Topic: Unit 13 – Angles in parallel lines and polygons		**Duration: 15 lessons**	**Composite:**
Key vocabulary:	**Powerful knowledge components**	**Core knowledge Components**	**Links to previous and future topics**
Angle notation Transversal Parallel Exterior Interior Polygon Quadrilateral Triangle Alternate Corresponding Co-interior Vertically opposite	**I know that:** -angles on a straight line add to 180° -angles around a point add to 360° -vertically opposite angles are equal -angles in a triangle add to 180° -angles in a quadrilateral add to 360° **I know how:** -to use basic angle notation -to use triangles within polygons to calculate the sum of the interior angles -to use the properties of quadrilaterals to solve missing angle problems -to use a compass -to use my knowledge of angle rules to solve problems, such as missing angles, and explain my reasoning	**I know that:** -the transversal is a line drawn across a set of parallel lines **I know how:** -to use angle rules to find missing angles - to investigate angles within parallel lines -to identify and calculate with co-interior, corresponding and alternate angles -find missing angles within parallel lines and solve more complex problems -to construct triangles and special quadrilaterals -to investigate the properties of special quadrilaterals, including diagonals -to understand the sum of interior and exterior angles of a polygon -to calculate missing interior angles in a regular polygon -to start to prove simple geometric facts (Higher) -to construct an angle bisector (higher) -to construct a perpendicular bisector of a line segment (Higher)	Previous: Basic angle rules Angles in a triangle Quadrilateral properties Future: More complex problem involving angles

Impressive reading	Impressive speaking	Impressive writing	Resilience	Employability via:
• Read out loud • Selective mutism – peer 1:1 or teacher support • Reading Word problems • Identifying key information from text. • Interpreting written information.	• Speak out loud • Selective mutism – 1:1 discussion, visual communication cards. • Explain calculation strategies. Present evidence when investigating patterns and hypotheses. • Share mathematical reasoning and understanding using key vocabulary.	• Students show logical steps in developing an argument. • Use of appropriate specific language to explain reasoning.	Compare methods. Did you use the same approach? Did your partner discover a better approach than yours? Why do you think so? Can you do it a different way? Why is this one trickier? What strategy will you use to help you? How can we solve this?	Raise students' awareness of their problem-solving strategies useful for the workplace. Use of work-related problems in worded question. Functional maths skills for everyday life, including the workplace.

SEND

- Visually impaired check resources have correct paper, colour and font size.
- Key vocabulary introduced using precision teaching prior to a new topic.
- Repetition of important vocabulary needed in the lesson., especially highlighting the difference between a digit and a number.
- Adjust language and speed of explanation when needed.
- Allow more processing time for solving problems both verbal and written where needed. Lesson notes can be shared through Google Classroom.
- Repetition – start each lesson with knowledge recall based questions.
- Praise and reward for effort and engagement.
- Demonstrate and model mathematic problems – Students can take a phot of modelled examples and/or examples can be shared via Google classroom before and after lesson.
- Multi-sensory- kinaesthetic learning created so that pupils can move the maths learning around – Use place value cards/counters, place value boards, dienes etc
- Technology- use of interactive white boards to demonstrate methods – e.g. Mathsframe, Mathswatch (**clip 138, 139)** - website for games involving place value.

Cultural capital – Mathematician of the week, link problem solving to local business and the local area e.g. School population size compared to Telford population size

Topic: Unit 14 – Area of π Trapezia and Circles		**Duration: 7 lessons**	**Composite:**
Key vocabulary:	**Powerful knowledge components**	**Core knowledge Components**	**Links to previous and future topics**
Circle Rectangle Triangle Parallelogram Perpendicular Area Height Radius Circumference Compound shape	**I know that:** -the area of a rectangle is base x height -the area of a triangle is ½ x base x height -the area of a parallelogram is base x perpendicular height **I know how:** -to calculate the area of triangles, rectangles and parallelograms -to use a calculator to find the area of a circle -to calculate the circumference of a circle using π x diameter -to calculate the radius/circumference when the area is known	**I know that:** -the first 4 digits of pi are 3.142 (3dp) -the formula for the area of a circle is πr^2 -the area of a trapezium is 1/2(a + b) x height where a and b are the parallel line lengths **I know how:** -to solve problems involving the area of triangles, rectangles and parallelograms -to calculate the area of a trapezium -to calculate the area and perimeter of compound shapes -to solve problems involving area and perimeter and explain reasoning -to solve more complex problems with area and perimeter of compound shapes -to investigate the radius, diameter, circumference and area of a circle -to find the area of a circle and parts of a circle with and without a calculator	Previous: Area of a circle Area of a rectangle and triangle Future: More complex problems involving area and perimeter

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Topic: Unit 15 –Line Symmetry and Reflection		**Duration: 5 lessons**	**Composite:**
Key vocabulary:	**Powerful knowledge components**	**Core knowledge Components**	**Links to previous and future topics**
Reflection Mirror line Horizontal Vertical Diagonal Co-ordinate	**I know that:** -a reflection is the same distance behind the mirror line as the object is in front -we can find the distance of a point away from the mirror line to plot where the reflection will be **I know how:** -to recognise line symmetry in a variety of shapes -to reflect a shape in a horizontal or vertical line when the shape is touching the mirror line -I recognise the x and y axis on a co-ordinate grid -to draw a perpendicular line from a shape coordinate to a diagonal mirror line	**I know that:** -the equation of a vertical line will be x = (number on x axis) -the equation of a horizontal line will be y = (number on y axis) **I know how:** -to reflect shapes in a co-ordinate grid **-**to reflect a shape in a horizontal or vertical line 2 (shapes not touching the line) -to recognise a shape from its co-ordinates - to reflect a shape in a diagonal line – shapes not touching the line	Previous: Reflect shapes in a mirror line Future:

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Topic: Unit 16 – Data Handling		**Duration:11 lessons**	**Composite:**
Key vocabulary:	**Powerful knowledge components**	**Core knowledge Components**	**Links to previous and future topics**
Data Bar chart Pictograms Line graphs Range Pie chart Quantitative	**I know that:** -the range is the 'spread' spread of the data values **I know how:** - to set up a survey and comment on the effectiveness of data collection methods -to design a questionnaire -to draw and interpret pictograms -to draw and interpret bar charts -to use a protractor to draw the correct angles in a pie chart -to plot points on a graph -to find the range of a set of data	**I know:** -that grouped quantitative data is when a larger number of standard values have been grouped into classes **I know how:** -draw and interpret vertical line charts -to draw and interpret dual bar charts -to interpret pie charts -to calculate the angles to represent the data in a bar chart -to draw and interpret line graphs -to choose the most appropriate diagram to represent data -to represent and interpret grouped quantitative data -to interpret the range from different sets of data -to compare 'spread' (distribution) between sets of data -to identify and analyse misleading graphs	Previous: Draw and interpret pictograms, bar charts and line graphs Future: More complex problems involving data

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Topic: Unit 17 – Measures of Location		**Duration: 6 lessons**	**Composite:**
Key vocabulary:	**Powerful knowledge components**	**Core knowledge Components**	**Links to previous and future topics**
Average Mean Mode Median Range Data Analyse Grouped Ungrouped trend	**I know that:** -the mean, mode and median are all averages **I know how:** -to find the median and mode of a set of data - to calculate the mean of a set of data -to find the range of a set of data and explain what this indicates in the data set -to identify how a change in the data will affect the average	**I know:** -that averages will identify typical trends and values in a set of data -that different averages will be suitable for different sets of data **I know how:** -to solve problems involving the mean, such as finding a missing value when the mean is known -use algebra within average problems -to choose the most appropriate average for the set of data and explain reasoning -to analyse the advantages and disadvantages of each average -to find the mean from an ungrouped frequency table/bar chart (Higher) to find the mean from a grouped frequency table/bar chart (Higher) -to identify outliers in a set of data -to compare distributions using averages and the range	Previous: Finding mean, mode, median and range of a set of data Future: More complex problems with averages

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