Build a Working Roman Groma

This activity sheet accompanies the learning resource [‘Roman Roads’](https://mylearning.org/stories/roman-roads/1499). The resource covers why and how the Romans built roads in Britain, as well as how to use a groma.



**Equipment list**

* Corrugated plastic sheet or thin balsa wood
* 1 metre length dowelling
* Pencil
* Ruler
* String
* Scissors or craft knife
* Adhesive
* Split pin
* Awl
* Blu-tac
* Cutting board

**Time**

30 - 60 minutes

Illustration of a Roman groma | Wikipedia

**About this activity**

The Romans built incredibly straight roads between towns and cities in Britain, but how did they manage this without the technology we have today? This activity involves building a groma, the surveying instrument used by the Romans to plot the most direct line between two places, even when there was no line of sight between them.

**Instructions**

* Measure and cut two 40cm x 4cm strips from the plastic sheet / balsa wood.
* Use an awl to punch a hole half-way along the strips. These are the arms of the groma.
* Fix the strips together at right angles, forming a cross shape. Make sure the holes line up.
* Punch a small hole at the end of each arm of the cross. This will be to attach the string.
* Measure and cut out one 10cm x 4cm strip from the plastic sheet / balsa wood.
* Punch a hole at both ends of the strip.
* Use the split pin to attach the cross shape to one end of this strip. Make sure the cross can rotate.
* Thread the long dowel through the hole in the other end of the strip. Use blu-tac to prevent the arm slipping down the dowel.
* Cut four 30cm lengths of string.
* Attach one end of each string to the end of each cross arm, and a small blob of blu-tac to the other end of each strings to act as a weight.

Diagram of a groma



**Caution**

Adult supervision is recommended if using a craft knife to cut balsa wood, and when using the awl. Make sure to use a cutting mat and keep fingers away from the blade.

When using the awl, place the strips on a flat surface and on top of a cutting board and press directly down with the awl.

If using corrugated plastic sheet, make sure the corrugation runs along the length of the strips to help keep them rigid.

**Using the Groma**

Challenge pupils to plot a straight line between two points, or use a groma to plan out parallel race tracks, or plot a sports court / pitch.