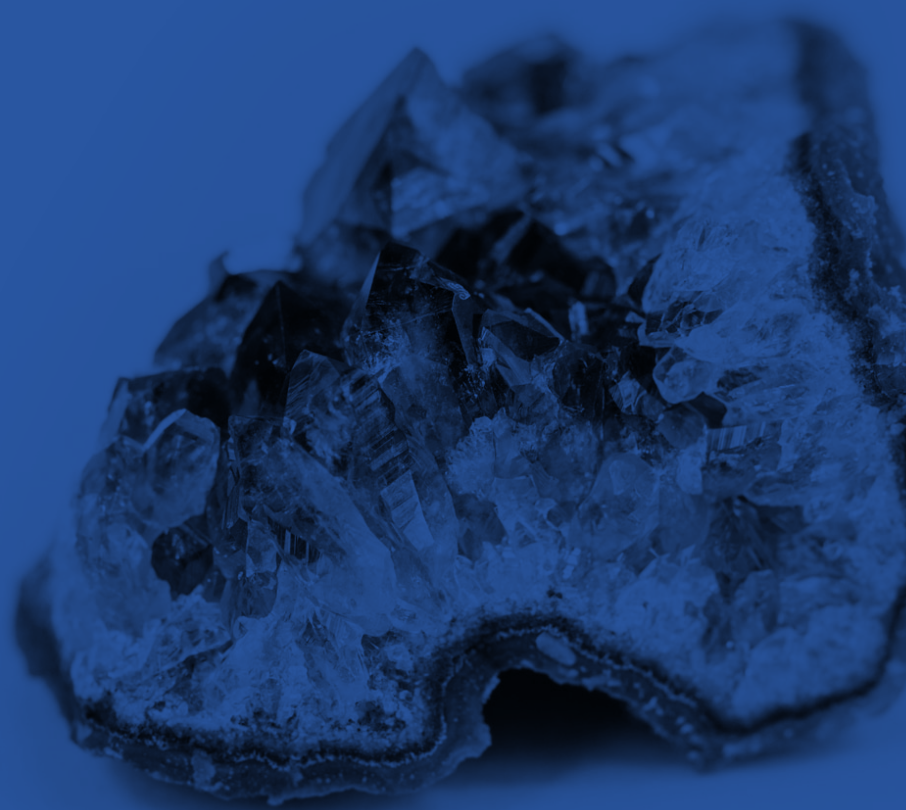


GCE A LEVEL

WJEC Eduqas GCE A LEVEL in  
**GEOLOGY**

SP4 Production of scaled annotated scientific drawings of rock samples from hand samples using a light microscope, or hand lens observation



## Title: SP4 Production of scaled annotated scientific drawings of rock samples from hand samples using a light microscope, or hand lens observation

**Specification reference:** F1.1.g

**Aim:** To produce scaled annotated scientific drawings of rock samples from hand samples using a light microscope, or hand lens observation.

**Apparatus:**

Hand lens or light microscope

Ruler

A sediment comparator (for sedimentary rocks)

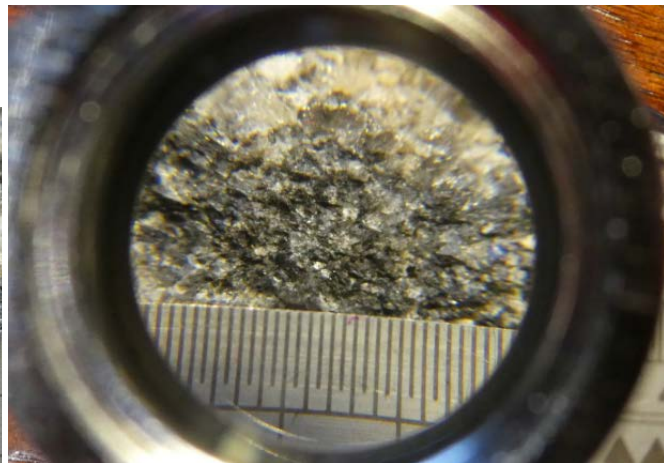
Plain paper

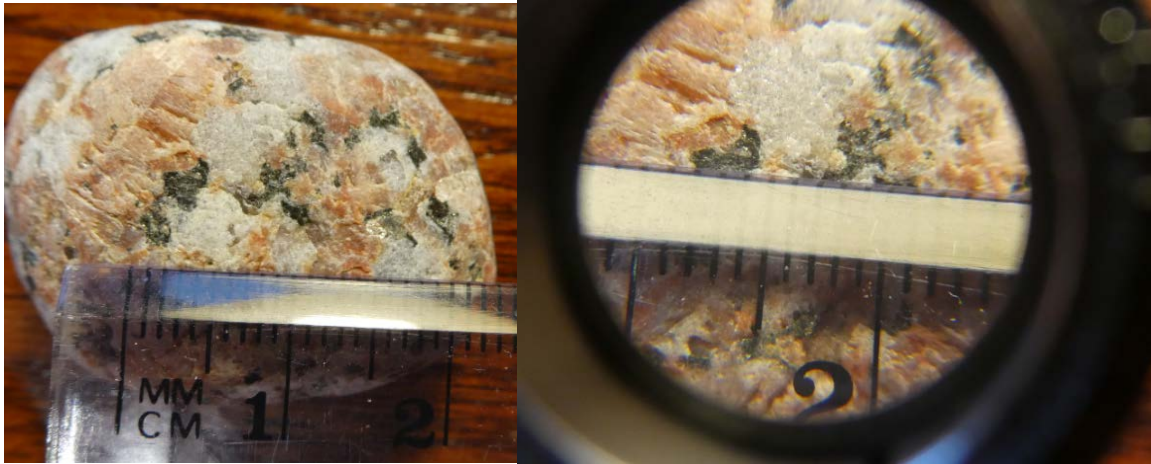
Pencil

A range of igneous, sedimentary and metamorphic rocks

**Method:**

1. Place the rock under a light microscope or hand lens (if using a hand lens, hold the hand lens in front of one eye, keeping your head up to keep the rock specimen illuminated, and bring the rock into focus in front of the hand lens).
2. If using a hand specimen, hold a ruler in the field of view in the same hand as the hand specimen, thus giving a scale to the rock texture seen. The use of a scale in this manner is called a fiducial scale. N.B. A fiducial marker or fiducial is an object placed in the field of view of an imaging system which appears in the image produced, for use as a point of reference or a measure as illustrated below.





3. Draw the textural features of the rock focusing on:
  - whether the rock is crystalline or clastic
  - crystal/grain sizes
  - range of crystal/grain sizes, sorting
  - shape of crystals/grains
  - foliation; mineral alignment/bedding/crystalline banding.
4. Put a scale on the drawing.
5. Annotate these textural features.
6. Identify and annotate component minerals.
7. Deduce the mode of origin as igneous, metamorphic or sedimentary.
8. Identify the rock.
9. Give the diagram a title.

**Teacher/Technician notes:**

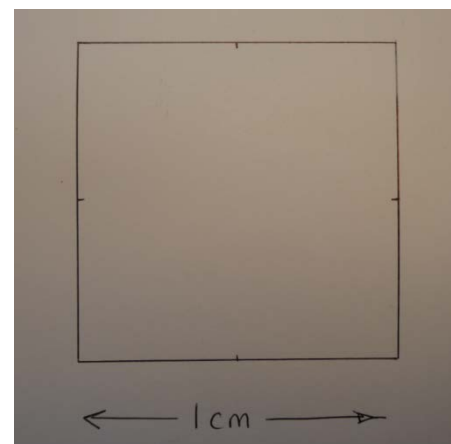
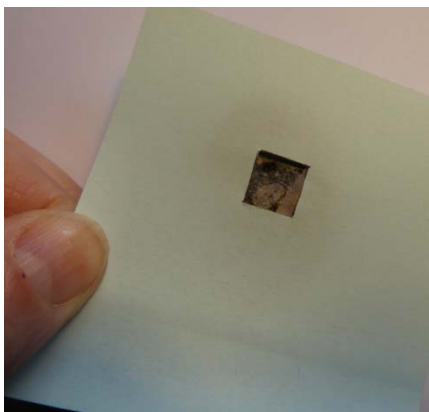
Practical techniques which may be assessed:

G. Production of scaled, annotated scientific drawings of fossils or small scale features, from hand samples using a light microscope, or hand lens observation.

J. Use appropriate apparatus to record a range of quantitative measurements (to include mass, time, volume, temperature and length).

L. Use methods to increase accuracy of measurements, such as use of a fiducial (scale in photograph/field sketch).

Learners could be encouraged to draw scaled diagrams drawing the rock texture in a square box with scale markings (to “scale up”) the sizes of the crystals or grains. The size of the box will vary depending on the size of the crystals/grains in the hand specimen.



Learners could select a suitable area to draw by using a frame, (a “Post-It” note with a square cut out, 1cm or 2cm etc dependent on size of crystals/grains and features of the hand specimen).

Learners should draw a range of rocks (igneous, sedimentary, metamorphic) from those listed on the specification and any others that the teacher sees appropriate (for example those linked to field sites visited during the course).

The drawings should be to scale, and also annotated with the textural and mineralogical features (thus linking parts of the specification).

Learners should finish by identifying the rock type.