

HIAS MOODLE+ RESOURCE

Year 5 Unit Plan 5.5

Autumn Term

HIAS Maths Team
September 2019
Final Version

© Hampshire County Council

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 5.5 – NPV / measurement, Mass and capacity (10), All four operations (5)

This unit provides an opportunity to link children's growing knowledge of number and place value with working with mass and capacity. Pupils should develop their mental, mental with jottings and written calculation methods while learning to make sensible choices about when to use each of these. This selection should be based on the level of difficulty presented by the calculations rather than the size of the numbers involved.

Session	Unit Objectives	Types of task
1-10	• Round decimals with two decimal places to the nearest whole number and to one decimal place • Convert between different units of metric measure (g/kg; ml/l) Link to place value understanding of scaling up and down by 1000 ($\times / \div$) • Estimate capacity using standard units to measure liquid (l/ml) and read scales graded in different sized steps (e.g. 0, 10,20,30.... 0, 25 , 50 , 75.... 0, 20, 40,60...) • Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints.	Initial task A short quiz where children are asked to estimate the weight or capacity of a range of supermarket items. These could be shown and passed around with the weights/capacities covered up. Children could be asked to give their answers in different units of measure eg a tin of baked beans in grams and then in kilograms. Possible contexts: Looking at the value for money of some items from a supermarket eg cost per kg/per 100g etc, might provide a good starting point. Pictorial representations: Reading scales should be linked to reading number lines. The number line is crucial to support learners when developing further their understanding of how rounding numbers works. The use of Gattegno charts, place value grids, base 10 apparatus, place value counters will help to support learners understanding when multiplying and dividing by 10, 100 and 1000. Estimating When developing their knowledge of measures it is important children become familiar with some benchmarks they can use before calculating and when considering the reasonableness of their answers. For capacity these might include a 500ml, 1l and a 2l drinks bottles. For mass a 500g, 1 kg bags of sugar or rice are useful to become familiar with. Include opportunities to estimate a range of objects, including possibly a bag of supermarket shopping, to help children to improve the reasonableness of their estimating.

		Key facts focus: • 1kg = 2.20 lbs • 1 l = 1.8 pints Solving problems When solving problems children should estimate their answers first and consider the reasonableness of their answers when they have solved their problems. Frequent opportunities to discuss the selection of mental, mental with jottings or formal written methods should be provided. A 400g tin of butter beans contains 160g of water. The rest of the 400g is weight of the beans. How much do they weigh and what fraction of the whole of the tin is this? What fraction of the whole of the weight is the water? 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.
11-15	• Use all four operations to solve problems involving measure (mass and capacity) using decimal notation including scaling. • Use any combination of operations to solve problems, including understanding the meaning of the equals sign (=) • Know that distributivism can be expressed as $a(b + c) = ab + ac$. (e.g. $13 \times 8 = 8(10 + 3)$) • Understand the terms factor, multiple and prime, square and cube numbers and use them to construct equivalence statements (for example, $4 \times 35 = 2 \times 2 \times 35$; $3 \times 270 = 3 \times 3 \times 9 \times 10 = 92 \times 10$). • Pupils use and explain the equals sign to indicate equivalence, including in missing number problems	Initial task Provide children with a selection of problems (these could be written on cards) requiring 2, 3 or more steps to solve. Ask them to identify the calculations required to solve each problem and then to decide which calculations should be solved mentally, which with jottings and which would be better with a formal written method. Ask children to discuss their choices. Encourage children to be flexible in their choices and to focus on both being reliable and efficient. Pictorial representations: Children should further consolidate their understanding of the relationship between addition and subtraction using the bar model. For any addition and subtraction equation they should be able to draw proportionally a suitable bar model. They should also be able to state related equations using the inverse operation. Developing flexible and reliable calculation methods: While extending children's ability to perform formal written methods with understanding

	(for example, $13 + 24 = 12 + 25$; $33 = 5 \times ?$). • Multiply numbers up to 4-digits by a one-or two-digit number using a written method that supports conceptual understanding.	there should be frequent opportunities to discuss and make sensible choices about the selection of mental, mental with jottings or formal written methods. All children need to develop these and to value each one. Measurement provides a good context for rounding numbers. This can support estimating when calculating and rounding answers to the nearest cm/m etc. Solving problems A recipe for Christmas pudding for 8 people requires 48g of flour, 160g of soft fruit and 80g of nuts. How many grams of flour, soft fruit and nuts are needed so the recipe serves 6 people? How many grams of flour, soft fruit and nuts are needed so the recipe serves 10 people? 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.
--	--	---

Check and refresh	Watch out for	Building fluency
The rounding rules and visualising these with number lines. The relationship between grams and kilograms. The relationship between millilitres and litres.	Children who have little knowledge of benchmarks for capacity and weight and who therefore find estimating their solutions difficult. Children who are not flexible in their choice of calculation methods and default inappropriately to their preferred ones eg only formal written or only mental methods.	Frequent opportunities to consolidate: Check and revise as necessary the year 4 expectations for mass (see the Hampshire maths team's Number Facts Documents). To be able to find related facts from knowing the 12 x 12 multiplication and division facts. Teach: • 1 kg = 2.20 lbs • 1 l = 1.8 pints

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

For further details on the full range of services available please contact us using the following details:

Tel: 01962 874820 or email: hias.enquiries@hants.gov.uk

HTLC Professional Learning Moodle

- Searchable course catalogue linked to the Learning Zone.
- Course updates.
- In-house training opportunities.
- Online calendar of events.
- Publications and online resources.
- Bespoke consultancy services.

Link: <https://hias-totara.mylearningapp.com/>



Terms and conditions

Terms of licence

Moodle+ subscribers are licenced to access and use this resource and have agreed to pay the annual subscription fee. This authority starts when the fee is paid and ends when the subscription period expired unless it is renewed. This file is for personal or classroom use only. By using it, you agree that you will not copy or reproduce this file except for your own personal, non-commercial use. HIAS have the right to modify the terms of this agreement at any time; the modification will be effective immediately and shall replace all prior agreements.

You are welcome to:

- download this resource
- save this resource on your computer
- print as many copies as you would like to use in your school
- amend this electronic resource so long as you acknowledge its source and do not share as your own work.

You may not:

- claim this resource as your own
- sell or in any way profit from this resource
- store or distribute this resource on any other website or another location where others are able to electronically retrieve it
- email this resource to anyone outside your school or transmit it in any other fashion.