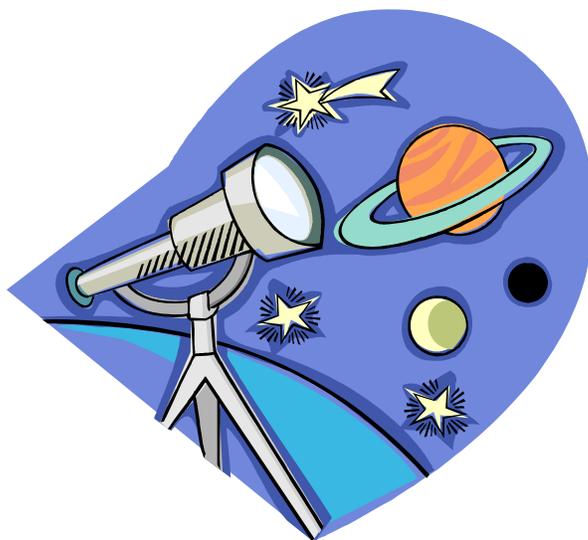


**Girl Scouts of the Jersey Shore
Council's Own Brownie Try-It**

Planetary Mysteries Try-It



PLANETARY MYSTERIES TRY-IT

These fun and unusual activities will help you unravel some of the mysteries concerning planets, space exploration and even our own earth.

Activity #1 – Play Dough Volcanoes

Volcanoes played an important part in forming the planets. Many eruptions, over a very long time, form layers that scientists can study. This helps them understand the history of some of the planets, the moon and even our own earth. Pretend you're a scientist and build this simple volcano. Watch the "lava" form layers, then try to think like a scientist!

Can you still see the original flat land (poster board)?

Where is the oldest layer?

Did the "lava" always follow the same path? Why or why not?

Using different colors of crayons, draw a picture of your layers.

Activity #2 – Rover Races

A rover is a small wagon with six wheels, robot arms and a computer. The rover is carried to a planet by a spacecraft. It is released from the spacecraft to explore the planet and collect rock and soil samples. Pretend you are a rover and follow the instructions from "radio control". Did the mission go smoothly? What were some of the problems? Can you think of anything that would have made your mission work better?

Activity #3 – Solar Bead Bracelets

UV (ultraviolet) is the invisible ray from the sun that helps our bodies make and use Vitamin D. Too much UV cause sunburn and other health problems. Make a simple UV bracelet to remind you to always protect your skin and eyes from harmful UV rays?

Activity #4 – Space Creature

Imagine what a creature from another planet would look like. Use a variety of materials to create your very own unusual space creature. Think of a story about your space creature. Give it a name. Tell where he/she is from. Make up a language for your creature. How and what does it eat? Draw a picture showing how it got to earth.

Activity #5 – Planetary Discoveries

Using a tube as a telescope, pretend you are viewing a planet from earth and from space. Learn some special words like fly by, orbit, and landing.

Activity #6 – Pocket Solar System

You probably have seen drawings of the solar system. To make the drawing fit on a piece of paper, the artist had to draw the planets closer together than they really are. Using string and beads, make a model of the solar system that REALLY gives you an idea how far apart the planets are.



The girls must complete 4 of the activities to receive the Planetary Mysteries Try-It.

Directions for each activity are attached. A list of supplies is included in the directions. Some items, like scissors, tape, crayons, etc., are items that you probably have on hand. You will need to purchase other items, like Play Dough, colored cellophane, etc.



ACTIVITY #1

PLAY DOUGH VOLCANOES

Supplies: 1 – 4 oz. paper cup
 1 piece of cardboard or poster board
 4 different colors of Play Dough
 Tape
 Spoon
 ¼ cup baking soda
 ½ cup vinegar
 Pencil or marker
 Paper towels
 Clear plastic straws

Cut the 4 oz. cup to a height of about 1 inch. Secure it onto the cardboard using a small loop of tape on the outside bottom of the cup. This short cup is your eruption source and the cardboard is the original land surface.

Place about one tablespoon of baking soda in the cup.

You are now ready to make an eruption. Slowly pour a very small amount of vinegar into your source cup and watch the eruption of “lava”.

When the lava stops, quickly draw around the flow edge with a pencil or marker.

Wipe up the fluid with paper towels

As best you can, use a thin layer of play dough to cover the areas where the “lava” flowed. Exact placement is not necessary.

Repeat steps 3 through 6 for each color of play dough.

NOTE: You may add fresh baking soda to the source cup or spoon out excess vinegar from the source cup as needed. Be sure you mark where the lava flows go over the previous flows, as well as on the cardboard.

Take a core sample. Have each girl push her straw into the clay at a point where there is obvious overlapping of “lava”. The straw should be held straight and should be pushed slowly and firmly down through the clay until the end of the straw touches the cardboard. Slowly pull the straw straight up out of the clay.

Looking at the straw, you can see the different colored layers of “lava”. Record your observations by answering the questions on the following page.

ACTIVITY #2

ROVER RACES

Supplies: construction paper
 Object to act as a rock sample
 3 blindfolds
 Command log
 Pencil

1. Leader should set up a course in an area which is about 20' x 20', using construction paper to mark the course. At some point within the course, you should place the object to be used as a rock sample.
2. Using only the commands list below, fill out the command log. Walk the course and write down the exact course directions for the rover to follow. See example.

Right	(R)
Left	(L)
Backward	(B)
Forward	(F)
Stop	(S)
Rock Sample Retrieval	(RSR)

3. When the rover is in the correct position for the last person of the rover to collect the rock sample, insert the Rock Sample Retrieval (RSR) command. (NOTE: The rover will only be able to follow your set of written commands. The commands to the rover cannot be any different than the ones you have written down.)
4. Select three girls for the rover. Blindfold them. Have them hold onto each other by the shoulders. Designate someone to be "radio control" and have them read the instructions as they are stated on the command log.
5. Once the rover has completed the course, discuss the questions listed under Activity #2.

ACTIVITY #3

SOLAR BEAD BRACELETS

Supplies: 1 – 12” pipe cleaner per girl
 Solar beads

Thread solar beads onto the pipe cleaner. Twist closed to form a bracelet. (You may also use cord or wire for the bracelet).

ORDINARY BEADS OF A VERY BORING COLOR? I THINK NOT!!! These are special beads which change color when exposed to ultraviolet (UV) radiation from the sun. They are not affected by visible light and so will remain white indoors.

WHAT DOES UV LIGHT DO? Ultraviolet light is needed by the human body to synthesize Vitamin D.

SO WHAT’S THE PROBLEM WITH UV LIGHT? Ultraviolet light is a major cause of sunburn, skin cancer, eye problems, aging of the skin, and other medical complications.

HOW CAN WE PREVENT UV DAMAGE? You should protect your skin whenever you are outside – on sunny days as well as cloudy days. Use a sunscreen on all exposed parts of your body, including your face. Sunglasses will protect your eyes from the UV rays, as well as help you see better – THEY LOOK COOL TOO! A hat or cap with a brim will also help protect your face.

1. Hold the beads near a window. What happens to the beads?
2. Take the girls outside and have them notice the changes in their beads.
3. Use a pair of sunglasses to block the UV light. What happens to the beads now?
4. Try to block the light with a regular pair of eyeglasses. Discuss the results.

What the girls have created is their own personal UV detector. Perhaps when they wear the bracelet it will serve as a reminder to always use sunscreen to protect their skin and sunglasses to protect their eyes.

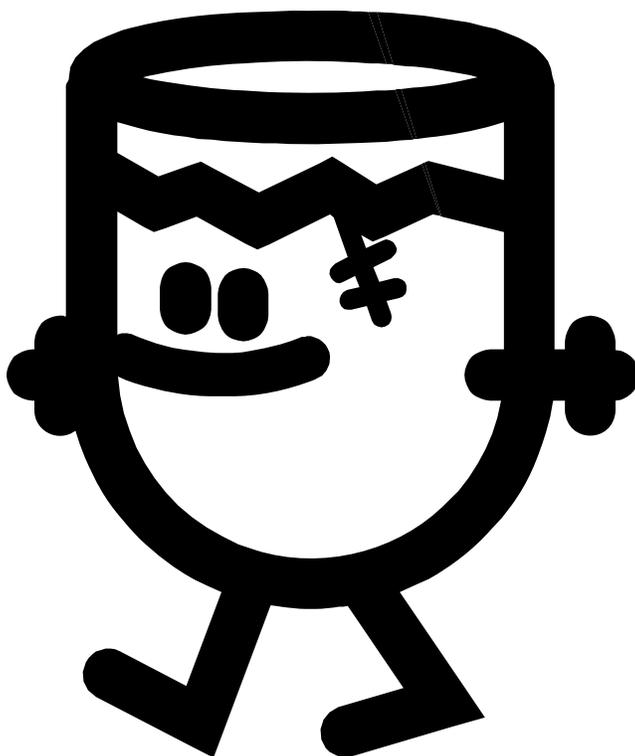
ACTIVITY #4

SPACE CREATURE

Supplies: one Styrofoam egg (per girl)
 3 eyes (per girl)
 Misc. decorating materials such as pipe cleaners, pom-poms, beads, drinking
 straws, yarn feathers, buttons, etc.
 Glue
 Scissors

LET YOUR IMAGINATION GO WILD!!!! Use a variety of supplies to create your very own, very special, space creature friend. Make him unique, one of a kind. And while you're creating, start imagining.....

(Leader, have the girls discuss the questions listed under Activity #4 of the Try-It)



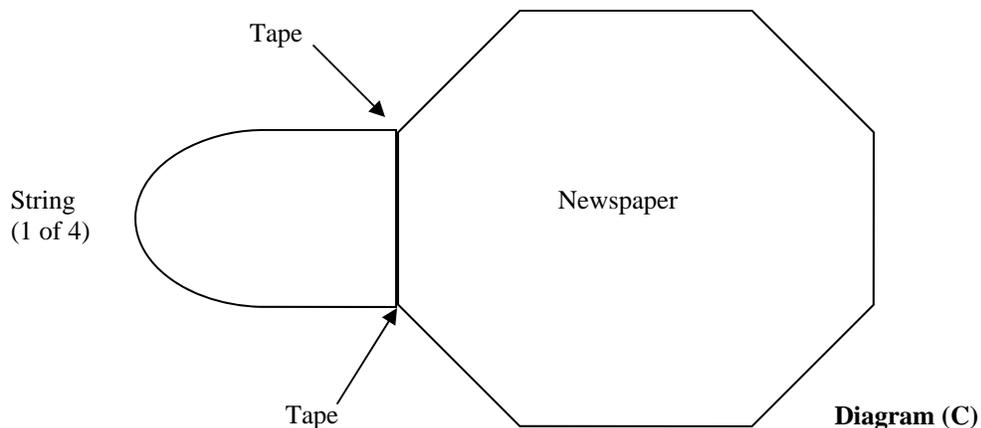
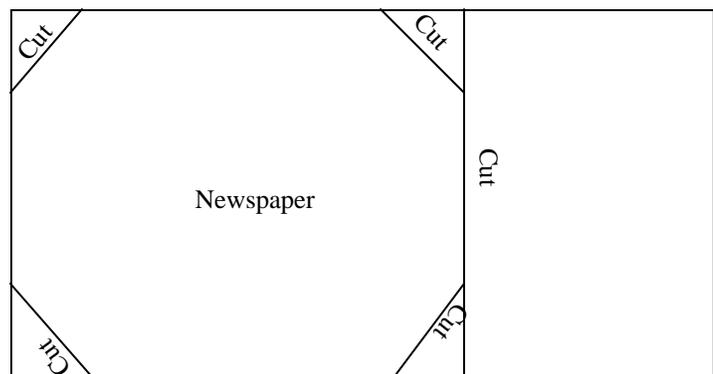
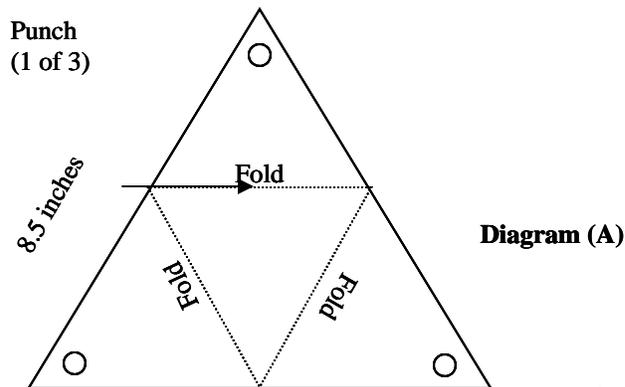
Parachute:

6. Unfold a large piece of newspaper.
7. Cut off the edge of the newspaper sheet to form a perfect square.
8. Cut off each corner of the square to form an octagon – see Diagram (B).
9. Tape string to corners of octagon as instructed in Diagram (C).

Air Bags:

10. Inflate the balloons.
11. Gather the four string of the parachute and tie them to the string on the lander.
12. Using rolled tape, attaché one balloon to each side of the lander.

Drop your Mars Lander from a high place. See if your payload (egg) survives.



ACTIVITY #5
PLANETARY DISCOVERIES

Supplies: 12” paint rollers — cardboard tubes will work but are not as sturdy
Colored cellophane
Rubber bands
Play dough
Small beads or pebbles
Piece of cloth (to hide the “planets”)

1. Prepare four play dough planets with beads, pebbles, or other small objects embedded in the play dough.
2. Prepare the telescopes. Cover one end of the tube opening with a piece of colored cellophane. Attach the cellophane with a rubber band.
3. Place the objects on a table and cover them with the cloth. Have the girls walk a good distance from the objects. Uncover the planets. Tell the girls to look at the planets through their telescopes. After a few minutes, cover the planets. Ask the girls what they saw.
4. Have the girls come closer to the planets and remove the cellophane from their telescopes. Tell them what they saw before was what you would see with a telescope from earth. Tell them that what they see now would be what they would see with the very powerful Hubble Telescope.
5. Telling the girls to be careful, have them pass the planets. (They should walk past the table, without stopping, while looking through their telescopes.) Explain that this is a **fly by** simulation.
6. Have the girls circle the planets once. (Slowly walk around the table while looking at the planets through their telescopes.) This is an **orbit**.
7. Finally, have the girls sit in groups and give each group a planet to investigate. This is a **landing**.



ACTIVITY #6
POCKET SOLAR SYSTEM

Supplies: string — 14 feet long
 11 beads
 Tape measure

1. There are nine planets, the sun, and an asteroid belt in this activity.
2. Tie a bead at one end of the string to represent the sun.
3. Tie the next bead (Mercury) approximately 1 1/2 inches from the first.
4. Continue tying the “planets” to the string, using the chart below as a guide. NOTE: ALL MEASUREMENTS ARE FROM THE FIRST BEAD (THE SUN).

<u>PLANET</u>	<u>DISTANCE FROM SUN</u>
Sun	0
Mercury	1 1/2 inches
Venus	2 3/4 inches
Earth	4 inches
Mars	6 inches
Asteroid Belt	11 inches
Jupiter	20 inches
Saturn	39 inches
Uranus	75 inches
Neptune	118 inches
Pluto	154 inches