FROM *ROCKS & MINERALS* BY CAROLINE BINGHAM

3 Types of Rock

Igneous rock

- First rocks
- Form from molten rock that has cooled & hardened
    - Like volcanic rock

Sedimentary rock

- Forms when
    - pieces of rock are carried to the sea
        - create huge piles of sediment
        - cement together after thousands of years
- sediment settles on bottom of seas, rivers, & lakes
- builds up in layers, squashed together

Metamorphic rock

- forms when rocks are squeezed & heated deep under earth's crust
- as granite is forced up, pressure & heat causes marble to form
        - marble is metamorphic rock

Each type of rock can change to another, depending on what happens to it

Igneous → sedimentary → metamorphic

Igneous rock

- form greatest part of earth's crust
- can also be exposed in the land
    - e.g. Giant's Causeway in Northern Ireland
        - formed when basalt lava cooled & shrank
            - this lava can create hexagon-shaped columns
- Pumice
    - Only floating rock
    - Igneous rock from the heart of volcanos
- Obsidian
    - Shiny surface
    - Contains much glass
    - Cools quickly
        - Small crystals
- Granite
    - Most common igneous rock
    - Very strong
    - Used in building
        - e.g. London's Tower Bridge
    - cools slowly

        - has large crystals
- Igneous comes from Latin word for “fire”
- The slower a rock cools from its molten form, the larger the crystals

Sedimentary rock

- Chalk cliffs
    - Formed from shells & skeletons of microscopic sea creatures
    - Grow by .02 in (.5mm) a year
        - 180 sea creatures piled up
    - Movement in earth’s crust have lifted the cliffs out of the sea
    - chalk takes thousands (they say millions) of years to form
        - can contain large fossils as well
- Sand is a sediment
    - After thousands of years, it may form sandstone—a sedimentary rock
    - Rocks are continually eroded over thousands of years to produce sand
- Pebbles can cement together to form sedimentary rock
    - Like a cake mix (choc chip cookie dough visual?)
- Breakdown of plants can form sedimentary rocks
    - As plants are buried, they squeeze together, eventually forming a coal
        - Plant to matter
        - Matter to peat
        - Peat to lignite
        - Lignite to bituminous coal
        - Bituminous coal to coal

Metamorphic rock

- “metamorphic” comes from ancient Greek *meta* (=change) and *morphe* (=form)
- Forms when rocks are heated or compressed
    - E.g. when mountains are pushed up out of Earth’s crust
    - Metamorphic rock slate forms from mud & a rock called shale
        - Shale has been squeezed & compressed as mountains are pushed up
        - Slate splits easily into sheets
- When rocks are heated, parts may start to melt & run through a “host” rock
    - Makes swirly-patterned metamorphic rock
        - Called migmatite
        - E.g. a dark host rock contains swirls of a lighter-colored rock
- Marble is formed from limestone
    - Mined by being cut into huge blocks w/ strong cutting wires

Caves

- Constant flow of water eats away at an area of solid rock
- Cave formations can build up gradually as drops of water deposit traces of a mineral called “calcite”
- Rock formations in caves build drip by drip
    - Stalactites & stalagmites can take 1,000 yrs to grow less than half an inch