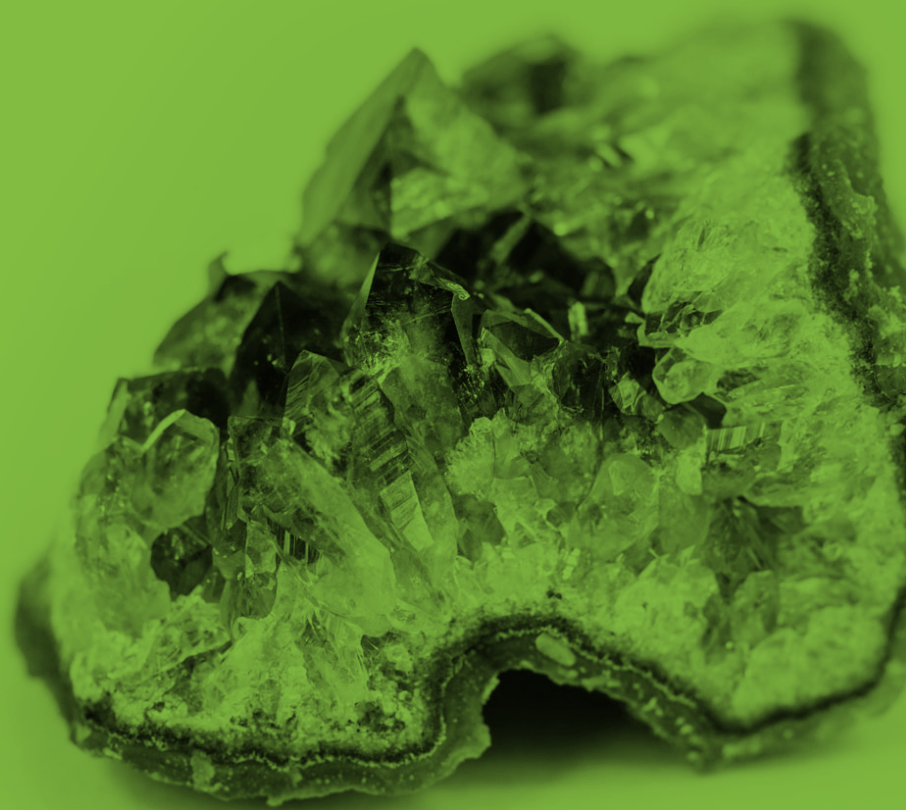


GCSE (9-1)

WJEC Eduqas GCSE (9-1) in  
**GEOLOGY**

Practical Guidance Sheet 2



## GCSE Geology Practical Guidance Sheet 2

Title: Measurement of the density of minerals

**Specification reference:** Appendix B. The requirement to perform a density test on minerals and to use appropriate apparatus to record a range of quantitative measurements including mass and volume, is stated in Appendix B.

Density can be investigated using the formula  $\text{Density} = \frac{\text{Mass}}{\text{Volume}}$

**Aim:** To determine the density of minerals using the density formula.

**Apparatus:**

Samples of individual minerals (individual crystals or masses of crystals of one mineral)  
Electronic balance  
Water  
Graduated (Measuring) cylinder

**Method:**

1. Select a mineral sample (individual crystal or mass of crystals all of the same mineral).
2. Determine the mass of the sample using an electronic balance. Record the result.
3. To determine volume there are 2 possibilities

A.

- immerse the specimen in the water in the graduated cylinder.
- measure how much the water rises (in ml). Record the result.
- convert to  $\text{cm}^3$ . ( $1\text{ml}=1\text{cm}^3$ ); record the result.

B. Where the mineral specimen has a regular shape (e.g. cuboid/rhombic crystals) the volume may be determined directly by measuring the length, width and height of the mineral.

**Analysis:**

1. Calculate the density of the sample using the formula  $\text{Density} = \frac{\text{Mass}}{\text{Volume}}$
2. Compare the density value you have calculated with published results.

### Teacher/Technician notes:

This method cannot be used for minerals embedded in a rock, but only for a single crystal or mass (learners could discuss the reasons for this).

Only the volumes of insoluble minerals can be tested by method A.