

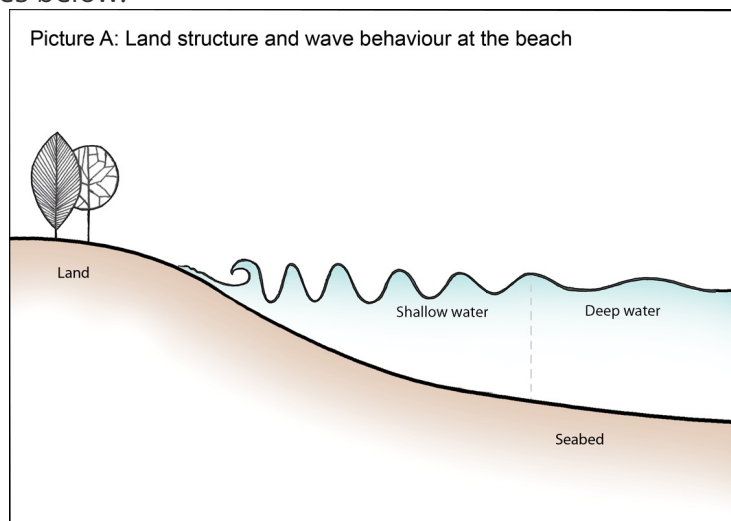
Waves and Energy

This task is about looking at features of waves and making inferences based on your observations.

Facts about waves

- Waves carry energy.
- The waves on the surface of the ocean get their energy from wind.
- The height and wave-length tell us about the amount of energy a wave carries.

a) Look carefully at this picture showing how waves change as they get close to the shore. Complete the sentences below.



- i) As the water gets shallower the **wavelength** (distance between peaks) of the waves *gets bigger / gets smaller / stays the same*.
- ii) As the water gets shallower the **amplitude** (height) of the waves *gets bigger / gets smaller / stays the same*.

b) Imagine you are swimming at a beach with waves similar to those in the picture below. Describe how your swimming experience would be different in the deep and shallow water.

More Facts About Waves

- Waves on the sea are surface waves.
- Surface waves occur along the boundary of two different substances, e.g., air and water.
- In earthquakes, seismic waves can carry energy as both surface waves and waves through the earth. Surface waves cause the greatest damage.

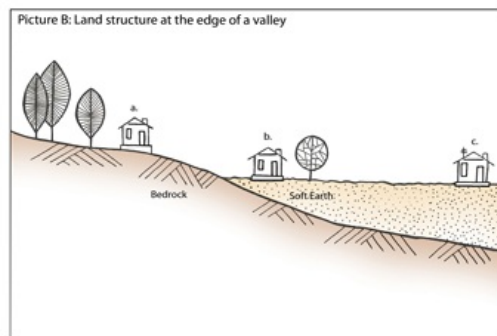
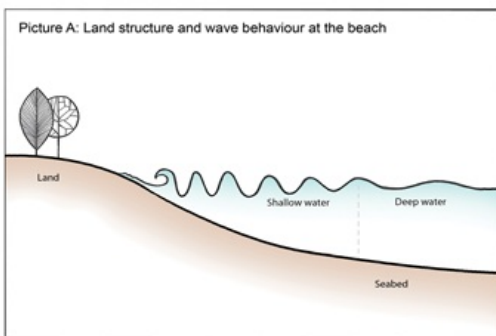
c) Choose a boundary description for each surface wave example and place it on the table. The first one has been done for you.

Surface wave example	Occurs on the boundary between...
Ripples of sand on the sea floor	Earth and water
Earthquake waves (if the earthquake occurs on land)	
Earthquake waves (if the earthquake occurs under the sea)	
Sea Waves	

Boundary descriptions:

Earth and water
 Earth and air
 Air and water

d) Compare the 2 pictures below. If the seabed in Picture A is just like the bedrock in Picture B, what part of Picture B corresponds to the **water** in Picture A?

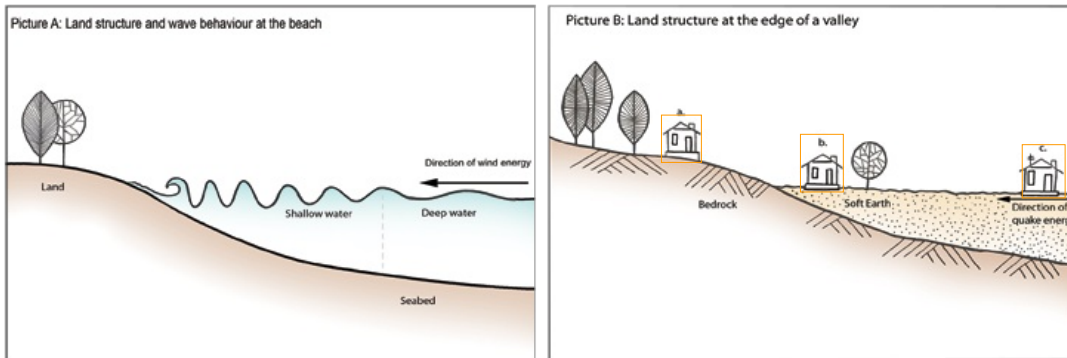


The houses
 The trees

The soft earth
 The waves

In an earthquake, surface waves travel across the earth's surface just like waves on the surface of the sea.

e) i) Look at Picture B and select the house you think will be most damaged by **surface waves** in an earthquake.



ii) Explain why you made your choice in the above question.

f) Using an analogy like sea waves can be useful to predict earthquake damage, but this model may not tell the "full story". What other factors might affect which house is damaged the most?