

**This week students will:**

1. Learn about the difference between Climate and Weather.
2. Explain why people study climate.
3. Understand what is global climate change.

**Learning outcomes****Year 3**

Geography ACHGK017

Digital Technologies ACTDIK007,  
ACTDIK008

**Year 4**

Science ACSSU073, ACSHE061, ACSHE062

Digital Technologies ACTDIK007,  
ACTDIK008

**Year 5**

Geography ACHGK029

Science ACSSU043, ACSHE217

Mathematics ACMNA098, ACMNA100,  
ACMNA291

**Year 6**

Science ACSSU094, ACSSU096,  
ACSHE098, ACSHE220

Mathematics ACMNA123, ACMSP147,  
ACMSP148

**Materials required:**

Computer for activity one and access to the Internet to play NASA's climate kids.

**Activities:**

1. Complete the list of Trivia questions below about weather and Climate at NASA' Climate kids <http://climatekids.nasa.gov/trivia/>
2. Measure how much methane is in your lunch. Methane produces 20x more emissions than CO<sub>2</sub>. Cow burps or agriculture contributes to about 14% of global emissions. Look at what you have in your lunch ie meat or vegetarian and see the difference different food choices have on greenhouse gases.
3. Work out how much CO<sub>2</sub> is released by an average car a year. What environmental behavior can you undertake to save the most carbon? How many cars could you "take off the road" each year?

### Week 5 — Weather v Climate

The difference between weather and climate is a measure of time. Weather is what conditions of the atmosphere are over a short period of time, and climate is how the atmosphere “behaves” over relatively long periods of time.

When we talk about climate change, we talk about changes in long-term averages of daily weather. Today, children always hear stories from their parents and grandparents about how snow was always piled up to their waists as they trudged off to school. Children today in most areas of the country haven’t experienced those kinds of dreadful snow-packed winters, except for the Northeastern U.S. in January 2005. The change in recent winter snows indicate that the climate has changed since their parents were young.

If summers seem hotter lately, then the recent climate may have changed. In various parts of the world, some people have even noticed that springtime comes earlier now than it did 30 years ago. An earlier springtime is indicative of a possible change in the climate.

#### Things That Make Up Our Weather

There are really a lot of components to weather. Weather includes sunshine, rain, cloud cover, winds, hail, snow, sleet, freezing rain, flooding, blizzards, ice storms, thunderstorms, steady rains from a cold front or warm front, excessive heat, heat waves and more.

#### What Climate Means

In short, climate is the description of the long-term pattern of weather in a particular area.

Some scientists define climate as the average weather for a particular region and time period, usually taken over 30-years. It’s really an average pattern of weather for a particular region.

When scientists talk about climate, they’re looking at averages of precipitation, temperature, humidity, sunshine, wind velocity, phenomena such as fog, frost, and hail storms, and other measures of the weather that occur over a long period in a particular place.

For example, after looking at rain gauge data, lake and reservoir levels, and satellite data, scientists can tell if during a summer, an area was drier than average. If it continues to be drier than normal over the course of many summers, than it would likely indicate a change in the climate.

#### Why Study Climate?

The reason studying climate and a changing climate is important, is that will affect people around the world. Rising global temperatures are expected to raise sea levels, and change precipitation and other local climate conditions. Changing regional climate could alter forests, crop yields, and water supplies. It could also affect human health, animals, and many types of ecosystems. Deserts may expand into existing rangelands, and features of some of our National Parks and National Forests may be permanently altered.

References: [http://www.nasa.gov/mission\\_pages/noaa-n/climate/climate\\_weather.html](http://www.nasa.gov/mission_pages/noaa-n/climate/climate_weather.html)  
<http://climatekids.nasa.gov/climate-change-meaning/>