

Reasons for the Seasons (Grades 1 – 2) Post-Visit Activities

We hope that you enjoyed your visit to the Children's Science Explorium!

To help reinforce the concepts covered during today's field trip, we have prepared the following wrap-up activities for you to incorporate into the classroom.

Vocabulary List and Student Definitions (early elementary level)

- **Axis:** the imaginary line that runs from the North Pole to the South Pole.
- **Day:** the length of time it takes for the earth to spin once on its axis; 24 hours.
- **Rotate:** how the earth spins on its axis; to turn like a wheel around an axis.
- **Year:** the length of time it takes for the earth to travel around the sun one time; 365 $\frac{1}{4}$ days.
- **Revolve:** how the earth travels around the sun; to move in a circular fashion.
- **Season:** a period of the year that has a different weather pattern. The four seasons are
- **Weather:** What is happening around us, in the atmosphere, from one day to the next.
- **Equator:** the imaginary line around the center of the earth.
- **Poles:** the "top" and "bottom" of earth; as far north and south as you can go
- **Meteorologist:** person who studies and forecasts weather.
- **Forecast:** to predict

Seasonal Weather

1. During the program, your students explored weather typically associated with the different seasons. They also learned that South Florida's climate consists of two primary seasons: wet and dry.
 - a. Have students record and report the high and low temperature each day for two weeks (or until each child in your class has had the opportunity to report at least once).
 - b. If you attended the program during the wet season, have your students build a rain gauge. (Directions follow.)
 - i. The rain gauges can be taken home so that children can compare rain rates at their different locations.
 - ii. The rainy season typically begins in May, although it may be delayed until June.
 - iii. The rainy season is often as hot and humid as summer in the rest of the country. There are no cool, dry fronts that move through the area to bring any relief.
 1. It may not rain every day, but the frequency does increase.
 - iv. Rainy season rains are often very localized and very heavy. It is not unusual for it to rain on one side of a neighborhood and not on the other.
 - v. Have your students compare the differing rainfalls at their homes over the course of a week.
 - c. If you attended the program during the dry season, have your students build an anemometer or sun dial. (Directions follow.)
 - i. The dry season generally begins in October when the first "cold" front makes its way through our area. While the cold front may

bring strong storms with it, the air after the front feels cooler and drier.

1. Tropical storms may still affect an area during the dry season.
 2. Rains are less frequent during this season, although it may still rain.
- ii. The dry season begins transitioning to the wet season generally in April. This transition period is much like spring in the rest of the country with large temperature changes and occasional strong thunderstorms. April is often the driest month in our area.
 - iii. Because rain is rarer in the dry season, your students will more reliably be able to measure wind speed at the same time each day or learn how to read their sun dials.
- d. Grade 1 math extension for these activities: Have students record and report the rainfall at their homes. Have them represent any two digit numbers in terms of tens and ones. Have students order numbers on a number line. Have students solve subtraction problems to determine the difference in the measurements.
 - e. Grade 2 math extension for these activities: Have students determine the difference in measurements and determine the estimated differences. Have students classify records as odd or even and explain why.
 - f. No matter where on Earth we are, the planet tilts toward the sun in the spring/summer and away from the earth in the fall/winter.
 - i. Redo the pre-visit activity in which the children moved about creating night and day and years. This time, have them lean toward you (or the light source) for half of the year and away from you for half of the year. This helps reinforce the concept that the earth **rotates on its axis** creating night and day and **revolves around the sun** forming years. The earth's axis is always tilted at approximately 23 degrees – it is the tilt that creates the seasons.

Predicting Weather

1. As your students learned during the program, meteorologists study weather and weather patterns. Have your students take turns playing the role of meteorologist by giving weather reports each day.
 - a. Use a local newspaper to gather weather forecasts
 - i. Have students in K – 1 predict local weather; grade 2 students can share Florida or southeast US projected forecasts.
 - ii. Have students make “predictions” for weather forecasts locally in March, June, September, and January.
 - b. Extension for 2nd graders: Use a national paper, like *USA Today* or www.weather.com to gather weather forecasts
 1. Have students use national maps to predict forecasts for New York City, California, Texas, and Michigan in March, June, September, and January.
2. Grade 2 extension:
 - a. In Florida, we occasionally experience severe weather, whether in the form of thunderstorms with dangerous lightning, tornadoes, or even hurricanes.
 - b. Have students brainstorm ideas on what should be included in an emergency kit in the event of an extended power outage, like during a

hurricane. Share with them that our water from our faucets may not always be safe to drink, we would not be able to turn on our microwaves, stoves, or ovens, and that we may not have electricity to run our air conditioners or televisions/radios.

- c. Compile a class list that they can take home and share with their families.

How to Make a Rain Gauge:

Materials:

6" rulers

Cellophane or laminator

Glass or plastic jar for each student. Examples: olive or pickle jars or peanut butter container. Bottom must be relatively flat.

Tape or glue

Instructions

1. For Teacher, Before Class:

- a. Photocopy 6" rulers to create a ruler for each member of your class. (Cardstock is recommended.)
- b. Cut out rulers and laminate, if using laminator.

In Class:

2. If covering the rulers with clear cellophane, have students wrap them front and back. This will protect it from the rain, and make it sturdy so that the ruler can stand straight.
3. Stand the ruler inside the container so that the ruler rests on the bottom.
4. Tape it at the top, to the inside of the jar, so that the ruler does not fall.
5. Have students take their rain gauges home and place them outdoors.
6. Have students measure the amount of rainfall each day.

Measure daily rainfall:

1. Have students measure the amount of rain each day with your rain gauge.
 - a. The rain gauge should be emptied at the same time each day by everyone in your class.
2. Students should mark the amount of rainfall each day on their printed rainfall graph.
3. At the end of the test period, have students bring their graphs into class.
4. Have them connect the points for all days.
5. At the end of the week each student should add all of the amounts of rainfall together from his/her location.
6. Compare who in your class had the greatest amount rainfall over the week.
7. (Note: this activity can be continued for a month, if you'd prefer.)

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Weekly Rain Gauge
Week of _____
By: _____

6 in							
5.5 in							
5 in							
4.5 in							
4 in							
3.5 in							
3 in							
2.5 in							
2 in							
1.5 in							
1 in							
.5 in							
0 in							
	Mon	Tues	Wed	Thurs	Fri	Sat	Sun

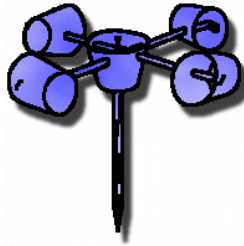
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6 in							
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2 in							
1.5 in							
1 in							
.5 in							
0 in							
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How to Make an Anemometer



Materials Needed:

- Five 3 oz. plastic cups for each student
- Two plastic soda straws
- One pencil (with unused eraser)
- Single-hole paper punch
- Scissors
- Tape
- One push-pin
- Magic marker

Instructions:

Before Class:

1. Take four of the plastic cups for each student and punch one hole in each, about $\frac{1}{2}$ inch below the rim.
2. Take the fifth cup and punch two holes in it, directly opposite from each other, about $\frac{1}{2}$ inch (1.5 cm) below the rim. Now punch two more holes in the cup, each $\frac{1}{4}$ inch (1 cm) below the rim that are equally-spaced between the first two holes. (one cup per camper)
 - a. Using the push-pin and the scissors, make a hole in the center of the bottom of the cup with four holes in it. The hole should be large enough that the pencil can fit easily through it.

In Class:

3. Have students slide one of the straws through the hole in one of the cups that has only one hole in it. They will bend the end of the straw that is inside the cup about $\frac{1}{2}$ inches (1.5 cm) and tape it to the inside of the cup.
4. Tell students to place the other end of the straw through two of the holes in the fifth cup and then through the hole in one of the other cups. They should tape the end of the straw to the inside of the cup as they did earlier, making sure that the openings of the two cups face opposite directions.
5. Repeat steps 4 and 5 with the remaining two cups, sliding the straw through the remaining two holes in the fifth cup. Make sure that the opening of each cup faces the bottom of the cup next to it (in other words, no two openings should be facing each other). Each of the four cups should be facing sideways.
6. Next, students will insert the pencil with the eraser facing up through the bottom of the fifth cup. Helping your students, carefully push the pin through the two straws and into the eraser on the pencil.
7. Using the magic marker each student should draw a large X on the bottom of one of the cups.

8. As a class, go outdoors and have each student hold it in front of themselves in an open area where the wind is blowing. Look at the X on the bottom of the cup as it spins around. Count the number of times it spins around (revolutions) in 10 seconds.
9. Want your students to convert the number of revolutions to miles per hour? A chart follows.

Anemometer Speeds

Revolutions in 10 seconds	Wind Speed (MPH)
2-4	1
5-7	2
8-9	3
10-12	4
13-15	5
16-18	6
19-21	7
22-23	8
24-26	9
27-29	10
30-32	11
33-35	12
36-37	13
38-40	14
41-43	15
44-46	16
47-49	17
50-51	18
52-54	19
55-57	20

Make a Sundial

Materials

12" x 12" piece of heavy card stock (one piece for every two students)

Piece of cardboard for each student (poster board or cereal boxes work well)

Glue/tape

Instructions

Before class:

1. Fold the cardstock diagonally, corner to corner. Cut along fold line.
2. Collect poster board or cereal boxes.

In class:

3. Have students fold a flap on the bottom of the triangular card to glue onto the larger piece of poster board. This will create the shadow on the poster board to tell time.
4. Attach the card to the ground, an outdoor table, or another flat surface in the sun.
5. Every hour have students mark off where the shadow is cast, slowly creating a clock face.
6. Remind students to keep the sundial in one position so that their hour marks will be accurate.