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

I hope these make all the hard work you do a little easier!
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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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Weeks 22 & 23
Project: Egg Protector

This project will be built over 2 weeks (weeks 22 & 23).
**Try not to show the students sample egg protectors, but rather foster creativity and let them think through it with their teams to come up with their own original designs.*
**Find out if you need a bin or if someone else will save your students' projects for a community wide bridge and egg drop contest on week 24.*
**Find out if there is a set number of supplies allowed for each single egg protector in the contest, or if you just divvy up the class materials amongst the number of teams in your class.*

- **Purpose**– To learn about impact design. To build a container to house an egg that will survive a drop from a height without cracking. It will be built over 2 weeks.
- **Hypothesis**- Which team's egg container will support the egg enough to keep it from cracking?
- **Materials**- Use the materials provided for your class. Typically you divide the materials among 3 or 4 groups of students:
  -50 popsicle sticks to build a house for the egg
  -Rubber bands to hold the box together
  -Rubber bands to suspend a flexible nest for the egg inside the box for cushion
  -12 napkins to cushion the egg
  -plastic egg for practice. (Real eggs for the contest)
- **Procedure**- Group the students into teams. Let them work together to build an egg protector. Some students might even get together over the week to further work on it. Note: the house for the egg needs to be able to open and close enough to take an egg out for inspection and put it back in after each drop.
- **Results**- As with the bridge project, encourage students by telling them that scientists work by trial and error. Encourage patience, perseverance, and politeness in their teams. If their egg protector doesn't win the contest, they can learn from the winner and make modifications.
- **Conclusion** & **Relating this to Cycle 2 grammar pegs:**

Newton's 1st Law of Motion: "An object at rest tends to remain at rest, and an object in motion tends to continue moving in a straight line at a constant speed unless an outside force acts upon it. Our egg will want to continue moving toward the ground and crack when the container hits the ground. As scientists, we need to find a way to slow and cushion it as we get it to stop from cracking on the ground. Newton's 3rd Law of Motion: "For every action there is an equal and opposite reaction." As the container hits the ground, the ground will "hit" the container back with the same force and potentially crack the egg. What are the two forms of energy? (Week 15): Kinetic and Potential. When we hold the container in the air, it has potential energy. When we release it and it starts falling, it has kinetic energy- movement. Scientists study movement (Physics) to both get us places and to keep us safe in all our modes of transportation. They use it to create our airbags, our helmets, and even the shock absorption in our sneakers!