

What type of rock is this?

Materials

- Set of rock samples per group – containing limestone (White Lias), mudstone (Blue Lias) ironstone (Great Tew +/- or Hornton), sandstone, slate, granite, pebble and if available other rocks to be seen during the visit
- One set of larger samples (or slides of these) to be shown during the class discussion
- Results table to be filled in – see next page

Equipment

- ruler with mm markings
- coin with ribbed edge, eg 5p, for scratch test
- loupe (hand lens)
- open beaker of water (can be cut from a drinks bottle) to immerse samples
- dropper bottle with vinegar or lemon juice – suggest this is on a supervised table not with each group
- Safety specs if children handle the vinegar/lemon juice

Show the children how to use the loupe properly. You hold it close to your eye and then slowly move the rock towards it, when it is very close it will “magically” come into focus. You can practice by just moving your hand close looking at your finger tip.



Ask each group to look at and test each sample and fill in the results table. They should do the immersion test last as it will make the samples wet so they can't do the other tests properly.

1. Observation unaided

What colour is the rock, is it smooth or rough, very flat or very round. If you can see individual particles, measure them with the ruler.

BEING CAREFUL TO AVOID ANY SHARP EDGES

2. Observation with the loupe (hand lens).

Can you now see individual particles? Are they all the same colour? Measure how large they are if you can. Do they look like crystals with sides and corners or are they rounded grains?

3. Scratch test

Rub the rock with the edge of a coin to see if it scratches easily (sedimentary rocks do, metamorphic and most igneous rocks don't)

4. Acid test

Put a couple of drops of acid on the surface, does it bubble or fizz (limestone and other rocks with a lot of calcium carbonate fizz because the acid reacts with it and makes the gas carbon dioxide).

5. Porosity Test

Put the sample into the beaker of water (there must be enough to cover it), can you see bubbles on the surface? If you can it means the rocks is porous, water fills the spaces between individual particles squeezing out the air which you can see as bubbles. *Remembering back to the chocolate rocks, which type had spaces?)*

WHAT TYPE OF ROCK IS THIS?

	Colour	Description Flat, round, rough, smooth, crystals, grains etc.	Size of grains/crystals mm	Easily scratched? yes/no	Bubbles with acid? yes/no	Bubbles in water yes/no
1						
2						
3						
4						
5						
6						

WHAT TYPE OF ROCK IS THIS? EXPECTED RESULTS & FURTHER INFO

	Colour	Description	Size of particles (mm)	Easily scratched?	Bubbles with acid?	Bubbles in water	Type of rock
1	Orangey- brown	Grains		yes	yes	yes	Ironstone = iron-rich limestone (GREAT TEW) Sedimentary – a Warwickshire bedrock Used for buildings, walls et also offcuts for road bases, paths etc.
2	White	Very fine grains		yes	yes	usually	Limestone (WHITE LIAS) Sedimentary - a Warwickshire bedrock It occurs in a diagonal band across England from Dorset to Yorkshire. Used for buildings and in the cement industry.
3	Pale cream to deep reddish brown	Grains (like sand)		yes	no	yes	Sandstone Sedimentary - a Warwickshire bedrock Used for buildings eg Warwick Castle (pale sandstone) and Kenilworth Castles (red sandstone).
4	Mixed – grey, black, pink	Crystals		no	no	no	Granite Igneous - found in Scotland and overseas. Can be used for buildings. Locally more common as a gravestone as very resistant to weathering & erosion.
5	Dark grey	No particles flat and may see layers at the edges		no	no	no	Slate Metamorphic , found in Wales and Cornwall Used for roofs as it can be split into thin layers and doesn't absorb water.
6	Various	No particles very smooth, rounded		no	no	no	Pebble (pebbles larger than 64mm are called cobbles) Pieces of hard rock rounded by water in the sea or rivers. Used for paths as very hard and water can drain between the stones, also for decoration. Stone Age people found or deliberately broke off the edges off flint pebbles to make very sharp cutting tools – knives, axes etc. (shown in Attenborough's Mammoth programme, Jan 2022).