



Science Badge



Ranger Alyssa

Junior Rangers must complete each section in "SCIENCE" to qualify for the Science patch:

1. Experiment: Milk Jug Feeder
2. Experiment: Water Traveling Through Leaves
3. Night Explorer
4. Experiment: Disappearing Eggshell
5. Create You Own Planet

Once you have completed the SCIENCE activities please submit them all in one email to JrRangerClub@portagemi.gov, and in the Subject line write SCIENCE BADGE and your name to receive your Science Badge! You can also mail or drop off items to the address on the main page. If you need any assistance email Ranger Alyssa at milbecka@portagemi.gov or call 269-329-4522.

You are on your way to becoming a City of Portage Junior Ranger!

Materials Needed:

- 1 Gallon Milk Jug
- Twine or String
- Dowel Rods or Sticks
- Colored Tape or Markers
- Scissors or Exacto Knife
- Bird Seed of Your Choice

1. Milk Jug Bird Feeder

Making a bird feeder is a fun way to attract birds.

Instructions:

1. Start with an empty and clean milk or water jug.
2. Use the scissors or knife to cut a small X on each side of the milk jug.
3. Slide the wooden dowels or sticks from one hole to the opposite hole. These are the perches.
4. Cut 4 rectangles or circles on each side of the milk jug just above the perches

for the birds to eat the seed.

5. Decorate the outside of the milk jug with markers, glitter or sequins to make it fun and colorful.
6. Just below the cap cut 2 holes to put the string through to hang the milk jug.
7. Fill the bottom of the feeder with seed. Tip* It is easier to fill with bird seed from the top than the sides.
8. Take a picture of your feeder and write a paragraph on what you learned and identify any birds who can to eat.



Materials Needed:

- 2 Large Napa Cabbage Leaves
- 2 Clear Jars or Glasses
- 2 Different Food Coloring Colors



2. Experiment: Water Traveling Through Leaves

It's hard to see how a plant drinks water since we see the water disappear into the soil

Instructions:

1. Slice each Napa Cabbage stalk halfway up the middle.
2. Place the two clear jars close together. Add water to the jars filling about 1.5 inches deep.
3. Put 3-6 drops of food coloring into each jar. Remember to only use one color per jar.
4. Place one cabbage piece in each jar. Come back in 8 hours to observe the difference.

Take a picture of your cabbage with its new colors and write a paragraph on what you learned.

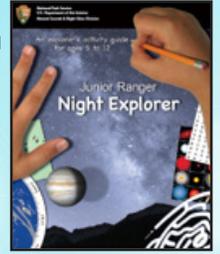




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3. Night Explorer

Do you want to know a little more about the solar system? This booklet will give you everything there is to know about the earth, sun, moon, stars and much more! The book must be filled out and handed in or scanned and emailed. Ask a parent for help! *This booklet was provided by the National Park Service.*



Visit their website at <https://www.nps.gov/index.htm> for more resources.

Materials Needed:

- Mason Jar with Lid
- White Vinegar
- Fresh Egg

4. Experiment: Disappearing Eggshell

Have you ever wondered what the inside of an egg looks like? Or if it would bounce? Here's your chance.

Instructions:



1. Gently place the egg inside the mason jar.
2. Fill with vinegar leaving $\frac{1}{2}$ inch space at the top. It is important to leave room at the top of the jar or it might burst from the carbon dioxide gas produced by the reaction.
3. Loosely cover the jar with the lid and ring. Again, make sure it is not too tight so that the gas can escape.
Let it sit for about 2 days.
4. Remove the egg from the jar and rinse with water.

Take a picture of your egg in its jar and write a paragraph on what you learned.

5. Create Your Own Planet

If you were a planet what would you look like? Draw a picture and tell us a little bit about you.

Describe Your Planet:

(Below are some ideas of what to tell us)

- » Weather?
- » Terrain Type(s)? Land/Continents?
- » Water?
- » Air?
- » Animals? Mammals, Insects, Fish, Reptiles, Birds, Other?
- » Plants? What kind?
- » People?
- » Any Moons? How Many?

