Weather and Climate
Teacher Facilitation Notes

In General . . .

- Project the slide deck in edit mode–do not show it as a slideshow.
- Hide the speaker notes before projecting. (View/Show Speaker Notes)
- Hide the toolbar. (Click on the up arrow at the right end of the tool bar.)
- Call on students to read the various content shown on slides.
- For each investigation, assemble the needed materials for each group and place in a central location for ease of distribution.
- Duplicate copies of the data sheets for each student.

Materials Needed:

Engage: Introducing Weather and Climate

Weather Data Sheet, 1 per student   *Student Evaluation*, 1 per student
Pencils

Engage: Introducing Weather and Climate

- Watch the video comparing and contrasting weather and climate. Discuss.
- Call on volunteers to read the paragraphs about weather and climate.
- Point out the definitions of weather and climate. Tell students that they will be seeing the definitions of other terms as they complete this lesson.
- Give each student a copy of the weather recording chart.
- Display this website: https://www.weather.gov/ . In the upper left-hand corner, type in the zip code of your school or the closest large town or city. Click on Go.
- Assist students in recording the information on the chart. (Do not explain what the terms mean yet. They will be learning about each weather condition that they are observing and recording.)
- NOTE: Have students fill in this chart at the beginning of each class period throughout this lesson.

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Explore: What is Weather?
- Read and discuss the basic air conditions that affect the weather.
- Discuss as desired.

Explain: What is Climate?
- Remind students that weather is happening right now and climate is the weather that takes place over a long period of time.
- Discuss the three pictures. Call on students to tell how the weather and the climate are the same and different in the three places.
- Have student answer the question and describe the climate in their area in their science notebooks.
- Watch the video and discuss as desired.

Elaborate: Differentiating Between Weather and Climate
- Call on volunteers to read each statement. Drag and drop the box into the weather column if the statement describes weather. Drag and drop the box into the climate column if the statement describes climate. Discuss.
- On the cloud slide, call on volunteers to drag and drop the small clouds into the correct sections of the Venn diagram. Discuss.
- Discuss the Earth's climate zones as desired. Type in the names of the cities in each zone.

Evaluation
- Let students complete the quiz independently.
- Discuss evaluation activities as desired.

Weather and Climate–Compare and Contrast

Weather	Climate

How are they alike?

Accept all reasonable answers students can justify.

1. _____
   _____
2. _____
   _____
3. _____
   _____

How are they different?

Accept all reasonable answers students can justify.

1. _____   1. _____
   _____   _____
2. _____   2. _____
   _____   _____
3. _____   3. _____
   _____   _____

Weather and Climate

Name: __KEY__

Evaluation, page 2

Directions: Classify each of the statements below as describing either weather or climate. Write a *C* for climate and a *W* for weather on the blank in front of each statement.

1. __W__ It snowed 5 inches last night.

2. __C__ It usually rains about 3 inches in Houston during the month of June.

3. __W__ Hurricane Harvey dumped over 60 inches of rain in Nederland, Texas, in 2017.

4. __C__ Last winter was colder than normal.

5. __W__ The wind outside today is perfect for flying a kite.

6. __W__ Last Monday, it rained 0.29 inches in Austin, Texas.

7. __W__ The humidity is much higher today than it was yesterday.

8. __C__ The high temperature yesterday in College Station was 12° above normal for July.

9. __C__ It does not get very cold in Corpus Christi, Texas–even in January.

10. __C__ It only snows about 1 inch a year in Fort Worth, Texas.

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11. Which of the following best describes the climate of an area?

   A   The high and low temperatures over a one-week period

   B   The high and low temperatures for a six-month period

   C   The high temperature every hour for one day

   (D)   The average high temperature each month for twenty years

Evaluation, page 3

12. Some students created a T-chart to compare weather and climate. Their unfinished chart is shown here.

Comparing Weather and Climate	
Weather	**Climate**
1. Today's rainfall	1. Annual precipitation amounts
2. Current temperature	2. Average yearly temperatures
3. Present cloud cover	3. ???

Which of the following should be in the climate column?

F The number of cloudy days last month

G This morning's wind speed

H Last night's low temperature

Ⓙ Usual cloud cover during April

13. Which of the following best describes the main difference between weather and climate?

Ⓐ Climate describes large areas over a long time. Weather describes local conditions for a short time.

B Climate includes measuring temperature and rainfall amounts. Weather includes measuring only wind speed and direction.

C Climate is made up of things that can be measured. Weather is made up only of things that can be observed.

D Climate is how the environment affects nonliving things. Weather is how the environment affects humans.

Weather and Climate

Evaluation, page 4

14. Four statements about conditions in four different cities are listed below. Each statement is either a description of weather or climate.

    - Austin, Texas, received 80 mL of rain on August 25, 2014.
    - The current wind in Detroit, Michigan, is 7 km/h from the south.
    - The high temperature will be 30°F in Oakland, California, tomorrow.
    - Winters in Seattle, Washington, tend to be warm while summers are cool.

    For which of these cities does the statement represent climate information?

    F   Austin, Texas

    G   Detroit, Michigan

    H   Oakland, California

    (J)   Seattle, Washington

15. Which of these best describes weather rather than climate.

    A   El Paso usually receives about 8 inches of rain every year.

    B   The average February rainfall in Houston is 3.10 inches.

    (C)   Galveston received 4 inches of rain last Thursday.

    D   It rains about 112 days a year in Beaumont.

16. A student looking out the classroom window observed that it was cloudy and windy. What does this observation best describe?

    F   Temperature conditions

    (G)   Weather

    H   Climate

    J   Precipitation amounts
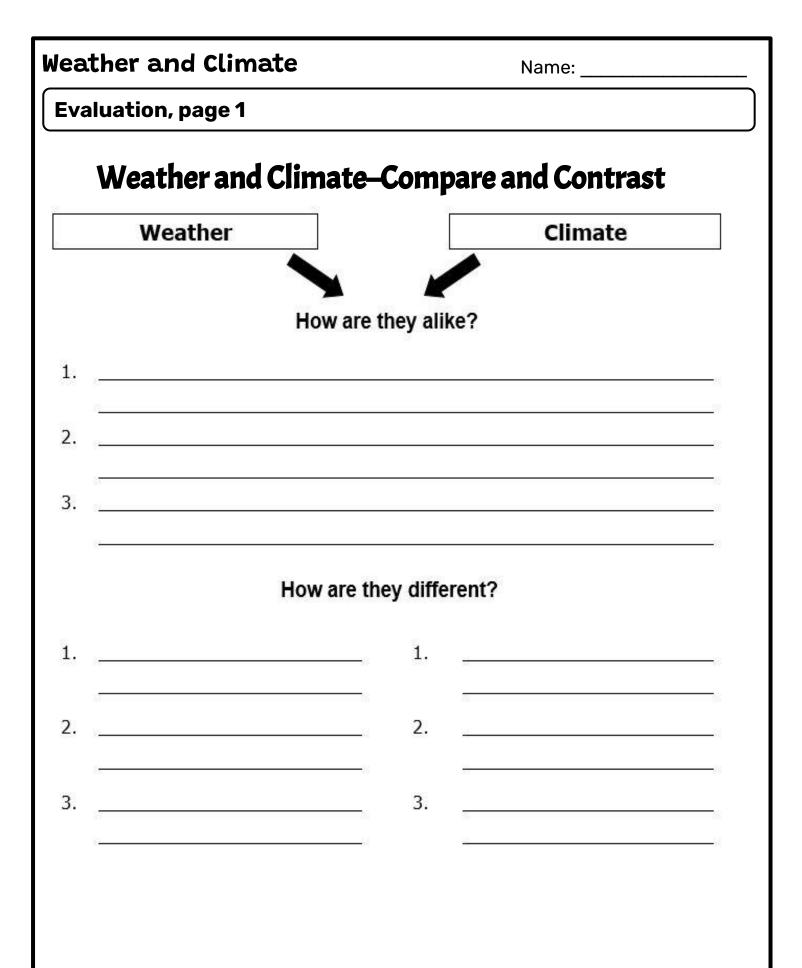
Weather And Climate

Name: _____

Today's Weather in _____

Date	Current Temperature	Sky Conditions	Wind Direction and Speed	Air Pressure	Humidity	Rainfall	Visibility

1. What season is it where you live? _____

2. Which day had the warmest temperature? _____

3. How much rainfall occurred during the whole reporting period? _____

_____

Weather and Climate–Compare and Contrast

| Weather | Climate |

How are they alike?

1. _____

_____

2. _____

_____

3. _____

_____

How are they different?

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_____   _____

2. _____   2. _____

_____   _____

3. _____   3. _____

_____   _____

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G Climate

H Weather

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