

OSU F.T. Stone Laboratory's

Name \_\_\_\_\_

# Climate Expedition

## What tools do scientists use to collect weather data?

Literacy Principle #5

Use the thermometer, hygrometer, anemometer, compass, and barometer provided to collect data about today's weather.:

Parameter	Date	Time	Air Temperature (°F/°C)	Water Temperature (°F/°C)	Humidity (%)	Barometric Pressure (mm Hg)	Wind Speed (m/s)	Wind Direction	% Cloud Cover
Reading									

## What is the difference between weather and climate?

Literacy Principle #4

Classify each statement as weather or climate.

- \_\_\_\_\_ 1. Stone Lab had over an inch of rain yesterday. \_\_\_\_\_ 4. It will probably snow at Stone Lab in January.
- \_\_\_\_\_ 2. Ohio averages 38 inches of rain annually. \_\_\_\_\_ 5. Ohio has four seasons.
- \_\_\_\_\_ 3. Lake Erie temperatures get warmer in the summer \_\_\_\_\_ 6. I had to put on my rain gear during my Science Cruise.

## What can trees tell us about climate change?

Literacy Principle #4

Use the tree cookie provided to answer the following questions.

1. What kind of information does the width of growth rings give scientists?
2. Did this tree experience optimal growth or restricted growth due to environmental factors during its first decade? How do you know?
3. Of what value are tree cross sections to climatologists interested in Earth's past climate conditions?

## How do changes in climate and weather affect lake levels?

Literacy Principle #7

How could changes in regional precipitation, evaporation and runoff rates affect lake levels?

## How will climate change affects birds and trees?

Literacy Principle #3

1. If the Cedar Waxwing's range changes as predicted, to what states would you have to travel to see these birds?
2. If the Sugar Maple's range changes as predicted, what states are likely to experience a decline in maple syrup production?

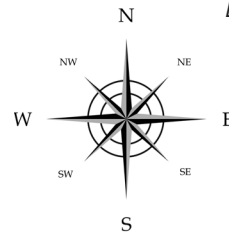
Name \_\_\_\_\_

**How is climate change impacting Earth’s glaciers?**

*Literacy Principle #7*

1. Analyze the grooves. Use a ruler to measure the depth of grooves.  
Record your measurements in millimeters.

\_\_\_\_\_ mm



2. Draw a line on the compass rose that shows the orientation of the grooves.
3. Describe some possible impacts (positive or negative) of melting glaciers on both the environment and people living near the land surrounding a glacier.

**How can climate change be reduced by using solar energy?**

*Literacy Principle #1*

1. Describe how photovoltaic solar panels generate electricity by putting the following steps in order.

- \_\_\_\_\_ free electrons move in one direction creating an electrical current
- \_\_\_\_\_ electrical current connected to the island’s main grid
- \_\_\_\_\_ sunlight is absorbed by silicon
- \_\_\_\_\_ electrons are accelerated across or repelled by junctions in solar panels
- \_\_\_\_\_ excited electrons move around solar panels
- \_\_\_\_\_ inverter converts DC current to AC current

2. Scan the QR Code to see the “dashboard” readout for OSU Stone Laboratory’s Solar Pavilion. Use the data to complete the chart.



Latest Power Reading (kW)	Total Power Generated Today (kWh)	Total Power Generated to Date (kWh)	Carbon Offset Achieved Today (lbs)

3. How does the ambient (air) temperature compare to the temperature of the solar panels?

**How can we reduce the impacts of global climate change?**

*Literacy Principle #6*

1. What is Stone Lab doing to reduce its carbon footprint?
2. What kinds of things can you do locally (at home or school) to reduce the impacts of global climate change?