

# Maths Games And Activities Pack

20 Fun Maths Challenges To Do At Home

Year 4

## Note to Parents and Carers

Your child works hard during school and we know they deserve some rest and relaxation when they're at home. BUT... this pack is here to help you with some ideas of how to bring maths into your home in a fun way. The challenges are not intended to be too much like 'work'. They should provide just a bit of a mathematical focus every now and then.

The activities are separated into individual activities and partner activities. We understand that pupils are not always able to complete activities with others and as such hope this will help you and your child select appropriate activities to complete.

### Individual activities

#### 1 Multiplication Mosaic

**Your challenge:**

- Can you use your multiplication skills to reveal the picture hidden in the grid?

**How to play:**

1. Work out the answer to the calculation in each square using your knowledge of the 1-12 times tables.
2. Colour in each square based on the key at the top of the sheet.

What picture will you reveal?

**You will need:**

- Challenge 1 Sheet
- Colouring pencils or felt tips

#### 2 Division Mosaic

**Your challenge:**

- Can you use your division skills to reveal the picture hidden in the grid?

**How to play:**

1. Work out the answer to the calculation in each square using your knowledge of the 1-12 times tables and the related division facts.
2. Colour in each square based on the key at the top of the sheet.

What picture will you reveal?

**You will need:**

- Challenge 2 Sheet
- Colouring pencils or felt tips

# Challenge 1 Sheet Multiplication Mosaic

Solve the questions in the squares below. Colour in the squares with the colours based on your answer. What picture will you make?

**Pink:** 21, 35, 45, 81

**Yellow:** 0, 30, 60, 70, 90

**Brown:** 6, 7, 9, 12, 27, 36, 56, 66, 72, 77, 99

**Black:** 14, 24, 42, 49, 54

**Orange:** 8, 10, 18, 20, 28, 48, 84, 100, 108

$1 \times 7 =$	$7 \times 4 =$	$4 \times 2 =$	$5 \times 4 =$	$1 \times 10 =$	$7 \times 12 =$	$6 \times 6 =$	$2 \times 10 =$
$7 \times 3 =$	$7 \times 8 =$	$2 \times 9 =$	$10 \times 10 =$	$12 \times 4 =$	$1 \times 12 =$	$9 \times 9 =$	$3 \times 6 =$
$11 \times 6 =$	$3 \times 3 =$	$3 \times 4 =$	$9 \times 0 =$	$9 \times 8 =$	$10 \times 9 =$	$12 \times 3 =$	$9 \times 12 =$
$10 \times 3 =$	$9 \times 3 =$	$7 \times 2 =$	$8 \times 7 =$	$2 \times 12 =$	$11 \times 7 =$	$10 \times 6 =$	$1 \times 8 =$
$7 \times 11 =$	$6 \times 12 =$	$7 \times 1 =$	$9 \times 11 =$	$12 \times 1 =$	$11 \times 6 =$	$3 \times 3 =$	$4 \times 5 =$
$3 \times 9 =$	$10 \times 7 =$	$12 \times 3 =$	$5 \times 7 =$	$1 \times 7 =$	$5 \times 6 =$	$2 \times 6 =$	$4 \times 7 =$
$6 \times 8 =$	$6 \times 2 =$	$12 \times 6 =$	$9 \times 1 =$	$3 \times 2 =$	$11 \times 9 =$	$10 \times 2 =$	$5 \times 2 =$
$2 \times 5 =$	$9 \times 2 =$	$1 \times 6 =$	$9 \times 5 =$	$4 \times 9 =$	$12 \times 9 =$	$8 \times 1 =$	$8 \times 6 =$
$12 \times 7 =$	$2 \times 4 =$	$7 \times 6 =$	$9 \times 6 =$	$7 \times 7 =$	$4 \times 12 =$	$10 \times 1 =$	$6 \times 3 =$
$6 \times 5 =$	$6 \times 6 =$	$2 \times 3 =$	$7 \times 10 =$	$3 \times 10 =$	$4 \times 0 =$	$6 \times 12 =$	$10 \times 10 =$

# Challenge 2 Sheet Division Mosaic

Solve the questions in the squares below. Colour in the squares with the colours based on your answer. What picture will you make?

**Orange:** 1, 3

**Purple:** 4, 7

**Blue:** 8, 10, 11, 12

**Green:** 5, 6, 9

**Yellow:** 2

$100 \div 10 =$	$22 \div 2 =$	$12 \div 1 =$	$48 \div 6 =$	$60 \div 5 =$	$110 \div 10 =$	$32 \div 4 =$	$80 \div 8 =$
$84 \div 7 =$	$8 \div 2 =$	$24 \div 3 =$	$44 \div 11 =$	$70 \div 7 =$	$48 \div 12 =$	$120 \div 10 =$	$16 \div 2 =$
$10 \div 1 =$	$21 \div 3 =$	$12 \div 3 =$	$70 \div 10 =$	$35 \div 5 =$	$40 \div 10 =$	$20 \div 2 =$	$77 \div 7 =$
$96 \div 12 =$	$56 \div 8 =$	$28 \div 7 =$	$44 \div 11 =$	$42 \div 6 =$	$16 \div 4 =$	$55 \div 5 =$	$80 \div 10 =$
$88 \div 8 =$	$48 \div 4 =$	$84 \div 12 =$	$4 \div 1 =$	$28 \div 4 =$	$90 \div 9 =$	$10 \div 10 =$	$6 \div 2 =$
$50 \div 5 =$	$40 \div 5 =$	$30 \div 3 =$	$5 \div 1 =$	$132 \div 12 =$	$36 \div 12 =$	$4 \div 2 =$	$24 \div 12 =$
$108 \div 9 =$	$44 \div 4 =$	$48 \div 6 =$	$63 \div 7 =$	$36 \div 6 =$	$27 \div 9 =$	$7 \div 7 =$	$21 \div 7 =$
$25 \div 5 =$	$36 \div 3 =$	$55 \div 11 =$	$72 \div 12 =$	$108 \div 12 =$	$88 \div 11 =$	$12 \div 12 =$	$9 \div 3 =$
$6 \div 1 =$	$8 \div 1 =$	$40 \div 4 =$	$27 \div 3 =$	$120 \div 12 =$	$66 \div 6 =$	$24 \div 2 =$	$54 \div 6 =$
$18 \div 2 =$	$54 \div 9 =$	$35 \div 7 =$	$45 \div 9 =$	$42 \div 7 =$	$81 \div 9 =$	$12 \div 2 =$	$15 \div 3 =$

## 3 How Many Answers?

### Your challenge:

- How many calculations can you make out of 6 digits?

### How to play:

1. You have the digits 5, 6, 7, 8, 2, 3. You need to arrange them into either an addition or a subtraction question. For example, you could make  $823 - 567$  or  $823 + 765$ . In each question, you can only use each digit once.
2. Work out the answer to your calculation, using any method you like (don't use a calculator).
3. Make a list of the different answers that you have made on Challenge 3 Sheet. How can you make sure you have found all of the possible (positive number) answers?

I know I have found all of the possible answers because:

### You will need:

- Challenge 3 Sheet

## 4 My Favourite Number

### Your challenge:

- How much do you know about your favourite number?

### What to do:

1. What's your favourite number? Write it down in the centre of a piece of plain paper (if you don't have a favourite number, pick a number at random).
2. Note down at least 20 facts around your number, creating a poster. Examples you could choose include even/odd, sides on a shape etc.
3. For example, if your favourite number was 20 you could write down facts like:
  - It's in the 2, 5, 1 and 10 times table
  - It's an even number
  - $20 \times 2 = 40$
  - $1 + 19 = 20$  and so on.
4. Try to make sure you have a good range of different types of facts. Be as creative as you can with how you present your work.

### You will need:

- A piece of plain paper
- Colouring pencils or crayons

## Challenge 3 Sheet How Many Answers?

You have the digits 5, 6, 7, 8, 2, 3

You need to arrange them into either an addition or subtraction question.

For example, you could make  $823 - 567$  or  $823 + 765$ . In each question, you can only use each digit once.

Work out the answer to your calculation, using any method you like (don't use a calculator). Make a list of the different answers that you have found. How can you make sure you have found all possible answers?

Use this space below to help you.


## 5 How Many Ways Can You Show?

**Your challenge:**

- Find as many different ways as you can to show fractions.

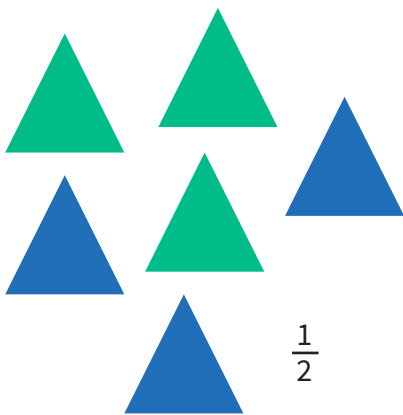
**How to play:**

- Pick one of the fractions from the list below, and put it in the centre of your paper.

$$\frac{1}{4} \quad \frac{3}{4} \quad \frac{1}{3} \quad \frac{3}{8} \quad \frac{1}{8} \quad \frac{3}{10}$$

- Then, draw, write or create as many different ways of representing that number that you can.

- So, for example, all of the ways below show  $\frac{1}{2}$



10 out of 20

Can you create at least 10 ways to show the fraction that you have chosen?

**You will need:**

- A plain piece of paper
- Some pencils and pens

## 6 Money Problems

**Your challenge:**

- Which combination of coins and notes can you use to make a total?

**What to do:**

- Find an old receipt for some shopping (you may need to ask an adult for this).
- Imagine you are paying for the total on your receipt with notes and coins. How many different combinations of notes and coins could you use to pay the total exactly (not over or under).
- On a piece of paper, stick the receipt in the middle. Around the receipt write the different combinations you could use.
- Be creative - could you draw the coins and notes to make sure they make the correct total?

**You will need:**

- A receipt
- A piece of plain paper
- Colouring pencils or crayons

## 7 Get Arty!

### Your challenge:

- Get ready to create a piece of art that is symmetrical.

### Things to remember:

1. Your piece of art needs to have at least one line of reflective symmetry. Remember, this means that one (or more) parts of the image would be identical after a flip (or reflection in a mirror).
2. You can create your artwork using any type of materials you like – you could create a collage, paint, colour or do anything else – it's up to you.

Have fun being arty!

### You will need:

- Plain paper
- Art materials

## 8 How Long Did It Take?

### Your challenge:

- Can you become quicker over time?

### Things to remember:

1. On Challenge 8 Sheet you will find some fun challenges to take part in. Have a go at each one, and time yourself, recording the time.
2. Repeat these challenges over 5 days and compare if you have become quicker.

Have fun at these speedy challenges!

### You will need:

- Challenge 8 Sheet
- A pencil or pen
- A ball
- A stopwatch (on an adult's phone or tablet is fine)

## 9 Fraction and Decimal Hunt

### Your challenge:

- How many fractions and decimals can you find in the house?

### What to do:

1. Go round your house and list the items you find showing fractions or decimals. Are there more fractions or decimals?
2. If you get stuck, look on food labels.

### You will need:

- Plain paper



# Challenge 8 Sheet How Long Did It Take?

Can you improve your time over 5 days?

Challenge A: Jump 20 times.

Challenge B: Hop 25 times without falling over.

Challenge C: Throw a ball up in the air and catch it 10 times in a row.

Challenge D: Do 5 kick-ups without the ball hitting the ground.

Challenge E: Say your alphabet backwards as fast as you can.

Challenge F: Do 50 star jumps.

Challenge G: Spin around 5 times and then jump to the other side of your outside area.

	Time taken (minutes)				
Challenge	Day 1	Day 2	Day 3	Day 4	Day 5
A					
B					
C					
D					
E					
F					
G					

Compare the time it took at the start and end of the 5 days. Did you get quicker in any activity?

## 10 Areas

### Your challenge:

- Can you estimate and measure areas accurately?

### What to do:

1. Create a list of items you are going to find the areas of (at least 15). These could be large or small areas.
2. Next to each item, write an estimate of the area.
3. Measure items and calculate the areas.
4. Compare your estimates to the real area. How accurate were you?

### You will need:

- A tape measure or ruler
- A piece of plain paper

## Pair activities

## 11 Place Value Duel

### Your challenge:

- Can you make a larger five-digit number than your partner?

### How to play:

1. Get your digit cards ready. Cut them out from the Digit Cards Resource Sheet.
2. Shuffle all three sets of the digit cards. You and your partner must each draw five big lines on your sheet of paper like this:

\_\_\_\_\_

3. Take it in turns to turn over a digit card and decide where in your number you are going to place the digit.
4. Put the digit in that position and tell your partner what value that digit has. For example, if you put a 4 in the tens column, you would say 'this 4 is worth 4 tens or forty'.
5. Once you have placed a digit in your number, you can't move it! Therefore, it's important to think about the strategy you are using. Play at least six rounds.

### Who will be the champion?

I played with \_\_\_\_\_

The person who won was \_\_\_\_\_

### You will need:

- Digit Cards Resource Sheet
- Two sheets of plain paper
- A partner

## 12 Sevens Tennis

### Your challenge:

- Who can win a match of sevens tennis?

### How to play:

1. Stand opposite your partner. The first player picks a two-digit number to start with and says that out loud. The other player must add 7 to the number. This becomes your running total.
2. Now it's back to the first player who adds 7 to the running total, and so on.

You win when:

- You are the first player to say a number over 210
- Your partner makes a mistake
- Your partner says 'umm'
- Your partner takes more than 3 seconds to answer.

Play at least 8 matches with your partner. Who will win the most games?

I played with \_\_\_\_\_

The person who won was \_\_\_\_\_

### You will need:

- A partner

## 13 Four in a Row

### Your challenge:

- Let's play a classic game of 'four in a row' but with a maths twist!

### How to play:

1. Start by sitting next to your partner and putting one of the grids from Challenge 13 Sheet in between you. Then, put one set of the digit cards spread out on the table face down.
2. Take it in turns to turn over a digit card, and multiply the answer by 4. If your partner agrees that you got the answer correct, you get to colour in one of the squares that contains that number on the grid. Turn the digit card back over.
3. Then, your partner has their go.
4. The person to win is the first person to colour in four squares in a row (in any direction - diagonals count!) in their colour. You may want to start to think about what number you need to find to colour in a certain square and then to remember which card has that number on!
5. Play the game three times. Who's going to win? What's your strategy?

I played with \_\_\_\_\_

The person who won was \_\_\_\_\_

### You will need:

- A partner
- A copy of Challenge 13 Sheet
- A coloured pencil each
- Digit Cards Resource Sheet

# Challenge 13 Sheet Four in a Row

## Game 1

36	4	4	24	32	0
28	36	28	16	28	36
16	20	16	32	0	4
32	24	36	20	28	36
4	0	20	28	16	24
36	28	32	28	32	4
24	16	4	20	20	24

## Game 2

36	4	4	24	32	0
28	36	28	16	28	36
16	20	16	32	0	4
32	24	36	20	28	36
4	0	20	28	16	24
36	28	32	28	32	4
24	16	4	20	20	24

**Game 3**

36	4	4	24	32	0
28	36	28	16	28	36
16	20	16	32	0	4
32	24	36	20	28	36
4	0	20	28	16	24
36	28	32	28	32	4
24	16	4	20	20	24

**Game 4**

36	4	4	24	32	0
28	36	28	16	28	36
16	20	16	32	0	4
32	24	36	20	28	36
4	0	20	28	16	24
36	28	32	28	32	4
24	16	4	20	20	24

## 14 Tug of War

### Your challenge:

- Why not play a maths version of Tug of War?

### How to play:

1. First, decide which player is going to 'add' and which player is going to 'subtract', then shuffle the digit cards into one pile. Write down the number 500 at the top of your piece of paper.
2. The player who is adding starts first. They turn over two cards and make them into a two-digit number (for example, 73). The player who is adding adds these to 500 (e.g.  $500 + 73 = 573$ ). The rest of this calculation is your new running total.
3. The player who is subtracting goes next. They turn over two digits, make it into a two-digit number and subtract it from the running total.
4. Keep playing in the same way, taking it in turns to make a number and add or subtract it. If the player who is adding gets above 1,000 they win, and if the player who is subtracting gets below 5 they win!

Who will win the tug of war?

I played with \_\_\_\_\_

The person who won was \_\_\_\_\_

### You will need:

- Digit Cards Resource Sheet
- A partner
- Paper to keep a track of your score

## 15 At The Double!

### Your challenge:

- How quickly can you double numbers? Play this addictive game to find out.

### What to do:

1. Cut out the cards from Challenge 15 Sheet. Shuffle them and put them in-between you and your partner.
2. Turn over one of the cards. Your challenge is to be the first player to call out double the number. The first player to do this wins the card.

Once all the cards have been used, the winner is the person with the most cards.

Play the game twice. Did you get a different winner each time?

The first time I played the game \_\_\_\_\_ won.

The second time I played the game \_\_\_\_\_ won.

### You will need:

- The cards from Challenge 15 Sheet
- A partner to play with

## Challenge 15 Sheet At the Double!

12

18

32

12

8

9

7

21

25

42

6

10

7

5

4

33

35

44

42

11

4

6

18

21

24

26

35

50



## 16 One-handed Maths, Paper, Scissors!

### Your challenge:

- Have you ever played 'Rock, Paper, Scissors'? Well this is a maths version of the same game!

### How to play:

1. Stand and face your partner. Make one fist and say together with your partner 'maths, paper, scissors' whilst moving your fists up and down (in a similar way to when playing rock, paper, scissors).
2. On scissors, each of you puts out between 1 and 5 fingers.
3. You then need to race to multiply the number of fingers you have put out by the number of fingers your partner put out (e.g.  $3 \times 1$ ) and call out the answer.
4. The player to call the correct answer first, wins a point.
5. Record who wins each 'battle' in a simple table; the first player to 20 points wins!

I played with \_\_\_\_\_

The person who won was \_\_\_\_\_

### You will need:

- A partner

## 17 Times Table Duel

### Your challenge:

- Are you ready to have a times table duel?

### How to play:

1. This game is simple, but addictive! Shuffle two sets of digit cards from resource sheet 1, and put them in a pile between the two players.
2. Turn over the card in the middle, and for the first set of rounds, race to multiply the number by 6. So if you turned over an 8 you'd need to shout out 48 as  $8 \times 6 = 48$ .
3. The person who shouts out the correct answer first gets to keep the cards. Keep playing until there are no cards left in the centre. The player with the most cards wins!
4. Once you have played with the 6 times table, play with the 7 times table, then the following times tables in order: 9, 12, 3, 8.

I played 6 times table duel against \_\_\_\_\_

and the person who won was \_\_\_\_\_

I played 7 times table duel against \_\_\_\_\_

and the person who won was \_\_\_\_\_

I played 9 times table duel against \_\_\_\_\_

and the person who won was \_\_\_\_\_

I played 12 times table duel against \_\_\_\_\_

and the person who won was \_\_\_\_\_

I played 3 times table duel against \_\_\_\_\_

and the person who won was \_\_\_\_\_

I played 8 times table duel against \_\_\_\_\_

and the person who won was \_\_\_\_\_

### You will need:

- Two sets of the Digit Cards on Resource Sheet 1
- A partner

## 18 Unicorns Versus Giants

### Your challenge:

- Who will win in the battle between unicorn and giant?

### How to play:

1. Sit opposite your partner and decide who will be the unicorn and who will be the giant.
2. Place the grid from Challenge 18 Sheet in between you. The aim of the game is for the unicorn to make it to the giant's home on the other side of the grid. The giant's aim is to stop the unicorn from getting there by ending up on the same hexagon on the grid as the unicorn.
3. The unicorn goes first. Place your counter on one of the hexagons on the 'unicorn's home' side of the paper and carry out the calculation in the hexagon. If the calculation is correct (your partner needs to check and agree) you get to move to that hexagon.
4. The giant starts in the same way from the 'giant's home' side of the paper.
5. On the next turn, each player can move to one of the hexagons joint to the hexagon they are on. If they get the answer correct, they move to that hexagon; if they don't get it correct, they stay as they are!
6. Have a think about your strategy – where will you move next? Try to play the game at least two times.

### You will need:

- Challenge 18 Sheet
- A partner
- A counter each (you could make your own out of paper)
- Plain paper for any working out

The first time I played, I played against \_\_\_\_\_

and the person who won was \_\_\_\_\_

The second time I played, I played against \_\_\_\_\_

and the person who won was \_\_\_\_\_

# Challenge 18 Sheet Unicorns vs Giants

## Unicorn's House

654 + 543 = ?    143 + 783 = ?    5 x 6 = ?    432 + 832 = ?    7 x 4 = ?    36 ÷ 4 = ?    9 x 10 = ?

320 + 392 = ?    865 - 43 = ?    786 + 832 = ?    Double 12 =    1,989 - 832 = ?    654 - 93 = ?    654 + 832 = ?

15 x 5 = ?    60 ÷ 5 = ?     $\frac{1}{2}$  of 80 = ?    7 x 3 = ?    8,765 - 372 = ?    903 - 899 = ?    765 + 2,183 = ?

843 - 32 = ?    1 + 3 + 4 = ?    1,765 + 821 = ?    18 x 5 = ?    100 ÷ 10 = ?    16 ÷ 4 = ?    83 + 75 = ?

6804 + 283 = ?    482 + 4,879 = ?    793 + 132 = ?    86 + 832 = ?    901 - 281 = ?    7 x 5 = ?    8 x 3 = ?

12 x 4 = ?    11 x 3 = ?    48 ÷ 4 = ?    7,765 + 832 = ?    16 x 3 = ?    Double 42 = ?    Half 60 = ?

765 + 832 = ?    3,382 + 743 = ?    593 + 3291 = ?    968 + 854 = ?    902 - 589 = ?    793 - 242 = ?    492 - 379 = ?

1,765 + 878 = ?    894 - 92 = ?    4,021 + 24 = ?    585 - 138 = ?    543 + 764 = ?    2,388 - 225 = ?    760 + 98 = ?

## Giant's House

## 19 Who Creates the Most Washing Up?

### Your challenge:

- Can you find out who creates the most washing up in your house?

### Things to remember:

1. This activity involves helping out with the washing up for a week. People at home generate a LOT of dirty dishes. But who in your house generates the most?
2. Before you begin, predict who you think will create the most washing up over the next week.
3. I think that the following person will make the most is:  

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4. Over the next week, use Challenge 19 Sheet to record your results. In the table, record how many items of washing up each person in your house generates in the table. Think about how you can record this data – will you use a tally?
5. Next, create a bar graph of your results.
6. Then, write down five things you can tell from the data on your Challenge 19 Sheet. For example, who creates the least washing up? Who creates the most washing?
7. The person who created the most washing was:  

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### You will need:

- Challenge 19 Sheet

## 20 The Great Maths Bake Off

### Your challenge:

- Bake something tasty and find the hidden maths.

### What to do:

1. Cooking is so much fun! But did you know it involves a lot of amazing maths too?
2. Work with an adult to bake something yummy. Need an idea of some recipes? Head to [bit.ly/TSLrecipes](http://bit.ly/TSLrecipes) to get some ideas. Have fun in the kitchen, and then fill in the details below. What did you make, and what maths skills did you think you used!?

I made 

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The maths I used was  

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### You will need:

- A recipe for something yummy
- Ingredients
- An adult to help you

# Challenge 19 Sheet Who creates the most washing?

A. Use the table below to help you record your data.

Family member's name	Mon	Tues	Wed	Thur	Fri	Sat	Sun	Total

B. Make a bar chart of your results for each person's totals

Put your results for the total amount of washing up made into a bar chart. Remember to think about the scale you are going to use for your vertical axis and to give the chart a title.

Bar Chart Title: \_\_\_\_\_



C. Now, use the lines below to write at least five things that you can tell from your data.

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# Resource Sheet 1

0	1	2	3
4	5	6	7
8	9	0	1
2	3	4	5



