

# KEEPING STUDENTS WELL INFORMED AT HOME WHILE THEY'RE DISTANCE LEARNING.



## WORLD OF WONDER

Exploring the realms of history, science, nature and technology

# CHALK



Chalk was used to create some of the earliest cave drawings. Some artists make their own chalk, adding pigments to create vivid colors.

### Did you know?

The word **chalk** comes from the Latin word *calx*, meaning "limestone."

Chalk is formed from shells of tiny marine animals known as **foraminifera** and **calcareous** (calcium carbonate-containing) skeletons of tiny planktonic algae called **coccoliths**.

Chalk does not erode easily, so air and water do not wear it away quickly. This is why when chalk is next to the sea, it often forms a cliff.

The highly porous nature of chalk means it can soak up water, creating a natural water reservoir and aquifer that cleans and releases water slowly in droughts or dry seasons.

If you draw a line with chalk around some ants, they won't cross it but will try to find a way around it.

When heated, the calcium carbonate in chalk decomposes to lime, or **calcium oxide**.

**Diluted hydrochloric acid** is used by geologists in the field to identify chalk and limestone. When a drop is placed on chalk, the acid reacts with the calcite and forms fizzy bubbles of carbon dioxide.

Not all natural chalk is white in color. It becomes gray when weathered and sometimes has red iron staining. It can even be a greenish color if **glauconite** is present.

**Gypsum chalk** is soft and writes smoothly. **Calcium carbonate chalk** is harder, requires more pressure to write with, and makes less dust.

As a child, the creator of "World of Wonder" learned to draw on a chalkboard because it was hard to find enough drawing paper.

Chalk is a soft, white, highly porous type of limestone. It is composed mostly of **calcium carbonate** with small amounts of silt and clay. Chalk forms in marine environments and is made from fossilized plankton skeletons. Not all things called chalk are natural chalk: Today, soft blackboard and sidewalk chalk are often gypsum, and tailor's chalk is talc.

### Spectacular cliffs

There are some amazing chalk cliffs on both sides of the English Channel. They are known as the **White Cliffs of Dover** on the United Kingdom side of the Channel and the **Cap Blanc-Nez** along the coast of France.

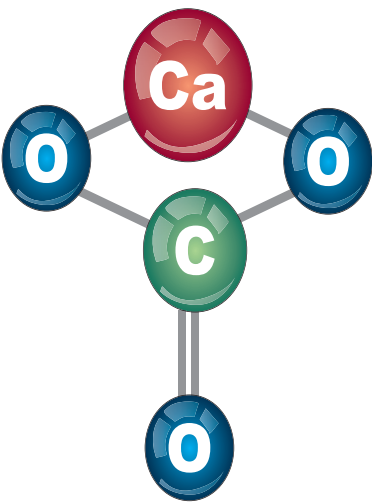


White Cliffs of Dover, England



Cap Blanc-Nez, France

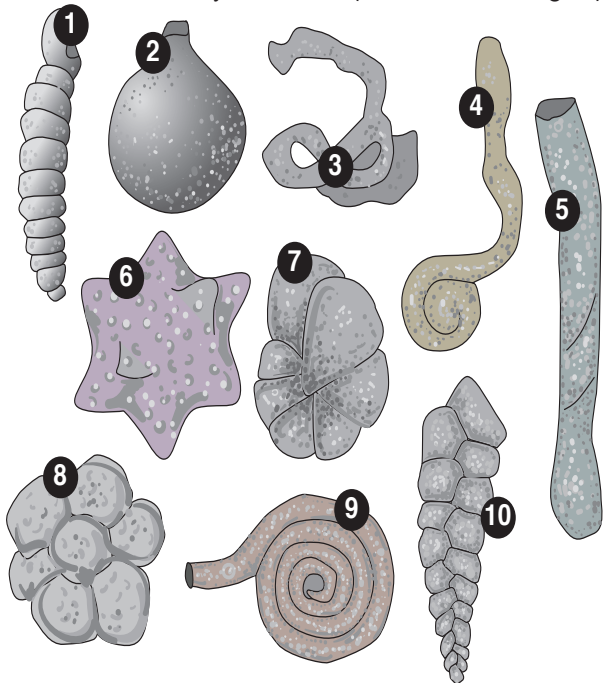
### Calcium carbonate (CaCO<sub>3</sub>) molecule



Calcium carbonate, or **CaCO<sub>3</sub>**, is one of main compounds found in limestone, chalk and marble. These minerals are chemically similar but differ in terms of whiteness, thickness and purity.

### Foraminifera samples

Foraminifera are microscopic one-celled animals. Geologists often use them to identify rocks. Here are just a few. (x = times enlarged)



1. Turritellera 60x
2. Lagena 60x
3. Tolypammina 60x
4. Apterinella 40x
5. Hyperammina 40x
6. Thurammina 40x
7. Endothyra 40x
8. Sorosphaera 5x
9. Involutina 40x
10. Textularia 50x

**Hopscotch** is a game played by children who use chalk to draw a series of triangles and squares on the sidewalk to jump on. Hopscotch began as a form of military training in ancient Britain during the Roman Empire, and children copied the soldiers.

### Way back when

Most chalk deposits date from the Cretaceous Period, 65 million to 144 million years ago.

### Formation

Chalk forms very slowly under water, in warm, deep seas. Over millions of years, layer upon layer of marine debris and skeletons pile up and are compressed into rock. Earth movement pushes the seabed up, exposing the chalk

### Where in the world

Chalk can be found throughout the world. Large deposits are found in northwest Europe and between the Rocky Mountains and Mississippi River in the United States.

### A useful mineral

Chalk has been mined and used for many purposes over the years. Many traditional uses and applications have been replaced with more affordable options. The word "chalk" is often still used to describe the materials that replaced natural chalk.

**Magnesium carbonate** is a modern alternative to chalk for athletes, such as gymnasts and rock climbers, who use it to provide grip and prevent slipping.

Tennis courts and field sports once used chalk to mark boundary lines. Today, **titanium dioxide** has largely replaced chalk for this purpose.

Chalk is still used to make cement and mortar. It is also used to make lime for fertilizer or manufacturing.

Some toothpastes and cleaners use small amounts of chalk to provide an abrasive.

SOURCES: World Book Encyclopedia, World Book Inc.; <https://sciencewithkids.com>; <https://kids.kiddle.co>; <https://www.worldofchemicals.com>; <https://geology.com>; <http://isgs.illinois.edu>

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