

Don't Forget Your Maths Pack!

20 Fun Holiday Maths Challenges

Year 3 to Year 4

Note to Children

Hooray! It's the summer holidays!

You've worked so hard this year, and learnt so many new things in Year 3 you deserve a big pat on the back. You also deserve to be able to start Year 4 in September still knowing what you know now – and not forget everything over the summer!

So in between your summer adventures and relaxing are you up for an extra challenge?

Your task is to complete 10 of the challenges in this special Don't Forget Your Maths! Pack. As well as being lots of fun, the challenges will help make sure all of the amazing maths that you have learnt in Year 3 sticks in your brain ready for your new learning adventures in Year 4.

Simply tick the challenges you have attempted and bring this pack back with you when school starts again in September!

Have fun!

Note to Parents and Carers

The summer holidays are finally here! Your child has worked hard all year learning all the maths we expect Year 3 pupils to know and now they deserve some rest and relaxation. BUT... this pack is here to make sure they also don't forget all that they've learnt and have some fun maths activities to keep them going over the summer!

There is lots of evidence that doing just a little bit of maths practice over the summer holidays will make it much, much easier for them to start the next term in September.

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, and most will fit into your day-to-day plans and life during the summer holidays.

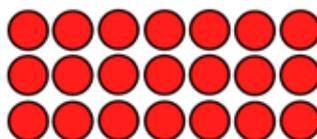
We're setting a target for your child to complete 10 over the holiday which is only a couple of challenges a week. If children are struggling with their maths, just knowing that they can tick off a handful of challenges over the holidays will really boost their confidence and success when they move into Year 4 next term. Other children may want to do more and really push themselves. Do what's right for your child.

When they've done each challenge, do please date and sign it so the child knows it's important.

Thank you for your support, and we hope you and your child has fun with the challenge!

1 Hunting for Arrays

Arrays are all around you! An array shows objects arranged into rows and columns. Remember, an array is a really useful way to show multiplication facts.



For example, this array shows that $3 \times 7 = 21$. However, arrays are amazing – because of the commutative law, this array shows $7 \times 3 = 21$ too. Finally, we can also see $21 \div 3 = 7$ and $21 \div 7 = 3$!

Your challenge:

- Can you spot at least eight arrays ‘out and about’ over the holidays?

How to play:

- Record the arrays you have spotted on your Challenge 1 Sheet.
- Write down 4 maths facts that each one shows on your Challenge 1 Sheet.
- You may even want to draw each array that you find!

You will need:

- Challenge 1 Sheet

Completed on (date):

Adult's initials:

2 Place Value Duel

Your challenge:

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

How to play:

1. Get your digit cards ready. Cut them out from the Digit Cards Resource Sheet (at the back of this pack).
2. Shuffle all three sets of the digit cards. You and your partner must each draw three 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

Completed on (date):

Adult's initials:

3 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 3 Sheet
- Colouring pencils or felt tips

Completed on (date):

Adult's initials:

4 Who Creates the Most Washing?

Your challenge:

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

Things to remember:

1. This one involves helping out with the washing for a week. (Sorry!) Families generate a LOT of washing, right? But who in your house generates the most washing?
2. Before you begin, predict who you think will create the most washing over the next week.
3. I think that the following person will make the most washing:

4. Over the next week, use Challenge 4 Sheet to record your results. In the table, record how many items of washing 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 4 Sheet. For example, who creates the least washing? Who creates the most washing?
7. The person who created the most washing was:

You will need:

- Challenge 4 Sheet

Completed on (date):

Adult's initials:

5 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 5. So if you turned over an 8 you'd need to shout out 40 as $8 \times 5 = 40$.
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 5 times table, play with the 2 times table, then the following times tables in order: 3, 4, 8, 10.

I played 5 times table duel against _____

and the person who won was _____

I played 2 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 4 times table duel against _____

and the person who won was _____

I played 8 times table duel against _____

and the person who won was _____

I played 10 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

Completed on (date):

Adult's initials:

6 Playing Games With Maths

Your challenge:

- Find the maths in your favourite board or card game such as Top Trumps, Uno or Monopoly.

How to play:

1. While you are playing it, have a think about all the maths skills you are using!
2. Search hard – most games do involve some maths somewhere, but if your favourite game doesn't, then try your second favourite game!

The game I played was _____

The maths I spotted in it was

You will need:

- Your favourite board or card game to play
- People to play it with

Completed on (date):

Adult's initials:

7 Get Arty!

Your challenge:

- Can you create a piece of art that contains all of the following shapes in it:
A regular hexagon, A regular octagon,
an irregular quadrilateral, a square,
a rectangle, an irregular heptagon,
a triangle.

Things to remember:

- You can create your art using any type of materials you like. You could collage, paint, colour or do anything else – it's up to you. You can also use any other shapes in your art but list them below.
- Then bring your piece of art back to school with your challenge sheet!

Have fun being arty!

You will need:

- Plain paper
- Art materials

Completed on (date):

Adult's initials:

8 The Great Maths Bake Off

Your challenge:

- Bake something tasty and find the hidden maths.

What to do:

- Cooking is so much fun! But did you know it involves a lot of amazing maths too?
- Work with an adult to bake something yummy. Need an idea of some recipes? Head to 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!?
- Don't forget to then taste what you have made!

I made: _____

The maths I used was

You will need:

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

Completed on (date):

Adult's initials:

9 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. 3×1) 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

Completed on (date):

Adult's initials:

10 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 10 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 10 Sheet
- A partner to play with

Completed on (date):

Adult's initials:

11 How Many Answers?

Your challenge:

- How many products can you make out of 4 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 $567 - 823$ 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 (but don't use a calculator!)
3. Make a list of the different answers that you have made on Challenge 11 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 11 Sheet

Completed on (date):

Adult's initials:

12 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.
2. Note down at least 20 facts about the number around your number, creating a poster. Examples you could choose include factors, multiples, even/odd, square number, 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.
5. Be as creative as you can with how you present your work. Why not help other people in your family to create a poster showing their favourite number too?

You will need:

- A piece of plain paper
- Colouring pencils or crayons

Completed on (date):

Adult's initials:

13 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 13 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 13 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 _____

Completed on (date):

Adult's initials:

14 How Long Did It Take?

Your challenge:

- Find out who is the quickest at doing different challenges.

Things to remember:

1. On Challenge 14 Sheet you will find some fun challenges to take part in. Have a go at each one, and time yourself, recording the time.
2. Then get another person to do the same challenge under timed conditions, and compare who was quickest.

Have fun at these speedy challenges!

You will need:

- Challenge 14 Sheet
- A pencil or pen
- A partner
- A ball
- A stopwatch (on an adult's phone or tablet is fine)

Completed on (date):

Adult's initials:

15 Fraction Hunting

Your challenge:

- Can you find the fractions all around us?

What to do:

1. On a plain piece of paper, write 'Fractions are all around us' in the middle.
2. Fill the rest of the paper with places you have seen fractions in real life over the holidays.
3. Perhaps you've been to the supermarket – can you see any fractions there? Have you shared some cake over the holiday? I bet you used fractions there too! Look carefully, and you will find fractions everywhere!

You will need:

- A plain piece of paper

Completed on (date):

Adult's initials:

16 How Many Ways Can You Show?

Your challenge:

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

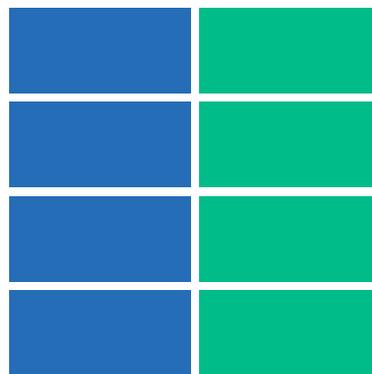
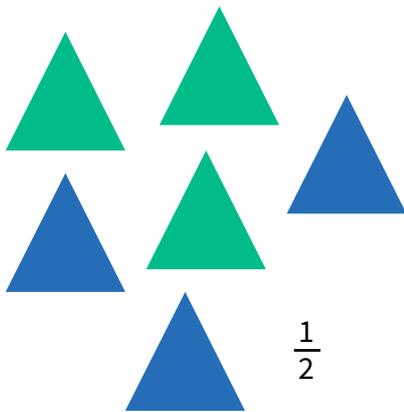
How to play:

- There are so many different ways to represent and show fractions. 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

Completed on (date):

Adult's initials:

17 Money Problems

Your challenge:

- Maths problems are everywhere! Can you write at least six worded problems that involve money?

What to do:

- You could base your money problems on ways you have used money during the holidays, or you could totally make them up.
- Try to write problems that involve different operations – could you create problems that involve more than one operation? Bring in the sheet of problems with your challenge sheet in September!

You will need:

- A sheet of lined paper

Completed on (date):

Adult's initials:

18 Tens Tennis

Your challenge:

- Who can win a match of tens 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 10 to the number. This becomes your running total.
2. Now it's back to the first player who adds 10 to the running total, and so on.

You win when:

- You are the first player to say a number over 350
- Your partner makes a mistake
- Your partner says 'umm'
- Your partner takes more than 3 seconds to answer.

Play at least 11 matches with your partner. Who will win the most games?

I played with _____

The person who won was _____

You will need:

- A partner

Completed on (date):

Adult's initials:

19 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 19 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:

- partner
- 2 copies of Challenge 19 Sheet
- A coloured pencil each
- Digit Cards Resource Sheet

Completed on (date):

Adult's initials:

20 Tug of War

Your challenge:

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

How to play:

1. Firstly, 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 1000 they win, and if the player who is subtracting gets below 1 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

Completed on (date):

Adult's initials:

Challenge 1 Sheet Hunting for Arrays

Use this sheet to record 8 different arrays that you have spotted during the holiday. Write down 4 calculations that each array shows.

The first one has been done for you.

1. The array I spotted was:
cans at the supermarket



$$\begin{array}{r} 4 \quad \boxed{\times} \quad 2 \quad = \quad 8 \\ \hline 2 \quad \boxed{\times} \quad 4 \quad = \quad 8 \\ \hline 8 \quad \boxed{\div} \quad 2 \quad = \quad 4 \\ \hline 8 \quad \boxed{\div} \quad 4 \quad = \quad 8 \end{array}$$

2. The array I spotted was:

$$\begin{array}{r} \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \end{array}$$

3. The array I spotted was:

$$\begin{array}{r} \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \end{array}$$

4. The array I spotted was:

$$\begin{array}{r} \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \\ \hline \quad \boxed{} \quad = \quad \quad \end{array}$$

5. The array I spotted was:

_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____

6. The array I spotted was:

_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____

7. The array I spotted was:

_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____

8. The array I spotted was:

_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____
_____	□	_____	=	_____

Challenge 3 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?

Purple: 30, 60, 50, 70, 80, 90

Blue: 8, 14, 12, 18, 20, 22

Green: 2, 4, 24, 28, 36, 44, 48

Yellow: 16, 32, 40, 42, 72

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

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

D. Complete this sentence:

After collecting my data, the person who created the most washing in the house was

Challenge 10 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

Challenge 13 Sheet Unicorns vs Giants

Unicorn's House

654 + 543 = ? 43 + 83 = ? 5 x 6 = ? 432 + 832 = ? 7 x 4 = ? 36 ÷ 4 = ? 9 x 10 = ?

32 + 392 = ? 865 - 43 = ? 786 + 832 = ? Double 12 = 989 - 832 = ? 654 - 93 = ? 654 + 832 = ?

15 x 5 = ? 60 ÷ 5 = ? $\frac{1}{2}$ of 80 = ? 7 x 3 = ? 765 - 372 = ? 903 - 899 = ? 765 + 83 = ?

843 - 32 = ? 1 + 3 + 4 = ? 765 + 21 = ? 18 x 5 = ? 100 ÷ 10 = ? 16 ÷ 4 = ? 83 + 75 = ?

684 + 283 = ? 482 + 4879 = ? 793 + 132 = ? 86 + 832 = ? 901 - 281 = ? 7 x 5 = ? 8 x 3 = ?

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

765 + 32 = ? 382 + 743 = ? 593 + 3291 = ? 68 + 854 = ? 902 - 589 = ? 793 - 242 = ? 492 - 379 = ?

765 + 878 = ? 894 - 92 = ? 421 + 24 = ? 85 - 38 = ? 543 + 764 = ? 388 - 225 = ? 760 + 98 = ?

Giant's House

Challenge 14 Sheet How Long Did It Take?

Who is quickest at these challenges?

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.

Challenge	My Time	My partner's time	Fastest person
A			
B			
C			
D			
E			
F			
G			

Challenge 19 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

Resource Sheet 1

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

6

7

8

9

0

1

2

3

4

5

6

7

8

9