

Geology

1. List and explain the 5 pieces of evidence that support Continental Drift Theory.

Evidence	Explanation
1. <i>Jigsaw Puzzle Fit</i>	<i>Match between the coastline of various countries & continents (ex: South America & Africa). The fit appeared too close to be coincidental</i>
2. <i>Matching geological features & rocks</i>	<i>Mountain ranges that began on one continent end at the coastline & then appear to continue across an ocean</i>
3. <i>Matching fossils</i>	<i>Various plants & fossils found in continents separated by oceans</i>
4. <i>Paleoglaciation</i>	<i>Glaciers leave markings as they move; markings left by glaciers now found in tropical parts of the world</i>
5. <i>Coal deposits</i>	<i>Coal forms through decomposition of living things in tropical areas → coal found in Antarctica suggesting it was in a warmer climate before</i>

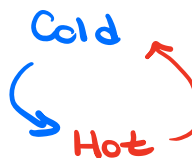
2. Name the four layers of the Earth, in order from the inside out:

Inner core → Outer core → Mantle → Crust

3. What important process occurs in the mantle? Draw a labeled sketch of this process.

Convection currents

*↳ Hot materials rise
↳ Cold materials sink
(due to different densities of materials)*



4. How does this contribute to plate movement?




As convection currents occur in the mantle and circulates the fluid, the tectonic plates get dragged along the surface due to the mantle's motion

5. What geological feature is formed at subduction zones?

A trench is formed

*↳ A deep water valley
It can produce a volcanic arc*

6. Fill in the following table:

Plate Boundary	How the plates interact	Diagram	Example
Convergent	Occur when tectonic plates collide ↳ Depends on density of plates		Coast Mountains of BC
Divergent	Tectonic plates are spreading apart		Mid-Atlantic Ridge
Transform	When tectonic plates slide past each other		San Andreas Fault of California




7. There are three types of convergent boundaries. List and describe each. In your answer, identify which creates a subduction zone.

Continental + Continental = plates have similar densities; when they collide, their edges fold & crumple; forms mountain ranges

Oceanic + Oceanic = subduction occurs; trenches are formed; can produce volcanic island arcs

Oceanic + Continental = subduction occurs; ocean plate is denser & slides under continental plate; produces trenches

8. Fill in the following table regarding seismic waves:

Seismic wave	Abbreviation	Description	Diagram
Primary	P	Compression wave 1st to arrive Travels in solids, liquids, gases	
Secondary	S	Transverse wave 2nd to arrive Travels through solids	
Surface	L	Moves only along the surface	

9. Complete the following table:

Type of Volcano	Structure	Where they occur	Example
Composite	Cone-shaped	Near subduction zones	Mt. Garibaldi
Shield	Largest volcanoes on Earth	Over hot spots	Hawaiian Islands
Rift Eruptions	Magma erupts in long cracks in the crust	Along Mid-Atlantic ridge	Mid-Atlantic Ridge

10. Identify **two** ways in which a tsunami is different from a regular ocean wave.

Longer wavelength
Higher amplitude

11. Match the term with the descriptor. Each descriptor can only be used once.

Term	Descriptor
<u>q</u> Continental drift theory	A. Hot fluid below or within the Earth's crust
<u>c</u> Plate tectonic theory	B. The most outer layer of the Earth
<u>a</u> Magma	C. The theory that the crust is broken up into large plates that move and then rejoin
<u>j</u> Mid-Atlantic Ridge	D. The region where magma breaks through Earth's surface, continually forcing apart old rock and forming sea floor
<u>d</u> Sea floor spreading	E. The most inner layer of the Earth
<u>o</u> Convergent plate boundary	F. A compression wave that travels through solids, liquids and gases
<u>r</u> Divergent plate boundary	G. An area where tectonic plates slide past one another
<u>g</u> Transform plate boundary	H. A rupture in the crust where hot lava, ash and gas escape from a magma chamber below the surface
<u>b</u> Crust	I. The location inside Earth where an earthquake starts
<u>u</u> Mantle	J. A long mountain range running north to south down the length of the Atlantic Ocean
<u>e</u> Inner Core	K. The point on the Earth's surface directly above the focus
<u>w</u> Outer Core	L. A series of water waves that is generated when the sea floor deforms and abruptly moves the water
<u>p</u> Tectonic plates	M. A wave that travels along the Earth's surface
<u>v</u> Earthquake	N. A measurement of an earthquake
<u>i</u> Focus	O. An area where tectonic plates collide
<u>k</u> Epicentre	P. The large slabs or rock that form Earth's surface and move over a layer of partly molten rock
<u>t</u> Seismic waves	Q. The theory that the continents have not always been in their present locations but have moved over millions of years.
<u>f</u> P wave	R. An area where tectonic plates are spreading apart
<u>s</u> S wave	S. A transverse wave that does not travel through the liquid mantle
<u>m</u> L wave	T. Vibrating energy released by an earthquake
<u>n</u> Richter magnitude scale	U. The layer of the Earth where convection currents occur
<u>l</u> Tsunami	V. The second most inner layer of the Earth
<u>h</u> Volcano	X. A massive release of energy that shakes the crust