

HIAS MOODLE+ RESOURCE

Year 5 Unit Plan 5.4

Autumn Term

HIAS Maths Team
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Final Version

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Overview

In this document

Year 5 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 5 Unit 5.4 – Fractions (5), Measurement (time and timetables) (5), Geometry (shape and angle) (10)

This longer unit provides good opportunities to help children to make connections between fractions, time, shape and angle. Helping children to deepen their knowledge of fractions and calculate successfully with them are important areas in upper KS2. Opportunities to use local timetables for public transport help children to see connections between developing their mathematical knowledge and applying it to everyday contexts.

Session	Unit Objectives	Types of task
1-5	- Recognise mixed numbers and improper fractions and convert from one form to another. - Write mathematical statements >1 as a mixed number e.g. $2/5 + 4/5 = 6/5 = 1 \frac{1}{5}$ - Add and subtract fractions with the same denominator beyond 1 and multiples of the same number. - Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	Initial task Show how $1 \frac{5}{6} - 1 \frac{1}{3}$ can be solved using a number line and drawings of cakes. Pictorial representations: Developing conceptual understanding of what happens when we add or subtract fractions is a challenge for many learners, but it is a key foundation for success in this area. The use of arrays to support understanding is shown in the NCETM video “Adding fractions with different denominators”. It is important that children continue to develop further their understanding of fractions as positions on number lines and that they link these to equivalent fractions. A 0 to 3 number line helps children to see that fractions can be greater than 1 and to think about mixed numbers and improper fractions. This could be displayed on a working wall and referred to frequently. Key facts focus: Learn the fraction equivalences e.g. $7 \div 10 = 7/10 = 0.7$, $8 \div 100 = 8/100 = 0.08$ (see the Hampshire maths team’s Number Facts Documents). These facts could be displayed too on number lines. Solving problems A shop has 3 metres of red ribbon at the beginning of the day. It sells 25cm, then 1.5m and then a further $\frac{3}{4}$ of a metre of this. How much red ribbon is left? Prove it. Longer investigative problem solving like those provided by Nrich should be part of children’s mathematical learning journeys. This is important for all children and especially when helping higher achieving learners to get to greater depth.

6-10	• Complete, read and interpret information in tables, including time tables • Solve problems involving converting between units of time.	Initial task A train travelling from London to Bournemouth leaves London at 12.35. It takes 1hour and 46minutes to arrive at Bournemouth. What time does it get there? Pictorial representations: Children should be able to relate pictorial representations of say $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{2}$ of an hour on a clock face to time in minutes. Key facts focus: Revise the year 4 number facts: 48 hours = 2 days 120 minutes = 2 hours 90 minutes = 1 $\frac{1}{2}$ hours Solving problems Using a simple local bus or train timetable “What is the latest train/bus I can get to be in Alton by 10.45am?” I get up at 6.20am. I then spend 30 minutes in the shower and getting dressed, $\frac{1}{4}$ of an hour eating breakfast, 20 minutes talking to my sister and $\frac{4}{6}$ of an hour reading. I’m then ready to go to school. What time is that? Prove it by: • Converting all the time spent on activities to common fractions and adding them together ... • Converting all the time spent on activities to minutes and adding them together... • On a number line counting on from 6.20am.
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11-20	- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations - Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles - Identify angles at a point and one whole turn (360°), at a point on a straight line and half a turn (180°) and other multiples of 90°. Know that there are four right angles in a complete turn and two right angles in half a turn. - Identify, describe and represent the position of a shape following a reflection or a translation, using the appropriate language and know that the shape has not changed and internal angles are preserved.	Initial task Show children a picture of a regular octagon and a rectangle (which is not a square too). Ask the children to list as many things they can that are the same and different about the shapes. Encourage the use of correct mathematical vocabulary. Consolidating and extending knowledge Children should be increasing the range of 2-D and 3-D shapes they know. They should learn about the properties of these shapes eg lines of symmetry, lengths of sides, size of angles, faces etc. They should be aware that shapes can have multiple classifications eg a square is quadrilateral, a rectangle, a rhombus, and a parallelogram. Children should know that regular shapes have all sides the same length and all angles the same size. Key facts focus: To know complements to 360. Know complements to 180 Recognise multiples of 90. Know that the angles in a triangle total 180 degrees Know that the angles in a quadrilateral total 360 degrees Know that the angles of a straight line total 180 degrees $360 \div 4 = 90$ of $360 = 90$ $360 \div 2 = 180$ $\frac{1}{2}$ of $360 = 180$ $\frac{3}{4}$ of $360 = 270$ Solving problems Referring to a range of 2-D or 3-D shapes represented on a sheet of A4 paper "How many different ways can you find to sort these shapes?" Working with a partner one child puts together a group of shapes based on their own criteria and the other has to work out what criteria they used eg "All these shapes have at least one line of symmetry" "None of these shapes have any parallel lines."
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		Games like “guess my shape” where one person thinks of a shape and other children or another child have to ask questions about the properties of the shape. Only “yes” or “no” answers can be given. How many questions need to be asked before the shape is discovered? Longer investigative problem solving like those provided by Nrich should be part of children’s mathematical learning journeys. This is important for all children and especially when helping higher achieving learners to get to greater depth.
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Check and refresh	Watch out for...	Building fluency
Counting forwards and backwards using simple fractions and decimals noting equivalences. Pupils’ ability to convert between different units of time. Children’s knowledge of the names and properties of a range of 2-D and 3-D shapes.	Children who have little idea of the correct relative position of fractions and decimals on the number line. Pupils who cannot relate facts they know to concrete and pictorial representations. Children who chose formal written methods to solve problems involving time giving answer like “1 hour and 85 minutes”.	Frequent opportunities to consolidate: Check and revise as necessary the year 4 expectations for time (see the Hampshire maths team’s Number Facts Documents). Learning the fraction equivalences eg $4 \div 10 = 4/10 = 0.4$, $7 \div 100 = 7/100 = 0.07$ (see the Hampshire maths team’s Number Facts Documents).

HIAS Maths Team

Jo Lees – Area Inspector - Mathematics

Email: jo.lees@hants.gov.uk

Tel: 02380 816139

Jacqui Clifft – Area Inspector - Mathematics

Email: jacqui.clifft@hants.gov.uk

Tel: 02380 816139

Jenny Burn – Inspector/Adviser – Mathematics

Email: jenny.burn@hants.gov.uk

Tel: 01962 876207

Tessa Ingrey – Teaching & Learning Adviser – Mathematics (P/T)

Email: tessa.ingrey@hants.gov.uk

Tel: 01962 876207

Natalie Ivey – Inspector/Adviser – Mathematics (P/T)

Email: natalie.ivey@hants.gov.uk

Tel: 01962 876207

Dave Parnell – Teaching & Learning Adviser – Mathematics

Email: dave.parnell@hants.gov.uk

Tel: 01962 876207

Rebecca Vickers – Teaching & Learning Adviser – Mathematics

Email: rebecca.vickers@hants.gov.uk

Tel: 01962 876207

Brenda Robertson – Inspector/Adviser – Mathematics

Email: brenda.robertson2@hants.gov.uk

Tel: 01962 876207

Kate Spencer – Teaching & Learning Adviser – Mathematics

Email: kathryn.spencer@hants.gov.uk

Tel: 01962 876207

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