Home-School Learning Collaboration – Mathematics

Topics in this cycle: Summer 1	Taught:	Year Group: 9

Key knowledge/concepts to be learnt ('Tell me about….')	Websites/blogs/YouTube links and further reading to deepen and consolidate learning
Pythagoras • Determine whether a triangle is right-angled • Calculate the hypotenuse of a right angled triangle • Missing sides • Coordinate distance • Pythagoras' theorem in 3D	https://vimeo.com/521971114 https://vimeo.com/521971544
Probability: • Relative frequency / expected outcomes • Use tree diagrams • Use tree diagrams 'without replacement' • Use diagrams to work out problems • Probability - mixed problems	https://vimeo.com/548330422 https://vimeo.com/696461943
Non-linear graphs • Draw quadratic graphs • Interpret Quadratic graphs • Draw cubic graphs • Interpret roots, intercepts and turning points	
Enlargement & similarity • Enlarge - positive integer scale factor • Enlarge - fractional scale factor • Enlarge - negative scale factor • Missing sides and angles in similar shapes	https://vimeo.com/574601455 https://vimeo.com/530344590 https://vimeo.com/530345022

• Solve problems with similar triangles **Solving ratio & proportion problems** • Direct proportion • Inverse proportion • Graphs of proportional graphs • Solve ratio problems • Solve 'best buy' problems	https://vimeo.com/538594402 https://vimeo.com/656622188 https://vimeo.com/539667310 https://vimeo.com/539667974
Key Vocabulary and Definitions To Be Learnt	**What Will The Assessment Look Like?**

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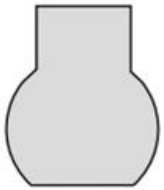
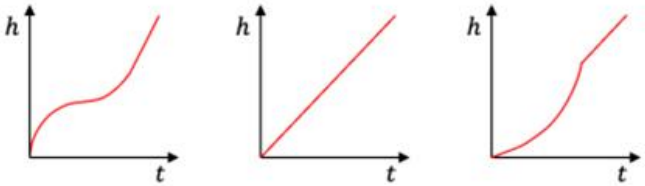
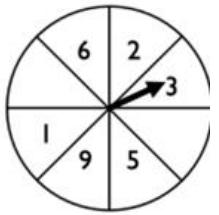
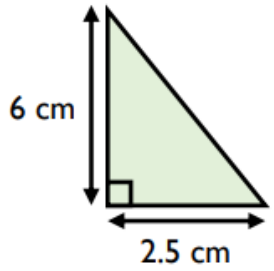
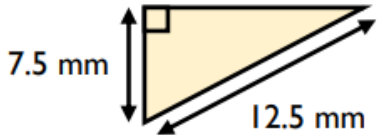
Event	A set of outcomes	This container is filled with water at a constant rate. Tick the graph that represents the height (h) of the water in the container over time (t).  
Outcome	Is a possible result of an experiment	A bag contains 3 blue, 3 green and 2 red marbles.  A marble is selected at random. What is the probability that the marble is green? _____ What is the probability that the marble is not blue? _____

Probability	A chance that something will happen	The probability of the spinner landing on an even number is $\frac{3}{8}$ The probability of the spinner landing on a prime number is $\frac{1}{2}$  Complete the spinner. The table shows the probabilities of a biased spinner landing on each outcome. Outcome / Pink / Brown / Yellow / White Probability / 0.15 / 0.3 / / 0.2 The spinner is spun 400 times. Estimate how many times it will land on yellow.

Calculate the length of the unknown side in each triangle.



_____ cm



_____ mm

The perimeter of the square is 36 m.
Work out the length of its diagonal.

		Family Learning Opportunities
		Support you child at busting XP levels on SPARX MATH HOMEWORK. **Test understanding by asking questions:** **Pythagoras:** • **Pythagoras' Theorem in 3D:** What is the same and what id different between using Pythagoras' Theorem in 2D and 3D? What is the greatest distance between vertices in a cube? Why might drawing a right-angled triangle be useful when finding the length of a diagonal in a 3D shape? **Probability:** • Use tree diagrams

		How many branches need to be drawn for the information given? Why do we multiply probabilities along the branches of a tree diagram but add probabilities of outcomes? • Use tree diagrams 'without replacement' Why the probability of picking and eating sweets from a bag is different each time?