Aim

- Describe and understand key aspects of physical geography in the context of earthquakes.

Success Criteria

- I can tell you where earthquakes happen.
- I can explain why earthquakes happen.
- I can tell you how to keep safe in an earthquake.
- I can compare the strength of earthquakes.

How Do Tectonic Plates Move?

Use the two pieces of paper you have been given.

Can you remember the different ways you can move the plates around?

Rubbing together

Towards each other

Away from each other

This kind of movement causes earthquakes.

Why Do Earthquakes Happen?

Earthquakes can cause a lot of damage because they make the ground shake!

- Things can fall off shelves.
- Pictures can fall off walls.
- Furniture can move.
- Trees and telegraph poles might sway.

- Roads can be damaged.
- Cracks might appear in the ground.
- Buildings can be damaged or destroyed.

Where Do Earthquakes Occur?

Look at this map of the world. Toggle the buttons to show tectonic plate boundaries and earthquake hotspots.

What do you notice about where earthquakes happen?

Compare the earthquake map to the tectonic plates map. Are there any similarities?

hide tectonic plate boundaries

hide earthquake hotspots

What Should You Do?

Drop, Cover and Hold

Duck under a strong table or desk. Cover your head and neck with your arms. Stay away from windows.

Stay Calm

Keep calm. Make safe choices for yourself and those around you.

Stay Put

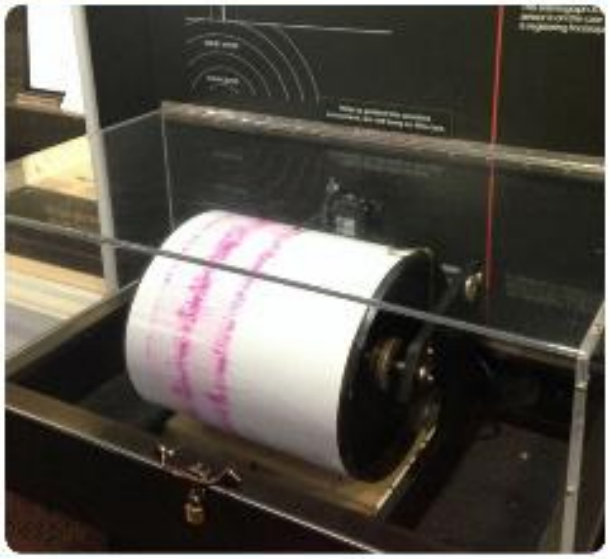
Shelter in place. Whether you're in a car, in bed, or in a public place. Do not try to run out of the building during strong shaking, wait until the shaking stops.

How Strong Is It?

There are two main ways to measure the power of an earthquake.

Machines called seismographs measure the power of an earthquake at its epicentre on a scale called the Richter scale.

Another measure is the Mercalli scale, and this is based on people's observations during an earthquake.



Can you sort out the different strengths of the Mercalli scale into the right order?

Comparing Earthquakes

Mercalli Intensity	Effect
I	Felt by no-one.
II	Felt by very few people. Hanging objects may swing.
III	Felt by many but they don't realise it is an earthquake.
IV	Felt indoors by most people. Vibrations similar to a lorry hitting a building.
V	Felt by nearly everyone. Sleeping people may be woken. Trees and telegraph poles sway.
VI	Felt by all. People run outside. Furniture moves. Slight damage to property.
VII	Felt by all. People run outside. Moderate damage to buildings
VIII	Specially designed buildings damaged, others collapse.
IX	All buildings damaged. Cracks appear in ground.
X	Many buildings destroyed. Ground is badly cracked.
XI	Almost all buildings destroyed. Wide cracks in the ground. Water, gas and electric out of action.
XII	Total destruction. Waves seen on the ground.

Task

Measuring Earthquakes: The Mercalli Scale

To explain what causes earthquakes and how they are measured.

- Sort the following cards into order of strength from the least to the most powerful.
- Number the statements from 1 to 12.
- Choose four different descriptions to illustrate.

Felt by nearly everyone. Sleeping people may be woken. Trees and Telegraph poles sway.	Felt by no-one.
Felt by all. People run outside. Furniture moves. Slight damage to property.	Total destruction. Waves seen on the ground.
Felt by many but they don't realise it is an earthquake.	Many buildings destroyed. Ground is badly cracked.
Felt indoors by most people. Vibrations similar to a lorry hitting a building.	Almost all buildings destroyed. Wide cracks in the ground. Water, gas and electric out of action.
Specially designed buildings damaged, others collapse.	Felt by very few people. Hanging objects may swing.
Felt by all. People run outside. Moderate damage to buildings.	All buildings damaged. Cracks appear in the ground.

Answers

5	Felt by nearly everyone. Sleeping people may be woken. Trees and Telegraph poles sway.
6	Felt by all. People run outside. Furniture moves. Slight damage to property.
3	Felt by many but they don't realise it is an earthquake.
4	Felt indoors by most people. Vibrations similar to a lorry hitting a building.
8	Specially designed buildings damaged, others collapse.
7	Felt by all. People run outside. Moderate damage to buildings.
1	Felt by no-one.
12	Total destruction. Waves seen on the ground.
10	Many buildings destroyed. Ground is badly cracked.
11	Almost all buildings destroyed. Wide cracks in the ground. Water, gas and electric out of action.
2	Felt by very few people. Hanging objects may swing.
9	All buildings damaged. Cracks appear in the ground.