

Paste planets as follows:

Mercury	.20 (1/5) inch	smallest clear half-jewel
Venus	.33 (1/3) inch	medium colored half-jewel
Earth	.5 (½) inch	medium colored half-jewel
Mars	.8 (4/5) inch	smallest clear half-jewel
Asteroid Belt	b/w Mars & Jupiter	star-glitter/glitter-glue in an arch
Jupiter	2.5 in	largest silver bead
Saturn	4 in	largest silver bead
Uranus	9.5 in	large blue half-marble
Neptune	15 in	large blue half-marble

- As the students work on their projects, use the following 2 pages to read to them about the solar system, what it's like on each planet, and what happened to Pluto.

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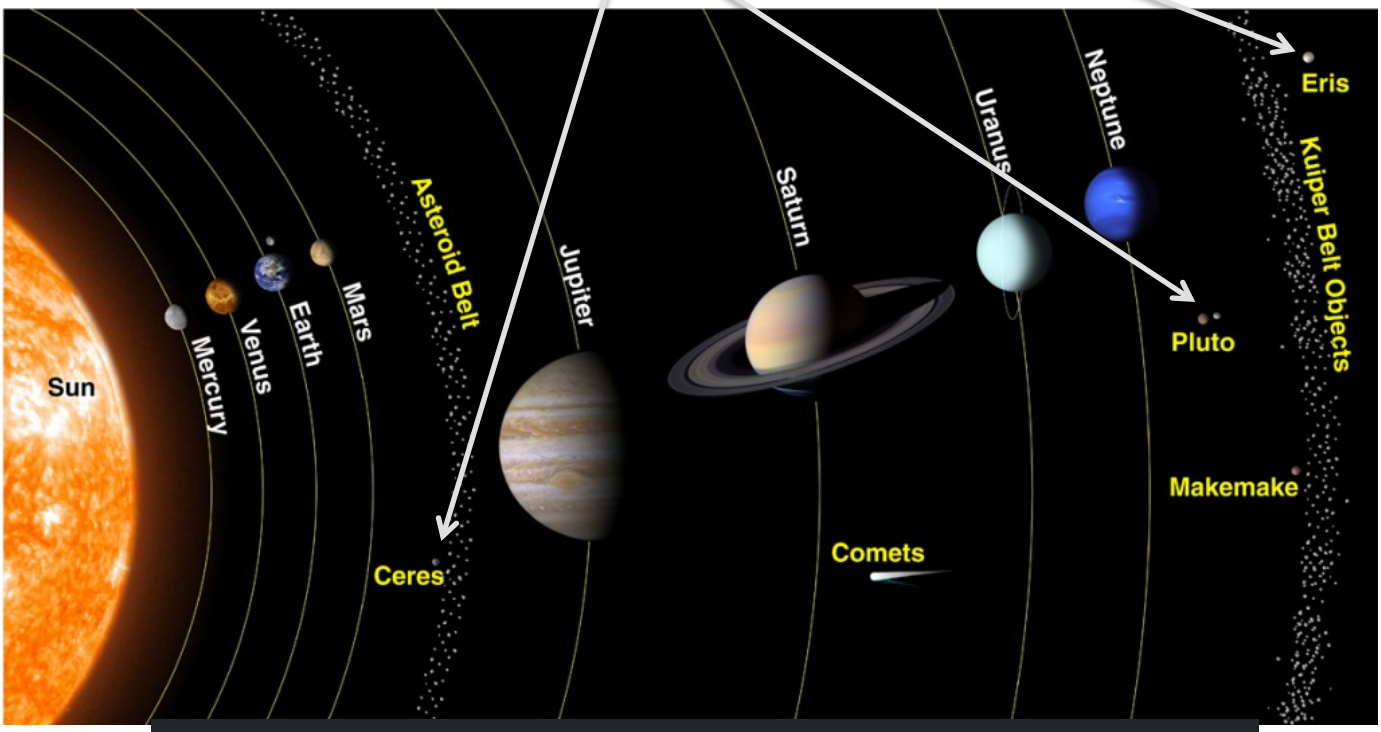
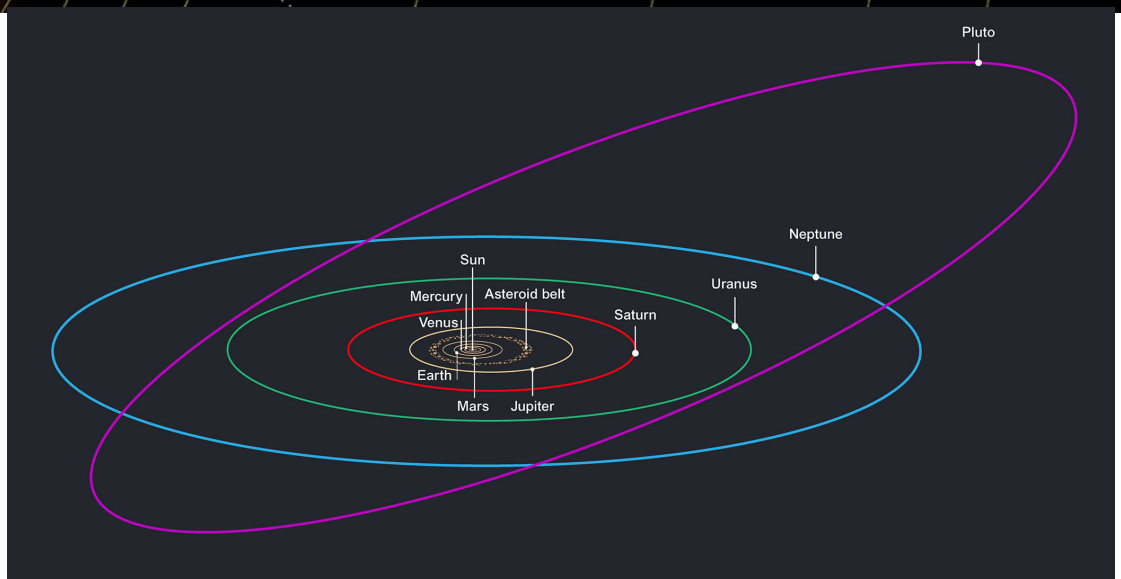
Week 8
Project: Solar Model

- **What is a planet?**: 1) It must orbit around the Sun. 2) It must be large enough for its gravity to make its shape round. 3) It must have cleared its orbit of other objects (which Pluto hasn't done). 4) It must not be a satellite (our moon is a satellite of Earth).
- **What about Pluto?**: Pluto was renamed a Dwarf Planet in 2006, because it was one of many comet-like objects found in the Kuiper Belt. Eris, a dwarf planet larger than Pluto, was found in the Kuiper Belt in 2003, and Ceres is a dwarf planet in our Asteroid Belt. Pluto also orbits the Sun differently than the main planets- its orbit has a different tilt. NASA launched its *New Horizons* spacecraft in 2006 to Pluto- it took almost 10 years to make the 3 billion mile distance!





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Week 8
Project: Solar Model

- **What would you find if you traveled to each planet?**
- **If you weigh 100 pounds on earth, how much would you weigh there?**

-(Hint: Larger planets=larger gravity=more weight)
-On the sun you'd weigh 2,707.2 pounds, and on the moon you'd weigh 16.6 pounds

Mercury
Your weight: 37.8 pounds
Smallest Planet. Blistering hot days could melt lead (but Venus is hotter!)
Freezing nights since there's no atmosphere to trap the Sun's heat, which means there's no atmosphere to burn up meteors either- leaving it looking a lot like our moon

Venus
Your weight: 90.7 pounds
Acid clouds don't let much sunlight in, but reflect a lot of light. It's therefore the brightest planet and is called the "Morning /Evening Star". We can see hills, mountains, volcanoes, valleys, and plains of solid lava. The dense atmosphere would crush you. A day is very long- 243x longer than an Earth day!

Earth
Your weight: 100 pounds
An atmosphere of mainly nitrogen and oxygen. Only planet in the solar system that supports life because it's not too far or too close to the sun. A thin layer of atmosphere and the oceans absorb the Sun's heat and move it around the planet. A crust of solid rock is broken up into plates that shift on a middle layer of molten rock. Core layer is solid.

Mars
Your weight: 37.7 pounds
Was named after the Roman god of war because the red color reminded them of blood. Has a desert-like surface of dust and rocks, and has strong winds and dust storms. There is a huge polar ice cap, a canyon that could stretch the US, and it has the largest volcano in the solar system.

Jupiter
Your weight: 236.4 pounds
Largest planet, more than 2x the weight of all the solar system's planets combined. A cloudy atmosphere covers the gas giant - made of mainly hydrogen. The bands are the mixing of gases as the planet spins. The great red spot, 5 miles long, is a permanent hurricane twice the diameter of Earth. Jupiter rotates in 10 hours, a speed so fast for such a large planet that it bulges in the middle as it spins. Jupiter is shrinking slightly as it is squeezed by its immense gravity.

Saturn
Your weight: 106.4 pounds
The second largest planet- it could fit 9 Earth's across it. It's named after the Roman god of agriculture. Rotates in 10.5 hours, and bulges in the middle from the speed, like Jupiter. Has rings of ice, dust, and rock. Has high winds of 1,100 miles per hour. Can't land on its surface because its mainly composed of gas.

Uranus
Your weight: 88.9 pounds
Often called twin planets with Neptune. Ice and slush are covered by a poisonous methane gas atmosphere. It has rings, and orbits the sun on it's side. An orbit takes 84 years, and each pole experiences 42 years of "winter", then 42 years of "summer"- 21 years are in complete darkness or light.

Neptune
Your weight: 112.5 pounds
A very cold planet. Like Uranus it has an atmosphere of poisonous methane gas and has rings. An orbit takes 165 years. It is very stormy. In 1989 it had a storm the size of Earth that lasted several years.