

Earth Revealed 14. Intrusive Igneous Rocks

Section 1. Introduction (optional)

Section 2. Types and Composition of Igneous Rocks

What is the term used to identify rocks containing a lot of iron and magnesium? What is an example of such a rock?

What is the term used to identify rocks containing a lot of silicon and aluminum? What is an example of such a rock?

What is the name given to rocks of intermediate composition? What is an example of such a rock?

What determines the size of crystals formed in igneous rocks?

Section 3. Bowen's Reaction Series (optional)

Section 4. Igneous Activity and Plate Tectonics

What type of rock is oceanic crust made of?

What type of igneous rock is produced at subduction zones?

What happens to a magma that sits in contact with continental crust for a long time?

Define the following types of igneous intrusions.

dike:

sill:

laccolith:

pluton:

batholith:

Section 5. Clues to Early Earth (optional)

Earth Revealed 17. Sedimentary Rocks: The Key to Past Environments

Section 1. Introduction (optional)

Section 2. Process and Composition of Sedimentary Rock

What processes create the materials that become sediments?

How does sediment become **sedimentary rock**?

Rock fragments, called **clasts**, are named according to size. What are these names, from largest to smallest?

How are clasts modified as they are transported?

When sediments are deposited by a river, what grain sizes are deposited in which locations?

What is the name given to sedimentary rocks formed by direct precipitation of material from solution?

How is **limestone** formed?

What is **chert**, and how is it formed?

Section 3. Principle of Uniformity and Sedimentary Structures

The film gives an example of a limestone in the Grand Canyon. In what sort of environment was it created? What is the evidence?

What processes create **cross-bedding** in sediments?

Section 4. Sedimentary Rock Records (optional)

Earth Revealed 18: Metamorphic Rocks

Section 1. Introduction

What conditions cause rocks to change their structure and composition?

What does “metamorphic” mean?

Section 2. Varieties and Formation of Metamorphic Rocks

In what sort of geologic environment do the conditions of metamorphism occur?

What determines the direction of layering (“foliation”) in metamorphic rocks?

What chemical changes occur as rocks undergo metamorphism?

What substances are commonly given off by rocks as they undergo metamorphism?

What geologic setting produces **contact** metamorphism? **Regional** metamorphism?

Section 3. Metamorphic Facies and Progressive...

What factors determine the characteristics of metamorphic rocks?

What are metamorphic **facies**?

How do the properties of metamorphic rocks change as metamorphic **grade** increases?

Describe the different rocks formed from a claystone protolith by increasing grade.

slate:

phyllite:

schist:

gneiss:

Section 4. Plate Tectonics (optional)