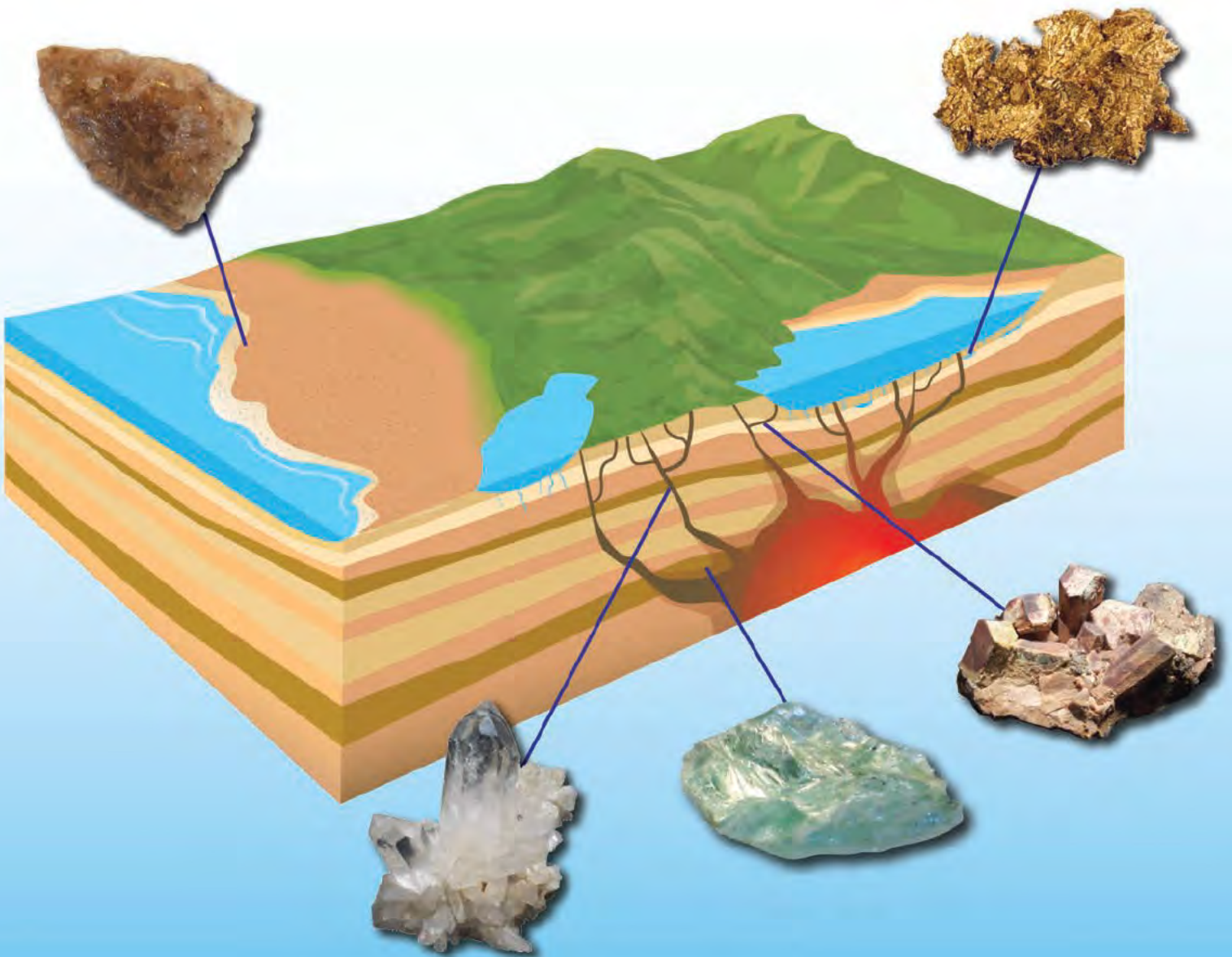


# Minerals

## *Learning Guide*



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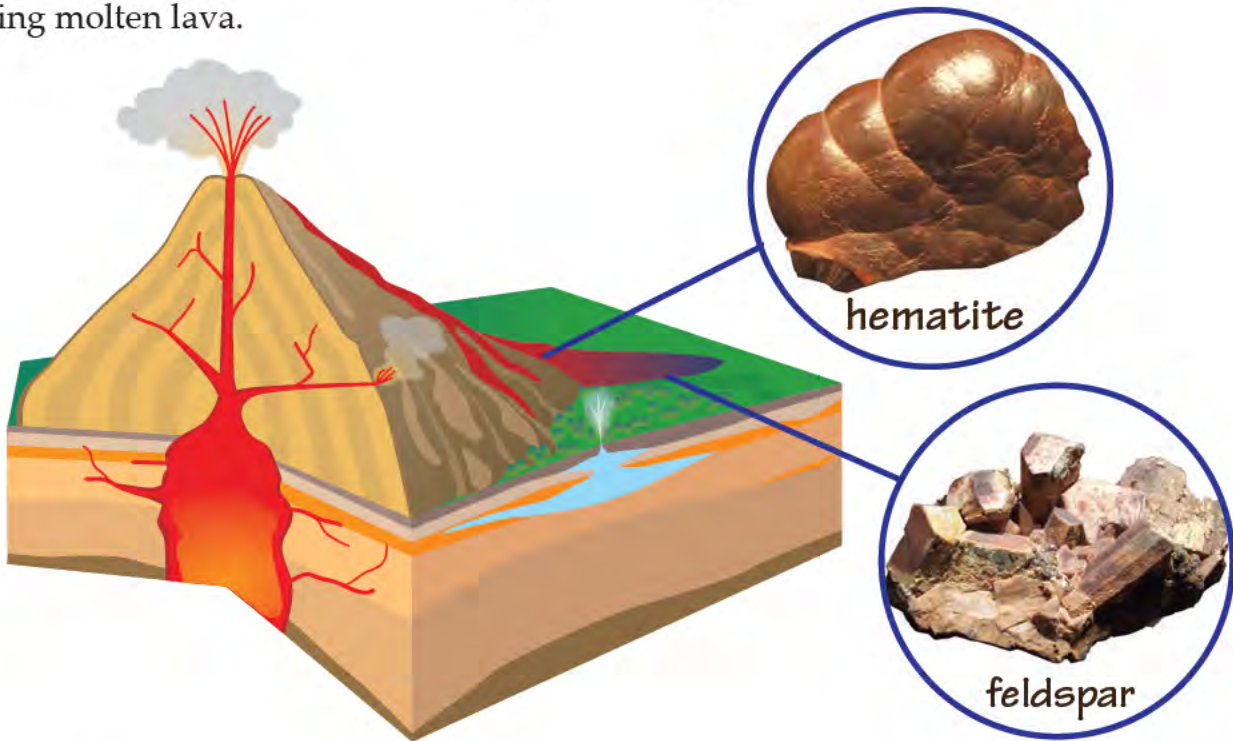
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# WHAT IS A MINERAL?

A substance must meet **four criteria** to be classified as a **mineral**. First, it must be **naturally occurring**. Minerals are always formed by natural processes, such as cooling molten lava.

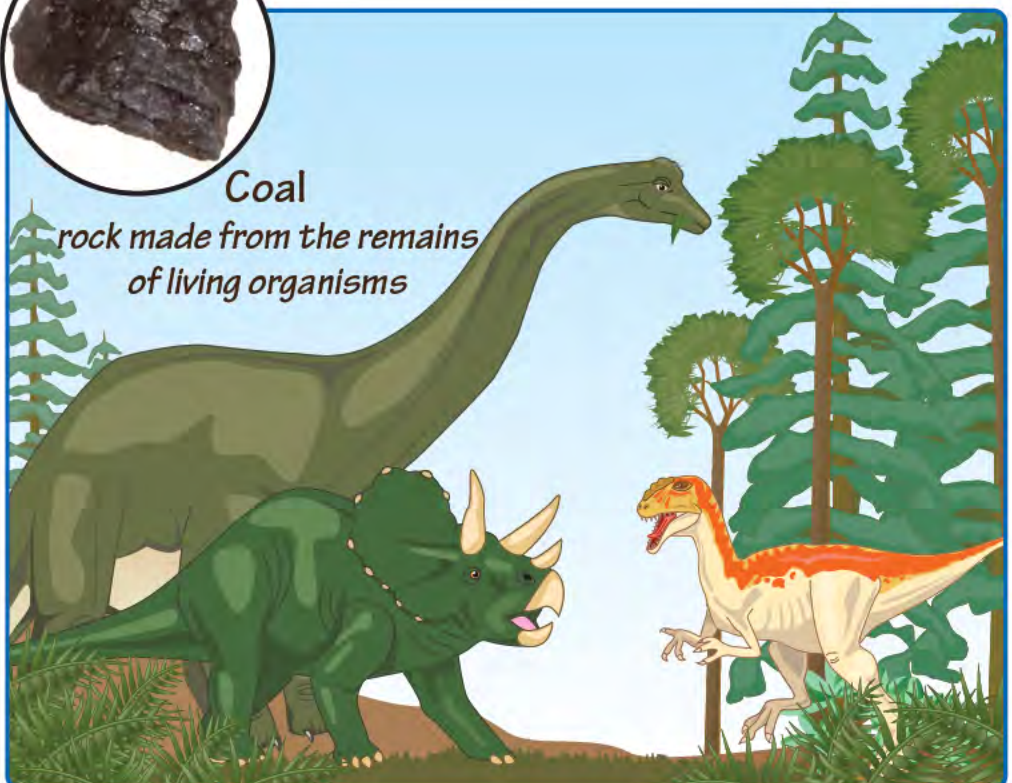


**Quartz**  
*inorganic mineral*

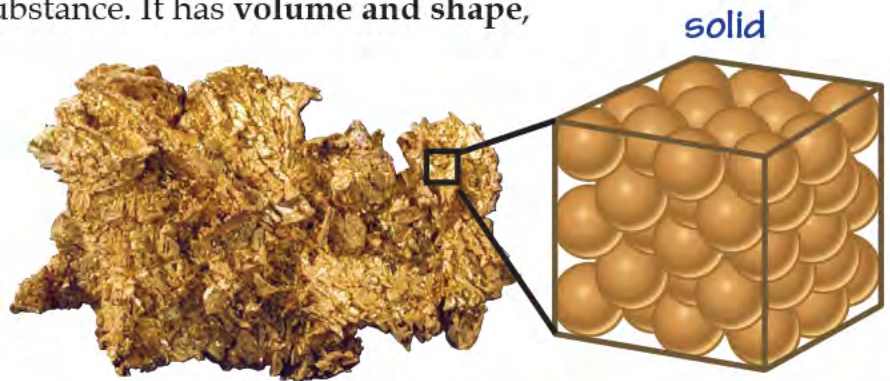
Second, minerals are **inorganic**, nonliving substances. They cannot be made up of any material that was once a living organism.



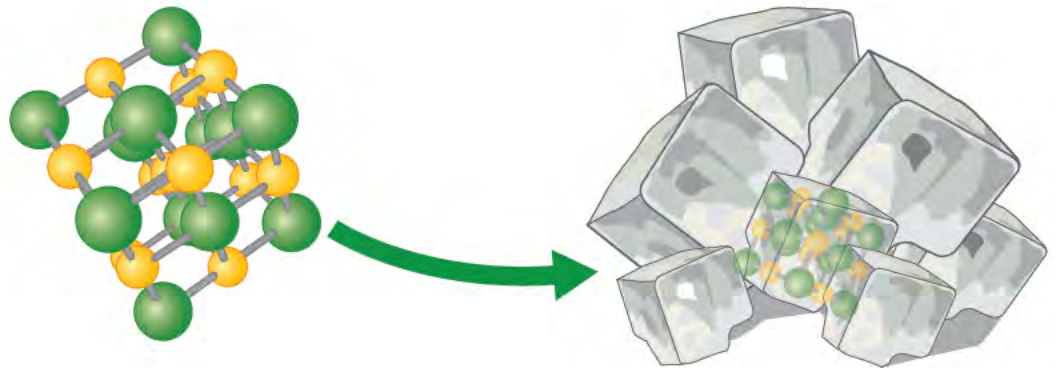
**Coal**  
*rock made from the remains of living organisms*



Third, a mineral must be a **solid** substance. It has volume and shape, and is not a liquid or gas.



And fourth, every mineral has a specific **crystal structure** with particles arranged in a repeated pattern. A mineral's **atomic structure** determines its crystal structure.



**Coal**  
*rock made from the  
remains  
of living organisms*



A **rock** is *not* a **mineral**. A rock is composed of one or more minerals and sometimes contains organic material. **Coal** is considered a rock.