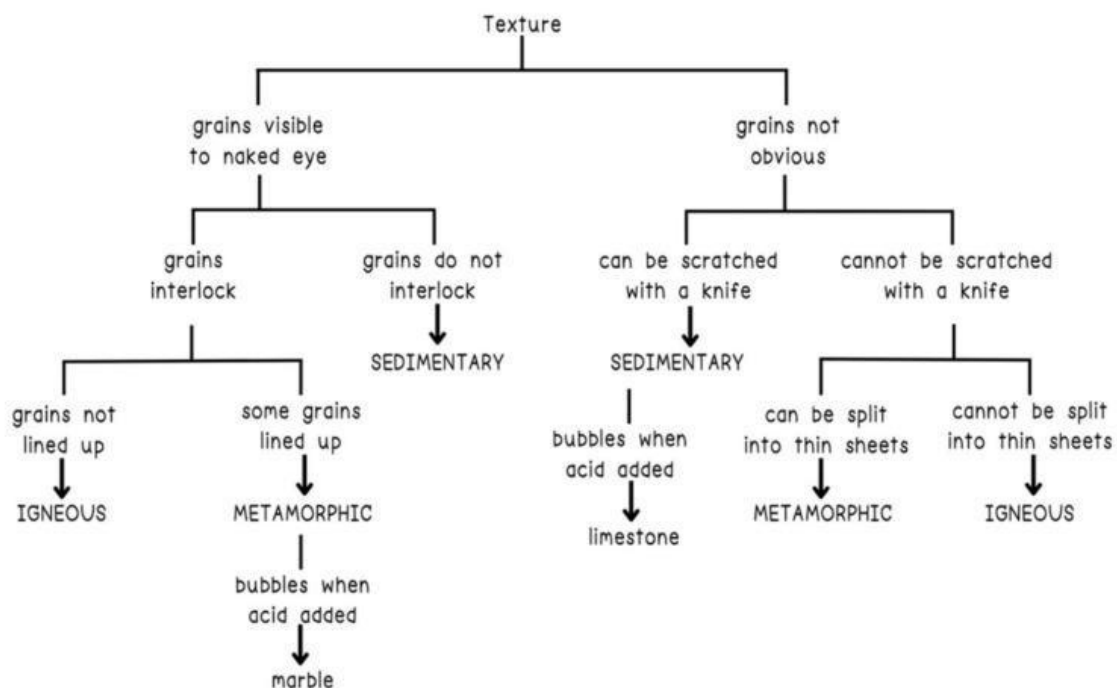


## Igneous Rocks

Igneous rocks are formed from the  and  of lava or magma. There are two main types of igneous rock.  igneous rocks form when magma cools slowly below the Earth's surface, often resulting in ,  crystals of different sizes. These crystals may be  as  in the rock, e.g. granite.  igneous rocks are formed when lava cools quickly producing  crystals. Some cool so quickly that they form an  glass – a solid that is a  colour and  texture, e.g. obsidian.

What are the properties of intrusive igneous rocks?

What are the properties of extrusive igneous rocks?



What are the properties in order of this igneous rock?

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What are the properties in order of this igneous rock?

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### Properties All Igneous Rocks Have in Common:

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#### 1. Formed from material

- All igneous rocks originate from the **solidification of** (below ground) or (on the surface).

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#### 2. Contain interlocking mineral

- The **grow together** as the cools, forming an **texture**, even if they are .
- This gives the rock a , dense structure without or between grains (unlike sedimentary rocks).

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#### 3. Hard and durable

- Most igneous rocks are **hard and resistant to** , due to tightly packed structures.
- As a result igneous rocks are difficult to .

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#### 4. Lack fossils and

- Igneous rocks do **not contain** or form in (strata) like sedimentary rocks.
  - The high heat during formation **destroys any** material.
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## 5. Mineral composition reflects the chemistry of the magma

- All igneous rocks consist of **minerals**, with varying amounts of:
    - **Quartz**
    - **Feldspars**
    - **Micas**
    - **Pyroxenes**
    - **Amphiboles**
    - **Olivine**
  - The mix depends on whether the magma is felsic, mafic, or intermediate.
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## 6. Crystalline (or glassy) texture

- Whether coarse (e.g. granite), fine (e.g. basalt), or glassy (e.g. obsidian), igneous rocks are **not** (not made of fragments) like rocks.
- Beneath the Earth's crust molten magma simmers, flows and occasionally erupts as lava. It forms different rocks depending on its chemistry and the rate at which it solidifies. Magma at the surface cools quite quickly and forms extrusive igneous rocks.
- Meanwhile, underground, molten rock cools more slowly, giving time for crystals to form into intrusive igneous rocks.
- Granite is an igneous rock made up of at least three rock-forming minerals: feldspar, quartz and mica. The minerals form in different stages of cooling of the molten rock.