THE Ebbsfleet ACADEMY
Aspire, Excel

Subject: Geography
Year: 10
Term: 1a
Topic: Tectonics (1B)

Lesson Sequence
1. Earth's structure
2. Convection currents + plate boundaries
3. Volcanoes
4. Volcanoes – case studies
5. Earthquakes
6. Earthquakes – case studies

Key Assessments
1. Exam paper 1
2. Past Exam paper.

Core Texts
Edexcel Geography B (9-1)
John Hopkin (ed.); Pearson

Key Words

lithosphere	Made of the earth's crust and upper mantle	seismometer	An instrument that measures movements of the ground, especially during earthquakes
asthenosphere	The upper layer of then Earth's mantle, below the lithosphere, in which convection currents cause tectonic plate movement	epicentre	The point at the Earth's surface directly above the earthquake's focus
subduction zone	The zone where one tectonic plate sinks (subducts) under another	lahars	A mudflow r3esulting from ash mixing with melting ice or water – a secondary hazard for a volcano
faults	A fracture or break in rocks	focus	The point in the Earth's crust where the earthquake begins
plate boundary	The margin at which two plates meet	convection current	Circular current of heat in the mantle
pyroclastic flow	A lethal hot mixture of broken rocks and gases that races down the sides of a volcano	radioactive decay	The process where natural radioactive materials in the Earth's rocks break down, giving out energy and heat as they do so
primary impact	the immediate effects of a natural hazard, caused directly by it	hotspots	A section of the Earth's crust where plumes of magma rise, weakening the crust; these re usually away from plate boundaries
secondary impact	The knock-on, or indirect, effects of a volcanic eruption or earthquake that take place on a longer time-scale	supervolcano	A colossal volcano that erupts at least 1000km^3 of material
tsunami	Giant sea wave travelling at high speed	'vog'	Volcanic smog

Earth Structure
1. **Crust –** thinnest outer layer
2. **Mantle –** thickest layer, under the crust.
3. **Outer core –** made of liquid iron; dense.
4. **Inner core –** made of solid ball; dense.

Types of Crust
- **Continental –** land crust
- **Oceanic –** under water crust

Types of Lava
- **Andesitic lava –** erupts from composite volcanoes.
- **Basaltic lava –** erupts from shield volcanoes.

Types of Plate Boundaries

Type	Description	Features	Examples
Convergent	Plates collide into each other (ocean + ocean)	**Composite volcanoes;** fold mountains; deep trenches	
• Collision	Plates collide into each other (ocean + continental)	"	Mount St Helens (Washington, U.S.A.)
Divergent	Plates separate from each other	**Shield volcanoes;** mid-ocean ridge; rift valley	Mauna Loa, Hawaii (U.S.A.)
Conservative	Plates slide past each other	(Violent) earthquakes	San Andreas fault line

Types of Volcanoes
- **Shield volcano -** curved shape, less violent but more frequent eruptions
- **Composite volcano –** cone-like shape, very violent and less frequent eruptions.

MEASRING EARTHQUAKES
- **Richter scale**
- **Moment magnitude scale (Mw)**

Case Studies - VOLCANOES
- Developed country – KILAUEA ERUPTIONS, HAWAII U.S.A., (2011)
- Emerging country – PINATUBO ERUPTION, PHILILPPINES, (1991)

Case studies - EARTHQUAKES
- Developed country - TOHOKU EARTHQUAKE, JAPAN, (2011)
- Developing country – HAITI EARTHQUAKE, (2010)