



## ☀ Lesson Plan: Weather and Climate

**Grade Level:** 4

**Subject:** Science

**Duration:** 45–60

**4-ESS3-2:** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

### 🎯 Learning Objectives

By the end of this lesson, students will be able to:

- **Identify** the tools meteorologists use to measure weather conditions.
- **Describe** the difference between weather and climate.
- **Explain** how air masses and fronts affect weather patterns.



## PREVIEW

Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet

- Study Guide: Weather and Climate (<https://newpathworksheets.com/api/guide/study-guide-science-grade-4-weather-and-climate.pdf>)
- Activity Lesson: Weather (<https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-4-weather-and-climate-weather-4.pdf>)
- Practice Worksheet 0 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-0.pdf>)
- Practice Worksheet 1 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-1.pdf>)



- Vocabulary Set 1 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-weather-and-climate-1.pdf>)

## Lesson Procedure

### Step 1: Introduction (5 minutes)

- Ask students: 'What is the difference between weather and climate?'
- Discuss the current weather outside and ask what tools they might use to measure it.
- Explain that today we will learn about the atmosphere, weather instruments, and severe weather.

### Step 2: Direct Instruction (15 minutes)

- Read the Study Guide together, focusing on layers of the atmosphere, air pressure, and air masses. (<https://newpathworksheets.com/api/guide/study-guide-science-grade-4-weather>)



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(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-0.pdf>)

- Circulate the room to provide support and ensure students correctly map the weather vocabulary.

### Step 5: Assessment (15 minutes)

- Have students complete Practice Worksheet 1 to assess their understanding of air pressure, fronts, and climate through multiple-choice questions.



(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-1.pdf>)

- Review the answers from the practice worksheet as a class to check for understanding.

## 💡 Differentiation Strategies

### For advanced learners:

- Challenge students to research a historic severe weather event (e.g., a major hurricane) and present a short summary of its impact.
- Have students track the local weather forecast for a week and compare it to their own observations.

### For learners needing support:

- Provide a word bank with visual aids for the different weather tools and severe weather



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[climate](#))

- Study Guide (<https://newpathworksheets.com/api/guide/study-guide-science-grade-4-weather-and-climate.pdf>)
- Activity Lesson (<https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-4-weather-and-climate-weather-4.pdf>)
- Practice Worksheet 0 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-0.pdf>)
- Practice Worksheet 1 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-1.pdf>)



- Practice Worksheet 2 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-2.pdf>)
- Practice Worksheet 3 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-weather-and-climate-3.pdf>)
- Vocabulary Set 1 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-weather-and-climate-1.pdf>)
- Vocabulary Set 2 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-weather-and-climate-2.pdf>)
- Vocabulary Set 3 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-weather-and-climate-3.pdf>)
- Vocabulary Set 4 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-weather-and-climate-4.pdf>)



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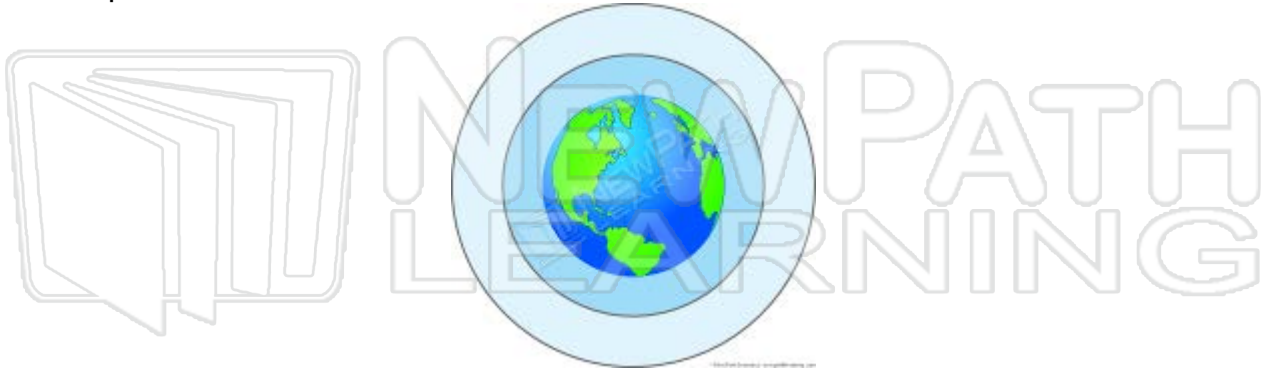


# NEW PATH LEARNING

## WEATHER AND CLIMATE

### The Earth's Atmosphere

The Earth is surrounded by **layers of air** which make up the Earth's atmosphere.



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### Words you may hear when listening to a weather report:

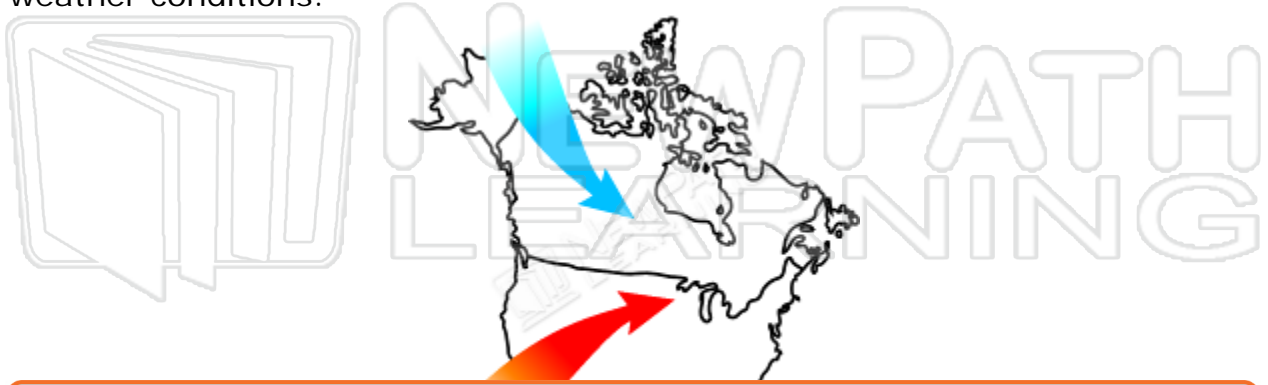
**Humidity** is the amount of water vapor in the air.

**Air pressure:** As air gets close to the Earth's surface and **warms up**, the particles in the air move farther apart. The **warm air** then pushes down with less pressure, and then rises forming an area of low pressure.

**Low air pressure** results in a cloudy day. As air gets close to the Earth's surface and **cools**, the particles in the air move extremely close together, and this thick, cooler air sinks, forming an area of high pressure.

**High air pressure** results in clear skies. When air moves from an area of **high pressure** to a place with **low pressure**, WIND is created.

**Air Mass:** A **huge body of air** that has practically the same temperature and humidity. The movement and interaction of **air masses** cause most weather conditions.



A group of diverse children standing on a green hill, each with a thought bubble above them. The bubbles contain icons for geometry, science, math, and general education. Below the children, the word 'PREVIEW' is written in large, bold, blue and orange letters. Underneath that, the text 'Please [Sign In](#) or [Sign Up](#) to download the printable version of this worksheet' is displayed in a dark grey font.



**Climate:** The word **climate** refers to the typical weather throughout the year in the same area.

**Lesson Checkpoint:**  
**What is an air mass?**

The **greenhouse effect** is the rise in temperature that the Earth experiences because certain gases in the atmosphere trap energy from the Sun. The Sun's energy and heat would escape back into space if the Earth did **not** have certain gases to trap it and it would be MUCH colder here on Earth, too cold to live.

## Tools of the Weather Trade

Meteorologists use many tools to help them predict and record the weather each day.

A **thermometer** is used to measure temperature.

A **hygrometer** measures humidity.



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A **rain gauge** is used to measure the amount of rainfall.



Meteorologists use weather maps and charts to record measurements and information about the weather happening in **many areas**.

**Lesson Checkpoint:**  
**What does an anemometer measure?**



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A **drought** is a long period of dry weather.

A **flood** is a large overflowing of water onto land that is normally dry.

**Lesson Checkpoint:**  
**What is the difference between a flood and a drought?**

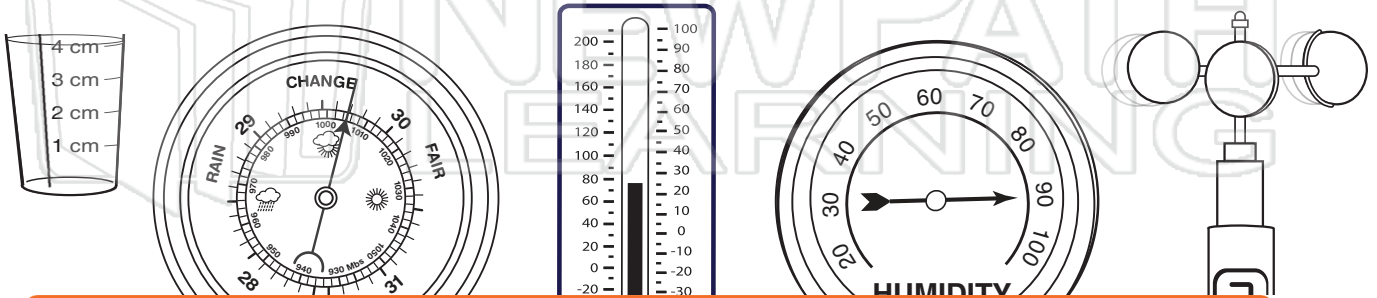


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**Weather** is the outside conditions *at a given time*. Many factors affect the weather such as the Sun, atmosphere, temperature, water and air pressure.

## Measuring & Predicting Weather

**Meteorologists** use weather maps, charts, and many **tools** to help them predict and record the weather each day.



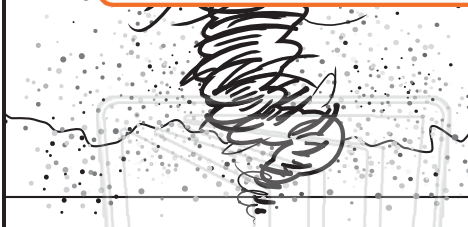
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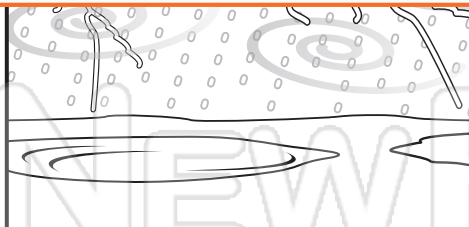


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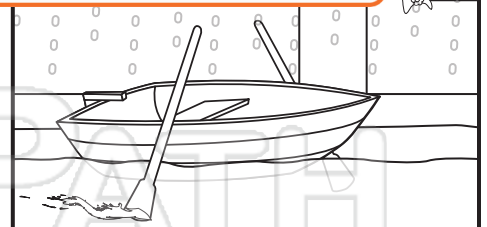
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A **tornado** is a funnel-shaped column of air that touches the ground, destroying anything in its path.



A **hurricane** is a storm that forms over oceans and can bring winds over 74 miles (or 119 km) per hour.



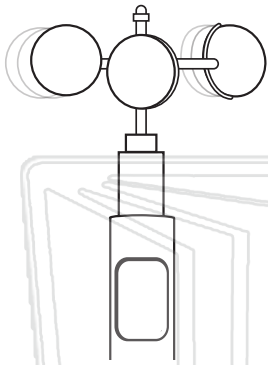
A **flood** is a large overflow of water onto land that is normally dry.

A **drought** is a long period of dry weather.



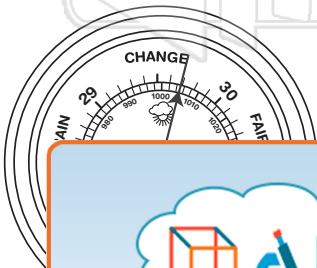
Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

Match each weather tool to its names. Describe what it does.



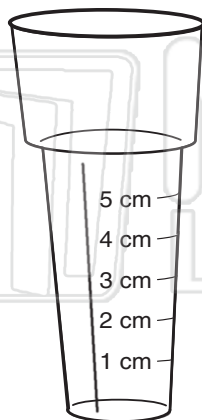
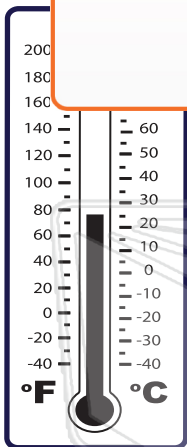
barometer - \_\_\_\_\_

anemometer - \_\_\_\_\_



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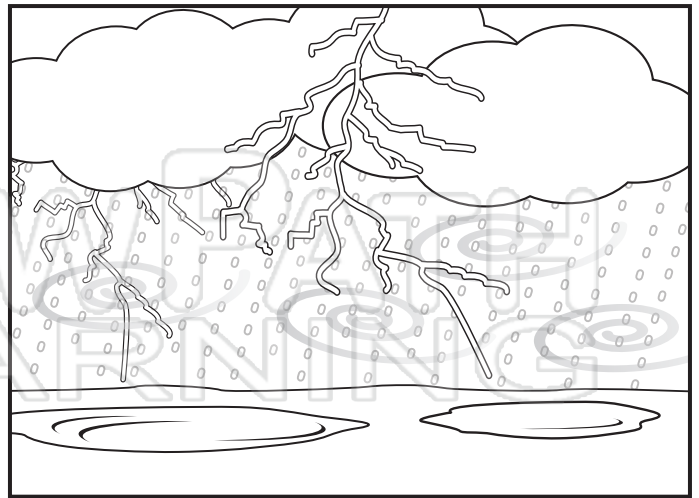
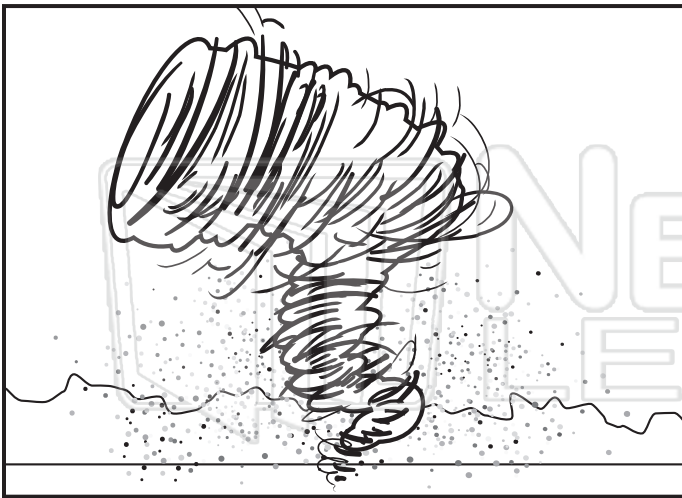


hygrometer - \_\_\_\_\_



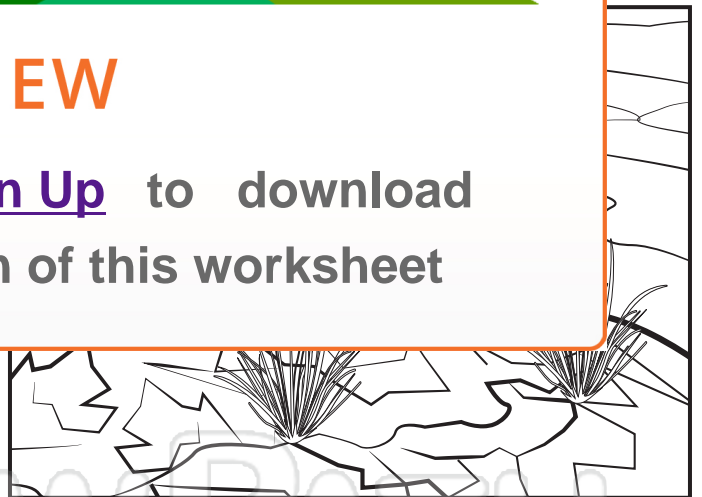
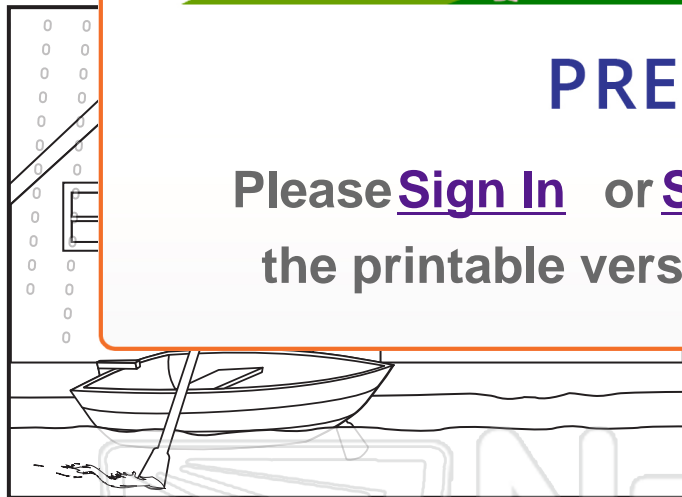
Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

Name and describe each weather event.



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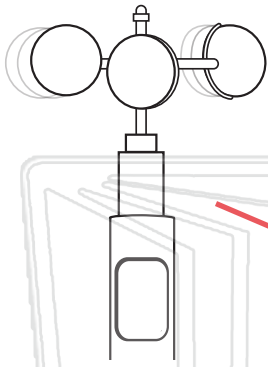
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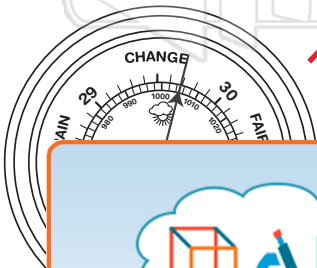
## Answer Key

Match each weather tool to its names. Describe what it does.



**barometer** - open-ended

measures air pressure



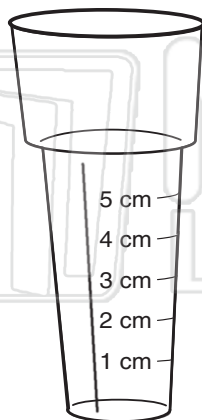
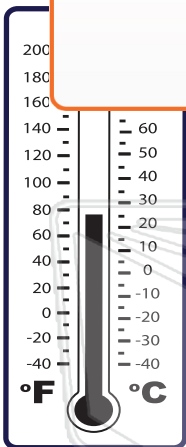
**anemometer** - open-ended

measures amounts of rainfall



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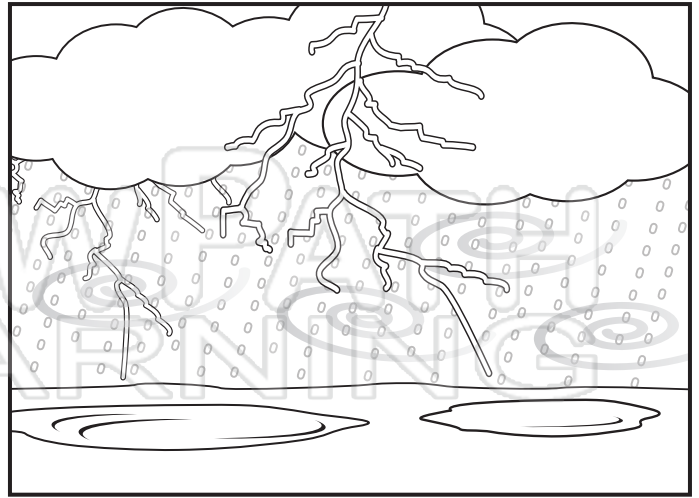
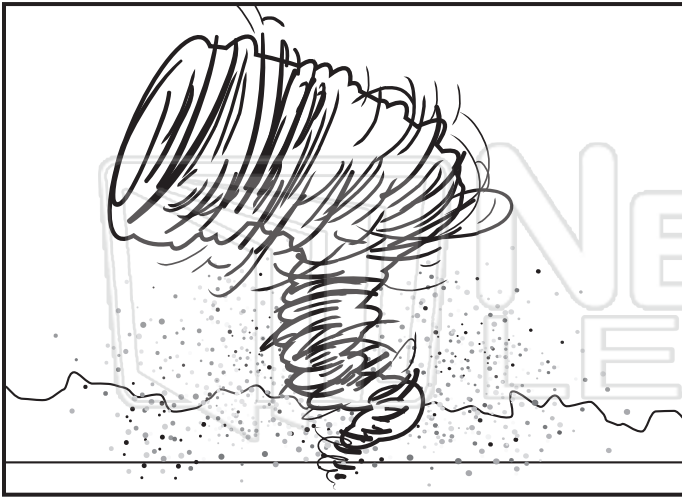
**hygrometer** - open-ended

measures humidity in the air



## Answer Key

Name and describe each weather event.

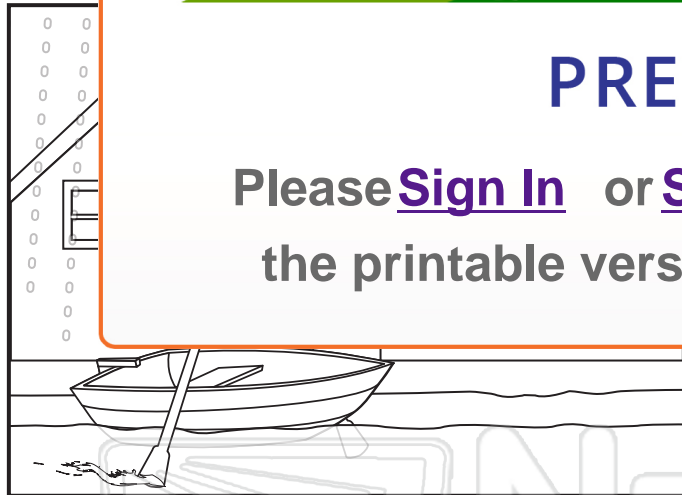


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**Flooding** - a large overflow of water onto land that is normally dry

**Drought** - a long period of dry weather



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 The earth is surrounded by **layers of air**, called its \_\_\_\_\_.

- A crust
- B rotation
- C axis
- D atmosphere



2 **Weather** is \_\_\_\_\_.

- A the atmosphere
- B layers of the earth
- C conditions in the atmosphere at any time
- D changes in earth's layers



3 What do the **sun, atmosphere, temperature, water, and air pressure** have **in common**?

- A all affect weather conditions
- B all are causes of weathering



4 **Humidity** is the amount of water vapor in the air. If there is **a lot of water vapor** in the air, the humidity would be high.

True or false?

- A true



5



## PREVIEW

7

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D snow



D clear skies

9

What is created when air moves from an area of **high pressure** to a place with **low pressure**?

- A sunshine
- B snow
- C wind
- D clouds



10

What is a **huge body of air** that has practically the **same temperature and humidity**?

- A an air mass
- B a windstorm
- C clouds
- D precipitation





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 The earth is surrounded by **layers of air**, called its \_\_\_\_\_.

- A crust
- B rotation
- C axis
- D atmosphere



D

2 **Weather** is \_\_\_\_\_.

- A the atmosphere
- B layers of the earth
- C conditions in the atmosphere at any time
- D changes in earth's layers



C

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- A all affect weather conditions
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A

4 **Humidity** is the amount of water vapor in the air. If there is **a lot of water vapor in the air**, the humidity would be high.

True or false?

- A true



A

5



D

## PREVIEW

7

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C

9

What is created when air moves from an area of **high pressure** to a place with **low pressure**?

- A sunshine
- B snow
- C wind
- D clouds



C

10

What is a **huge body of air** that has practically the **same temperature and humidity**?

- A an air mass
- B a windstorm
- C clouds
- D precipitation



A



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1

What do the **movement and interaction of air masses** cause?



- A the earth's soil to be enriched
- B meteor showers
- C most weather experienced on earth
- D the earth's rotations

2

In our atmosphere, a **front** is an area where \_\_\_\_\_.



- A two air masses split
- B two air masses combine
- C two air masses overlap
- D two air masses meet

3

A \_\_\_\_\_ forms when a **warm air mass bumps into a cold air mass** that is **not moving** or is moving at a slow pace.



- A warm front
- B cold front

4

**Warm fronts** usually move \_\_\_\_\_ cold fronts.



- A at the same speed as
- B quicker than
- C more slowly than

5



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- B trap energy from the moon
- C give off oxygen
- D cause the sun to shine longer

- B still stay on earth
- C escape back into space
- D remain in the clouds



9

A **thermometer** is used to measure \_\_\_\_\_.



- A temperature
- B humidity
- C rain amount
- D wind speed

10

What does a **hygrometer** measure?




- A snow amount
- B temperature
- C wind speed
- D humidity



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 What do the **movement and interaction of air masses** cause?


**A** the earth's soil to be enriched  
**B** meteor showers  
**C** most weather experienced on earth  
**D** the earth's rotations



(C)

2 In our atmosphere, a **front** is an area where \_\_\_\_\_.

**A** two air masses split  
**B** two air masses combine  
**C** two air masses overlap  
**D** two air masses meet



(D)

3 A \_\_\_\_\_ forms when a **warm air mass bumps into a cold air mass** that is **not moving** or is moving at a slow pace.


**A** warm front  
**B** cold front



(A)

4 **Warm fronts** usually move \_\_\_\_\_ cold fronts.

**A** at the same speed as  
**B** quicker than  
**C** more slowly than



(C)

5



(D)

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6

**B** trap energy from the moon  
**C** give off oxygen  
**D** cause the sun to shine longer


6

**B** still stay on earth  
**C** escape back into space  
**D** remain in the clouds



9 A **thermometer** is used to measure \_\_\_\_\_.


**A** temperature  
**B** humidity  
**C** rain amount  
**D** wind speed



(A)

10 What does a **hygrometer** measure?

**A** snow amount  
**B** temperature  
**C** wind speed  
**D** humidity



(D)



Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

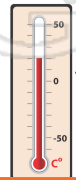
**Match each of the following terms to its definition:**

- |                     |          |            |            |
|---------------------|----------|------------|------------|
| Thermometer         | Air mass | Atmosphere | Anemometer |
| Chlorofluorocarbons | Weather  | Barometer  | Rain gauge |

1. \_\_\_\_\_ - the condition of the atmosphere at a specific time in a specific place



2. \_\_\_\_\_ - a tool that measures temperature



3. \_\_\_\_\_  
amount



4. \_\_\_\_\_  
tempe

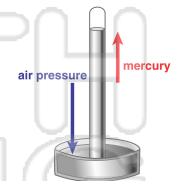
5. \_\_\_\_\_  
speed

6. \_\_\_\_\_

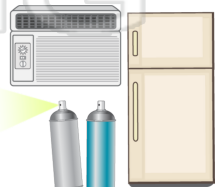
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7. \_\_\_\_\_ - a scientific instrument meteorologists use to measure air (atmospheric) pressure



8. \_\_\_\_\_ - a group of human-made chemicals that are known to breakdown ozone and cause atmospheric ozone depletion





Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

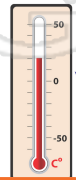
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- |                     |          |            |            |
|---------------------|----------|------------|------------|
| Thermometer         | Air mass | Atmosphere | Anemometer |
| Chlorofluorocarbons | Weather  | Barometer  | Rain gauge |

1. **weather** - the condition of the atmosphere at a specific time in a specific place



2. **thermometer** - a tool that measures temperature



3. rain

4. air and atmosphere

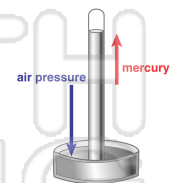
5. anemometer

6. atmosphere

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7. **barometer** - a scientific instrument meteorologists use to measure air (atmospheric) pressure



8. **chlorofluorocarbons** - a group of human-made chemicals that are known to breakdown ozone and cause atmospheric ozone depletion

