



Guided Reading

4

What is the highest number on the Richter Scale?

5

What does logarithmic mean?

1

What does "magnitude" mean?

2

What machine measures the magnitude of an earthquake?

3

Describe how do seismometers work.

Measuring Earthquakes – The Mercalli Scale and Richter Scale

Earthquakes can be measured in two ways – The Richter Scale and the Mercalli Scale.

The Richter Scale

The Richter scale measures the magnitude of an earthquake (how powerful it is). It is measured using a machine called a seismometer which produces a seismograph. A seismometer detects the vibrations caused by seismic waves and creates graph, which scientists use to work out the magnitude of the earthquake. Seismographs are very sensitive and can detect very small tremors. Modern seismographs can cost around \$30,000. Seismographs need to be maintained and can break if not maintained properly.

A Richter scale is normally numbered 1-10, though there is no upper limit. It is a logarithmic scale which means, for example, that an earthquake measuring magnitude 5 is ten times more powerful than an earthquake measuring 4. By measuring accurately and giving the magnitude a score, scientist and seismologists can compare earthquakes easily.

The Mercalli Scale

The Mercalli Scale measure the damage an earthquake causes in an area. This does not require any scientific equipment and uses people's observations. As there is no equipment required it has no costs involved in working out the level of the earthquake. Also, as it

uses people's opinions, it isn't fully accurate as people may have different opinions.

The Mercalli Scale is numbered 1 to 12, which 1 being the lowest.

The scale looks at the damage and destruction caused by an earthquake, for example damage to houses, road surfaces, or bridges. If there is no damage, it investigates how people felt the earthquake and how many felt it. As the scale looks at damage, it can only really be used in towns and cities where there are lots of building that may have been damaged.

6

One earthquake measure 4 and second one measures 6? How time bigger is the second one than the first?

9

What is the higher number on the Mercalli Scale?

10

Why is the Mercalli only really useful if an earthquake strikes a town or a city?

7

What does the Mercalli Scale observe?

8

Why does the Mercalli Scale not need to use any scientific equipment?
