

BEFORE YOU VISIT

grades 3-5

These discussion starters and activities are designed to spark your students' interest in the exhibition and to prepare them for the concepts they'll encounter.

Discussion Starters

WEATHER & CLIMATE

- How does the temperature change during the year where we live?
- What's your favorite weather?
- Have you visited friends or family who live in a different climate? How would you have to adapt if you moved there?

OUR ENERGY USE

- Between waking up and leaving home, how many switches did you flip?
- How many other ways did you use energy today?

Tips on Using the Student Worksheet

On the other side of this insert, you'll find a worksheet that your students can use to explore the *Climate Change* exhibition independently.

Before coming to the Museum, you may wish to distribute copies of the **Map of the Exhibition** and point out the areas that students will be exploring.

Activities

ALBEDO EFFECT

Objective: To understand how surface color affects the absorption of energy.

Procedure:

1. Ask students: On a hot summer day, would you want to wear a dark color shirt or a light one? Would it be more comfortable to walk barefoot on dark pavement or a light sidewalk?
2. Divide students into teams. Give each team one piece of white paper, one piece of dark paper, two thermometers, and a Temperature vs. Time chart.
3. Have teams put the two sheets of paper near a sunny window or under a desk lamp, and place a thermometer under each. Ask teams to take temperature readings every minute and record their findings on the chart.
4. Have teams present and compare their results.
5. Ask students: As more and more melting sea ice is replaced by dark ocean water, how might Earth's surface temperature change?

COMPARE LOCAL WEATHER AND CLIMATE

Objective: To understand the difference between weather and climate.

Procedure:

1. Over five days, distribute copies of the weather section from the newspaper or have students visit a weather website.
2. Each day, ask students to record and graph the following data for your area:
 - High and low temperatures
 - Record high and low temperatures
 - Average high and low temperatures
3. At the end of the week, have students analyze and discuss their data. Help them infer that the daily and record temperatures tell us about weather (the condition of the atmosphere at any given place or time), while the average temperatures describe climate (the typical long-term weather in a region from year to year).

STUDENT WORKSHEET grades 3-5

1. Investigate Our Energy Sources

In the **Introduction** area, find the steam engine.
How did coal make the steam engine work?

Find the light bulb. Describe the connection between coal and the “Second Industrial Revolution” in 1882.

2. Investigate Our Energy Use

Find the big chunk of coal in the **Climate Change Today** area. It weighs one metric ton, or 2,200 pounds!
If we burn it to generate electricity, it could ...

... illuminate _____ 100-watt light bulbs for _____

... run a refrigerator for about _____

... produce about _____ of carbon dioxide (CO₂).

3. Investigate Weather and Climate

In the **Changing Atmosphere** area, look for the “Weather vs. Climate” wall.

What’s the difference between weather and climate? _____

Describe the tools scientists use to study weather and climate. _____

4. What Can We Do?

Explore the **Making a Difference** area of the exhibition. On the back of this paper, list some things that you could do at home to save energy and lower your family’s carbon dioxide (CO₂) emission.