|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Core Knowledge Map** | | | | | | | |
| Subject: Mathematics | Year: 11 | | | | Term: 1 | | |
| What are we learning? | | | | | | | |
| **Unit 17: Circles, Cylinders, Cones and Spheres** | | **Sparx IL** | | Sad face outline with solid fill | | Nervous face outline with solid fill | Smiling face outline with solid fill |
| Identify and draw parts of a circle including tangent, chord and segment | | U767 | |  | |  |  |
| Recall and use formula for circumference of a circle | | U604 | |  | |  |  |
| Recall and use formula for the area of a circle | | U950 | |  | |  |  |
| Give an answer in terms of π | |  | |  | |  |  |
| Calculate perimeters and areas of composite shapes | | U575 | |  | |  |  |
| Calculate arc lengths , angles and areas of sectors of circles | | U373  U221 | |  | |  |  |
| Find the surface area of a cylinder | | U464 | |  | |  |  |
| Find the volume of a cylinder | | U915 | |  | |  |  |
| Volume and surface area of spheres | | U893  U617  U246 | |  | |  |  |
| Volume and surface area of pyramids | | U484  U871  U142 | |  | |  |  |
| Volume and surface area of cones | | U116  U523  U246 | |  | |  |  |
| Volume of composite shapes | | U543 | |  | |  |  |
| How will I be assessed | | | | | | | |
| Topic test at the end of the unit. | | | | | | | |
| Big questions: | | | | | | | |
| * What is the area and circumference of a circle with diameter 10cm? * What is the perimeter of a semicircle with a given diameter? * The cone and the sphere have the same volume, work out the height if the cone. * What is the surface area of the composite shape? | | | | | | | |
| How does this build on previous learning? | | | How will this link to my future learning? | | | | |
| * Year 9 – formula for surface area and volume * Year 9 - formula for area and circumference of circles. * Students should know the formula for calculating the area of a rectangle. * Students should know how to use the four operations on a calculator. | | | Using formulae in algebraic questions to solve problems (Year 11)  Using Pythagoras to work out the height of cones to then apply volume formula (Year 11) | | | | |
| Core knowledge: | | | Key vocabulary: | | | | |
| Formula for area and circumference of the circle and use this to work out the area and arc length of sectors.  Area  Circumference =  Formula for the volume and surface area of the cylinder  Volume =  Know how to use the formula for the volume and surface area of cone and sphere (this will be given to you in the exam paper)  Understand the surface area is the area of each face of the shape and link to the net of the shape. | | | * Area * circumference * radius * diameter * pi * sphere * cone * hemisphere * segment * accuracy * surface area * perimeter * formula * length * width * measurement * volume * circle * segment * arc * sector * cylinder | | | | |
| Need more help? Use the Sparx Independent Learning Codes above | | | | | | | |