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

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 ¼ 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.
- **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

Teacher Background and Supporting Information

1. What Causes Seasons?
    a. The earth moves two different ways: it spins on its axis (rotation) and it travels around the sun (revolution). These movements occur together.
    b. Rotation causes day and night.
        i. The side of the earth facing the sun experiences day, the side of the earth facing away from the sun experiences night.
        ii. One complete rotation takes approximately 24 hours.
    c. Revolutions + Earth's tilt = seasons
        i. Contrary to common sense, the earth is closest to the sun in the winter.
            1. The earth's tilt on its axis creates seasons.
            2. The earth's axis is rotated 23.5 degrees.
            3. Earth is closest to the sun during winter, but due to the angle of its axis, the sun's rays aren't as intense or direct. This leads to shorter days and cooler temperatures.
            4. During the summer, the earth is tilted toward the sun, receiving more direct rays.
            5. Due to the tilt, the northern hemisphere experiences summer while the southern hemisphere experiences winter.
        ii. The equator, at the center of the earth's horizontal plane, experiences little change in the sun's angles as it revolves. This leads to a less noticeable change in seasons.
        iii. The earth's tilt is also why the poles experience up to 24 hours of darkness or daylight in a day, depending on if they are angled more directly toward the sun or away from it.
2. Seasons and Weather
    a. Season (teacher definition): A division of the year according to some regularly recurrent phenomena, usually astronomical or climatic.
    b. Season: (student definition): One of four parts of a year that have different weather patterns

c. Weather (teacher definition): The condition of the atmosphere at any particular time and place.
d. Weather (student definition): What is happening around us from one day to the next. Weather includes temperature, wind, moisture, and we experience it as hot, cold, warm, windy, cool, rainy, foggy, snowy, etc.
e. **Key Point:** The earth's distance from the sun changes during the year. This change does not cause our seasons. The earth's tilt causes our seasons.
    i. The earth doesn't move around the sun in a perfect circle; instead, its revolution is more like the shape of an egg. Due to the tilt of the earth's axis and the angle that it faces the sun as Earth revolves, we experience seasons.
    ii. We are actually closest to the sun in winter, but experience the most direct rays in summer, which is why summer is hotter.

b. Most parts of the world experience four distinct seasons: summer, fall, winter, and spring.
c. In South Florida – and other places near the *equator*, we have the wet and dry seasons.
d. By studying patterns, air flow, currents, and other aspects of our atmosphere, meteorologists are able to forecast the weather we are likely to experience within the next 7 – 10 days.

Student Activities

1. Days versus Years

a. Have students stand in a circle around a bright light source in an open area. The light source represents the sun and each student represents the earth.
b. Turn off all other light sources. Students will observe where the light shines on them and where shadows lie. The bright area represents day, the dark area represents night.
c. Have the students spin in place. They have just completed one *rotation*, or *day*. A day takes approximately 24 hours on Earth.
d. Next, have the students walk around the light source in a circle. When they complete a full circle, they have completed one *revolution*, or *year.* A year takes approximately 365 days on Earth.
e. Let the students know that the "year" they just completed was not completely right. They walked around in a circle, but didn't rotate (spin). Have them complete another revolution while spinning to more fully understand proper revolution.

2. Weather Journal

a. Have students keep a weather log for an entire week (template follows), describing or drawing the weather each morning and afternoon. Did the weather stay about the same or were there big changes? What time of year did you do this activity? (i.e. fall, winter, spring, rainy, or dry seasons?)
b. Using a newspaper or the Internet, compare the local weather to other areas' weather across the US or North America to discuss why weather is different in different places.

3. Kindergarten and Grade 1

a. Read *Snow* by Uri Shulevitz to the class. Ask how many students have ever seen or played in snow. Have students create a list of words they

associate with snowy days. Grade 1 can create a word web about snow. They may also create a narrative about their time in snow.

4. Grade 2:

   a. Ask your class if any members have experienced weather that we don't usually experience here: leaves changing color in the autumn, snow in winter, or spring showers.

   b. Read *What Will the Weather Be?* by Lynda DeWitt, a story about an unexpected snowstorm, to the class.

   c. Have students pre-write, draft, revise, edit, and publish a story about what they would do if the weather did something unexpected, for instance, if it snowed or iced in South Florida. How did the day begin? When did the weather start to change? When did they notice the change? What did they do? What did others do? What was the end result? Remind them that the story should have a clear beginning, middle, and end.

Monday

Today's weather was:

Sunny

Cloudy

Rainy

Windy

Hot

Cold

Today's temperature was:

High:_____

Low: _____

Saturday

Today's weather was _____.

Today I _____ because

the weather was _____.

Sunday

Today's weather was _____.

Today I couldn't _____

because the weather wasn't

_____.

Friday

Today's weather was:

Sunny

Cloudy

Rainy

Windy

Hot

Cold

The weather this week has been _____.

I hope it is _____ this weekend!

Tuesday

Tonight I watched the weather <u>forecast</u> for tomorrow.
Tomorrow's weather is supposed to be:

Sunny

Cloudy

Rainy

Windy

Hot

Cold

Tomorrow's temperature is supposed to be:

High: _____ Low: _____

Wednesday

Today's weather was:

Sunny

Cloudy

Rainy

Windy

Hot

Cold

Today's temperature was:

High:_____ Low: _____

Last night's forecast was

_____.

Thursday

My favorite kind of weather is _____.

I like to _____ outside when the weather is right.

I don't like _____ weather.

My favorite weather happens most in:

Summer Fall Winter Spring

This booklet

is to help me

prepare for my

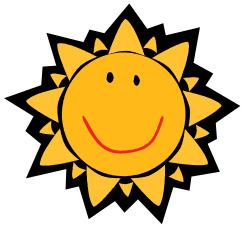
field trip on

_____

to the

Children's Science Explorium





My Weather Journal

By:

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