

GRADE 9 | 2024

Earth Science: Rocks, Minerals and Atmosphere

Natural Sciences

CAPS ALIGNED

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1. The Rock Cycle

- Igneous rocks: formed from cooled magma or lava (granite, basalt)
- Sedimentary rocks: formed from compressed sediments (sandstone, limestone, shale)
- Metamorphic rocks: formed when rocks are changed by heat and pressure (marble, slate)

Rocks continuously change from one type to another through the rock cycle.

2. Minerals

Minerals are naturally occurring, inorganic solids with a definite chemical composition and crystal structure.

- Hardness (Mohs scale): 1 (talc) to 10 (diamond)
- Colour, lustre, cleavage, streak, and crystal form help identify minerals
- Common minerals: quartz, feldspar, mica, calcite, pyrite, olivine

3. The Earth's Structure

- Crust: thin outer layer (5-70 km thick), where we live
- Mantle: thick layer of semi-molten rock (2900 km thick)
- Outer core: liquid iron and nickel
- Inner core: solid iron and nickel

4. Earth's Atmosphere

The atmosphere is the layer of gases surrounding Earth. It consists mainly of nitrogen (78%), oxygen (21%), and other gases (1%).

Layers of the Atmosphere

- Troposphere: weather occurs here (0-12 km)
- Stratosphere: ozone layer (12-50 km)
- Mesosphere: meteorites burn up here (50-85 km)
- Thermosphere: aurora and satellites (85-600 km)

KEY POINT: The ozone layer in the stratosphere protects Earth from harmful ultraviolet radiation from the Sun.