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 7
Project: Building a Proportional Solar System

Purpose: To build a proportional solar system outside. To experience the relative size and distance of each planet.

Materials Needed:

2 Marbles	2 soccer balls	marbles/pebbles for an asteroid belt and moons
2 Golf Balls	2 tennis balls	20 ft tape measure
Masking and Duct tape		wire/string for rings

Procedure:

- In a parking lot or driveway, use the side of a building or a very large tree to represent the scale of the sun.
- Tell the students that though we're going to put the planets in a straight line to show their distance from the Sun, in outer space they are all around the Sun on their orbits.
- Measuring away from the Sun, place the planets with the following distances. Using marbles or pebbles, give the planets their following number of moons. Using wire or string, give the last four planets rings. (If the balls roll, use a bit of masking or duct tape underneath them to hold them in place).

Planet	Inches away	Moons	Rings
Mercury (marble)	5.8"	0	no
Venus (golf ball)	10.8"	0	no
Earth (golf ball)	14.9"	1	no
Mars (marble)	22.8"	2	no
Jupiter (soccer ball)	77.8"	16	yes
Saturn (soccer ball)	142.7"	17	yes
Uranus (tennis ball)	287"	15	yes
Neptune (tennis ball)	450"	8	yes

- Place an asteroid belt between Mars and Jupiter with marbles or pebbles.
- Let the students look at the following page's chart.
  - Explain that it shows how long each planet's rotation is (=1 day and night),
  - And how long a year is on each planet (= 1 orbit around the sun, which we learned is slower the farther away from the sun's gravity a planet gets)
- Fun Questions to ask:

  -Would your bedtime be earlier or later on Uranus?
  (earlier, because the days are shorter)
  -If you are 36 earth years, how many years old would you be on Jupiter?
  (36/12 = 3 Jupiter years old)
  -Which planet is not named after a Roman god?
  (Earth)
  -The distance from LA to NY is 3944km. Which planet has a diameter only 1000km larger?
  (Mercury)

Week 7
Project: Building a Proportional Solar System

Planet	1 Rotation/Day	1 Orbit/Year	Diameter	Distance from Sun
Mercury	59 days	88 days	4,900 km	57.9 mill km
Venus	243 days	224.7 days	12,100 km	108.2 mill km
Earth	24 hours	365.3 days	12,756 km	149.6 mill km
Mars	24.5 hours	687 days	6,800 km	227.8 mill km
Jupiter	9.8 hours	12 earth yrs	142,800 km	778 mill km
Saturn	10.7 hours	29.5 earth yrs	120,660 km	1,427 mill km
Uranus	17 hours	84 earth yrs	52,400 km	2,870 mill km
Neptune	16 hours	165 earth yrs	49,500 km	4,500 mill km

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Pictures for Weeks 7 & 8
Project: Building a Proportional Solar System