

WEATHER

FIRST GRADE SCIENCE DOCENT

OBJECTIVE—Through hands-on experiments and demonstrations, students will identify the stages of the water cycle, recognize that weather refers to changing conditions in the Earth’s atmosphere, recognize that weather is changing all the time, and learn that predictions can be made about the weather.

INTRODUCTION (10 minutes)

What is weather? The weather is what the air outside is like. The weather can be hot or cold. It may be sunny (*shine the flashlight*), cloudy (*throw out cotton balls*), windy (*turn on the fan*), or rainy (*spray the water bottle*).

- Look out the window. What is the weather?
- Is today’s weather different from yesterday’s weather? How?
- Is today’s weather different from weather in the summertime?

Our weather changes from day to day. It also changes from season to season. What is the weather like in springtime? Fall? Winter at Lake Tahoe?

A layer of gases called the “atmosphere” surrounds our Earth. The atmosphere acts like a security blanket for our Earth. If we don’t have all these layers of atmosphere, we could be burned by the intense heat of the daytime sun or frozen by the icy chill of night.

(*Holding the Earth ball, cover the ball with the blue bag. Fluff out the bag and twist the opening.*) The blue Earth represents the Earth’s atmosphere. All our weather happens in the atmosphere.

How do we know what tomorrow’s weather might be? Do you ever look at the weather section of the newspaper or watch the weather person on the news? Scientists who study and try to forecast the weather are called **meteorologists**. Meteorologists use special equipment like Doppler radar, computers, and weather satellites that travel 600 miles above the Earth taking pictures of the Earth (*show satellite picture*).

Meteorologists also use weather stations to study the weather...and we have a Channel 10 weather station right here at Maidu School. The next time you are on the playground, look above the library building and you will see this weather station (*show picture of weather station*).

Today you will be divided up into three groups to learn about the weather. (*Briefly review activity centers.*)

Materials: flashlight, cotton balls, fan, spray bottle, globe ball, blue plastic bag, satellite picture, weather station picture.

HANDS-ON ACTIVITY CENTERS (45 minutes)

- All three centers would benefit from adult supervision.
- **Optional:** Ask the teacher is during the lesson you may display a weather web site on the classroom computer. Two good web sites are: www.noaa.gov/wx.html (enter zip code 95661) and www.yahoo.com (select weather, then enter zip code 95661).
- Ask the teacher to divide the students into three groups.

ACTIVITY CENTER ONE—WATER CYCLE AND RAIN (15 minutes)

Water moves from the Earth to the sky and back again in the water cycle.

- First, the sun warms water and air. The water will **evaporate**, or change into water vapor. Water vapor is water that you cannot see in the air.
- Next, water vapor meets cooler air. It will then **condense**, or change into tiny drop of water. The drops form clouds.
- Finally, the water drops join and get heavier. They fall to the Earth as rain, hail, sleet, or snow.

Water Cycle Memory Beads

We are going to make a water cycle memory bead wristband using the string and beads. Each bead stands for a part of the water cycle.

Cut a section of string (approximately 10” long)for each student. Tie a knot on the end so the beads don’t slip off. Once the student completes the bead pattern, tie both ends of the string together to make a bracelet.

Note: Each student will make a bracelet with 9 beads. They will bead the following pattern three times.

Yellow = Sun (evaporation)
White = Clouds (condensation)
Light Blue = Rain (precipitation)

Materials: Stretchy string for wristbands, scissors, beads (yellow, white, light blue)

Making Rain

1. Soak sponge in the pan of water. Hold it up and observe as large water drops (rain) fall.
2. Squeeze the sponge out. Again hold it up. Do any drops fall from the sponge now? Is the sponge still wet?

3. Help students conclude that even though the sponge is still wet, the drops are not heavy enough to fall.

Materials: Pan of water and sponge

ACTIVITY CENTER TWO—AIR AND TEMPERATURE (15 minutes)

All around the Earth is a blanket of air; this is the air you breathe. Weather happens in the air all around you. Weather is made up of air, sun, and water. You can see sun and water, but where is air? How do you know it's there? Air is all around. You can't see air, but you can find out more about it.

Air Is There

1. Catch some air in a bag.
2. Use the twist tie to close the bag.
3. Squeeze it! Press it! Toss it! What happens?
4. Open the bag. Now squeeze it. What happens to the air?

Materials: 20 plastic bags and 20 twist ties

Thunder (*should be done outside if possible*)

1. Fill the paper bag by blowing into it.
2. Twist the open end and hold it closed with your hand.
3. Quickly, and with force, hit the bag with your free hand.

Explanation: Hitting the bag causes the air inside the bag to squeeze together so quickly that the pressure breaks the bag. The air rushing out of the broken bag pushes the air outside and away from the bag, making a loud “bang” sound. Thunder also comes from moving air.

Material: 20 lunch-size paper bags

Temperature

The temperature of the air changes from day to day. It also changes as the seasons change. Sometimes the temperature is so cold that water freezes. Sometimes it is so hot that a popsicle melts.

Air temperature may also change during the day. In the daytime, the sun warms the land, air, and water. The temperature goes up. At night, the sun does not warm the air. The temperature goes down, and the land, air, and water feel cooler.

WEATHER continued

1. Place one thermometer outside and leave one inside. Do you think the temperatures will be the same or different?
2. Read and record the inside temperature.
3. Read and record the outside temperature.
4. Where they the same or different?

Materials: 2 thermometers, chart to record temperature readings.

ACTIVITY CENTER THREE—WIND (15 minutes)

Moving air is called **wind**. Wind can push things. It can blow our American flag outside Maidu School. It can also blow a windsock.

Make Wind

1. The adult at the table will make a small pinhole in the balloon, then blow it up.
2. Allow students to put their finger close to the hole. They will feel the air rushing out.

Explanation: The air is moving from a high-pressure area inside the balloon to a low-pressure area outside the balloon. This creates wind.

Material: 1 balloon, 1 tack or pin

Make a Wind Sock

1. Decorate the construction paper with the sun, clouds, and raindrops.
2. Glue streamers to the bottom of the back of the construction paper.
3. Staple the construction paper into a cylinder (decorations outside and streamers inside).
4. Staple a piece of yarn to each side of the top of the cylinder (to hang the wind sock).

Material: Light blue construction paper, yarn, white clouds, yellow sun, dark blue markers for raindrops, streamers, glue stick, stapler.

CONCLUSION

Ask the students to name the different types of weather.

Ask students to explain the water cycle (evaporate, condense, precipitate (snow/rain))

WEATHER TEMPERATURE CHART

	INSIDE TEMPERATURE	OUTSIDE TEMPERATURE
GROUP 1		
GROUP 2		
GROUP 3		

WEATHER TEMPERATURE CHART

	INSIDE TEMPERATURE	OUTSIDE TEMPERATURE
GROUP 1		
GROUP 2		
GROUP 3		