The rock cycle

Earth's rocks don't stay the same forever. They are always changing from one form to another due to *weathering*, *transportation*, *pressure* and *heat*. We don't see these transformations owing to the huge timescales involved, but we make use of the materials they produce in the construction of our schools, houses and roads.

There is no set route around the rock cycle; sedimentary rocks are not all converted into metamorphic rocks before then forming igneous rocks. The transformations that happen depend on which conditions the rock is exposed to.

**Sedimentary rocks**
May contain fossils of animals and plants trapped in the sediments.

**Heat and pressure**
Deep in the Earth's crust, or at plate boundaries where *tectonic plates* collide, rocks are exposed to high temperatures and pressures.

**Metamorphic rocks**
Formed when high temperatures and pressures change the mineral structures in rocks without melting the rocks completely.

**Compaction and cementation**
As layers of sediment build up, water and air in the lower layers is squeezed out. Minerals dissolved in the water are left behind and act like cement, leading to the formation of sedimentary rocks.

**Sediment**
Small fragments of rocks and minerals, as well as the remains of plants and animals, are carried out to sea and deposited in layers.

**Transportation**
The fragments of rock formed by weathering fall from the rock face and can be carried away by moving wind or water.

**Uplift**
Unbalanced forces in the Earth's crust bring rocks from deep underground to the surface.

**Weathering**
Weather, plants, animals and chemical processes break rocks into smaller pieces.

**Lava**
When *magma* flows or erupts onto the Earth's surface it is called lava. Under *lava flows*, rocks are exposed to less extreme temperatures and pressures but still enough to change their structure.

**Magma**
Underground, rocks are exposed to high temperatures and form *molten* and *semi-molten* rock called magma.

**Did you know ...?**
Glass is made from liquid sand. Most beach sand is grains of *silicon dioxide* (or quartz). When melted then cooled it is transformed into glass.

**Igneous rocks**
Formed when molten rock cools and crystallises. *Intrusive* igneous rocks form deep underground when rocks cool slowly. *Extrusive* igneous rocks form when molten rock erupts from a volcano.

**Did you know ...?**
Geologists measure the *hardness* of rock using the *Mohs scale*, introduced in 1822 by Friedrich Mohs. It is based on one mineral’s ability to scratch another.

**Did you know ...?**
*Igneous* comes from the word *ignis* which means fire in Latin.