4. Structure of the Earth

• Our planet = **Earth**
• = shaped by many processes (earthquakes and volcanoes)
• Consists of:
– *Core*
• *Condrad discontinuity*
– *Mantle*
• *Moho discontinuity*
– *Crust*
• **Core**
– *Outer core* – liquid, Fe
– *Inner core* – solid, Fe & Ni = 5x denser than surface rocks
• Conrad discontinuity
• **Mantle**
• = semi-molten rocks = *magma*
– *Outer mantle* – liquid, silicate minerals (Si)
– *Inner mantle* – solid, silicate minerals (Si)
• Moho discontinuity (Asthenosphere)
• **Crust** = outer layer
• few tens of kilometres thick =>
– *Continental crust* (granitic crust) – land surface, thicker and lighter (granite) than
– *Oceanic crust* (basaltic crust) – oceanic floor (basalt)
• **Tectonic plates** are formed by convection currents rising from the core towards the surface => splitting the crust into many tectonic plates
– e.g. Eurasian, Indo-Australian, Pacific, etc.
• **Constructive boundaries**
– forced apart and new crust is created in between
• e.g. under the ocean – magma reaching the sea floor producing new oceanic crust
• **Destructive boundaries**
– one plate collides with another (slide under the other/crumple together)
• e.g. heavier oceanic plate slides below the lighter continental plate

Rock cycle

• Rocks are created but also distorted (destroyed).
• Molten lava cools and solidifies =>
3 main types of rocks:

1. ***Igneous rock*** (magma or molten rock cools)

• *Extrusive igneous rocks* (on the surface)
– e.g. granite
• *Intrusive igneous rocks* (within the Earth)
– e.g. basalt

2. ***Sedimentary rock*** (deposition of weathered particles), created by marine or fluvial processes, by glaciers or by wind

– e.g. sandstone

3. ***Metamorphic rock*** was formed by pressure and extreme heat within the Earth

– e.g. marble