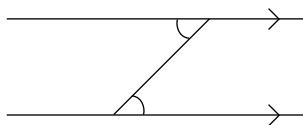


Doing better in GCSE mathematics

To achieve a grade C in GCSE mathematics you need to be confident in all these aspects.

(Use the code in the second column to say how well you think you are doing: G - green, very confident;

O - orange, not fully sure; and R - red, not very confident. Ask your teacher about anything you colour red.)

Can I?		What can I do to improve?
<p>Explain fully an answer using correct mathematics language.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">R</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">O</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">G</div> </div>	<ul style="list-style-type: none"> • Write down a proof, using correct mathematics terms, and talking the steps through with a friend (or myself) to make sure I have given all the parts in full. • When asked to explain an answer make sure I write down all the steps. • Make a list of mathematics terms with diagrams to help me remember - for example, <i>alternate angles</i> (and not 'Z' angles). <div style="text-align: center; margin-top: 10px;">  </div>
<p>Calculate using the best method (mental, written or calculator). Check my answer. Give the correct units.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">R</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">O</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">G</div> </div>	<ul style="list-style-type: none"> • Work with a partner to practise mental calculations and check each other. • Whenever doing calculations at school or at home make sure I always: <ul style="list-style-type: none"> - estimate the calculation to check my answer; - give correct units. • Before any mathematics exam check that my calculator is set correctly.
<p>Add, subtract, multiply and divide by fractions and decimals. Link these to ratios and proportions.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">R</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">O</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">G</div> </div>	<ul style="list-style-type: none"> • Check I know how to add, subtract, multiply and divide with fractions and decimals. • Check I know the effects of multiplying and dividing by numbers between 0 and 1. • Try some questions where I have to calculate with ratios. • Be able to recognise when values are in proportion and decide if a missing value should be larger or smaller.
<p>Give an expression for the general term of a sequence. Explain the expression in the context of a question.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">R</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">O</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px; text-align: center; line-height: 20px;">G</div> </div>	<ul style="list-style-type: none"> • Working with a friend, try to find the position-to-term relationships in some mathematical problems. • Practise explaining expressions in the context of the problem.

Can I?		What can I do to improve?
<p>Manipulate expressions and equations.</p> <p>Solve linear and simultaneous equations.</p> <p>Relate equations to their graphs.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> R O G </div>	<ul style="list-style-type: none"> • Make a list of useful rules, such as: Always do the same operation to both sides of an equation. • Solve simultaneous equations by getting the same number of x's or y's and then adding or subtracting. • Use a graph plotter, a computer or a graphical calculator and change the values in a formula to see the effect on the shape of the graph.
<p>Explain problems of parallel and intersecting lines using the correct mathematical words.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> R O G </div>	<ul style="list-style-type: none"> • Make a display poster of all the correct geometrical terms and the rules relating to parallel and intersecting lines. • When answering these types of question, mark the diagram with any angle whose value I know, but don't measure them.
<p>Work out the perimeter and area of different shapes including a circle.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> R O G </div>	<ul style="list-style-type: none"> • Learn these formulae: <ul style="list-style-type: none"> - the circumference of a circle, $C = 2\pi r$; - the area of a circle, $A = \pi r^2$. • Work with a friend on some problems and practise splitting a complex shape into simpler parts, and then work out the perimeter or area. • Remember to always give units with my answer and that, for example, area will be in the form cm^2 and volume cm^3.
<p>Use Pythagoras' theorem.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> R O G </div>	<ul style="list-style-type: none"> • Try to learn and follow these rules: <ul style="list-style-type: none"> - label a diagram with the hypotenuse before working out any sides; - check whether I am working out the hypotenuse or one of the other sides; - check my answer to see if it is sensible - for example, Is the hypotenuse I have worked out longer than the other two sides?
<p>Work out the mean, mode and median from data, including from a grouped data table.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> R O G </div>	<ul style="list-style-type: none"> • Working with a friend, find some sets of data from a textbook. One calculates the mean, mode and median for the other to check. <p>These hints may help:</p> <ul style="list-style-type: none"> • Check the value I have worked out is near the middle of the data. • Divide by the total frequencies and not the number of groups. • Plot cumulative frequencies at the end of the class interval and not the middle. • Draw lines on diagrams to show how I have worked out the median. • Don't approximate any values when calculating the mean from graphical data.