



Science Explorers

Pre and Post Visit Materials

The goal of this program and its pre and post-visit activities is to learn about different areas of science.

Pre-Visit Activities

1. Go over new vocabulary words as a class. (some words may have multiple definitions but the ones pertaining to the program are listed)
 - Acid: a compound having a PH level lower than 7
 - Astronomy: The study of outer space
 - Base: a compound having a PH level greater than 7
 - Bridge: a structure connecting two areas over a lower expanse
 - Chemistry: the science of studying elements and what they are and what you can do with them
 - Civil Engineering: a career where the person designs buildings and structures for public use.
 - Compound: the combining of two or more elements
 - DNA: the bodies blue print for life containing the life form's genetic makeup.
 - Element: a chemical substance which cannot be broken down any further.
 - Energy: the ability to do work
 - Engineering: creating a practical application for scientific knowledge
 - Genetics: The study of familial traits
 - Gravity: a force which attracts items to other objects with a higher mass
 - Kinetic Energy: energy in motion
 - Molecule: the smallest physical unit of an element or compound
 - Physics: the science that deals with matter, energy, motion, and force
 - Potential Energy: stored energy
2. Scientific Method song: worksheet attached

Post-Visit Activities

1. Have the student's journal about their trip. The prompt should be, "What was your favorite part of the trip to the museum?" They can either write or draw their response.
2. Popsicle stick catapult
 - Materials: graph paper, pencils, rubber bands, popsicle sticks, bottle caps, double sided tape, marshmallows
 - Give each student 10 sticks, a bottle cap, 5 rubber bands, a small piece of tape, and a marshmallow.
 - Tell them their challenge is to build a catapult.
 - Their first challenge is to draw out their idea first and then build their creation.
 - After the catapults have been built have the students demonstrate each catapult to the class. Each will be a bit different. (ours is pictured below)
 - Have a contest to see whose marshmallow can go the furthest.



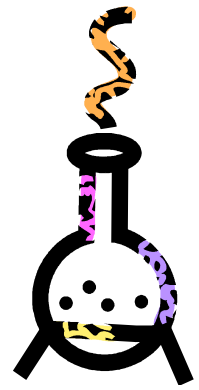
3. Newtonian Toy build

- Materials: 10 straws cut to 6" lengths, duct tape, twine, 5 beads.
- Review Newton's laws of motion. 1) an object in motion will stay in motion unless acted upon by an outside force. 2) acceleration is when force acts upon a mass, the greater the mass the greater the amount of force needed. 3) for every action there is an equal and opposite reaction.
- Use duct tape to make a square with four of the straws.
- Make two three open sided squares. Attach each square to the sides of the full square (see picture below)
- Cut string into 5 equal pieces (about 14 inches long). Tie one side of the string to one side of the cube, string a bead, and tie to the other side. See picture below. Repeat with rest of string.





The Science Song



When we do a science experiment we always follow the scientific method. This has seven steps.

Observe – what do you see?

Question – what do you want to learn?

Hypothesis – what do you think you will learn? What do you think the answer to your question is?

Experiment – do the experiment

Data Collection – what happens?

Analysis – what do you think this means?

Conclusion – what did you learn?

These are a lot of steps, but they can be easier to remember if they are in a song. Your group's job is to make up a song to help you remember the steps of the scientific method. Use the space below and the back to write down your lyrics.