

## 4. Structure of the Earth

- Our planet = **Earth**
- = shaped by many processes (earthquakes and volcanoes)
- Consists of:
  - *Core*
  - *Conrad 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

