

Minerals

Introduction



Figure 1: Salt is a common mineral.

Minerals make up Earth’s rocks, sands, and soils. They are found on Earth’s surface as well as deep underground. Minerals are inorganic substances, meaning that they do not come from an animal or a plant.

Mineralogy is the science of minerals. Mineralogists, or people who study minerals, have identified hundreds of minerals. Some of the most common minerals are metals—for example, gold, silver, copper, and platinum. Diamond, quartz, sulfur, mica, talc, and salt are other well-known minerals.

Properties of Minerals

Mineralogists use certain properties to identify a mineral: color, luster, hardness, cleavage, and streak. They may also use other tests, including how the mineral reacts to electricity or magnets.

Minerals come in many different colors. They also reflect light in different ways. The luster of a mineral describes how the mineral appears as it reflects light. Some minerals are transparent, or see-through. Others are iridescent, which means that their color changes as light hits them from different directions.

Mineralogists describe a mineral’s hardness with the Mohs scale. The scale lists 10 typical minerals, from the softest (talc) to the hardest (diamond). A mineral can be identified by comparing its hardness to the hardness of these 10 minerals.

The cleavage of a mineral is the way it splits or breaks. Mica, for example, breaks into thin, flat sheets.

Streak is the color of a mineral’s powder. Streak is produced by rubbing a piece of mineral against the surface of rough porcelain, a type of pottery.



Figure 2: Reniform (kidney-shaped) masses of green malachite from Zacatecas, Mexico. Small crystals of blue azurite coat some of the malachite.

Uses



Figure 3: The mineral cinnabar is a sulfide of mercury. Its deep red color is consistent across samples, making it a useful property for identification.

Animals and plants need minerals to live. For example, humans need the mineral calcium to develop healthy bones and teeth. Animals, including humans, get minerals from plants or from the milk, eggs, and meat of plant-eating animals. Most plants get the minerals they need from soil.

People also use minerals to make buildings, machines, tools, cleaning products, cosmetics, jewelry, and many other items. Digging useful minerals out of the ground is called mining.

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