

COPPER WORKSHOP
KS2 and KS3 Art and Technology, Science
Resources needed: Copper wire of different sizes, malachite beads (available from many craft/bead suppliers in bulk), pliers, samples of chalcopyrite, malachite and copper piping.
Key points: Copper minerals are found in Wales mainly as chalcopyrite (copper iron sulphate) and malachite (copper carbonate). Copper from Mynydd Parys dominated the world trade in this metal 200 years ago. Copper is made by smelting these minerals and separating the element (copper) from the compound (copper iron sulphate) (KS3 Science). The minerals that contain copper were formed from hot fluids heated by volcanoes (KS2 Science).
Copper is used in jewellery and for pipes because it can be easily shaped. A lot of other metals are very difficult to bend. Try bending iron or steel. (KS2 Science)
If a material can be bent easily it is called malleable , if it can be made into a wire it is called ductile (KS3 Science)
Presentation Methods:
Demonstrate the ease of bending copper by making copper jewellery.
You can twist the copper wire around a stone, or use pliers to make chains with malachite beads on etc. Use your imagination.
Try twisting the copper round a pencil and then flattening the spirals.
Follow up work/handouts etc: National Museum Wales website Glanelly/events/augsept/copper

How is copper used ?

Copper is mixed with other metals to create alloys such as bronze (copper and tin) or brass (copper and zinc). Alloys combine the best properties of both metals and are often more resistant to corrosion than a single metal.

Bronze is harder than copper and was a very important discovery in prehistory because it allowed people to make tools with a harder edge. Archaeologists call the first metal using period the Bronze Age (in Britain from 2000BC to about 700BC)

Today we use copper to make pipes for water or gas and wire to conduct electricity. Copper wires or pipes can be shaped and soldered easily and this makes it very useful both industrially and in the home.

Many of our small coins are made largely of copper. Saucepan bases are often made of copper because copper is a good conductor of heat but not easily corroded.

Copper is often used in electrical work because it is inexpensive and highly conductive. It is very important in computer circuits.

Creative Copper:

Malachite is one of the ores of copper and is a beautiful green colour. It has been used to make jewellery and also has a historical use as a pigment from which green paint could be made. Azurite is a blue mineral which also contains copper, this was popular in some ancient civilizations for jewellery and source of paint.

The copper alloy known as bronze is often used for large sculptures and these last for centuries outdoors.

Copper wire is soft and easy to bend into interesting shapes. It is a good craft material and as it tarnishes the surface becomes interesting shades of brown or green.

