GASP! At Home

Week 1: Scientific Method and Observations

Hello all!

While our Girls Advancing Scientific Progress (GASP!) program is, the Environmental Learning Center would still like to provide families with environmentally themed activities that they can do at home! Below are a variety of activities ranging from quick, 10-minute activities to more in-depth, 45-minute activities that all explore the topic of the **scientific method and observations**!

At the Environmental Learning Center, our mission is to connect people to nature. We want to encourage families to get outside, here's some tips to do it safely: · Please visit this website for the most up to date information on COVID-19 (coronavirus) in Larimer County · Larimer County is currently under a stay at home order; read more about the stay at home order here. This order currently allows outdoor recreation, as long as physical distance guidelines are adhered to.

- When you go outside, always **maintain at least 6 feet of physical distance** with people who do not live in your household.
- **Be mindful of signs** posted in outdoor areas you visit. In most parks the playgrounds, picnic areas and bathrooms are closed.
- **Stay home** if you or your child feel sick.

Please practice everyday actions to prevent the spread of disease:

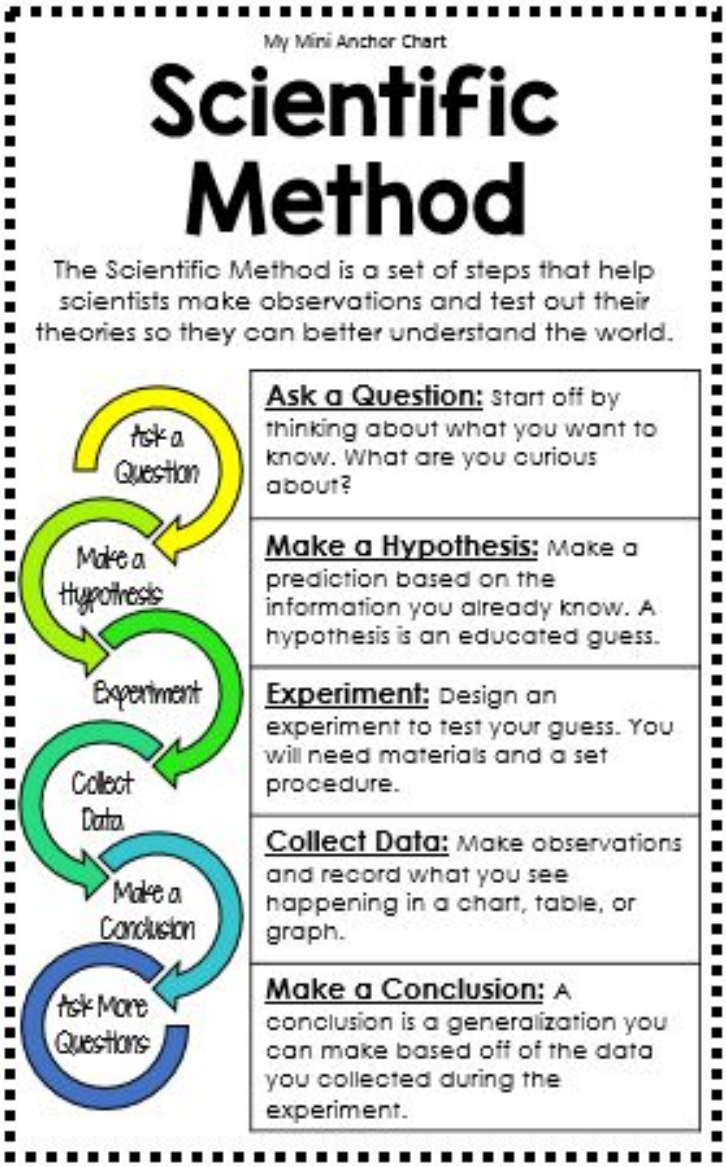
- **Frequently and thoroughly wash your hands** with soap and water for at least 20 seconds, especially after coming in from outside.
- If soap and water are not available, **use hand sanitizer** with at least 60% alcohol.
- **Avoid touching your eyes, nose, and mouth** with unwashed hands.

Scientist of the Week!

Who is Jane Goodall? A behavioral scientist. A chimpanzee expert. A super smart woman, who helped us learn we are really similar to chimpanzees in a variety of ways! Watch the video below to learn more about the cool things Jane Goodall discovered and how we have changed the way we think about chimpanzees! **https://www.youtube.com/watch?v=5PwcY_axJwA**

Pre-discussion questions for all activities:

- Go through the scientific method chart (below) together.
- **Discuss with your child:**
    - Are there any terms you don't know?
    - Have you ever done a science experiment before? If so, did you follow these steps?
- Watch this video on how to be a **field scientist** https://www.youtube.com/watch?v=E6iB5B3Lz9I
- **Discuss with your child:**
    - What senses does this type of scientist use to make observations?
    - Why are field journals important?



Flexing Your Observation Muscles

Time: 10 minutes

Materials:

- old notebook or spare pieces of paper
- pencil or pen

Objectives:

- Use senses to make observations.
- Make observations about nature.

Play an observation game:

1. First, **make a field journal** using available materials around your home (old notebooks, spare pieces of paper, etc.)
2. Next, **go outside and compete** against another person to make as many observations as possible about something you find in nature (plant, animal, object)
3. **Use four of your five senses** (touch, smell, sight and hearing) to make as many observations as you can in 1 minute. An example of an observation might be "I can see green leaves on that bush."
4. **Record all observations** in your field journal by writing or drawing them.
5. **After 1 minute of making observations**, go through each person's observations and see if you had any similar or different observations. Who had the most?
6. **Repeat** as many times as you would like!

Scientific Method Question Game

Time: 25 minutes

Materials:

- old notebook/ scrap pieces of paper
- bag, jar, bowl, or hat

Objectives:

- Use the four senses to make observations.
- Use observations to make a conclusion.

1. After you have gone through the pre-discussion questions, **make a field journal** using some materials around your home (old notebook, pieces of paper, etc.).
2. Next, **cut a piece of paper into strips** and write the following sentences on them:
    - What purpose does this object have in nature?
    - Do you think a squirrel would use this object? If so, how?
    - Do you think this object is always in this same location or does it move?
    - What are 3 observations you can make about this object?
    - How would you find out more information about this object?
    - Draw a picture of the object you have found.
3. Put these pieces of paper into a bag, jar or hat and **mix them up.**
4. **Go outside and find something in nature** that you want to observe, it could be an animal, plant or object.
5. **Pull out a random strip** of paper from the hat or jar and answer the question that you wrote on it.
6. You can **answer one or more questions** per object.
7. Then go choose a new object!

Ice Cube Melting Experiment

Time: 45 minutes

Materials:

- old notebook/ scrap pieces of paper
- 3 ice cubes
- timer

Objectives:

- Use the scientific method to conduct an experiment.
- Use observations to make a conclusion.

After you have gone through the pre-discussion questions, **make a field journal** using some materials around your home (old notebook, pieces of paper, etc.). For this experiment we will be following the scientific method to test where ice cubes will melt the fastest!

<u>Start by asking a question:</u>

1. Where does an ice cube melt the fastest?

<u>Make a hypothesis:</u>

2. In your field journal **write down a prediction** of where you think the ice cube will melt the fastest.

<u>Experiment:</u>

3. Either **print or copy the chart** below into your field journal.
4. **Take 3 ice cubes outside** and place them in 3 different locations you want to test!
    - Think about where it might melt faster or slower (sun, shade, pavement, grass, where else?)
5. In your chart make sure to **write down where you left your ice cubes**.

<u>Collect Data:</u>

6. Then **start a timer**. Check your ice cubes after 3 minutes, 5 minutes, 10 minutes, and 20 minutes.
7. Each time you check your ice cubes **make sure you're writing down observations** about your ice cubes.
    - Are they melted, are they kind of melted, or is it still a solid ice cube?
8. In between each time you check the ice cubes, **try activity 1 above** to practice your observation skills.
9. Continue checking your ice cubes until they are all completely melted!

Make a Conclusion:

10. **Come up with a conclusion** for your experiment.
    - In which location did the ice melt fastest?

Ask more questions:

11. **Come up with a couple more questions** to ask about where and how fast ice melts.

    Some example questions are:

    - Where does ice melt fastest on mountains?
    - Why does ice melt faster in different locations?
    - What happens when ice melts faster?
        - Fills river faster, potential flood, rivers move faster
    - What questions do you wonder about?

Activity 3 Chart

Amount of time	**Location 1:**	**Location 2:**	**Location 3:**
3 minutes			
5 minutes			
10 minutes			
20 minutes			