

# Activity

## Measuring Impact Craters on Earth


In this activity you will be measuring craters of different sizes on Earth which are the result of an impact from space. The impacts causing these craters would result in a variety of climatic changes - small impacts would generally affect only the local area, whereas larger impacts could have massive changes in the global weather systems. To begin, download Google Earth, then follow the instructions below.

### What will I need for this activity?

- Google Earth - download from: <http://earth.google.com/>

### Finding and measuring impact craters

In order to find the impact craters that you will be measuring for this activity, you will have to enter the latitude and longitude of the craters into the 'Fly To' box in Google Earth.

- In the lat/long boxes, enter the co-ordinates of the place you wish to view. For example, to view the **Barringer Meteor Crater** click in the 'Fly to' box and enter 35 02 N, 111 01 W
- To measure the craters listed in the table below, you will use the Measure tool in Google Earth. To find this in the main Google Earth menu, click on **Tools > Measure**. Or, click on the  symbol at the top of the window. A pop up box will appear in which 'line' is already selected. Click on the units box to select km.

You can now measure the diameter of each impact crater in Google Earth by using the left button of the mouse and dragging the line across the width of the crater. The distance measured is shown in the pop-up box.



### Measuring the sizes of impact craters

Find the impact craters listed in the table on the next page using Google Earth and measure their largest diameter (some of the craters are elliptical in shape, not round).

Crater Name	Latitude	Longitude	Size (km)
<p><b>Barringer Meteor Crater</b> This meteor crater was formed about 50,000 years ago by an iron meteorite impact. It is very easy to find in Google Earth.</p>	N35 02	W111 01	
<p><b>Manicouagan</b> This impact crater is one of the oldest known craters on Earth. It was formed about 200 million years ago, and although some of the crater has been worn away by erosion, it is still very clear and easy to find in Google Earth.</p>	N51 23	W68 42	
<p><b>Clearwater Lakes</b> These 2 impact craters were formed by a pair of asteroids hitting the Earth's surface. In one of the craters, a circular area of islands can clearly be seen. This is an elevated part of the crater, as seen in a complex crater. The central part of the second crater cannot be seen however as it is below the water.</p>	N56 13	W74 30	
<p><b>Upheaval Dome</b> Originally thought to be a collapsed salt dome, this crater has all the features of a typical impact crater - a central peak, an inner crater and outer concentric shock rings. This makes it easy to identify in Google Earth.</p>	N38 26	W109 54	

### Comparing the sizes of impact craters with local distances

Once the size of each impact crater has been determined in Google Earth, a comparison can be made with distances local to your school or home. This will give some perspective on the sizes of these objects.

1. Enter the street name or postcode of your school/home in the '**Fly to**' box in Google Earth.
2. Once Google Earth has flown to your location, choose the measure tool once again by clicking on the ruler.
3. Using the mouse, left click on your location to mark the point where you would like your line to be drawn from. Make sure your units are in 'kilometres' again so you can make a proper comparison with the impact craters.
4. Zoom out of your location in Google Earth so that you can fit a line the size of one of the impact craters, onto your map.
5. Finally, extend your line until its length equals the size determined for each impact crater previously. This puts into perspective how big the impact craters really are!