

Subject: Maths **Year** 8 **Ability** Mixed

Half Term 5 / weeks	Week 1	Week 2-3	Week 4-5	Week 5-6	
Topic	Unit 9 – Rounding	Unit 10 – Circumference and the area of a circle	Unit 11: 3D shapes, nets and surface area and volume		Reteach and Retention
Topic overview	To understand the meaning of an answer in “context” and to be able to see if this answer is of suitable magnitude and accuracy.	Understand the main components of a circle, introduction of pi and be able to find the area and circumference of a circle.	To understand 2D and 3D shapes, their properties and draw nets.		To find surface area and volume of 3D shapes and understand what these represent.
Pupils will learn...					Focus on the process of reteach and retention, knitting together the learning in reaction to the assessments completed
Components	<ul style="list-style-type: none"> Round off a number to a required number of decimal places Round off a number to a required number of significant figures Estimate the answer to a given problem Identify rounding and truncation errors. 	<ul style="list-style-type: none"> Use formulae to calculate the area and circumference of a circle Find the area and perimeter of: <ul style="list-style-type: none"> Semicircle (half circle) Quarter circle Solve word problems involving area and perimeter. 	<ul style="list-style-type: none"> Recognise nets of 3D shapes Name 3D shapes Draw plans and elevations of a given solid Identify a solid from its plans and elevations Drawing on isometric paper 	<ul style="list-style-type: none"> Find the volumes of cubes and cuboids Find the volume of prisms and cylinders Find the volume of composite solids Explore the surface area of cubes, cuboids, cylinders other prisms and composite solids Covert between cm^3 and m^3 	Staff complete a program of adaptive reteaching on specific topics based on the individual/class needs within their groups. Regular assessments are used to identify gaps in learning. Any gaps found are then addressed in lessons to help support learning and retention. Clear areas for improvement are monitored by individual staff and at a departmental level.
What pupils should already know (prior learning components)	Students should be able to: <ul style="list-style-type: none"> Understand the basic concept of rounding and past the midway rounds up to the next number. Understand place value 	Students should be able to: <ul style="list-style-type: none"> Use a calculator Substitute values into a given formula Understand the concept of area and perimeter 	Students should be able to: <ul style="list-style-type: none"> Identify different 2D shapes and their properties. Identify different 3D shapes and their properties. Draw accurately with a ruler and pencil Draw basic 2D shapes 	Students should be able to: <ul style="list-style-type: none"> Recognise, Identify different 2D shapes and their properties Calculate the areas of 2D shapes Recognise, identify different 3D shapes and their properties. Understand metric conversions e.g. m to cm Recall and substitute unknowns into formula Use a calculator 	All the half term content will have been covered by this point. Staff will use departmental tracking documents to analyse the gaps in learning from the most recent assessments and all previous assessments. The ability to structure and breakdown a problem-solving question as exemplified in the TFI questions throughout the course.
Transferrable knowledge (skills)	Along with multiplication there are more marks for rounding to dp/sf than any other topic in maths due to it being a feature at the end of many questions.	Students will be tested on their skills substituting values into a formula which will be a skill required throughout maths. The use of exact value of pi starts the use	Recognising 2D and 3D shapes and their properties is an important skill that is integrated into problem solving questions throughout	The topic will build pupils’ confidence with basic shape and the use of basic formula.	This activity should serve to highlight and address areas of weakness in teaching and learning or retention. This early intervention to understand

	(this is a particular focus for money questions). The use of estimation should also be encouraged in all future topics and questions to address the validity of the answers being given with students asking “does this sound right”.	of accuracy in answers that will be worked on further when students meet surds.	maths. The ability to draw accurately with a ruler and a pencil is essential both in school and beyond. This links into other subjects around school such as art, technology, textiles and geography.	These skills will be used again when asked to complete more complicated area and volume questions not covered here and then again in 3D shapes. This also applies to functional GCSE questions that test student’s ability to differentiate between surface area, perimeter and volume.	specific key areas for improvement or development. This should help to build confidence and improve students’ ability to answer these and directly sequential problems.
Key vocabulary pupil will know and learn	Estimate, approximate, truncation, rounding, decimal places, significant figures	Radius, diameter, circumference, perimeter, area, semicircle, net, elevation, plan	Radius, diameter, circumference, perimeter, area, semicircle, net, elevation, plan	Radius, diameter, circumference, perimeter, area, semicircle, net, elevation, plan	
Assessment activities	Homework- Unit 9 – Rounding Year 8 Test 5	Homework- Unit 10 – Circumference and area of a circle Year 8 Test 5	Homework – Unit 11 shapes and nets Year 8 Test 5	Homework – Unit 12 Surface area and volume Year 8 Test 5	AFL and adaptive teaching will continue to support staff to assess the address areas.
Resources available	Maths watch clips: N27a, N27b, N38, N43a, N43b GCSE 91	Maths watch clips: G22a, G22b	Maths watch clips: G12a, G12b GCSE 51	Maths watch clips: G12b, G12c, G21a, G21b, G25a, G25b GCSE 142	Before any assessments are completed, revision and guidance materials are provided for students to assist in independent study.
Notes Why this topic is important...	The ability to round (especially significant figures) is a key skill that is needed in many topics that are covered later in the curriculum. Many answers that use a calculator to find them e.g., trigonometry will use these skills. The ability to round also helps student estimate answers to use logic and see if their answers make sense. An appreciation of the accuracy of an answer is important and the use of bounds shows this that should be shown to students in a context of possibly misleading information in real life.	Students begin this unit by labelling key parts of a circle, so they understand the relationship between radius and diameter. This is important for students to be able to substitute values into formulas in the unit. From this formula for area and circumference will be introduced and students will use substitution skills covered in Year 8 Unit 4. Knowledge of area and perimeter is tested within the problem-solving aspect of this unit is covered and more challenging compound shapes are introduced. All of these skills will be recapped in Year 9 unit 2 and further used in circle theorems.	We begin this unit by reinforcing key skills such as drawing and recognising 2D polygons. We build upon this by moving to 3D shapes and their properties. Understanding the difference between a prism and a pyramid and a polyhedron. Drawing and understanding these shapes and their nets are essential to find surface area and volume of prisms later within the next unit.	The recall of these skills is vital to access more challenging questions in the future. These skills need to be embedded within students’ knowledge so they can fluently answer more challenging multi-step questions with ease. The topic also allows the increased use of estimation of answers to check if the answers are suitable along with rounding of answers. An appreciation of how to “break up” a question into steps will also be key to future challenging questions requiring mathematical structure and rigour.	This is an important point in the curriculum plan that enables individual teachers to review the gaps in learning for the classes they teach. The half-termly assessments are used to track students’ progress and enable teachers to react quickly to any gaps in knowledge and prepare students for the next assessment. The feedback and modelling of the exam answers enables students to pick up exam techniques and the ability to communicate effectively.