Sedimentary Rocks

By the end of this lesson, you should be able to:

- **Identify** the three types of sedimentary rocks
- **Explain** how clastic, organic and crystalline rocks are formed.

Clastic sedimentary rocks are the most common type of sedimentary rock.

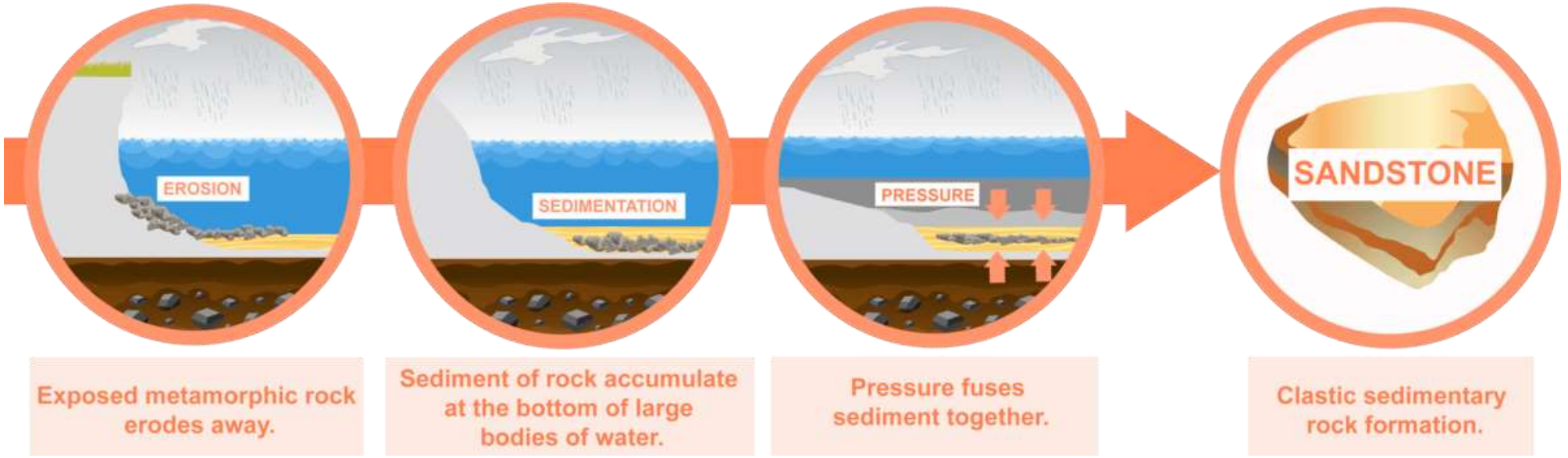
Clastic sedimentary rocks are made up of **pre-existing** sediment.

When sediment is carried into the ocean, they form horizontal layers on the seafloor.

The **sediment can build up** over thousands or even millions of years!

Over geological time, the **piling sediment applies pressure** to the sediment below it in the pile.

This pressure **squeezes water out** of the sediment and **compacts them** to make hard layers.



As water is squeezed out of the sediment, new compounds can seep into them and stick the sediment particles together.

These **compounds that stick** together sediment grains are called **cements.** Not surprisingly, this process is called **cementing.**

Eventually, the original sediment turn into clastic sedimentary rocks.

After being **compacted and cemented** over huge stretches of time, they become **hard rocks!**

Common clastic sedimentary rocks
include **sandstone, mudstone, conglomerate** and **breccia.**

Sandstone

Mudstone

Conglomerate

Breccia

Organic sedimentary rocks are made from dead organic material that is compacted and cemented.

The term **'organic'** refers to something that is **living or was once living.**

For example, **coal** is made up of the remains of **dead plants** that lived in **swamps and bogs.**

The diagram below shows how coal forms from rotting plant matter.

The **different colours** represent different **layers of sediment,** including sand and mud, that settle on top of the **plant matter** over time.

This **process is very slow;** much of the coal burned on Earth today was formed 300 million years ago, before the dinosaurs existed!

Some kinds of limestone are also organic sedimentary rocks.

Limestone is **any sedimentary rock** that contains more than calcite.

In **organic limestone,** that **calcite** comes from the **broken shells of dead sea creatures (i.e. fossils),** such as molluscs, crustaceans and even plankton!

Crystalline sedimentary rocks are not made of eroded sediment, nor organic matter.

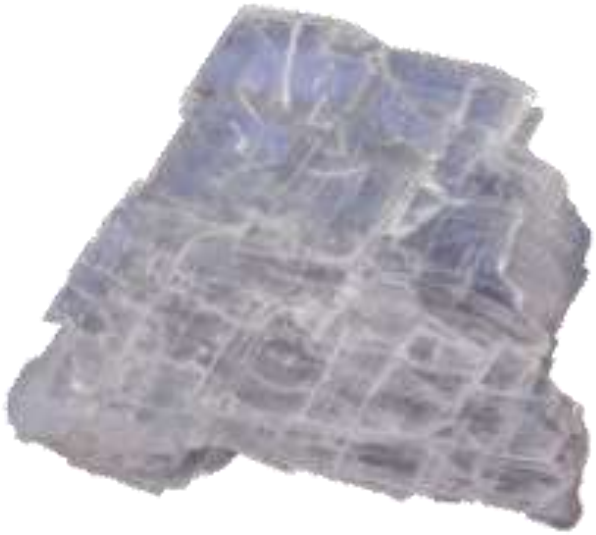
They are composed of **salt minerals** that collect in dry, hot areas such as **coastal deserts.**

Such minerals include **halite (rock salt), sylvite (potash)** and **gypsum.**

Halite

Sylvite

Gypsum



Repeated rain, then evaporation, causes many layers of salts to build up on top of each other.

Over **hundreds, thousands or millions of years,** the **layers are compacted** by their own weight and form **crystalline sedimentary rocks.**

This is happening right now on the shores of the **Dead Sea in Israel,** where these **gypsum domes form.**