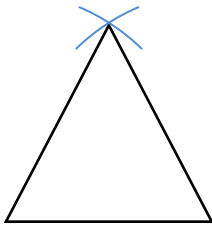
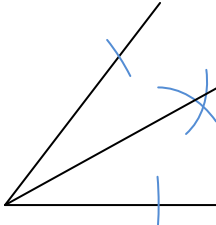
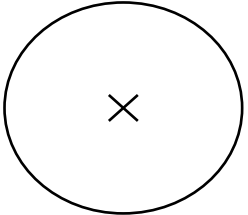
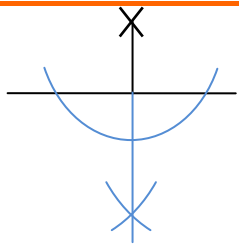
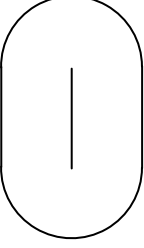
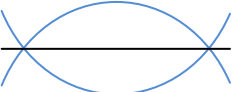


<p>1 A goat is tethered to the ground by a 5m rope attached to a pole. Show the furthest distance he can reach, using the scale 1cm : 1m.</p>	<p>2 Three people are all standing 6.5m away from each other. Draw their positions using the scale 1cm : 1m.</p>	<p>3 Two search beams are shining from the same point, making an angle of 45°. You need to sneak directly between two search beams, where it is darkest. Draw your path.</p>
<p>4 You are 12m away from the edge of a swimming pool and need to swim to the edge as quickly as possible. Draw the shortest route, using the scale 1cm : 2m.</p>	<p>5 To walk between two enemy castles (2km away from each other) without being spotted, you need to keep the same distance away from each of them. Draw your path, using the scale 1cm : 500m.</p>	<p>6 A horse gallops around a 16m long jousting tilt (fence), always keeping 5m away from it. Draw his path, using the scale 1cm : 2m.</p>

 <p>A</p>	<p>Construct a perpendicular from a point to a line.</p> <p>B</p>	<p>Construct an equilateral triangle.</p> <p>C</p>	<p>Draw the locus of points equidistant from two straight lines.</p> <p>D</p>
<p>Draw the locus of points equidistant from a fixed point.</p> <p>E</p>	<p>Draw the locus of points equidistant from a line segment.</p> <p>F</p>	 <p>G</p>	<p>Construct a circle.</p> <p>H</p>
<p>Draw the shortest distance between a point and a line.</p> <p>I</p>	 <p>J</p>	<p>Draw the locus of points equidistant from two fixed points.</p> <p>K</p>	 <p>L</p>
 <p>M</p>	 <p>N</p>	<p>Construct a perpendicular bisector.</p> <p>O</p>	<p>Construct an angle bisector.</p> <p>P</p>

Instructions

Ask the students to cut out the cards (they are not given in any particular order) and match the loci, construction and sketch cards with the appropriate scenario.

When finished, students should use a **pair of compasses**, **ruler** and **pencil** to accurately draw the diagrams to the correct scale (the largest diagram should be 13cm wide).

Note that not all groups will contain the same amount of cards. You can decide whether to share this information with students!

Extensions

For more able students, you may wish to exclude the sketch cards from the matching activity, as these give the construction lines and therefore help students draw their diagrams.

To extend the activity, you could ask students to create their own scenarios which match their diagrams. They could be encouraged to use a different scale to the one given for more creative answers.

Teaching notes

This activity helps students link the language of constructions, loci and real-world scenarios. Matching the scenarios with further instructions and a sketch of the answer encourages students to consider a question fully before trying to answer.

Students should be able to construct:

- a circle
- an equilateral triangle
- a perpendicular bisector
- a 45° angle
- an angle bisector
- a perpendicular from a point to a line.

Matching answers

scenario	construction	loci	sketch
1	H	E	J
2	C	-	A
3	P	D	G
4	B	I	L
5	O	K	N
6	-	F	M