
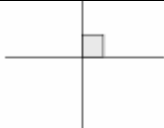
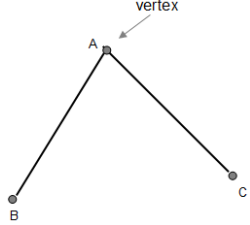
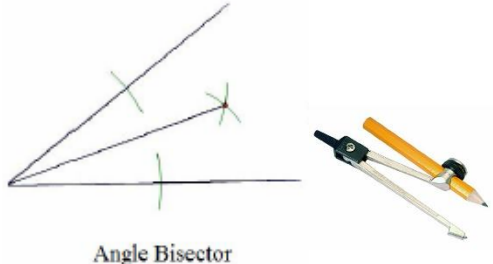
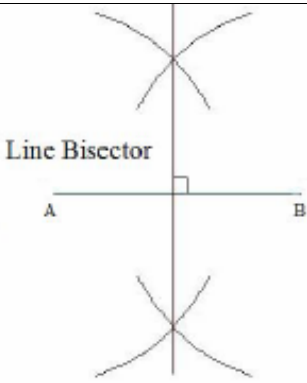
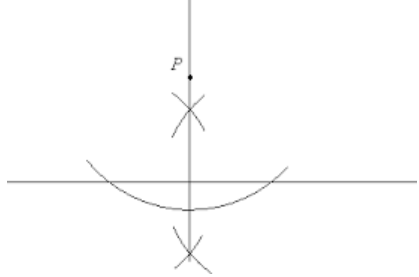
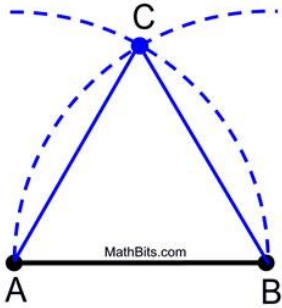
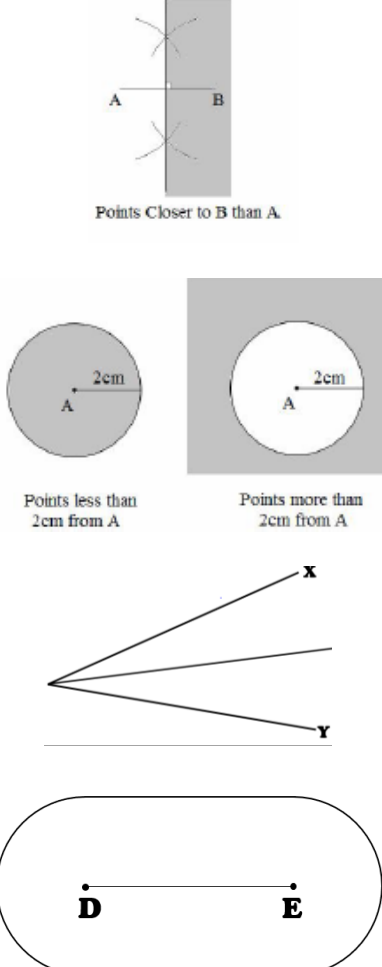


## Topic: Loci and Constructions

Topic/Skill	Definition/Tips	Example
1. Parallel	Parallel lines never meet.	
2. Perpendicular	Perpendicular lines are at right angles. There is a 90° angle between them.	
3. Vertex	A corner or a point where two lines meet.	
4. Angle Bisector	<p><b>Angle Bisector: Cuts the angle in half.</b></p> <ol style="list-style-type: none"> <li>1. Place the sharp end of a pair of compasses on the vertex.</li> <li>2. Draw an arc, marking a point on each line.</li> <li>3. Without changing the compass put the compass on each point and mark a centre point where two arcs cross over.</li> <li>4. Use a ruler to draw a line through the vertex and centre point.</li> </ol>	 <p style="text-align: center;">Angle Bisector</p>
5. Perpendicular Bisector	<p><b>Perpendicular Bisector: Cuts a line in half and at right angles.</b></p> <ol style="list-style-type: none"> <li>1. Put the sharp point of a pair of compasses on A.</li> <li>2. Open the compass over half way on the line.</li> <li>3. Draw an arc above and below the line.</li> <li>4. Without changing the compass, repeat from point B.</li> <li>5. Draw a straight line through the two intersecting arcs.</li> </ol>	 <p style="text-align: center;">Line Bisector</p>
6. Perpendicular from an External Point	<p>The <b>perpendicular distance</b> from a point to a line is the <b>shortest distance</b> to that line.</p> <ol style="list-style-type: none"> <li>1. Put the sharp point of a pair of compasses on the point.</li> <li>2. Draw an arc that crosses the line twice.</li> <li>3. Place the sharp point of the compass on one of these points, open over half way and draw an arc above and below the line.</li> <li>4. Repeat from the other point on the line.</li> </ol>	

	5. Draw a straight line through the two intersecting arcs.	
7. Perpendicular from a Point on a Line	<p>Given line PQ and point R on the line:</p> <ol style="list-style-type: none"> <li>1. Put the sharp point of a pair of compasses on point R.</li> <li>2. Draw two arcs either side of the point of equal width (giving points S and T)</li> <li>3. Place the compass on point S, open over halfway and draw an arc above the line.</li> <li>4. Repeat from the other arc on the line (point T).</li> <li>5. Draw a straight line from the intersecting arcs to the original point on the line.</li> </ol>	
8. Constructing Triangles (Side, Side, Side)	<ol style="list-style-type: none"> <li>1. Draw the base of the triangle using a ruler.</li> <li>2. Open a pair of compasses to the width of one side of the triangle.</li> <li>3. Place the point on one end of the line and draw an arc.</li> <li>4. Repeat for the other side of the triangle at the other end of the line.</li> <li>5. Using a ruler, draw lines connecting the ends of the base of the triangle to the point where the arcs intersect.</li> </ol>	
9. Constructing Triangles (Side, Angle, Side)	<ol style="list-style-type: none"> <li>1. Draw the base of the triangle using a ruler.</li> <li>2. Measure the angle required using a protractor and mark this angle.</li> <li>3. Remove the protractor and draw a line of the exact length required in line with the angle mark drawn.</li> <li>4. Connect the end of this line to the other end of the base of the triangle.</li> </ol>	
10. Constructing Triangles (Angle, Side, Angle)	<ol style="list-style-type: none"> <li>1. Draw the base of the triangle using a ruler.</li> <li>2. Measure one of the angles required using a protractor and mark this angle.</li> <li>3. Draw a straight line through this point from the same point on the base of the triangle.</li> <li>4. Repeat this for the other angle on the other end of the base of the triangle.</li> </ol>	

<p>11. Constructing an Equilateral Triangle (also makes a <math>60^\circ</math> angle)</p>	<ol style="list-style-type: none"> <li>1. Draw the base of the triangle using a ruler.</li> <li>2. Open the pair of compasses to the exact length of the side of the triangle.</li> <li>3. Place the sharp point on one end of the line and draw an arc.</li> <li>4. Repeat this from the other end of the line.</li> <li>5. Using a ruler, draw lines connecting the ends of the base of the triangle to the point where the arcs intersect.</li> </ol>	
<p>12. Loci and Regions</p>	<p>A <b>locus</b> is a <b>path of points that follow a rule</b>.</p> <p>For the locus of points <b>closer to B than A</b>, create a <b>perpendicular bisector</b> between A and B and shade the side closer to B.</p> <p>For the locus of points <b>equidistant from A</b>, use a compass to draw a <b>circle</b>, centre A.</p> <p>For the locus of points <b>equidistant to line X and line Y</b>, create an <b>angle bisector</b>.</p> <p>For the locus of points a set <b>distance from a line</b>, create <b>two semi-circles</b> at either end joined by <b>two parallel lines</b>.</p>	
<p>13. Equidistant</p>	<p>A point is equidistant from a set of objects if the <b>distances between that point and each of the objects is the same</b>.</p>	