Lesson 14: Journey to the centre of the Earth

Main Activity 2 – Worksheet

SEISMIC WAVES

Use the facts to help you build up a theory of the Earth's internal structure

- Waves can change direction when they change speed
- Seismic waves travel faster through denser materials
- Seismic waves take longer to travel through the Earth than they would if they travelled in straight lines
- There are two types of seismic waves, called P and S
- P-waves can travel through solids, liquids and gases; S-waves can only travel through solids
- P-waves travel faster than S-waves
- P-waves are longitudinal waves; S-waves are transverse waves
- P-waves can be detected nearly all over the world but there is always a region on the opposite side of the Earth from an earthquake where S-waves do not reach
- P-waves reaching the opposite side of the world take longer than expected, even when their curving path is accounted for
- About 2900 km below the surface S-waves stop abruptly and P-waves suddenly change direction
- About 5000 km below the surface P-waves make another sudden direction change

Answering these questions will help you to build up your theory

1 Why do seismic waves follow curving paths?

2 Why do S-waves suddenly stop?

3 Why do P-waves suddenly change direction at 2900 km and 5000 km below the surface?