

HIAS MOODLE+ RESOURCE

Year 6 Unit Plan 6.4

Autumn Term

HIAS Maths Team
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Final Version

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Overview

In this document

Year 6 Unit Plans linked to Medium Term Overview

Points to consider when using this resource

These unit plans provide an example of how medium term planning could be developed into units of work. These unit plans will need to be adapted to meet the needs of pupils. The unit plan provides an outline of a possible learning journey with suggestions of types of tasks that could be used. They also identify key prior learning, some common misconceptions and an indication of number fluency pupils need to develop towards automaticity. It is assumed that pupils will have access to appropriate concrete resources to support conceptual understanding and that teachers will use a CPA (concrete, pictorial and abstract) approach to teaching.

Year 6 – Unit 6.4 – Percentages, Measurement and Geometry

This unit is about percentages, measurement, time and geometry. This unit will continue to strengthen pupils understanding of fractions and apply skills taught within previous units to new learning. Pupils will be required to revise the key facts of time taught within previous year group curriculums and use skills to solve real life situations. Initial tasks can be used to support pupils in identifying the skills required to solve the problem and the CPA approach will be used to ensure pupils gain a mastery understanding. Through the unit of geometry, reasoning skills will be developed to secure pupils understanding of shape and coordinates.

Session	Unit Objectives	Types of task
1-5	- Use place value knowledge to find 10% and 1% of any number. - Know that 50% is the same as finding one half, 25% is the same as finding one quarter and 75% is the same as finding three quarters of a quantity (or shape) - Solve problems involving the calculation of percentages, e.g. 15% of 360 and the use of percentages for comparison.	Initial task: Bethany had a voucher that entitled her to 45% off her main meal. On the menu the meal cost £12.50. How much did Bethany pay for her meal? Pictorial representations: Use a fraction wall to find the relationship between fractions and percentages. Use the language of part and whole to find fraction and percentage equivalents. Represent the initial task using the bar model, number and part/whole diagram. Establish understanding of 45%, such as less than half, more than a quarter, closer to a half than a quarter. Use the bar model to show how 75% can be found by finding 25% and subtracting from 100% or multiplying 25% by 3. Which strategy did you prefer and why? Could we find other percentages in different ways? Refer to a Gattegno chart to look at dividing by 10 and 100 to find 10% and 1%. Establish why it is necessary to divide by 10 and 100 using visual representations such as the bar model and the image of dienes. Represent using concrete resources such as dienes and 100 bead strings. Problem solving: Which is bigger? 40% of 150 or 30% of 180? If I told that 35% = 65, what is the whole?
5-10	- Complete, read and interpret information in tables, including time tables - Solve problems involving converting between units of time. - Solve problems involving durations of time and fractions of time e.g. $\frac{2}{3}$ of a day in hours	Initial task: Share a copy of a timetable in which 24-hour times are included. Ask pupils to tell you about the timetable and what they notice. Ask questions such as, 'how would it long to take to get from one destination to another?' 'How can I get somewhere in the quickest amount of time?'

		Revise time number facts from previous year groups such as: 48 hours = 2 days 120 minutes = 2 hours How many days there are in a month? Pictorial representations: Refer to time on the numberline and look at how time can be represented on a numberline. Look at adding and taking away amounts of time on the numberline, including time that goes over the hour, such as <i>'I arrived at the holiday park at 14:15. It took me 85 minutes to get to the holiday park in the car. What time did I leave home?'</i> Problem solving: Include fractions within a problem. I travelled on a train to London. I left Fareham train station at 09:35 and arrived at London Waterloo at 11:20. I bought a coffee after $\frac{2}{3}$ of my journey was already completed. What time did I buy a coffee?
10-20	• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Draw 2-D shapes using given dimensions and angles • Recognise, describe and build simple 3-D shapes, including making nets. • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Identify angles where they meet at a point, on a straight line or are vertically opposite and find missing angles. • Describe positions on the full coordinate grid (all four quadrants) (link to negative numbers on a number-line). • Draw and translate simple shapes in the coordinate plane and reflect them in the axes	Key fact focus: Diameter of a circle = $2 \times$ radius. To label the different parts of a circle. If I tell you the radius of a circle is 4.3cm, what is the diameter? If I tell you the diameter is 3.4cm, what is the radius? Consolidate knowledge of 2D and 3D shapes referring to properties as well as names. Revise the skill of using a protractor and ruler to be accurate. Look at a range of irregular shapes and describe the shapes according to angles, making estimations as well as measuring. Reasoning: <i>Can you identify shapes that have two or more obtuse angles? What do you notice?</i> Problem Solving: Give pupils a 3D net of a cube? If I want the opposite side to have the same pattern, which square should I add the pattern to? Strengthen pupils reasoning process and model how to mathematical reason around such a task. Encourage pupils to share their thinking outload about the mathematical choices they make. Share a coordinates grid with pupils that include all four quadrants. Include a shape without sharing the mathematical question. Can you tell me what you can see? Allow pupils time to discuss. Recap how to record coordinates before asking a mathematical problem.

		Focus on translation. How can I move the shape to the next quadrant? Include a range of different shapes so that pupils must apply the shape properties. Encourage pupils to use the given squares.
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Check and refresh	Watch out for...	Building fluency
Counting forwards and backwards in fractions The meaning of percentage using the language of part and whole How to find 10% of an amount. Simple equivalences between fractions and percentages. Convert between 12- and 24-hour clock Knowledge of properties for a range of 2D and 3D shapes.	Relative position of fractions on a numberline Pupils using formal written methods to solve time problems. Knowing shape names but not being able to share shape properties appropriate for a Year 5 pupil. The use of a protractor and being accurate.	Number facts for compliment to 360 Relationship between 25, 50, 75 and 100. 100% = 1 whole 50% = $\frac{1}{2}$ 25% = $\frac{1}{4}$

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