Here are some instructions to help you draw a certain kind of quadrilateral. Unfortunately they have been jumbled up.

You first task is to cut them out and try to rearrange them into a sensible order so you can follow them

**Join points C and D with a straight line**

**Open your compasses to 8 cm**

**Mark the ends of this 12cm length line A and B**

**Draw lines AC, AD, BC and BD**

**Draw a circle of radius 8cm with the centre at point A**

**Draw a straight line with a ruler 12 cm long**

**Mark one intersection point of the two circles as C and the other as D**

**Draw a circle of radius 8cm with the centre at point B**

**Some questions**

1a. What kind of shape have you produced?

1b. Discuss with a partner everything you know about the shape and write a list of what you decide.

2a. Measure just one of the angles of this shape using your protractor.

2b. Calculate the other three angles of the shape without measuring.

1. Explore what size of radius of circles you need to construct a square.
2. Suppose the original line you drew had been 10cm long. What size of radius of circles would you need to draw to construct a square?
3. Explore the relationship (connection) between the lengths of the starting lines and the radius of the circles required to construct a square.
4. Predict what the radius of the circles will need to be if the length of the starting line is 8cm. Check your prediction by constructing the diagram.

**Bisecting an angle**

Here is another mixed-up set of instructions to cut out and rearrange into an order that makes sense. Once you have arranged them in such an order you see what happens when you carry them out.

**Place your pairs of compasses on the point O and ‘strike an arc’ which crosses the two lines.**

**Label the meeting point of the two lines as point O**

**Where the arc crosses the two lines mark these points A and B**

**Join point O to point C with a straight line**

**Mark the intersection point of the two arcs (from points A and B) point C**

**Place your pair of compasses on the point A and strike an arc**

**Draw two lines between 8 and 10 cm long so they meet at a point.**

**Place your pair of compasses on the point B and strike an arc so it intersects with the arc drawn from point A.**