

JAG01 Unit 3 Rocks

Task 1 Idioms

What does it mean when someone says:

Do you *live under a rock*?

The relationship got off to *a rocky start*.

Prices have reached *rock bottom*.

Task 2 Complete the text using the parts of sentences below:

- a) or intrusive, meaning that they cooled beneath Earth's surface
- b) concerning the history of Earth
- c) including composition, texture, structure, and where it is on Earth
- d) we rely heavily for our modern civilisation
- e) from parts of other rocks by deposition or by precipitation from solution in water
- f) into three general types or families
- g) formed by geologic processes

Minerals and rocks are the basic building blocks of the solid Earth and form some of our most basic *resources* on which (1) Minerals and rocks also play an important role in many Earth surface processes, such as landslides, earthquakes, and volcanic activity. Finally, the study of minerals and rocks provides important information (2)

A mineral is a *naturally occurring*, normally crystalline element or compound (3) Although there are more than 4,000 minerals, we need to know only a few of them to identify most rocks.

Rocks are *aggregates* of one or more minerals that are classified (4), according to how they were formed in the rock cycle. These are igneous, sedimentary, and metamorphic. These three rock types are constantly being created and destroyed as part of the rock cycle. Igneous rocks are rocks that crystallised from magma. They can be either extrusive, meaning that they cooled at the surface of Earth, (5) They usually contain crystals that grew within this molten material as it cooled. Sedimentary rocks form at the surface (6) Metamorphic rocks are rocks changed by heat, pressure, chemically active fluids, or some combination of those factors. The *strength* of a rock depends upon several factors, (7) Common rock structures include fractures, faults, and unconformities.

(adapted from Rothery, D. A. *Geology. A Complete Introduction*. McGraw-Hill, 2015.)

Task 3 Classifying

Use the phrases below to classify rocks and other phenomena.

Words for classifying into groups and describing composition:

General	->	specific	specific	->	general
X	is classified into/as	A and B.			
X	can be divided into	A, B, and C.			
X	is composed of	A, B, and C.			
X	is made up of	A, B, and C.	A, B, and C	constitute	X
X	consists of	A, B, and C.	A, B, and C	make up	X
X	comprises	A, B, and C.			
X	includes	A, B, and C.			

Task 4 Passive voice

A) Change these phrases from the active to the passive voice.

Present tense:	You heat the sample.	→	The sample ...
Present continuous:	You are heating the sample.		
With a modal verb:	You can heat the sample.		
	You need to heat the sample.		
Past tense:	You heated the sample.		
Present perfect:	You have heated the sample.		
Future:	You will heat the sample.		

B) Transformations: Change the sentences into passive voice.

1. We can classify matter as solid, liquid and gas.
Matter as solid, liquid and gas.
2. You would need a considerable force to change the shape of an iron bar.
A considerable force to change the shape of an iron bar.
3. If we pour water on the table, it will flow all over the surface.
If on the table, it will flow all over the surface.
4. When we heated the crystals, they melted.
When, they melted.
5. Now that you have heated the amorphous substance, you can see that it softens.
Now that, you can see that it softens.
6. If we pour water from one container to another, we will change the shape of the water mass.
If we pour water from one container to another, the shape
.....
7. We find matter in solid, liquid or gaseous form.
Matter in solid, liquid or gaseous form.

Task 5 Video How do crystals work?

<https://ed.ted.com/lessons/how-do-crystals-work-graham-baird#watch>

Watch and answer the questions:

How are the atoms generally arranged in crystals?

What are the factors influencing the shape of diamonds?

Why does glass have a random arrangement of atoms?

Why don't some crystals form geometric shapes?

Watch again, then use the following expressions in sentences:

ions *feldspar* *sulphur*

DNA *crystalline* *bond*

hexagon *solidify* *unique*

Task 6 The Rock Cycle

Use the expressions below to sketch and describe the rock cycle.

IGNEOUS *METAMORPHIC* *SEDIMENTARY* *SEDIMENT* *MAGMA*

weathering *cooling* *heat and pressure* *crystallisation* *deposition*

cementation *melting* *solidification* *uplift* *burial*

Task 7 Video: Rock and Minerals: Identifying Types of Rocks

<https://www.youtube.com/watch?v=tQUe9C40NEE>

Watch and take notes on rock identification. Are there any hard and fast rules?

Watch again and fill in the gaps with one word:

1. Sedimentary rocks come from elements of pre-existing rocks, either actual or dissolved materials.
2. It's oftentimes difficult to the type of rock.
3. You have a, more compact form in igneous and metamorphic rocks.
4. Crystals are a good of igneous rocks.
5. Some igneous rocks are very like this basalt.
6. You will sometimes see of mineral grain in metamorphic rock.
7. There are of fine clay minerals in shale.
8. If you put a little drop of acid on limestone, you'll get bubbling.