

Lesson 2: Clouds (2 Days)

Getting Started

? Big Ideas

- What is the pattern of events in the water cycle?



Facts and Definitions

- **Clouds** are made of tiny droplets of water or ice crystals.
- Stratus, cumulus, cirrus, cumulonimbus, and nimbostratus are types of clouds.



Skills

- Investigate the different stages in the water cycle. (S)
- Observe and record sky conditions over time. (S)
- Describe and analyze the types of clouds and discuss their relation to weather systems. (S)



Materials

- ✓ blue construction paper
- ✓ glue
- ✓ white, gray, and black colored pencils
- ✓ cotton balls
- ✓ stapler

Introduction

Explain to your child that before she begins her investigation of the water cycle, she must first understand the role of clouds. Ask your child to tell you anything she already knows about clouds.

Activities

Activity 1: Types of Clouds

Give your child the page, "Types of Clouds." Look at the illustrations and read about each type of cloud. Look at pictures of clouds online to see if your child can recognize the types of clouds. Go outside and ask your child to identify the types of clouds in the sky. Explain that there are many more types of clouds in addition to these types.

Activity 2: What Is the Weather?

Choose which option you would like for your student to complete.

Option 1

On this page, your child will find clouds in boxes. She will identify the type in each box and describe the sky conditions usually associated with the type of cloud. She can refer to Activity 1 for guidance. For this option, your child is given two choices for the type of cloud represented in each picture and can circle the correct answer.

Answer Key:

- Row 1: cumulus / nice weather; cirrus / sunny, fair weather
- Row 2: stratus / a cloudy day with no rain; cumulonimbus / thunder, lightning, and rain or hail

Option 2

For this option, your child is given the name of the cloud. She must draw an example of the type of cloud in the box and describe the weather conditions. When she is finished, check that her cloud drawings and weather descriptions are similar to the "Types of Clouds" page from Activity 1.

Activity 3: Clouds are Part of the Water Cycle

Review the fact that clouds are an important part of the water cycle. Ask your child what clouds are made of and what comes from clouds. Discuss the fact that clouds contain water and that precipitation comes from clouds. Let your child read the paragraph on the page, "Clouds are Part of the Water Cycle," and then answer the questions.

Answers:

1. What are clouds made of? (droplets of water and ice crystals)
2. What happens to the warm air in the environment? (it rises and expands as it cools)
3. Since cool air cannot hold as much water, what happens? (some of the water surrounds tiny pieces of dust)
4. What happens when a cloud gets too heavy? (rain or snow)

Day 2

Activity 4: Book of Clouds

Explain to your child that she will make her own book of clouds today. Fold two pieces of blue construction paper in half to create a book. Staple the pages together along the fold. On the front of the book, your child can create the book's title, which should include the word "Cloud."

Each page in the book will represent a cloud she learned about in Activity 1: cirrus, stratus, cumulus, cumulonimbus, and nimbostratus. At the top of the page, she can write the name of the cloud. In the center of the page, she can illustrate the cloud with colored pencils, create it with cotton balls, or paste pictures into the book. On the bottom of each page, she can describe the sky conditions associated with each type of cloud.

Activity 5: Cloud Graph

Over the next week to ten days, ask your child to graph the different types of clouds. Ask her what type of graph would be best to use to show this information. On the "Cloud Graph" page provided, your child can create a bar graph for the types of clouds. The x-axis can be labeled with the days of the week and the y-axis with the types of clouds. Remind your child that all graphs have titles and labels.

Each day your child can look at the types of clouds in the sky and record them on her graph. Encourage her to put a star next to the days when there was some type of precipitation. When her graph is complete, she can answer questions about the graph on the page, "Cloud Graph Questions."

NOTE: To make this activity even more challenging, have your child make an AM and PM graph. Encourage your child to see if the clouds in the morning are different from those in the afternoon.

Discuss your child's graph and her answers to the questions. Answers will vary depending on the clouds your child has identified. Help your child see the connection between the weather conditions and the clouds she sees.

Activity 6: Cloud Watching

For this creative thinking activity, go outside and let your child sit and watch the clouds. If the clouds in the sky do not lend themselves to this activity, save it for another day. Let her point out what she sees in the clouds. Share things that you find in the clouds too. Come inside and give your child a piece of blue construction paper, cotton balls, and glue. Ask your child to create a cloud to represent something. See if you can guess what her cloud is supposed to be.

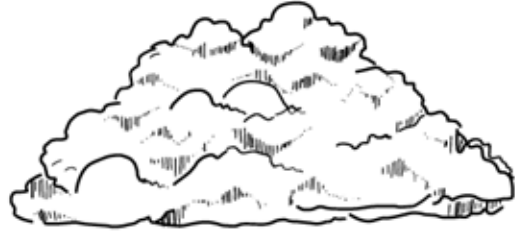
Wrapping Up

Ask your child to describe the different types of clouds and the type of weather that can be associated with each.

TYPES OF CLOUDS

Directions: Read about each type of cloud. Then go outside and see if you can identify any of the clouds in the sky.

Cumulus clouds are puffy clouds that look like cotton. They do not get very tall, and they indicate fair weather.



Stratus clouds are flat sheets of clouds. They indicate an overcast day.



Cirrus clouds are high and feathery. They indicate fair weather when they are scattered in a clear blue sky.



Cumulonimbus clouds are thunderheads visible on a warm summer day. They can mean strong winds, hail, and rain.



Nimbostratus clouds From the ground, nimbostratus clouds look low, dark, and formless. They bring long, steady rain.



What Is the Weatherer?

Directions: Circle the type of cloud pictured. Then circle the weather conditions usually associated with that type of cloud.

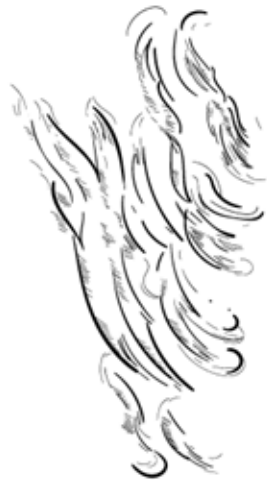


Type of Cloud:

stratus cloud / cumulus cloud

Weather Conditions:

steady rain / nice weather / thunder and wind



Type of Cloud:

cirrus cloud / cumulus cloud

Weather Conditions:

snow / a gloomy, cloudy day / sunny, fair weather

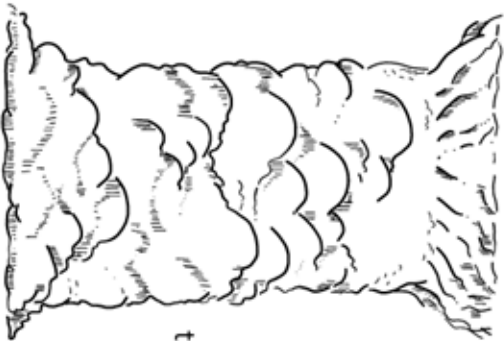


Type of Cloud:

cirrus cloud / stratus cloud

Weather Conditions:

a sunny day / a cloudy day with no rain / wind and hail



Type of Cloud:

stratus cloud

cumulonimbus cloud

Weather Conditions:

thunder, lightning, and rain or hail

a sunny day

a long, steady, rainy day

What Is the Weather?

Directions: Draw an example of the cloud type listed and then describe the weather conditions usually associated with that type of cloud.



| | |
|--|---|
| <p>cumulus</p> <p>Weather Conditions: _____</p> <p>_____</p> <p>_____</p> | <p>cirrus</p> <p>Weather Conditions: _____</p> <p>_____</p> <p>_____</p> |
| <p>stratus</p> <p>Weather Conditions: _____</p> <p>_____</p> <p>_____</p> | <p>cumulonimbus</p> <p>Weather Conditions: _____</p> <p>_____</p> <p>_____</p> |

clouds are part of the water cycle

Directions: Read the paragraph about clouds and answer the questions.

A cloud is made of very tiny droplets of water or ice crystals. Because the droplets are so small and light, they float in the air. All air contains water, and when it is close to the surface of the earth, we call it water vapor. Warm air rises in the atmosphere, and that air expands as it cools. The cool air cannot hold as much water as the warm air. Some of the water vapor will surround pieces of dust floating in the air. A tiny droplet forms around each piece of dust and when billions of those droplets come together they form a cloud. Once those clouds become too heavy with the weight of water, it will begin to rain or snow.

1. What are clouds made of? _____

2. What happens to the warm air in the environment? _____

3. Since cool air cannot hold as much water, what happens? _____

4. What happens when a cloud gets too heavy? _____

CLOUD CHART

Directions: Over the next week to ten days, go outside and look at the sky. Mark which clouds you see on the chart below. Put a star next to the days when there was precipitation. Then answer the questions on the following page.



| Cloud Type | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Day 8 | Day 9 | Day 10 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Cirrus | | | | | | | | | | |
| Stratus | | | | | | | | | | |
| Nimbostratus | | | | | | | | | | |
| Cumulus | | | | | | | | | | |
| Cumulonimbus | | | | | | | | | | |



CLOUD CHART

Questions



1. Do you see any patterns in your chart?

2. Which type of cloud was the most common? Why do you think that was the case?

3. Which type of cloud was the least common? Why do you think that was the case?

4. Were there ever days that had no clouds? If so, how many? _____

5. Did some days have more than one type of cloud? Why do you think that was?

6. Did precipitation fall on any of the days? Was it associated with a certain type of cloud in the sky?

7. Do you think the chart would look different if you did another one six months from now? Why or why not?
