Maths

Book 4

Name:_____

Home
Learning Log

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This homework book provides opportunities for you to support and enjoy mathematics with your child through playing various fun activities at home. All the games are focused at your child's stage of development.

The aim of all the activities is to develop mathematical confidence and fluency through practise and repetition.

Your child's class teacher may advise particular games for your child to practise, or they may let the choice be yours.

Our expectation is that **your child will complete at least one activity a week**. Any working out and mathematical thinking related to the tasks should be captured in their jotter. To complete the booklet they will need to complete 2/3 activities a week.

Please initial and date an activity when complete and record the activities your child has completed each week in the logbook area at the back of this book. You can also use this area to comment on your child's progress and communicate with your child's teacher. Please remind the children to bring their books in by **Wednesday.**

It is your challenge to complete the whole book by the end of the year!

For the following activities, you will need:

- A pencil and paper
- Paperclips
- Counters (they can be made from paper)
- Playing cards
- Catalogues
- Clocks (digital and analogue)

The only way to learn **mathematics** is to do **mathematics**.

PAUL HALMOS

Counting On

This is an extension from the activity in books one, two and three. The aim is to apply what they know about numbers up to 100, and master counting fluency up to and beyond 1000.

In Year 4, children should be confident counting forwards and backwards up to 1000 in any steps. They should be able to start on any number.

This is a game that requires no equipment and can be played in pairs. One person chooses a number from the first column (jump size), and the other chooses a number from the second column (the starting number). You must take it in turns to say the next number in the sequence. You can make up your own starting points.

For example, if you chose to start with jumps of 1000, and your child decided to start at 88, the conversation would go:
Child: "**88**"
You: "**1088**"
Child: "**2088**" etc.

Jump Size	Starting Number
6	0
25	50
11	9
7	88
9	346
1000	1075
0.1	19.1
0.01	5.01

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Set a limit to reach, or stop whenever you feel that your child is struggling. You can swap your roles over. **Challenge** your child to use their jotter to **visually represent** their counting. This will help them to **notice patterns and create rules**. To go **deeper**, ask your child 'How can you use counting in jumps of **1000**, to help you count in jumps of **999** or **1001**?'

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Counting Back

It is very important that children learn to count backwards as well as forwards. The aim in Year 4 is that children should be confident counting forwards and backwards up to and beyond 1000 in steps 1 to 10, 100s and 50s, 11s and 25s.

As in the previous activity 'Counting On', one person chooses a number from the first column (jump size), and the other chooses a number from the second column (the starting number). You must take it in turns to say the next number in the sequence when counting backwards. You can make up your own starting points.

Jump Size	Starting Number
6	3400
25	700
11	375
7	99
9	9050
1000	62

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For example, if you chose to start with jumps of 6,
and your child decided to start at 136, the conversation would go:
Child: "**136**"
You: "**142**"
Child: "**148**" etc. *You may choose a number to stop at.*

Keep counting until you reach a target number or zero. In Year 4, we do count in negative numbers so go into them if you wish. Challenge your child to use their jotter to **visually represent** their counting. This will help them to **notice patterns and create rules**. To go deeper, ask your child 'How can you use counting back in jumps of **6**, to help you back count in jumps of **7** or **16**?' You could also ask your child to **predict** a number that will or won't be said in the counting sequence and to **justify** this in their jotter.

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Doubling and Halving Machine

Ask your child to imagine a line floating in front of them. Then tell them a number between 1 and 100. They must imagine partitioning the given number into tens and ones (e.g. 44 is 40 and 4), and then pushing each part through the double machine.

As the numbers pass the line, they double. So, 40 becomes 80, and 4 becomes 8. Bringing the two parts back together gives a total of 88. Use lots of examples and see if they can get 10 correct in a row. As an extra challenge you could extend the game to 3-digit numbers.

Children may discover that they can split numbers into alternative parts before doubling. For example, to double 26, instead of doubling the 20 and then the 6, they might choose to double 25 (to make 50) and then 1 (to make 2).

You can switch the game around by halving instead.

To make it harder you could use odd numbers or 3-digit number.
Encourage your child to show their working out in their jotter.

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Five Facts

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Start by giving your child a multiplication fact from any of the times table up to 12x12. For example, you might say **"Three times ten equals thirty".** You have given them one fact an in return **they have to give you five related facts**. The five related facts for this fact would be:

"Ten times three equals thirty"	10 x 3 = 30	*so 5 x 6 = 30*
"Thirty divided by three equals ten"	30 ÷ 3 = 10	
"Thirty divided by ten equals three"	30 ÷ 10 = 3	*so 30 ÷ 5 = 6*
"One third of thirty equals ten"	$\frac{1}{3}$ of 30 = 10	so $\frac{2}{3}$ of 30 = 20
"One tenth of thirty equals three"	$\frac{1}{10}$ of 30 = 3	so $\frac{2}{10}$ of 30 = 6, $\frac{5}{10}$ of 30 = 15 etc.

Encourage your child to spot that the facts come in pairs: two multiplication, two divisions and two fractions. They can also **explore** addition and subtraction **connections**. For example 5 x 6 = 30 is same as 5 + 5 + 5 + 5+ 5 + 5 = 30.

You can challenge your child to think of as many related facts as possible by saying **'If you know this, what else do you know?'** (see the examples in red). You can also **vary they type of fact** you start the game with. For example, you could start with a division fact "Thirty divided by ten equals three" or a fraction of an amount '$\frac{1}{4}$ of 44 = 11'.

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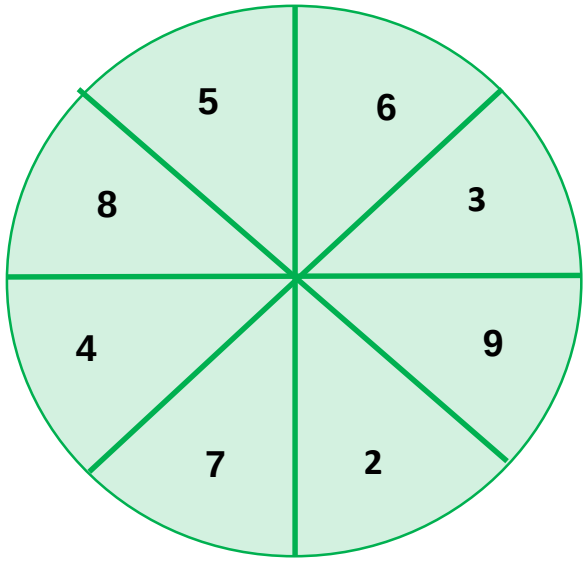
Divide Me

30	56	48	72	24	20
64	36	56	35	42	21
36	45	63	49	81	54
24	54	35	54	50	30
28	40	40	32	63	48



This is a game for two players.
You will need counters in two different colours.

- Use a paperclip and pencil as a spinner to select a number at random.
- Using your colour counter, cover **a** number in the grid that can be divided exactly by the number the spinner lands on - without any remainder.
- If you cannot divide a number in the grid by the number on the spinner, you must miss a go.
- The winner is the player with the most answers covered.

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Spend £10

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It is a great idea to let children familiarise themselves with the world of currency from an early age.

Challenge your child to spend a virtual £10 using catalogues around the home or online shops.

You could challenge your child by asking various questions, such as:

"Which two/three/four items can you buy that would cost exactly £10?"
"How much change will you get from £10 if you buy…? Which coins could you receive as change? How many different combinations of coins are there?"
"Which two/three/four items can you buy that will give you at least £2 change?"
"Which two/three/four items can't you afford to buy?"

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Guess the Number

Looking at the hundred square to the right, choose a number and ask your child to guess what it is by asking questions with a ‘yes/no’ answer.

They may start by asking lots of “it is greater/less than…?” questions. This is a good starting point, but do encourage your child to use a wider range of mathematical language.

Here are some examples of additional questions:

“Is it a multiple of 3/6/9…?”
“Is it odd/even?”
“Is it a factor of…?
“Do both digits add to give an even/odd total?”
“Is the digit in the place of the ones greater/less than the digit in the place of the tens?”

Encourage your child to keep track of the questions they are asking and to make jottings of what the numbers could be.

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11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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Time Tellers

In Year 4 in the summer term, your child will learn to tell the time using analogue and digital clocks and how to tell the time when the minute hand is pointing at any of the numbers.

They also need to be able to switch between analogue and digital confidently.

Look at a clock with your child and ask them to read and write the time.

Ask your child to tell you what a digital clock would say. Make this become part of your child's daily routine by asking them to read the time regularly.

You can ask your child a range of questions, such as:

- *"What will the time be in 10/15/30 minutes etc.?"*
- *"What is the time on a 24-hour clock?"*
- *"How many minutes are there until ___?"*
- *"Our film began at ___ and finished at ___. How long was the film? If we began watching the film 15 minutes earlier, when would the film have finished?"*

As children get more confident you could download train time tables, bus time tables, cinema times etc. and ask your child questions about them. Or you could ask your child to create questions with the answers to ask you.

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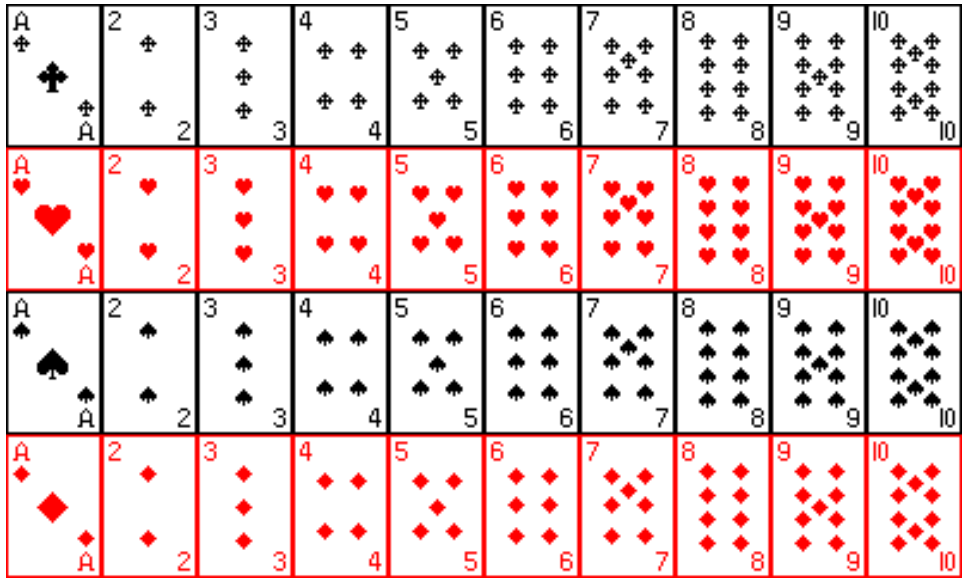
Cards Times Tables

Find a pack of cards and remove all picture cards so you are left with Ace-10 of all suits. Shuffle the cards and take 20 each. Both turn a card face up at the same time and call out the product. For example, if you turned a 7 and your child turns over a 3 you must call out “twenty-one”. The first person to get the answer scores a point.

Play until one person reaches 20 points or until a player runs out of cards.

Change the value of the cards. For example, 7 to 70 for a round . If you turned a 7 and your child turns over 3 you would call out “ two hundred and ten”.



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Times Tables Rockstars

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When it comes to times tables, speed and accuracy are important – the more facts your child remembers, the easier it is for them to do harder calculations.

Using your child's login details provided by the class teacher, support your child to practise their times tables online or using the app.

In Year 4, your child can begin by playing on the single player game 'Garage', and the multiplayer game 'Arena', in which they can play against rock stars from their class.

Once your child has learnt all of their times tables at school, they may begin to play on 'Studio' and 'Festival' which display all times tables up to 12 x 12.

As an additional challenge, your child could pick a times table that they find most challenging, e.g. 8 x 7, and find **as many ways to represent the calculation visually** in their jotters. They could also create their own 'derivation board' in which they **derive facts** from the given fact.

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Please use the following pages keep record of the activities your child has completed at home each week and to comment on your child's progress in mathematics.

Week Beginning:	Weekly Activity details and Comment	Week Beginning:	Weekly Activity details and Comment

Week Beginning:	Weekly Activity details and Comment	Week Beginning:	Weekly Activity details and Comment

Week Beginning:	Weekly Activity details and Comment	Week Beginning:	Weekly Activity details and Comment

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