Baking Challenge

This baker has three bags of flour. Each is a different weight.

- The first and third weigh 11kg altogether.
- The first and second weigh 7kg altogether.
- The second and third weigh 8kg altogether.





What is the weight of each bag of flour?

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Card Challenge

Maurice the Magician has chosen four different cards that add up to 20. There is a number from 1 to 8 on each card.

What could the 4 numbers be?

There are seven different possibilities.
Try to find them all.



What if Maurice has three cards that add up to 16?

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Coin Challenge

Use these 5 coins: 1p, 2p, 5p, 10p and 20p.

Order them by using these clues:

- The last coin is double the value of the first coin.
- The total of the first three coins in 27p.
- The total of the last three coins is 31p.





Now use six coins: two 1ps, two 2ps and two 5ps.

Put them in a row using these clues.

- Betweem the two 2p coins there are two coins.
- Between the two 5p coins there are three coins.
- Between the two 1p coins there is one coin.

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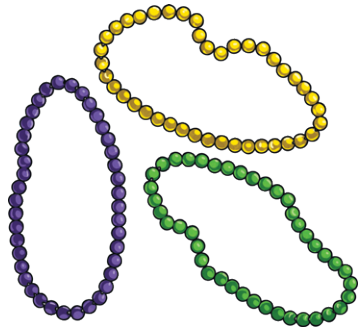
Counting Beads Challenge

Abbie had between 30 and 50 beads.
She counted the beads in fours and had 2 left over.

She counted them in fives and had 1 left over.



How many beads did Abbie have?

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Detective Challenge

Detective Dog Dan looked for a number. He found a two-digit number less than 50. The sum of its digits was 12. Their difference was 4.



What number did Dan find?

Next, Dan found a two-digit odd number.

One of its digits was half the other. The number was greater than 50.

What number did Dan find this time?

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Dice Challenge

The dots on opposite faces of a dice add up to 7.



What is the total number of dots on one dice?

Soraya rolls a dice. She adds all the dots that she can see. The total is 17. How many dots are face down? How do you know?



Next, Freddie rolls two dice. They are not touching. The total of all the dots he can see is 30.



Which two numbers are face down? Explain how you know.

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Gold Coin Challenge

The King is counting his gold. He put 20 gold coins into four piles.

The first pile had four more coins than the second.

The second pile has one less coin than the third.

The fourth pile has twice as many coins as the second.



How many gold coins did The King put in each pile?

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Making Footprints Challenge

Small has size 2 shoes.

Medium has size 3 shoes. They are one and a half times the length of Small's shoes.

Large has size 5 shoes.



A small shoe and a medium shoe are the same length as a large shoe.

They start with the heels of their show on the same line.

They each walk heel to toe.

When will all three heels be in line again?

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Nickname Challenge

Jack, Billie, Francis and Abbie are cousins. They each have a nickname. Their nicknames are Bambi, Cheeky, Ducky, and Giggles but not in that order. What is the nickname of each of the cousins?

Clues

Francis plays tennis with Cheeky and goes swimming with Ducky and Bambi.

Abbie has been on holiday with Cheeky but travels to school with Giggles and Ducky.

Bambi, Cheeky and Jack play in the football team.

Bambi sometimes goes to tea with Francis.



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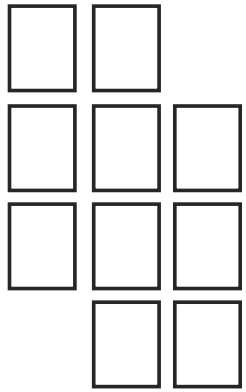
Number Neighbour Challenge

Take ten cards numbered 0 to 9 and arrange them like this.



Do it so that no two consecutive numbers are next to each other, horizontally, vertically or diagonally.

There are lots of ways to do it.

How many ways can you find?

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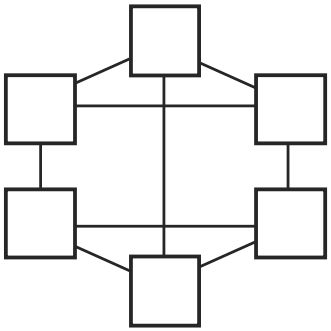
Number Neighbour Challenge

Use each of the numbers 1 to 6 once. Write one in each square.

6 5 4

2 3 1



Numbers next to each other must not be joined. For example, 3 must not be joined to 2 or 4.

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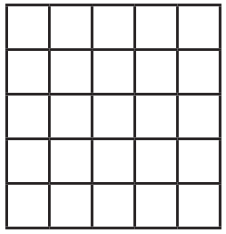
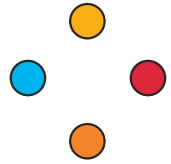
Odd and Even Grid Challenge

Draw a grid with 25 squares. Each square must fit one counter only.



Solve these problems below.

1. Take 13 counters and place them in the grid so that there is an odd number of them in each row, column and the two diagonals.
2. Take 10 counters and place them in the grid so that there is an even number of them in each row, column and the two diagonals.



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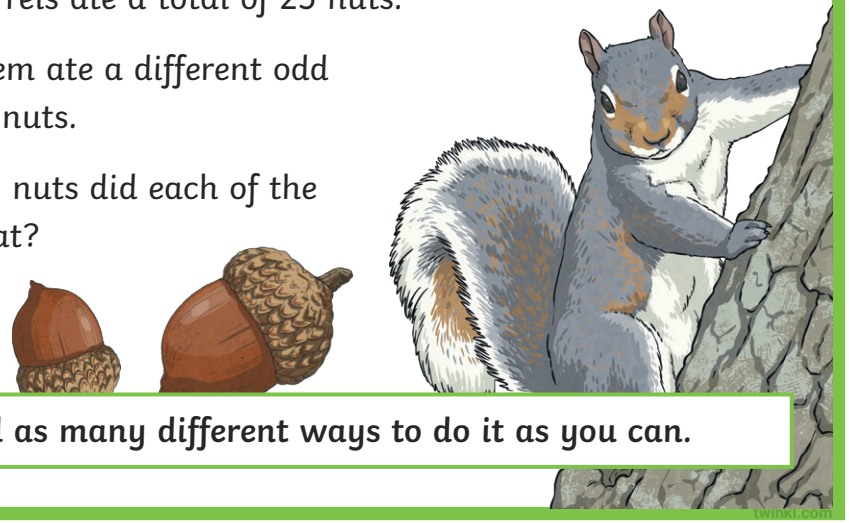
Odd Nut Challenge

Three squirrels ate a total of 25 nuts.

Each of them ate a different odd number of nuts.

How many nuts did each of the squirrels eat?



Find as many different ways to do it as you can.

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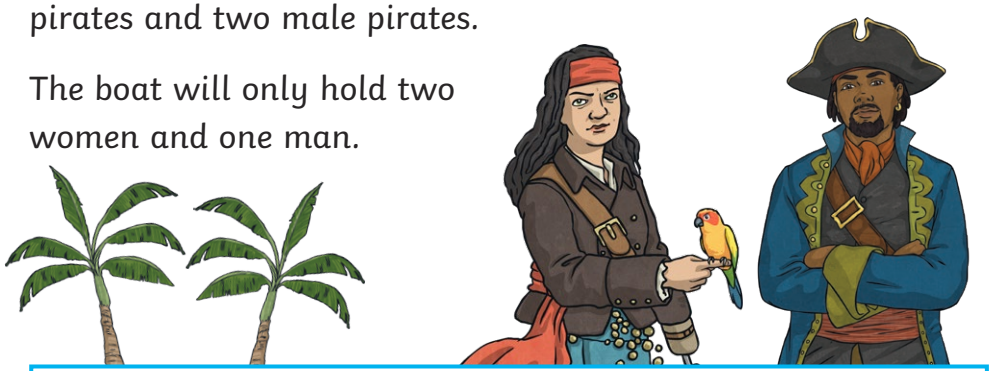
Pirate Island Challenge

Four pirates want to sail to an island. There are two female pirates and two male pirates.

The boat will only hold two women and one man.



How can all four of them get to the island?

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Sandcastle Challenge

In 5 days Sophie made 80 sandcastles.

Each day she made 4 fewer castles than the day before.

How many castles did she make each day?

Sophie went on making 4 fewer castles each day.



How many castles did she make altogether?

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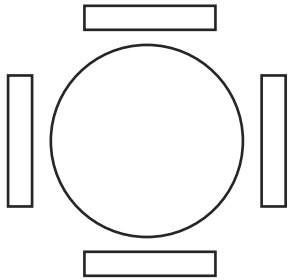
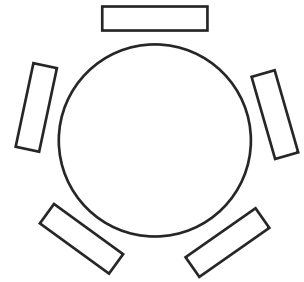
Seating Knights Challenge

The King sits at a Round Table.
There are 3 empty seats.
In how many different ways can 3 knights sit in them?

King



King



What if there are 4 empty seats?
In how many different ways can 4 knights sit in them?

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Space Monster Challenge

Space monsters have landed on our planet!

Some of the monsters have 2 eyes and some have 3 eyes.

There are 28 eyes altogether.



How many monsters have 3 eyes?

How many monsters have 2 eyes?

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Stamp Challenge

This parcel costs 55p to send.

It has 8 stamps on it. Each stamp is either a 5p or a 10p stamp.



How many 5p stamps are there?

How many 10p stamps are there?

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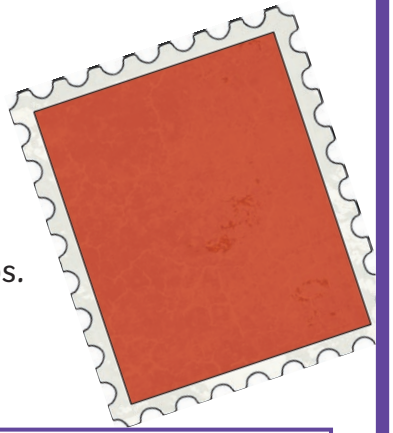
Stamp Collection Challenge

Edward and Eric collected some stamps.

They each had the same total number.
Edward had 3 full sheets and 4 loose stamps.

Eric had 2 full sheets and 12 loose stamps.

Every full sheet had the same number of stamps.



How many stickers there in a full sheet?

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Stamp Price Challenge

Rachel spent £2.00 on stamps that cost 10p and 20p.

She bought three times as many 10p stamps as 20p stamps.



How many 10p stamps and 20p stamps did she buy?

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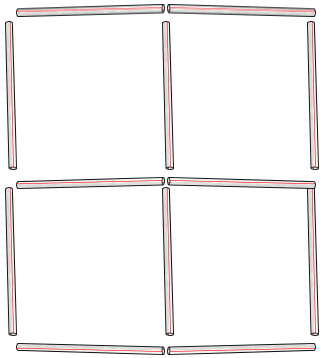
Straw Square Challenge

12 straws are placed in this pattern to make 4 small squares and 1 large square (a total of 5 squares).



Take 20 straws of the same length. Arrange them to make as many squares as you can.

Don't bend or break the straws!

How many squares did you make?

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Sweet Sorting Challenge

Use 14 sweets every time.



1. Make each jar hold two sweets or five sweets.



2. Make each jar hold twice as many sweets as the one before.



3. Make each jar hold one less sweet than the one before.



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Treasure Challenge

Jane and Simon have three jewels:
a diamond (D), a ruby (R) and an emerald (E).



Jane	D E							
Simon	R							

The table shows Jane has a diamond and Simon has a ruby. Complete the table to show all of the other possible combinations.

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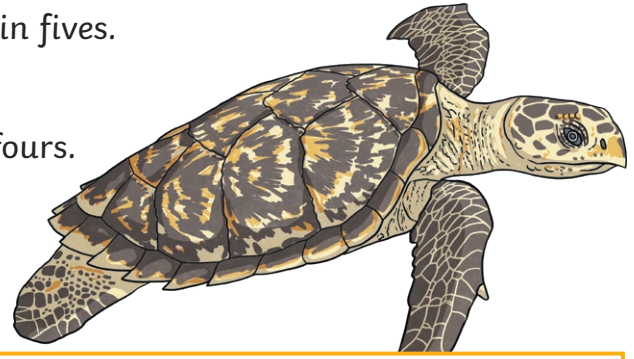
Turtle Egg Challenge

This turtle laid fewer than 20 eggs.

She counted her eggs in fives.
She had 4 left over.

She counted them in fours.
She had 3 left over.



How many eggs did the turtle lay?

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Answers

Baking Challenge

Bag one has 5kg, bag two has 2kg and bag three has 6kg.

Card Challenge

2 + 8 + 6 + 4
7 + 2 + 6 + 5
3 + 7 + 6 + 4
5 + 6 + 8 + 1
4 + 7 + 8 + 1
8 + 2 + 6 + 4
6 + 3 + 7 + 4

Coin Challenge

Part One
Presented as coins
5p 2p 20p 1p 10p

Part Two
Presented as coins
2p 5p 1p 2p 1p 5p or
5p 1p 2p 1p 5p 2p

Counting Beads Challenge

Abbie had 46 beads.

Detective Dog Challenge

Dan found the number 63.

Dice Challenge

Part One
The total number of dots on a dice is
1 + 2 + 3 + 4 + 5 + 6 = 21.
21 – 17 = 4 so 4 is face down.

Part Two
The total number of points on two dice can be calculated using
21 x 2 = 42.
42 – 30 = 12, which means that 6 is face down on both dice.

Gold Coin Challenge

Show each number below also represented as a pile of gold coins.
The King put his coins in piles like this:
7 3 4 6

Making Footprints Challenge

30 is the first multiple of 2, 3 and 5. 'Large' will have taken 6 steps, 'Medium' will have taken 10 steps and 'Small' will have taken 15 steps.

Nick Name Challenge

Jack – Ducky
Billie – Cheeky
Francis – Giggles
Abbie – Bambi

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Number Neighbour Challenge Purple Card

Number Neighbour Challenge Blue Card

Odd and Even Challenge Grid

Odd Nut Challenge

11, 9 and 5
13, 7 and 5
15, 7 and 3
17, 5 and 3
19, 5 and 1

Pirate Island Challenge

This problem requires the women to make multiple trips to the island, for example:

- Women A and Woman B sail to the island. Woman B stays there.
- Woman A sails back.
- Man A sails to the island and stays there.
- Woman B sails back.
- Woman A and Woman B sail to the island. Woman B stays there.
- Woman A sails back.
- Man A sails to the island.
- Woman B sails back.
- Woman A and Woman B both sail to the island.
- Woman B sails back.
- Woman A and Woman B both sail to the island.

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Sandcastle Challenge

Part One

Sophie made this many sandcastles each day:

Day One – 24

Day Two – 20

Day Three – 16

Day Four – 12

Day Five – 8

Part Two

Sophie would make 84 sandcastles over 6 days, because she would make an additional 4 sandcastles on Day 6.

Seating Knights Challenge

Part One

Three knights can sit with the king in 6 different ways.

Part Two

Four knights can sit with the king in 24 different ways.

Space Monster Challenge

Four possibilities:

3 eyes	4 eyes
8	2
6	5
4	8
2	11

Stamp Challenge

3 x 10p stamps

5 x 5p stamps

Stamp Collection Challenge

8 stamps per sheet

Stamp Price Challenge

4 x 20p stamps

12 x 10p stamps

Straw Square Challenge

You can make a maximum of 9 squares:

Sweet Sorting Challenge

1. Here are the possibilities:

5 5 2 2

2 2 5 5

5 2 2 5

2 5 5 2

5 2 5 2

2 5 2 5

2. 2 4 8

3. 5 4 3 2

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Treasure Challenge

Jane	D E	D	R	R E	R D	E	D R E	
Simon	R	R E	E D	D	E	D R		D R E

Turtle Egg Challenge

The turtle laid 19 eggs.

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