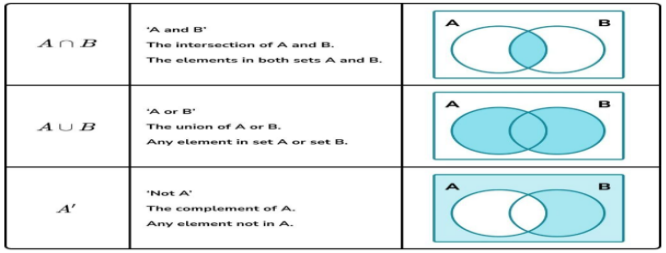
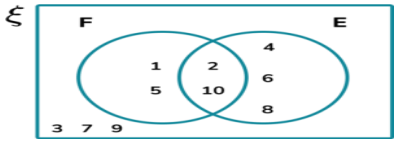
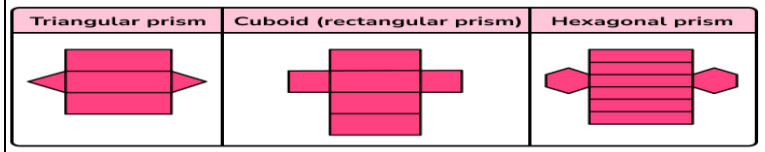
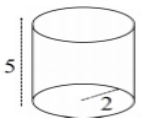
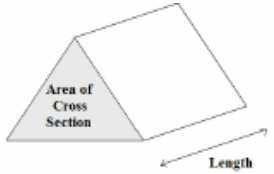
Knowledge Organiser - Mathematics

Venn diagrams, factors, multiples and primes, surface area and volume

	Topic	Information	Examples	Sparx Clip
1	Venn diagrams	A **Venn diagram** is a diagrammatic representation of **two or more sets.** 	For example, this Venn diagram shows the set of numbers ξ={1,2,3,4,5,6,7,8,9,10} which have been sorted into factors of 10 (F) and even numbers (E). All numbers 1–101–10 are represented on the Venn diagram. The factors of 10 appear within F. The even numbers appear within E. The numbers that are both factors of 10 and even numbers appear in the intersection o F and E. The numbers that are not factors of 10 or even numbers are outside of the circles. 	M941, M938, M755, M829, M419
2	Factors, multiples and primes	**Factor** -A number that **divides exactly** into another number without a remainder. **Multiple** - The result of multiplying a number by an integer. The **times tables** of a number. **Prime** - A number with **exactly two factors**. A number that can only be divided by itself and one.	The **factors** of 18 are: 1,2,3,6,9,18 The first five **multiples** of 7 are: 7,14, 21,28, 35 The first ten **prime** numbers are:2, 3, 5, 7, 11, 13, 17, 19, 23, 29	M829, M227, M365, M823, M322, M108
3	Nets	A **net** is what a **3D shape** would look like if it was unfolded. You can draw and fold nets to make 3D shapes. A 3D shape can have **more than one possible net.**		M276, M767, M518
4	Surface area	The **surface area** of a **prism** can be calculated by adding together the areas of all its faces. **Surface area of a cylinder** **Curved Surface Area = πdh** or **$2\pi rh$** **Total SA = $2\pi r^2 + \pi dh$** or **$2\pi r^2 + 2\pi rh$**	 $Total\ SA = 2\pi(2)^2 + \pi(4)(5)$ $= 28\pi$	M518, M269, M996, M772, M884, M534, M661
5	Volume	Volume of a Prism = $Area\ of\ Cross\ Section \times Length$ $V = A \times L$		M269, M996, M765, M722, M465, M772