

Weather Wise

Location of activity provided by staff



Summary
Intro: 3 mins
Activities: 20 mins

Grades: (suggested) K-3

Subject: Meteorology

Activity Objective:

To help develop children's awareness of the weather through several weather related activities.



Materials & Preparation:

PROVIDED:

- Oversized demonstration thermometer
- Actual thermometers (2 jumbo & 2 regular)
- 3 weather books & cloud poster
- Flag used as wind gauge
- Clipboards
- 5 sponges, 5 water containers, 15 bubble wands & bubble mix

NOT PROVIDED:

- Optional- "Today's Weather" chart and "Weather Walk" attached to the lesson
- Pencils

PREP: Attached to this lesson are a number of simple weather activities and observations. Prior to the trip to Cooper, look these over and choose lessons you think would be appropriate for your group. If there is time day of (before first group) take the weather walk & look for things to point out to your groups

NOTE: * Included in this lesson plan is The Weather Master story about the importance of the sun, water, air, and earth. This could be read to the students in the classroom as an

introductory or follow-up activity. *

Key Vocabulary Terms: weather, evaporation, thermometer, wind gauge

NOTE: You should have time for the first few activities, including the weather walk. The additional activities are included here if you have time, or if the students already have some weather background and wish to expand on the topic.

Intro Discussion: (3 mins)

For this center we are focusing in on the weather. *How many of you have measured or observed the weather before? How?* (take some answers) We will be using different tools today to study the weather, let's get started!

Activities: (15-20 mins)

1. What is the weather like today?

A. Ask the group to observe the sky, feel and describe the warmth or coolness of the air, feel the wind, look at the nearby plants. *What words describe today's weather?*

B. Ask the children to mark the pictures on the Today's Weather chart that describe today's weather.

C. If students are not familiar with reading thermometers, use the large demonstration thermometer to show how it is read. Look at the real thermometers, adjust the demonstration thermometer to match today's temperature, and write down the temperature. (The thermometer should be in the shade.)

D. Look at the flag wind gauge. *How can we describe the wind?*

...very windy ...a little wind ...a slight breeze ...no wind

Check the words that describe the wind today.

E. If there are clouds, the children may draw a cloud on their weather chart. Or they may describe the sky. (Clear, fluffy clouds, dark clouds, etc.)

2. What makes our weather?

A. Ask the group *what makes our weather?* Look around and think about what things cause weather.

Responses may be:

...sun ...air ...wind ...rain/snow/hail/sleet

(Additional responses made by students with more weather background could be...tilt of the earth that causes seasons, nearby mountains, closeness to the equator, proximity to bodies of water.)

3. Take a weather walk.

A. Take a "weather walk" to see how many weather-related things the children can find. A short walk down the wash should offer some signs of rain, sun, etc. The students may answer the questions on the "Weather Walk" sheet (attached), or you may wish to talk about the things you see.

4. If there is time, the following questions can be discussed:

...*Why is the sun important?*

- It gives us heat energy. Nothing could live on earth without the sun.
- Plants could not produce food without sunlight. Plant-eating animals would starve, therefore so would the meat-eaters.

...*Why is wind important?*

- It helps people sail boats, fly kites, dry clothes, power windmills for water or energy, hang gliding or windsurfing.
- It blows pollen from flower to flower which helps make seeds.
- It blows seeds to different places.
- It helps animals by blowing odors. A predator may find a prey by sniffing its scent, or a prey may escape a predator by sniffing its scent.

...*Why is rain important?*

- It fills our rivers, lakes, and underground water reservoirs.

- It gives us and the animals water to drink.
- It waters the plants.
- It washes the dust from the air and the plants.

5. How can we read the clouds? (Use the cloud poster)

One way to know what kind of weather is coming is to study the clouds. Look at the pictures on the poster. *Have you seen these different kinds of clouds in our sky?*

- CIRRUS CLOUDS are high in the sky. They are feathery and wispy, and sometimes look like horsetails blowing in the wind. Feathery cirrus usual means clear, calm weather.
- CUMULUS CLOUDS are the fluffy big ones we like to pretend are animal shapes. If they are not too big, they also mean fair, sunny weather.
- CUMULONIMBUS CLOUDS are overgrown cumulus clouds. High winds spread out their tops in the shape of an anvil and they are so big they may darken the sky.
 - These are also called thunderheads and mean that there will be a thunderstorm somewhere nearby. They are common in the afternoons in July, August, and September in Tucson.
- STRATUS CLOUDS lie low and cover the sky. They can bring a slow, steady rain or drizzle. They are common in Tucson in winter.

6. What is Tucson's weather much of the year?

How is it different than the weather in many other parts of the United States?

- Tucson is in a desert (the Sonoran Desert).
- It is very hot in summer (often over 100).
- We only get about 12 inches of rain per year (about half in summer and half in winter).
- The air is very dry.
- We seldom get freezing temperatures.
- We do not get snow very often.
- Most places in our country are not in a desert.
- Many places seldom or never reach 100 .
- Many places get many more inches of rain each year, and it rains throughout the year.

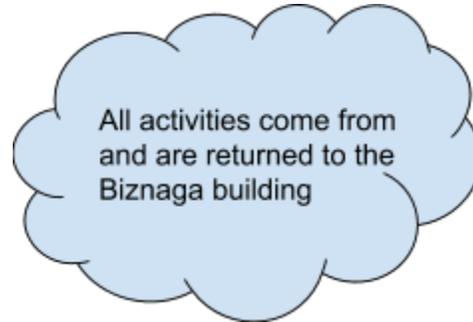
- In many places the air carries more water (it is more humid).
- In the northern part of our country the temperatures are freezing during much of the winter and ice forms on the rivers and lakes.
- In the northern part of our country snow falls every winter.

7. Read and show the illustrations from the books: Where Do Puddles Go? and/or Can you See the Wind?.

Time permitting; this is a nice culmination activity.

Clean up:

At the end of the last session check and make sure all materials are in the box and return it to the “Biznaga” building.



WEATHER WALK

LOOK FOR THESE SIGNS OF WEATHER...

- **A plant bending towards the sun.**
- **A plant growing in the shade.**
- **Something that tells you the air is moving.**
- **A sign that there was water running down the arroyo (wash).**
- **A sign that an animal is living underground.**
- **A plant that has fresh green leaves because it has rained.**
- **A plant with no leaves because it has not rained.**
- **A large hawk or vulture high in the sky, soaring in the warm air.**
- **As you look in the distance (towards Tucson), does the air look "wiggly" as if you are looking through water? (Caused by rising heated air.)**
- **A sign that the weather has changed something... a piece of dead wood.**
- **A damp spot caused by rain water.**

WIND WAYS

OBSERVATIONS ON A WINDY DAY

How can we tell if it is a windy day? We can't see wind but there are clues to tell us the air is moving...

Can you feel the wind? Do you see the wind moving leaves? dust? a flag? other things? Close your eyes. What wind sounds do you hear? Look up at the clouds. Are the clouds moving? Are they all moving in the same direction? (Sometimes lower clouds move in a different direction than higher clouds because the higher wind is moving in another direction.) Blow bubbles and watch which way the wind takes them.

DOES THE SUN'S HEAT AFFECT EVAPORATION?

Materials: Two equal sponges soaked in equal amounts of water
Two similar large rocks...one in sun, one in shade

Experiment: Soak each sponge with an equal amount of water.
Make a wet smear with one wet sponge on the sunny rock. Make an equal sized wet smear with the other wet sponge
on a shady rock. Observe the rate of evaporation.

Outcome: Which water smear disappeared faster?

Conclusion: Why do you think this happened

THE WEATHER MASTER

Once upon a time, in the days when the Universe was young, the four weather makers – Earth, Sun, Air, and Water – decided to hold a huge weather celebration. So Sun and Air volunteered to send out the invitations to all the inhabitants of the world. Water and Earth volunteered to find the best spot for the celebration.

But when Earth saw the finished invitations, he wasn't very happy.

"They listed me last!" Earth said angrily. "Last! Why, I should be first. Without me there would be no weather at all!"

Earth kept thinking as he spun around. "This isn't right. I should be the Master of Weather. Sun, Water, and Air should take orders from me!"

So Earth sent out a notice to all the inhabitants of the world that said:

On the day of the celebration, we will hold a debate and elect the true Master of Weather. It is time someone took charge!

Well, Sun and Water and Air were shocked. "What does Earth think he's doing?" exclaimed Sun. "Without me there would be no heat. Without heat there would be no weather."

Water was so mad she was steaming. "I am as important as Earth. How dare he think he's

more important!"

Air was so upset he just blew around whispering to himself.

"I've got an idea, my friends," said Sun to the other two weather makers. "We'll show the inhabitants of the world who is most important."

On the day of the big celebration, all the inhabitants of the world came dressed in their best. Mountain wore his best snowy white coat. Sand came polished and gleaming. Lions, tigers, monkeys and camels were sleek and smooth. Butterflies and birds were clothed in bright colors. Oaks and maples were in their fall colorful splendor. Even the mushrooms popped up for the party. "What a wonderful day for a celebration," said the trees and flowers.

"Yes, it's beautiful. Sun is shining and there are big puffy clouds in the sky," chattered the monkeys.

"And feel the wind – blowing just enough to keep us cool, said the mountain. "And there's plenty of food and water for everyone," sang the birds.

Suddenly Earth proclaimed, "It is time for us to vote for the Master of Weather. I'm sure you'll all agree that it should be me, Earth. Without me there would be no weather."

All at once, huge black clouds filled the sky and Sun disappeared behind them. Air became frosty and the wind skipped through the trees and flowers. Then rain began pouring down and lightning flashed and thunder roared. In seconds it got so cold the rain changed to sleet and then to snow. The wind blew harder and harder.

The lions and tigers and monkeys and birds all shivered and tried to keep warm. The trees and flowers were blown every which way. The sand and dirt were tossed about in the wind.

"Please stop," begged the trees and flowers. "Yes, please stop," cried the rocks. "It's not our fault that Earth feels so important."

"We know that without all four weather makers there would be no life and there would be no weather," the sand sputtered.

"Without Air, we animals and plants could not live," said the lions and ants and trees. "And there would be no wind.

"Without Water there would be no oceans, rivers, lakes, streams, puddles, clouds, or seas. There would not be a drop of rain or a flake of snow. Why, there wouldn't even be animals or plants because we're all made mostly of water!"

"Without Sun there would be no warmth and no sunshine to make the plants grow," said the trees. "And no heat to stir the winds and evaporate the water to

make clouds."

"Earth is important too, for he gives a place to live," whispered the butterflies, who were having a hard time in the blowing snow and wind.

"We know Earth rotates around Sun and makes our seasons. And Earth absorbs the heat from Sun and keeps us warm," said the kangaroo rats.

"You are all Masters of Weather," cried the animals, plants, mountain, rocks, and sand."

Earth felt very ashamed. "I'm sorry, my friends. Water, Air, and Sun are all just as important as I am. For we are a weather team. I never thought about what it would be like without them. I have learned a lesson I will never forget."

Suddenly the wind stopped blowing, the rain stopped pouring, and Sun came out, smiling on all the inhabitants of the world. The celebration went on and on. The four Weather Makers never had a disagreement again.



TODAY'S WEATHER

My Name _____

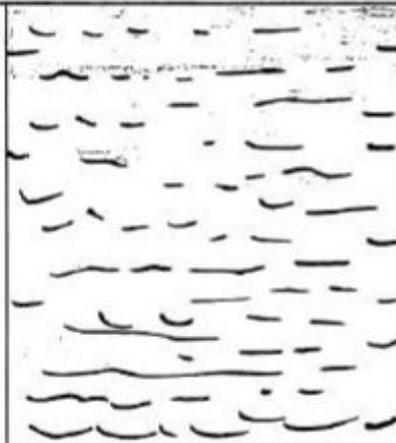
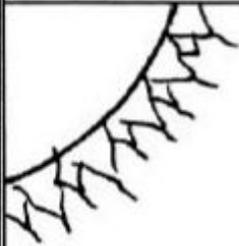
Date _____



No wind

Some wind

Very windy



Clear sky

Some clouds

Very cloudy

hot

dry

happy

warm

sticky

sad

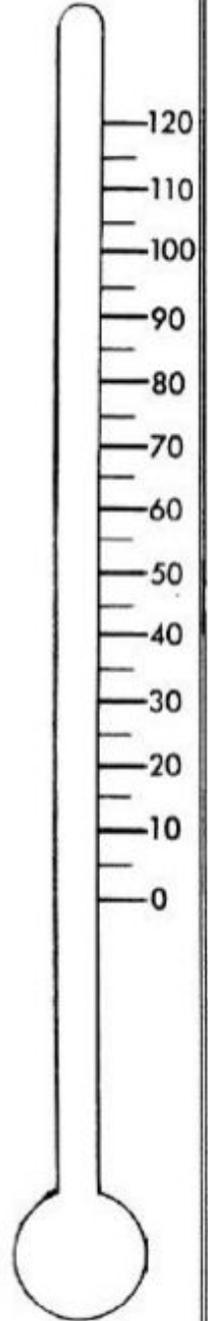
cool

wet

awake

cold

sleepy



How does the weather make you feel today?