


Mineral Identification Tests

Test One: Density and Relative Mass

Some minerals are heavier than other minerals. This allows geologists to distinguish between them.

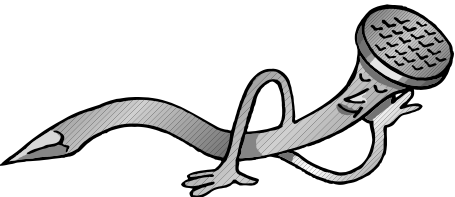
Equipment	Procedure
<ul style="list-style-type: none">• Scale• Graduated Beaker or Cylinder• Water• 4 Mineral Samples 	<ul style="list-style-type: none">• Examine each of the minerals.• Pick up each mineral and estimate its weight.• Use the scale to determine exact mass in grams.• Partly fill graduated beaker with water.• Record the level.• Place each sample, one at a time, into the graduated beaker.• Record the new water level and calculate the difference in mL (cm³).• Dry samples and calculate the density of the sample (mass/volume).



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Test Two: Physical Property of Hardness

Scratch tests allow geologists to test the hardness of minerals. The Mohs scale was developed as a standard to help identify minerals in relation to each other.


Equipment	Procedure
<ul style="list-style-type: none">• Mohs Scale of Hardness• Penny• Nail• 4 Mineral Samples 	<ul style="list-style-type: none">• Examine each of the minerals.• Use your fingernail and scratch each of the minerals.• Use the penny and scratch each of the minerals.• Use the nail and scratch each of the minerals.• Record your observations.



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Test Three: Physical Property of Streak

The streak of a mineral is its colour when it is ground into a fine powder. To grind a mineral into a fine powder, rub it against a streak plate. Although the colour of a mineral may vary, the streak is usually constant and is useful in mineral identification.

Equipment	Procedure
<ul style="list-style-type: none">• Streak Plate• 4 Mineral Samples 	<ul style="list-style-type: none">• Rub each mineral across the streak plate (gently).• Record your observations.



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Test Four: Physical Property of Cleavage

Cleavage is the tendency of minerals to break parallel to their atomic planes. Not all minerals show cleavage. Some minerals break along their planes of cleavage which appear as lines or flat surfaces on minerals. Usually they will break easily along these lines. Cleavage surfaces shine brightly such as those on a diamond.


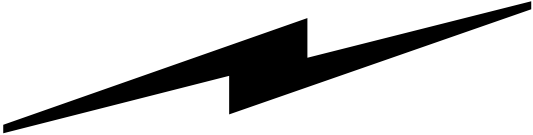
Equipment	Procedure
<ul style="list-style-type: none">• Magnifier• 4 Mineral Samples	<ul style="list-style-type: none">• Pick up each mineral sample and observe how light is reflected off the surface of the mineral.• Determine the number of lines of cleavage for each sample.• Record your observations.



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Test Five: Physical Property of Conductivity

Conductivity determines how well a mineral carries electricity. Certain minerals are more conductive than others, while others are not conductive at all.


Equipment	Procedure
<ul style="list-style-type: none">• Conductivity Tester• 4 Mineral Samples 	<ul style="list-style-type: none">• Check to ensure that conductivity tester is working.• Estimate whether your samples will be conductive.• Test each sample for conductivity.• Record your observations. 



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Test Six: Physical Property of Magnetism

The degree of magnetism of a mineral is determined by how well a mineral attracts a magnet. Some minerals are highly magnetic while others are not. Knowing the degree of magnetism helps geologists identify mineral samples.


Equipment	Procedure
<ul style="list-style-type: none">• Magnet• 4 Mineral Samples 	<ul style="list-style-type: none">• Test each sample with the magnet.• Record your observations.



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Test Seven: Physical Properties of Colour and Lustre

Two important physical properties that geologists use are colour and lustre. The colour of a mineral is one of the first things that we notice. Lustre is the way in which light is reflected and scattered off the surface of a mineral. Words such as vitreous, dull, waxy, earthy, metallic, greasy, silky and pearly describe the lustre of a mineral.



Equipment	Procedure
<ul style="list-style-type: none">• 4 Mineral Samples 	<ul style="list-style-type: none">• Observe the colour and lustre of each sample.• Record your observations.



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Test Eight: Chemical Property of Minerals

Geologists use hydrochloric acid to determine whether or not a mineral will effervesce (bubble) when the acid touches it. The bubbles show the release of the gas carbon dioxide (CO₂) that occurs during a chemical reaction. Minerals that react during this test contain calcium carbonate.

Equipment	Procedure
<ul style="list-style-type: none">• Hydrochloric Acid• Goggles• Rubber Gloves• 4 Mineral Samples 	<ul style="list-style-type: none">• Slightly scratch the surface of each mineral sample with a penny or nail• Using an eye dropper, place a drop of 10% hydrochloric acid on each scratched mineral surface.• Rinse and dry samples immediately.• Record your observations. 





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