MISSION CONSERVATION ACTIVITY GUIDE

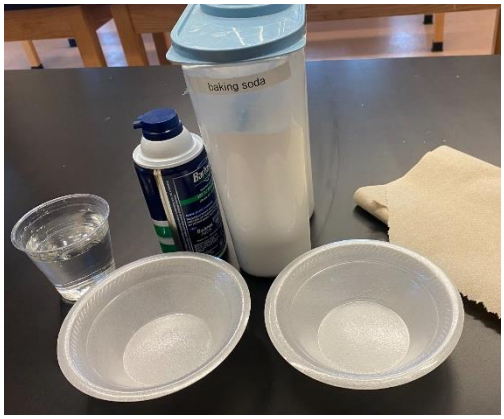
January 2024 – Weather Warriors

Indoor Activity: Dry snow vs Wet snow

When temperatures in the atmosphere are between 32°F and 36°F, water molecules in the air begin to create ice crystals. These ice crystals go through slight changes in temperature and begin to stick together creating snowflakes. Snowflakes fall to the ground when precipitation occurs. The temperature of the Earth's surface then dictates what type of snow will fall. If the surface is cold and dry, then it creates a powdery snow that is not very dense. The common ratio for dry snow would be around 10 inches of snow for every inch of water. Wet snow occurs when the temperatures from the Earth's surface are warmer and more humid. This creates a slushier, much heavier type of snow with a ratio of around 4 inches of snow for every inch of water. Through this activity, you will create your own dry and wet snow, feel the difference in texture, and see the amount of water to snow ratios, all from the comfort of your own home!

Materials

- **2 bowls**
- **Shaving cream**
- **Baking soda**
- **Water**
- **Paper towels**



What to do

1. Put a handful of shaving cream into one bowl.
2. Sprinkle baking soda on top and mix them together with your hands.
3. Keep sprinkling baking soda into the bowl until you get your powdery, snowy texture.
4. Put 1/3 cup of water into the other bowl.
5. Sprinkle baking soda into the water and mix them together.
6. Keep adding baking soda until you get a slushy, snowy texture.
7. Study the difference in textures and think about how much more water goes into wet snow.
8. Don't forget to use paper towels to clean up.
9. Have Fun!

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Outdoor Activity: Build your own anemometer

Anemometers are mechanisms designed to measure wind speed and air pressure. There are many types of anemometers. The most popular anemometer is called a cup anemometer. These mechanisms are used to measure wind speed. Wind speed is calculated by how many times your anemometer makes a full rotation and how many rotations it does in one minute. With this data you can calculate how fast the wind is moving. Wind speed data is very inconsistent, but with these tools we can understand how fast the air around us is moving. Through this activity, you will be able to create your own cup anemometer and measure wind speeds in your back yard.

Materials:

- **5 paper cups**
- **Pencil with an eraser attached**
- **Hole puncher**
- **Thumb tack / Push pin**
- **2 Straws**

What to do:

1. Take 4 paper cups and punch two adjacent holes on the side, around 2 inches from the top of the cup.
2. Slide the ends of your two straws through the holes you made in the cups.
3. Use your pencil to create a hole big enough for the pencil to fit through at the bottom of your cup. (Keep this hole as close to the center of the cup as possible)
4. The eraser on the pencil should be facing the mouth of the cup with its point through the whole you poked at the bottom.
5. Punch holes on four sides of this cup, just under the cup's lip.
6. Push your straws through the holes at the mouth of your cup so that the straws cross each other above the pencil's eraser.
7. Use your thumbtack or pushpin to secure your straws to the pencil. (Do not push too deep because it will stop your anemometer from spinning)
8. Make sure your 4 cups are facing the same direction and your anemometer can spin. (Draw a marker on one of the side cups to keep track of how many rotations happen in one minute)
9. Take it outside!
10. Count how many times your anemometer spins for one minute. This is your RPM. (Revolutions Per Minute)