MOVING ON UP!

Cambs Maths Team

Mathematics

Cambridgeshire County Council

Introduction

This pack has been designed to support your child in preparing to move up to their new year group in September. The activities included have been selected to encourage children to practise and develop a range of mathematical skills in fun and motivating ways.

We suggest that you spread the activities over the summer holidays, by completing a variety of activities each week, but you may choose to use them in a different way to suit the needs of your family.

The following activity types are included in the pack:

These activities support children in engaging with real-life maths, linking different areas of maths, and developing their use of mathematical vocabulary.
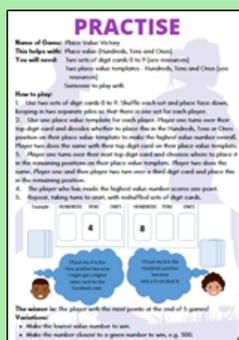
These activities support children in developing mathematical fluency and confidence.
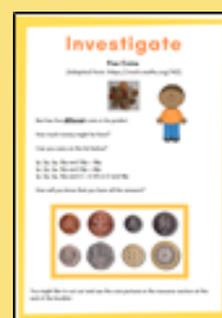
These activities support children in developing problem solving and reasoning skills and applying their learning to new situations.
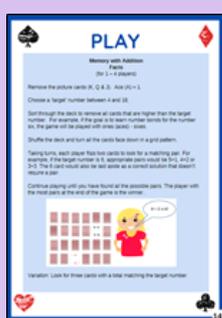
These activities support children in developing mathematical fluency and strategy. If you do not have a pack of cards, use the resource sheets at the end of this pack.

These activities support children in understanding the usefulness of maths and allow them to apply their skills to real-life situations. Your child could choose one to complete each day.

At the end of the pack, there are several resource pages which can be used for some of the activities.

If you would like more activities and ideas to try this summer, visit:
https://www.cambslearntogether.co.uk/home-learning/summer

Contents

Activities:

Resources:

Be a Maths Detective

- Can you think of any mathematical questions which you could ask and answer using the picture?
- Try to include questions about as many different areas of maths as you can.
- If you are stuck, have a look at the prompts below.

Here are some words which you might like to use:

altogether   total   more   less

add   subtract   take away   fewer

double   half   windows   doors

huts   boats   shapes   rectangles

angles   half   quarter   third

Here are some question frames which might help you:

How many …………. are there?
How many more ………. than ………. are there?
If ……… boats are move away, how many would be left?

My mathematical questions:

_____

_____

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1

Be a Maths Detective

- Can you think of any mathematical questions which you could ask and answer using the picture?
- Try to include questions about as many different areas of maths as you can.
- If you are stuck, have a look at the prompts below.

Here are some words which you might like to use:

total   altogether   more   fewer

same   different   large   small

eyes   beaks   ducks   hair

hat   mask

Here are some question frames which might help you:

How many …………. are there altogether?
How many different …………. can you see?
How many more …………. than ……………. are there?
How many fewer …………. than ……………. are there?
What is the most common …………. in the picture?

My mathematical questions:

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Be a Maths Detective

- Can you think of any mathematical questions which you could ask and answer using the picture?
- Try to include questions about as many different areas of maths as you can.
- If you are stuck, have a look at the prompts below.

My mathematical questions:

_____

_____

_____

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Be a Maths Detective

- Can you think of any mathematical questions which you could ask and answer using the picture?
- Try to include questions about as many different areas of maths as you can.
- If you are stuck, have a look at the prompts below.

Here are some words which you might like to use:

same   different   altogether   total

more   fewer   add   subtract

take away   groups   whole   part

above   below   square   rectangle

oblong   vertices   sides   windows

bricks   half   quarter   fraction

Here are some question frames which might help you:

How many ………….. are there?
How many different ………..... can you see?
How many more …………. than ………………. are there?
How many fewer …………. than ………………. are there?
What fraction of the windows are ………?
If this is a quarter of the building ………………….?

My mathematical questions:

_____

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PRACTISE

Name of Game: Place Value Victory

This helps with: Place value (Hundreds, Tens and Ones)

You will need: Two sets of digit cards 0 to 9 (see page 22)

Two place value templates – Hundreds, Tens and Ones (see page 24)

Someone to play with

How to play:

1. Use two sets of digit cards 0 to 9. Shuffle each set and place face down, keeping in two separate piles so that there is one set for each player.

2. Use one place value template for each player. Player one turns over their top digit card and decides whether to place this in the Hundreds, Tens or Ones position on their place value template to make the highest value number overall. Player two does the same with their top digit card on their place value template.

3. Player one turns over their next top digit card and chooses where to place it in the remaining positions on their place value template. Player two does the same. Player one and then player two turn over a third digit card and place this in the remaining position.

4. The player who has made the highest value number scores one point.

5. Repeat, taking turns to start, with reshuffled sets of digit cards.

Example	HUNDREDS	TENS	ONES	HUNDREDS	TENS	ONES
		4		8		
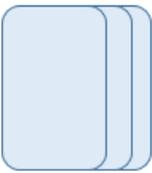
I'll put my 4 in the Tens position because I might get a higher value card for the Hundreds next.

I'll put my 8 in the Hundreds position because only a 9 can beat it.

The winner is: The player with the most points at the end of 5 games!

Variations:

- Make the lowest value number to win.
- Make the number closest to a given number to win, e.g. 500.

5

PRACTISE

Name of Game: Successful Steps
This helps with: Counting in steps of 2, 3, 5 and 10 from a given number
You will need: One set of digit cards 0 to 9 (see page 22)
One spinner (2, 3, 5 and 10) (see page 23)
Pencil and paper clip for spinner
Someone to play with

How to play:
1. Shuffle the digit cards 0 to 9 and place face down. Player one turns over the top card to find the start number.
2. Player one spins the spinner to find which step to count aloud, starting from the start number.
3. Player one keeps the digit card if they say the next five correct steps and stops after the number required.
4. Player one puts the digit card at the bottom of the pile, to be used again, if they are not correct or do not stop after the number required.
5. Repeat for player two and then take turns until all of the cards have been turned over. Play again, this time starting with player two.

Example:
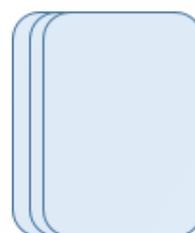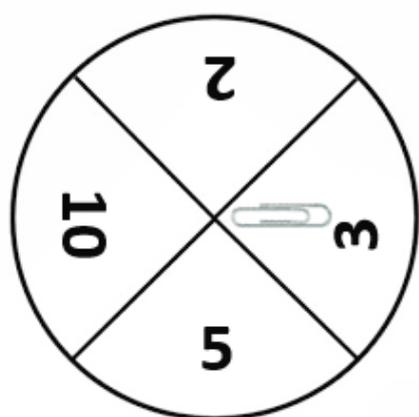
7, 10, 13, 16, 19, 22.

I start at 7. I say the next five steps of 3.

The winner is: The player with the most cards at the end of the game!

PRACTISE

Name of Game: Hurray for One Hundred
This helps with: Addition and subtraction (Tens and Ones)
**You will need:** Two sets of digit cards 0 to 9 (see page 22)
One spinner – Tens and Ones (see page 23)
Someone to play with

How to play:

1. Use two sets of digit cards 0 to 9. Shuffle together and place face down.
2. Both players start at 0 and write this on their paper.
3. Player one turns over the top digit card and spins the spinner to determine whether this represents tens or ones. This value is added to their number and written on the paper. Player two does the same with the second digit card.
4. Players take turns to turn over a card, spin the spinner and add that number of either tens or ones to their previous total.
5. Shuffle and re-use the digit cards if required.

Example:
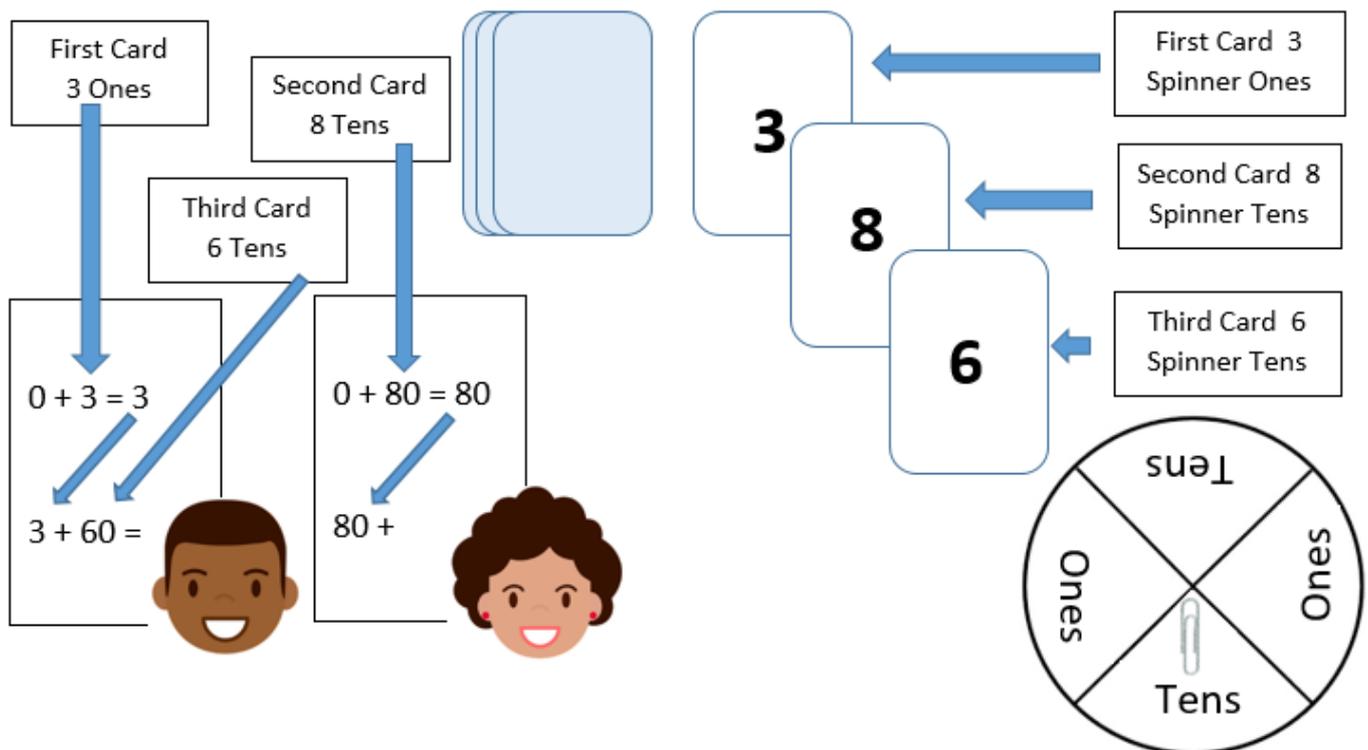
The winner is: The player who reaches, or passes, 100 first!

Variations:

- Start at 100 and subtract either tens or ones to reach zero first.
- Have a set of digit cards each and race together from 0 to 100 using addition or 100 to 0 using subtraction to see who reaches their target first.

PRACTISE

Name of Game: Divide and Conquer

This helps with: Dividing into groups of 2, 3, 5 or 10.

You will need: Two sets of digit cards 0 to 9 (see page 22)
Someone to play with

How to play:

1. Shuffle each set of digit cards 0 to 9 separately and place them face down in two piles, next to each other. Player one turns over the top card from each pile to create a two digit number.

2. Player one tells player two how many complete groups of 2, 3, 5 and 10 can be made from the given number. If there are none, this must be stated.

3. Player two checks and awards one point for each correct answer.

4. Player two then turns over the next of the digit cards from the piles to form a new two digit number. Player two tells player one how many complete groups of 2, 3, 5 and 10 can be made from their number. Player one checks and awards one point for each correct answer.

5. Repeat, taking turns, until all of the cards have been turned over. Play again, this time starting with player two.

Example:

There are
13 groups of two,
8 groups of three,
5 groups of five and
6 groups of ten.

2   6
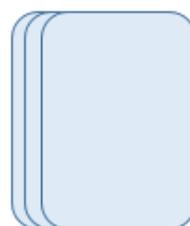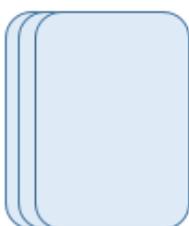
That is all correct, except for the groups of ten. *That should be 2 groups of ten.*

I will give three marks.

The winner is: The player who has the most points when all of the cards have been turned over!

Variations:

- Use everyday items, such as pasta pieces, to represent the given number and make groups of the required size, or limit the 'Tens' digit card pile to lower value cards to keep the numbers smaller.

- Give the remainder left over after complete groups have been made e.g. 26 is made of 2 groups of 10, remainder 6.

Investigate

Five Coins

(Adapted from: https://nrich.maths.org/142)
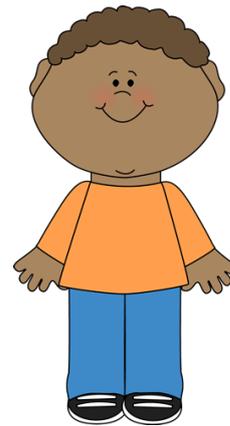
Ben has five **different** coins in his pocket.

How much money might he have?

Can you carry on the list below?

1p, 2p, 5p, 10p and 20p = 38p
1p, 2p, 5p, 10p and 50p = 68p
1p, 2p, 5p, 10p and £1 = £1.18 or £1 and 18p

How will you know that you have all the answers?

You might like to cut out and use the coin pictures on page 25.

Investigate

Coloured Squares

(from: https://nrich.maths.org/234)

Use the clues to colour each shape:
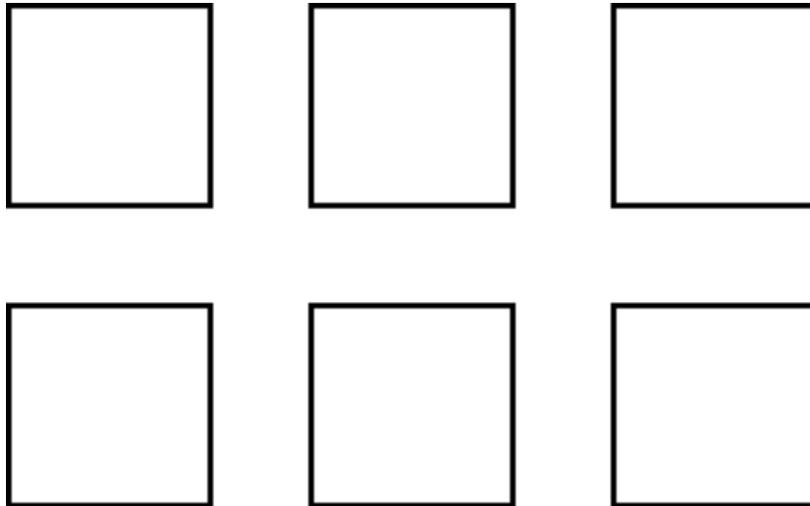
1. Blue is between green and red
2. Orange is below green
3. Yellow is to the left of both purple and orange

Can you make your own versions of the problem for someone at home to solve?

Use the resource sheet on page 26.

Investigate

Noah

(from: https://nrich.maths.org/136)

Noah saw 12 legs walk by into the ark.
How many creatures could he have seen?

How many different answers can you find?
You might like to draw your creatures or record your ideas in another way.
Can you explain how you found your answers?

Investigate

Number Round Up

(from: https://nrich.maths.org/188)

The sum of each side of the triangle should equal the number in the centre of the triangular shape.

Here is an example that does not quite work:
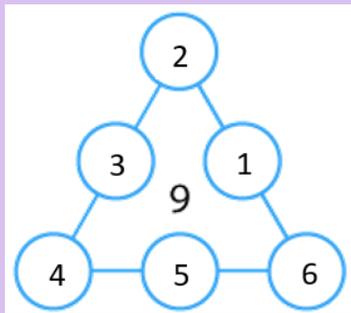
$4 + 3 + 2 = 9$ ✓

$2 + 1 + 6 = 9$ ✓

But: $4 + 5 + 6 = 15$ ✗

Arrange the numbers **1 to 6** in each set of circles below.

9

10

11

12
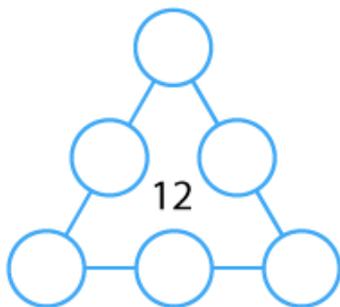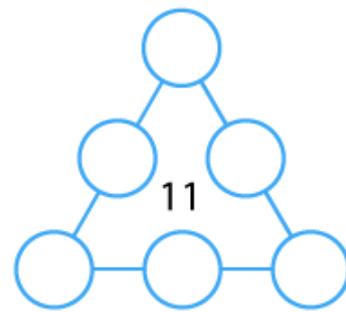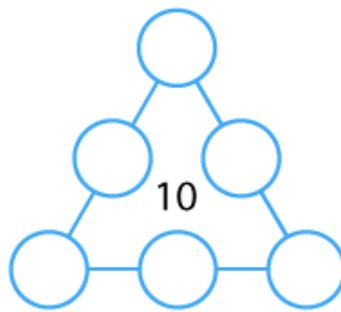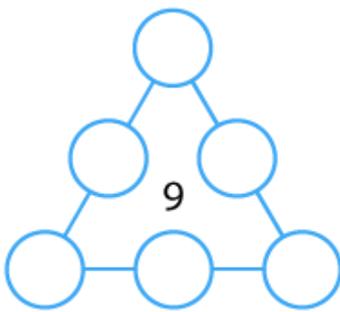
1) Is there more than one solution for each triangle?
2) Are 9, 10, 11 and 12 the only possible totals?

Use the resources on page 27 to investigate.

Investigate

Tangrams

(from: https://nrich.maths.org/6715)

A tangram is an ancient Chinese puzzle where you make pictures using these mathematical shapes:
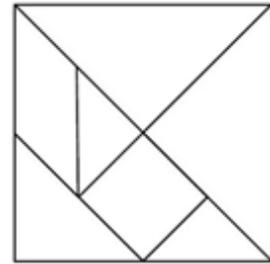
Make a set of tangram pieces by carefully cutting out the larger shapes on page 28.

Can you make each of these pictures using your seven pieces? They must not overlap and you must use all seven pieces each time.
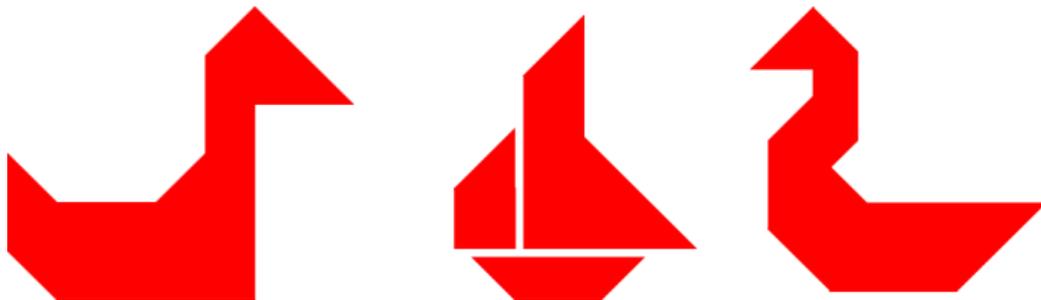
Now try these:

Now try making some tangram pictures of your own.

PLAY

MEMORY
WITH ADDITION FACTS
(for 1 to 4 players)

Remove the picture cards (K, Q & J). Ace (A) = 1.

Choose a 'target' number between 4 and 16.

Sort through the deck to remove all cards that are higher than the target number. For example, if the goal is to learn number bonds for the number six, the game will be played with ones (aces) - sixes.

Shuffle the deck and turn all the cards face down in a grid pattern.

Taking turns, each player flips two cards to look for a matching pair. For example, if the target number is 6, appropriate pairs would be 5+1, 4+2 or 3+3. The 6 card would also be laid aside as a correct solution that doesn't require a pair.

Continue playing until you have found all the possible pairs. The player with the most pairs at the end of the game is the winner..
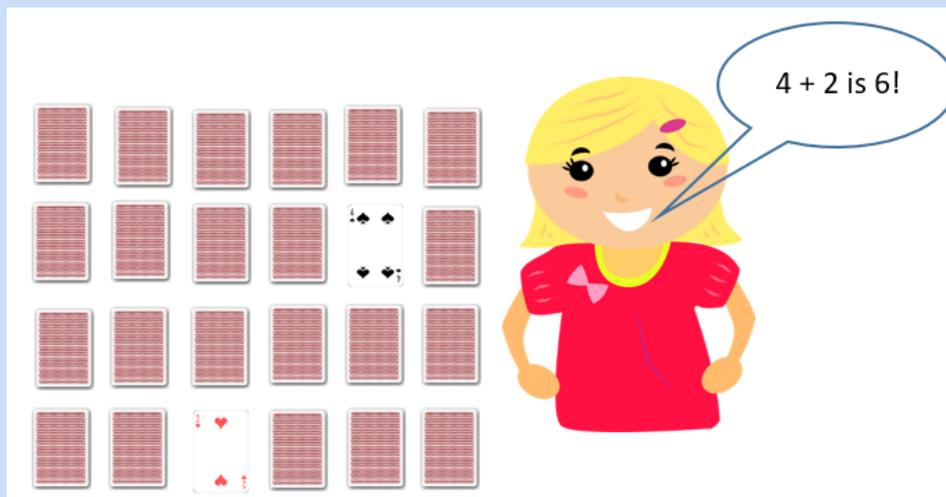
Variation: Look for three cards with a total matching the target number.

PLAY

TAKE 2
(for 2 or more players)

Remove the picture cards (K, Q & J) and shuffle the deck. Ace (A) = 1.

Each player should take two cards from the top of the pack and add the numbers together.

The player with the highest total wins a point. Record the points as you go.
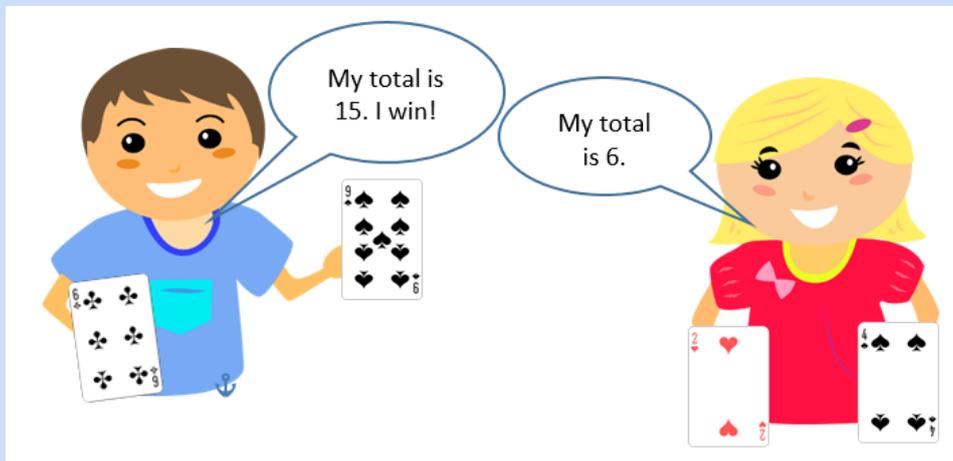
Variations:

You could also try this game with subtraction (e.g. - if a player picks up a 7 and a 9, they would calculate 9 - 7. You could decide whether the highest or lowest answer wins the point).

For a multiplication version, you could choose a target times table and each player could just take one card. e.g. - if you have chosen the 2 times table and a player picks up a 3, they would calculate 2 x 3. The highest product (answer) wins the point.

PLAY

TEN-TWENTY-THIRTY
(for 1 player)

All picture cards (K, Q & J) = 10. Aces (A) = 1.

Shuffle the deck. Create a row of seven cards, face up. Place two cards on top of each of the seven so you have seven piles, each made up of 3 cards. Arrange the cards so you can see the value of every card. Place the rest of the deck to the side, to be used later.

The object of the game is to remove a pile when the sum of all of its cards is 10, 20, or 30. For example, if a pile has an Ace, 9, and Jack in it, it could be removed because its sum is 20 (1 + 9 + 10).

Remove all of the piles that equal 10,20 or 30 to start.

Deal a fourth card on top of every pile that remains. Remove any stacks that now equal a multiple of 10. Then deal a fifth card on top of every pile that remains. Remove any stacks possible.

Continue adding cards and removing stacks until you run out of spare cards or the stacks have all been removed. If you remove all the stacks first, you have won!

If your deck is emptied first, try again.

Variation:
Look for different totals, e.g. 9, 19, and 29.

PLAY

YES, NO, YOU'VE GOT IT
(For 2 or more players or teams)

Use only the Ace - 10 cards for this game. The Ace (A) card is worth 1.

One player draws (takes) a card from the deck at random and keeps it secret.

Other players take turns asking mathematical questions to find out which card was drawn.

The person with the card responds to each question with one of these choices: "Yes," "No," or "You've got it!"

For example, if a player chooses a 4 of diamonds, questions might go like this:

Is the card black? (No)
Is the value of the card greater than 6? (No)
If I was counting in 2s from 0, would I say the value on the card? (Yes)
Is the card greater than 3? (Yes)
Is the card a six? (No)
Is the card a heart? (No)
Is the card a four of diamonds? (You've got it!)

The player who correctly guesses a card keeps that card and takes the next turn.

Play until one player has 10 cards.

Outdoor Maths Challenges

Maths activities you can do outside, in your garden, at your local park or when you are out on a walk.

1.

Go with an adult on a maths walk around your local area.

Can you find all of the numbers in the 3x table from 3 to 36?

2.

Create a target using a bucket or a bowl. If you throw a ball in you score points: From 1m away = 1 point; From 2m away = 2 points; From 3m away = 5 points!
Try and score the highest number of points you can with 5 throws.

3.

Draw a map of your garden or your local park. Start by drawing the outline and then draw symbols to show features like play equipment, sheds and trees.
Record your symbols in a key.

4.

Build the tallest tower you can using only a stick, a stone and a plant pot. You can use mud to help stick it together if you like.

Ask an adult to help you to measure how tall your tower is.

5.

Go on a bug hunt.
Record your findings with a tally chart.
Where do you find the most bugs? Why do you think this is?
Can you draw a bar chart to show your findings?

6.

Ask an adult to help you to build a den with natural materials and objects you find outside.

What shapes have you created?

7.

Set up your own obstacle course using things in your home, garden or your local park. How fast can you move around the course?

Make an estimate and then test it out. Can you improve your time?

8.

Make a symmetrical pattern using sticks, leaves and stones.
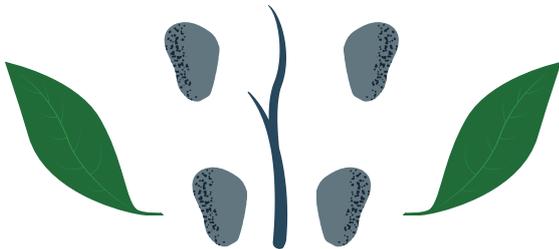
9.

How many times can you throw a ball into a bucket or empty plant pot that is 1 metre away without missing?
Challenge other people in your house to beat your score.

10.

Make up an outdoor exercise programme with five different activities. Make it clear how long each activity lasts. Try out your routine and send it to a friend or ask someone you live with to try it.
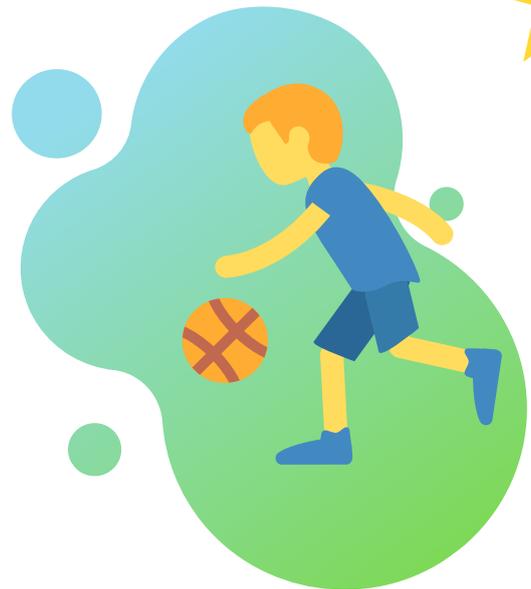
Always take care when learning outside. Some of these activities are easier and safer to do with an adult to help you. Share your learning together and have fun!

Indoor Maths Challenges

Maths activities you can do at home when the weather isn't very nice outside.

1.

Use a piece of rope, string or ribbon to make 2D shapes on the floor. Can you make different shapes with at least one right angle?
Draw a picture of the shapes that you make.

2.

Write and sing your own counting song, using the numbers in the 2x, 5x and 10x table.

You can also find times table songs online.

3.

Build the tallest tower possible using only 10 objects. How tall is it?
Can you build a new tower that is the same height, without using any cuboid-shaped objects?

4.

Read a non-fiction book, leaflet, magazine or newspaper with an adult.

See if you can find any numbers, measurements or shapes in the text or illustrations.

5.

Go on a maths hunt around your kitchen. What shapes and numbers can you find? Record your results.
Now compare this to your bedroom. Which room will have more numbers and shapes?

6.

Make your own game, for comparing numbers, like 'Top Trumps'.
Choose something you're interested in, e.g. animals, and think of five categories for comparing them.

7.

Write or draw a timetable for your day.

Use a clock to help you to record the start time, finish time and length of each activity in your day.

8.

Help an adult to do some baking.

You can measure the ingredients carefully using scales, cups or spoons.
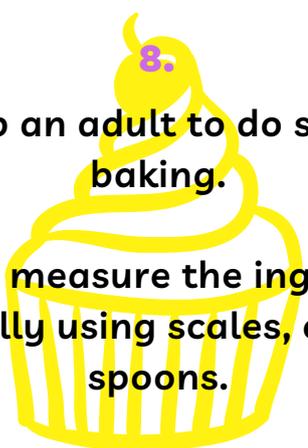
9.

Make up a secret code with a key (e.g. A = 1, B = 2 etc. or draw a symbol for each letter). Write a message for someone else to solve. Give them your key code and see if they can write a secret message back to you.

10.

Create a 'One Minute Olympics' with sixty-second events such as star jumps, hopping and counting in 2s, 5s or 10s. Challenge yourself and others to see who can set a new One Minute Olympics record.
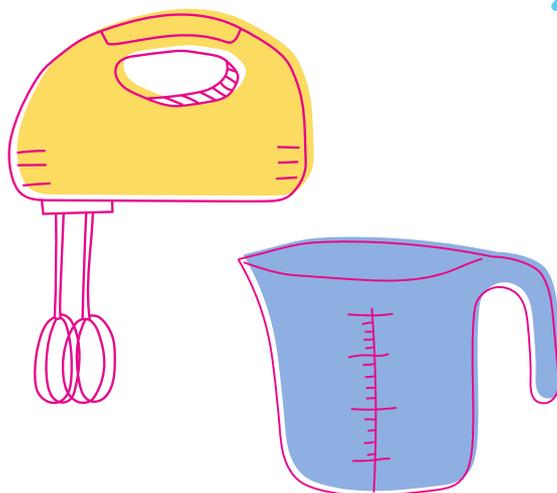
Some of these activities are easier and safer to do with an adult to help you.
Share your learning together and have fun!

Digit Cards

Cut these cards out and use them for activities and games.

0	1	2	3	4
5	<u>6</u>	7	8	<u>9</u>

0	1	2	3	4
5	<u>6</u>	7	8	<u>9</u>
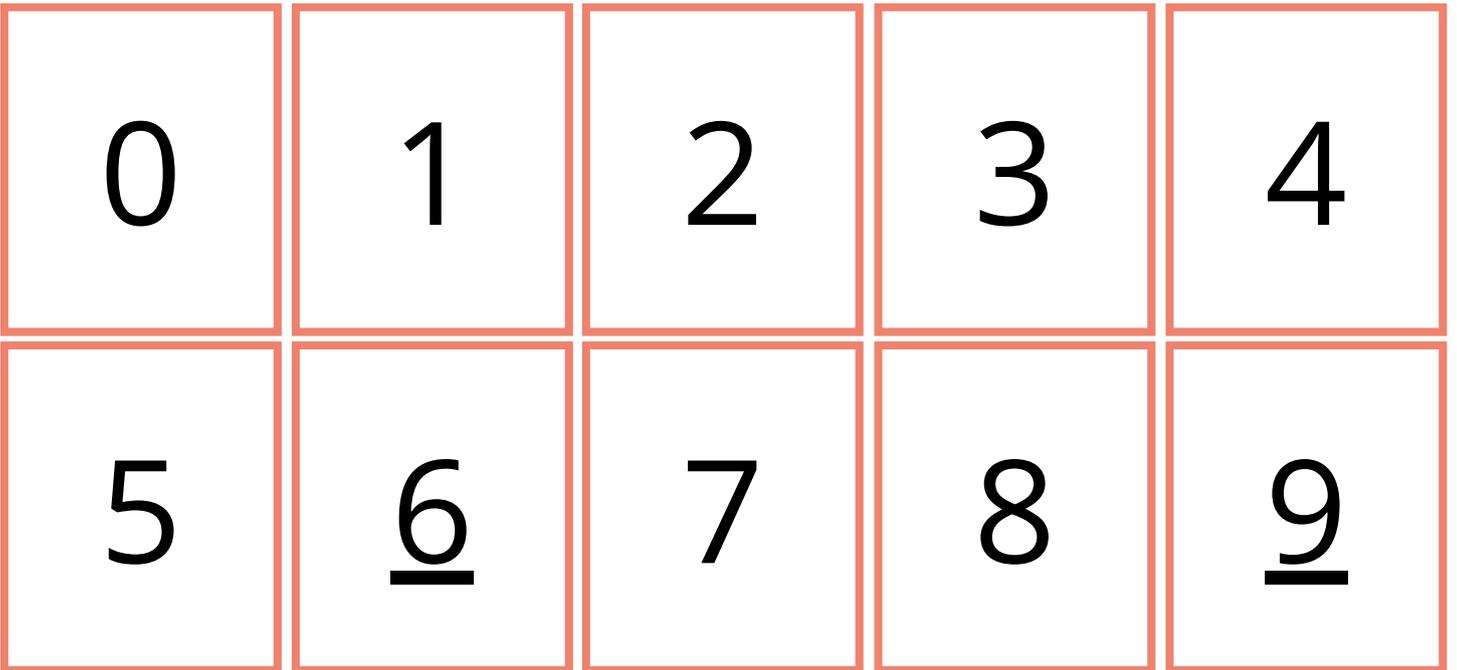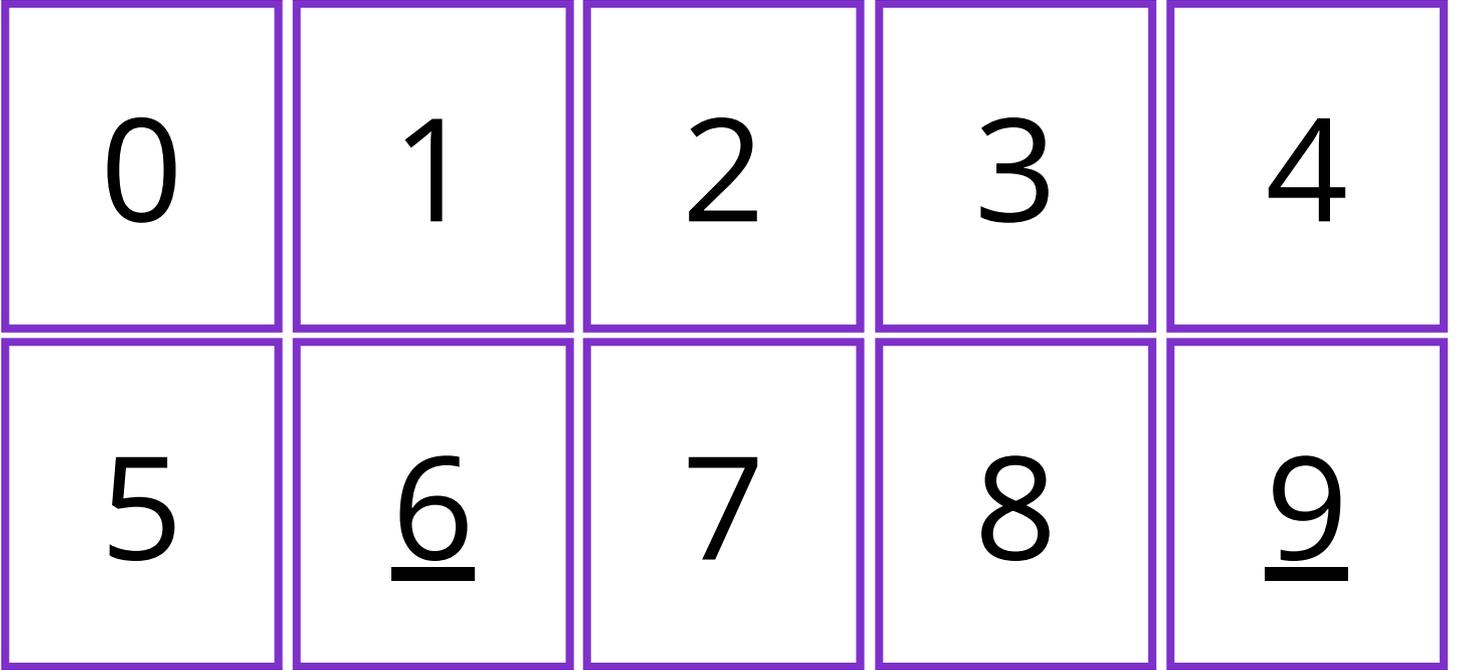
Spinners: Tens and Ones and 2,3,5,10.

1. Lay the paperclip at the centre of the spinner.
2. Hold your pencil with the point inside the paper clip, at the centre of the spinner.
3. Flick the paper clip to spin around the pencil.
4. Wait for the paper clip to come to rest and see which section it is in.
5. If the paper clip rests on a line, spin again.
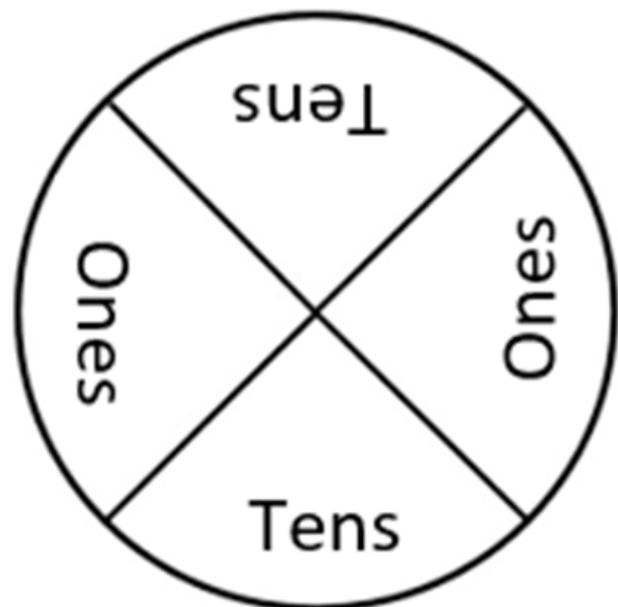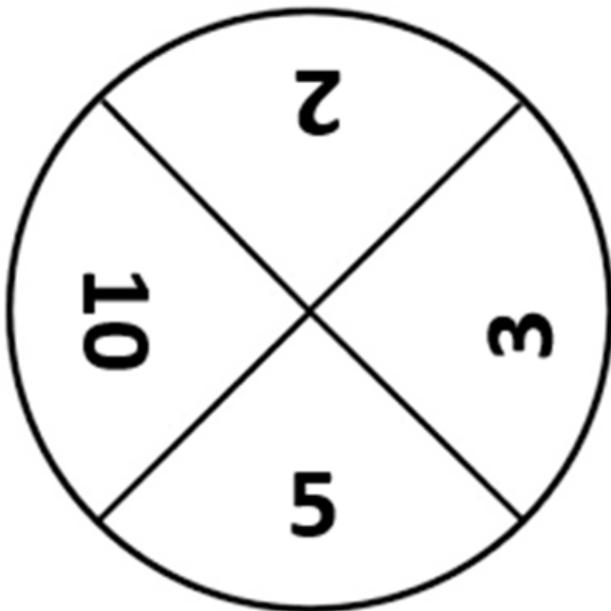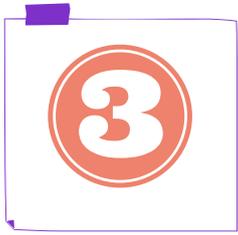
Place Value Templates
Hundreds,Tens and Ones

Hundreds   Tens   Ones

Hundreds   Tens   Ones

Five Coins Resources

Carefully cut out the coins if you would like to use them for this investigation.

Coloured Squares Resources

1) Write your clues here:

_____

_____

_____

_____

_____

_____

_____

Ask someone at home to follow your clues:

2) Write your clues here:

_____

_____

_____

_____

_____

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_____

_____

Ask someone at home to follow your clues:

Number Round Up

You could cut out the number circles at the bottom and use them to help you with this investigation. When you have your solutions, you can record them on the triangles:
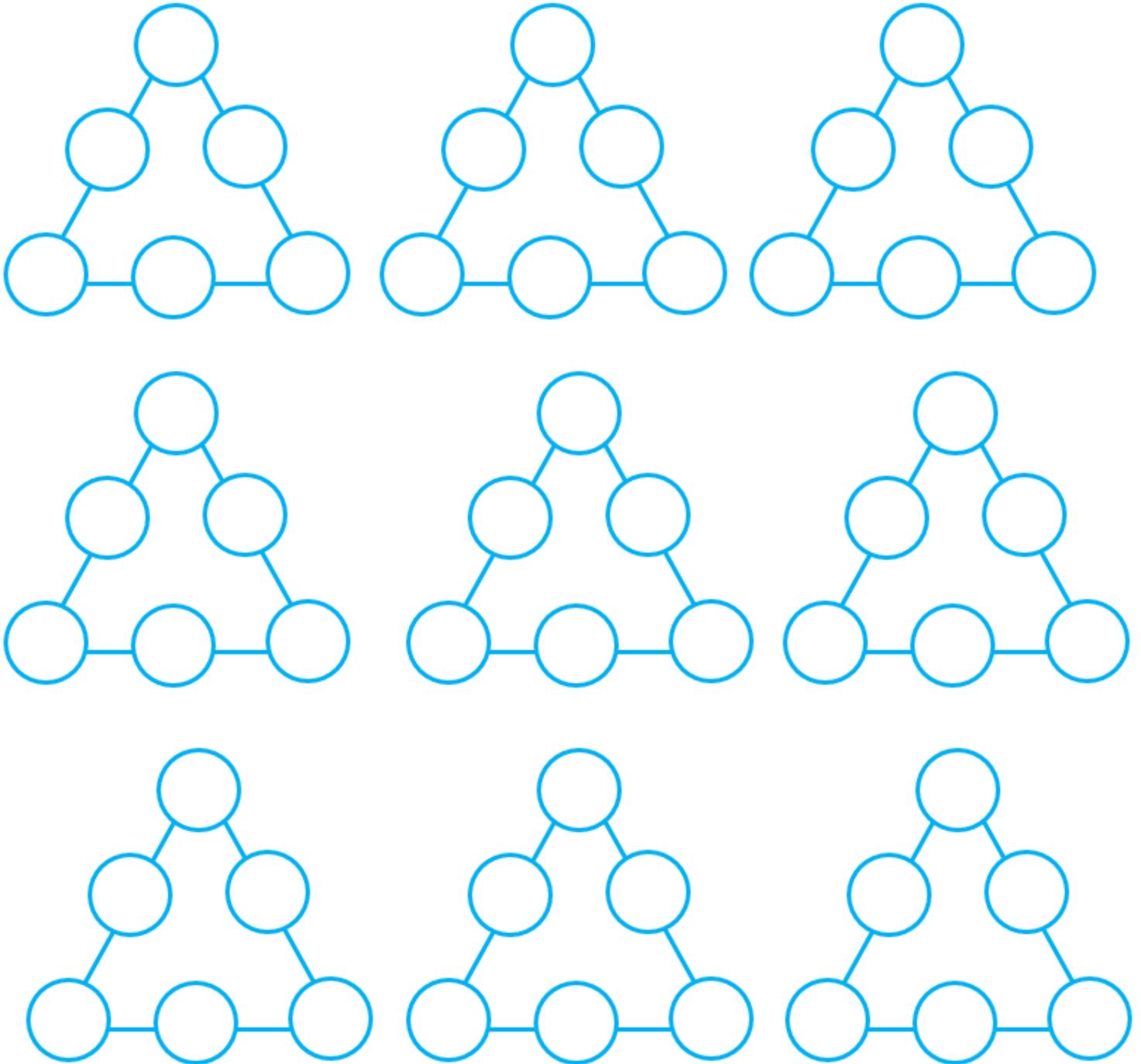
1   2   3   4   5   6

Tangrams

Carefully cut out the seven shapes below.
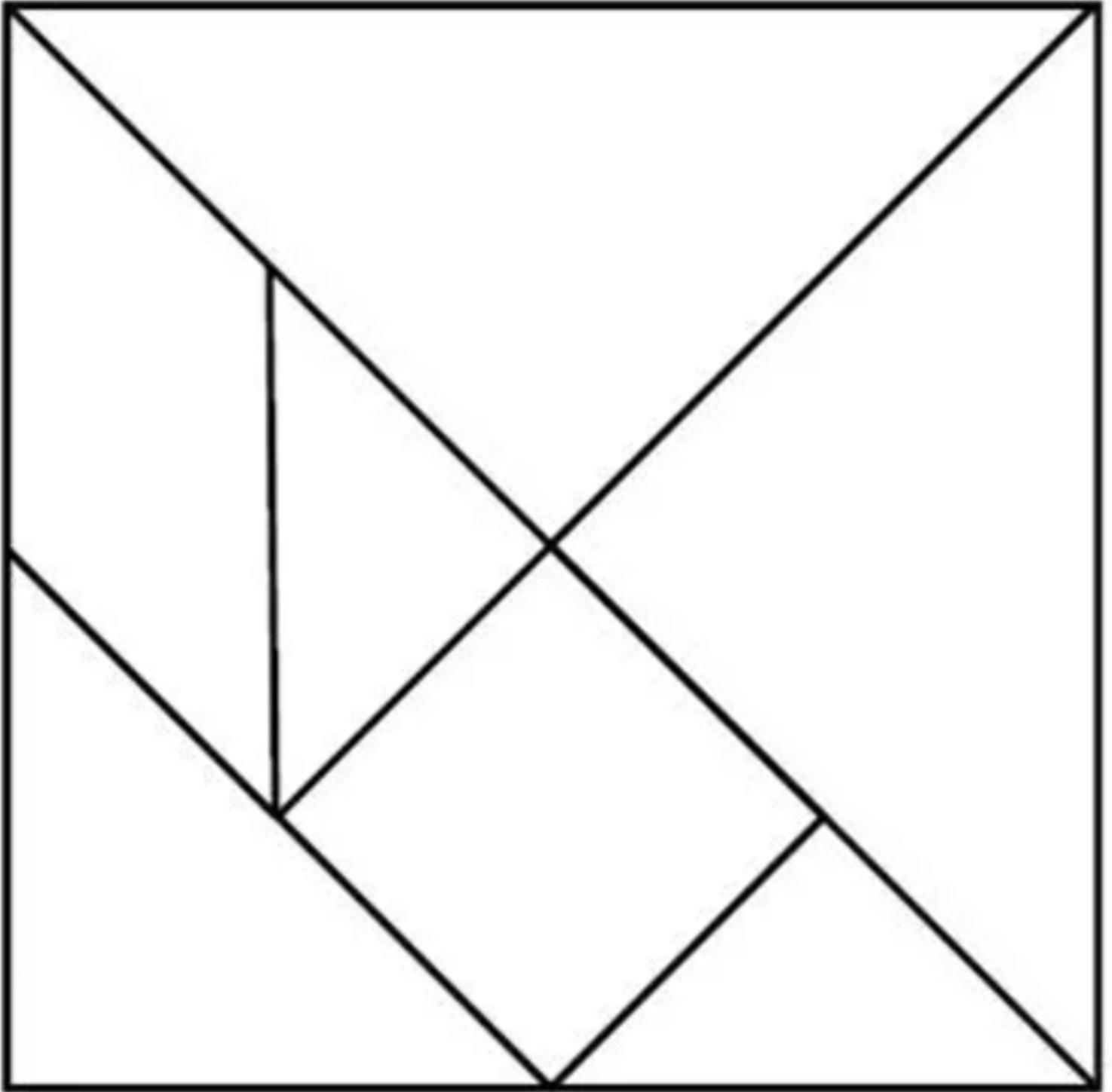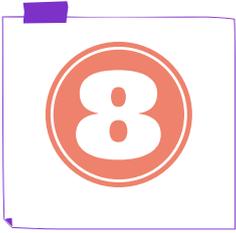
Multiplication Tables Squares

Use these tables squares for checking and practising multiplication facts.

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Playing Cards 1

Cut these cards out and use them for activities and games.

A ♥	2 ♥	3 ♥	4 ♥
5 ♥	6 ♥	7 ♥	8 ♥
9 ♥	10 ♥	J ♥	Q ♥
K ♥			
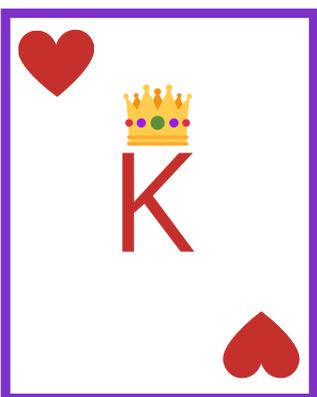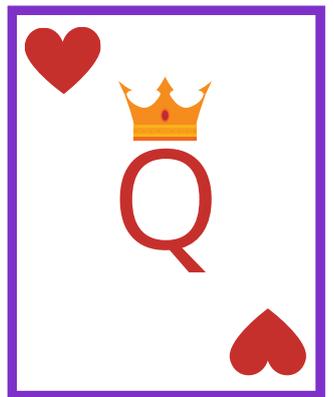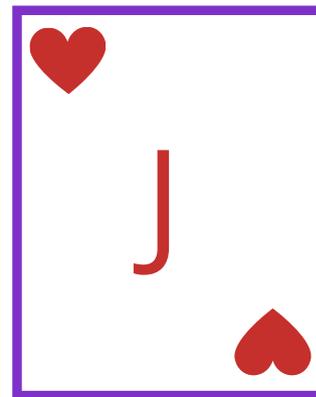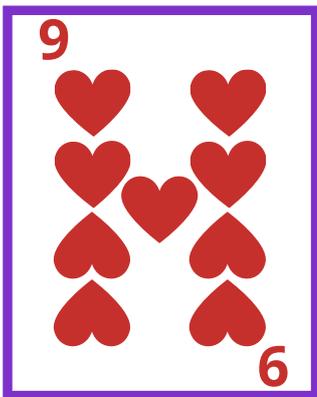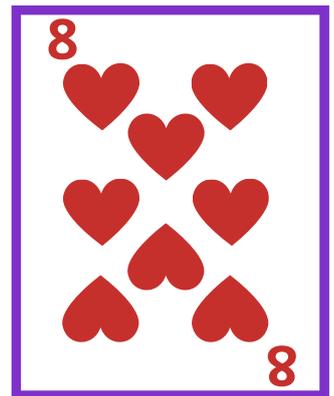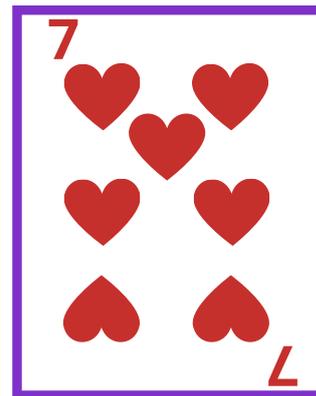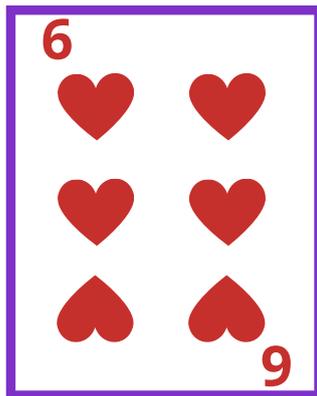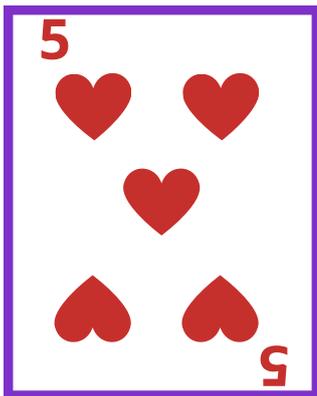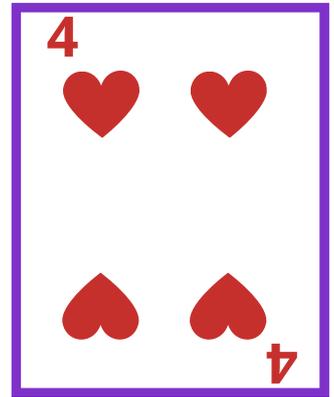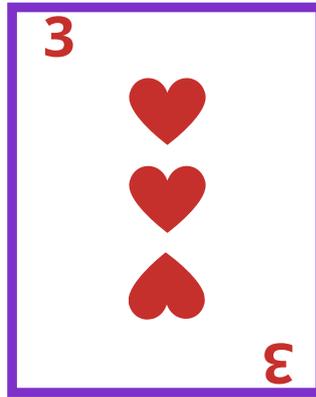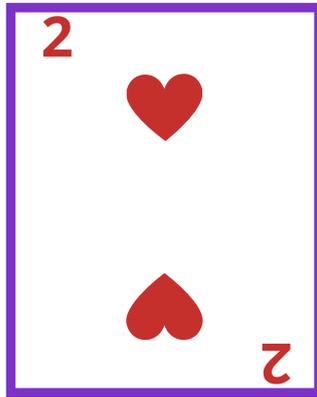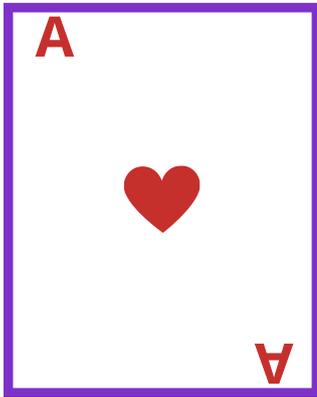
Playing Cards 2

Cut these cards out and use them for activities and games.

| A ♣	2 ♣	3 ♣	4 ♣
5 ♣	6 ♣	7 ♣	8 ♣
9 ♣	10 ♣	J ♣	Q ♣
K ♣			
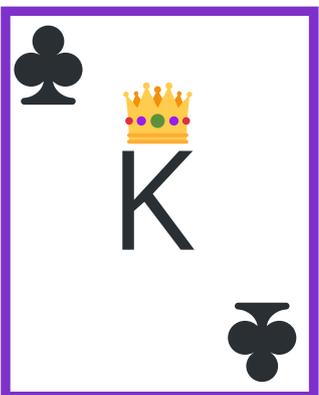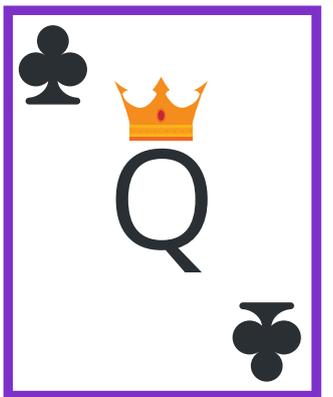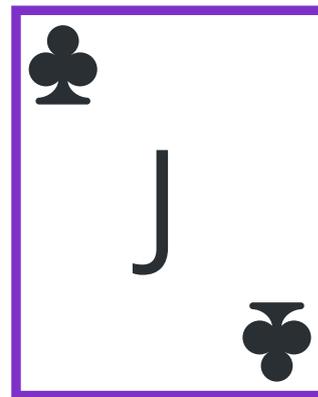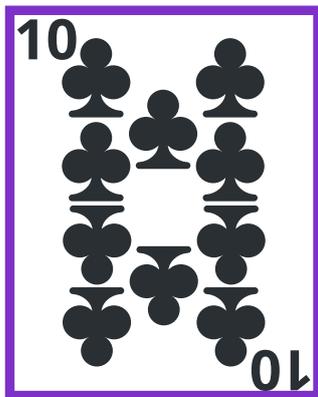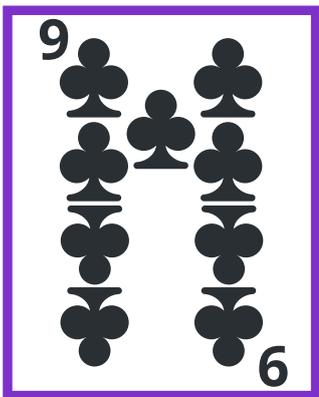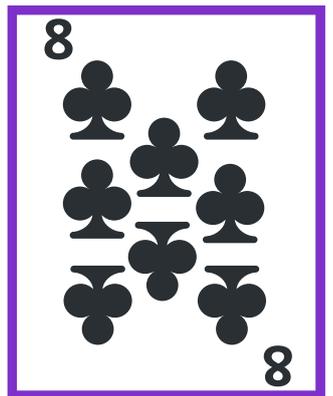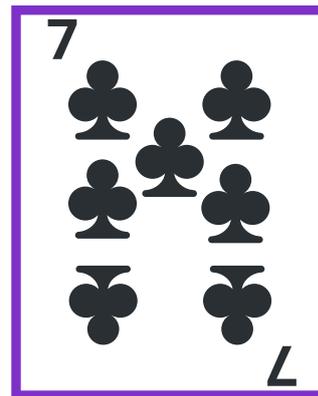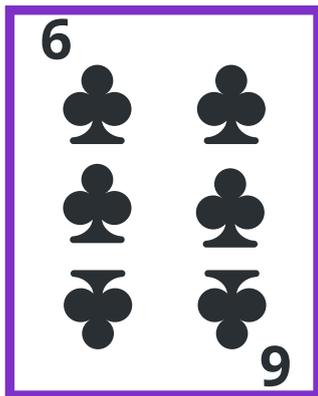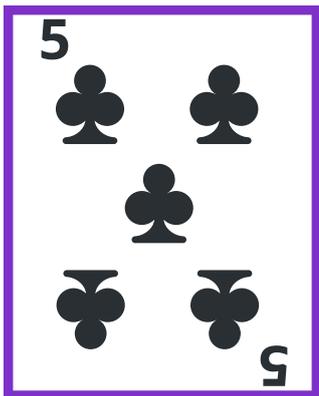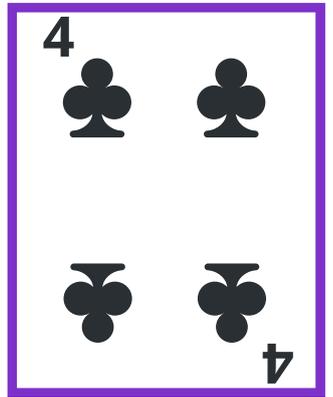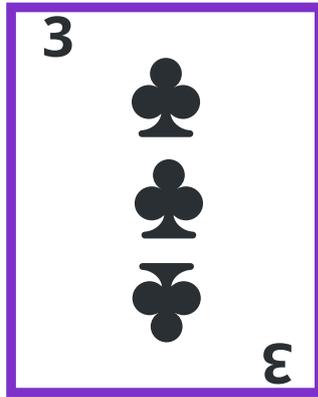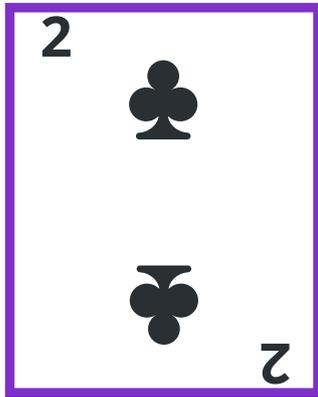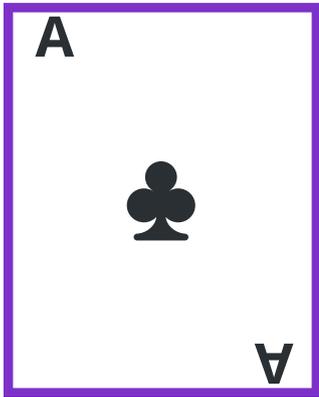
Playing Cards 3

Cut these cards out and use them for activities and games.

A ♦	2 ♦♦	3 ♦♦♦	4 ♦♦♦♦
5 ♦♦♦♦♦	6 ♦♦♦♦♦♦	7 ♦♦♦♦♦♦♦	8 ♦♦♦♦♦♦♦♦
9 ♦♦♦♦♦♦♦♦♦	10 ♦♦♦♦♦♦♦♦♦♦	J ♦	Q ♦
K ♦			
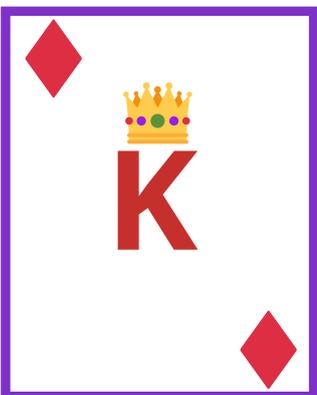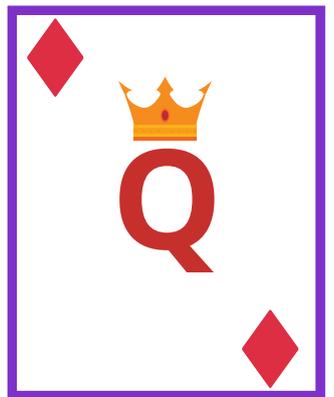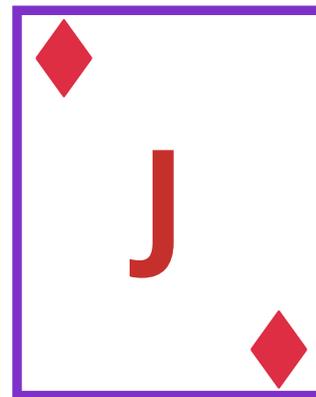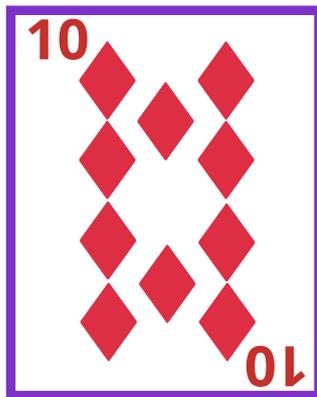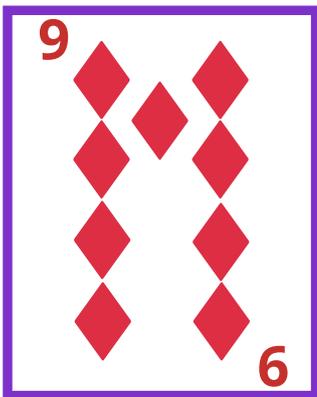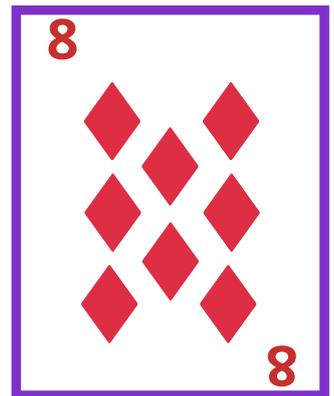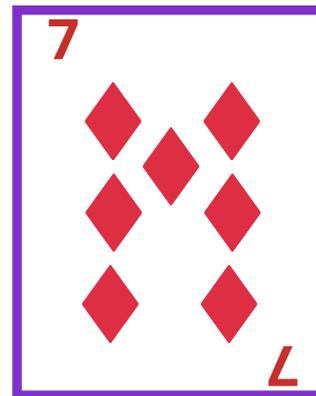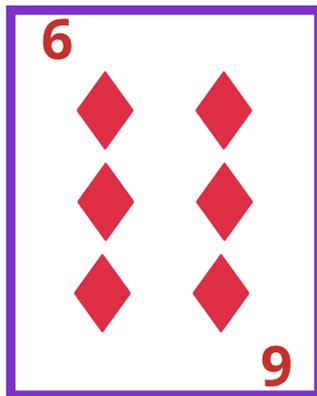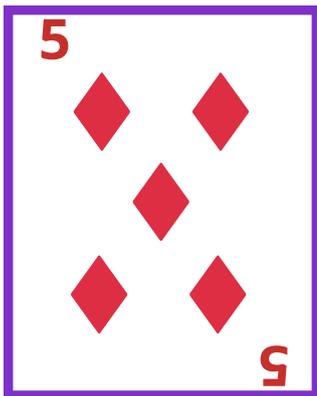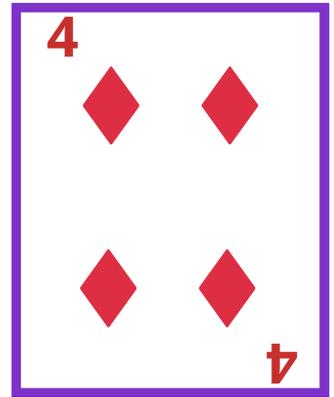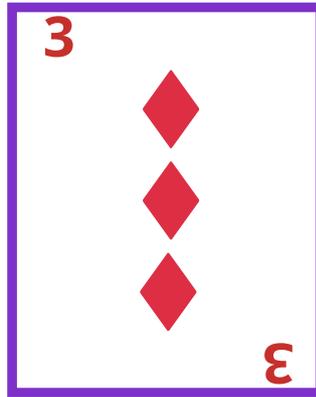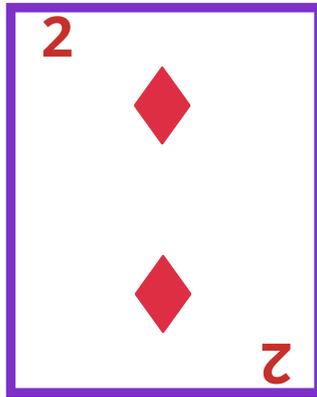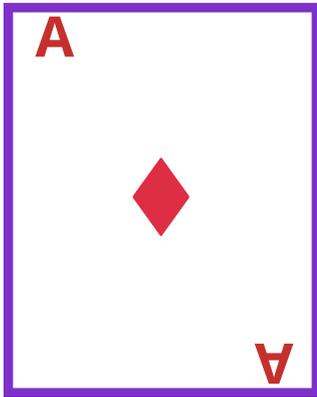
Playing Cards 4

Cut these cards out and use them for activities and games.

A ♠	2 ♠	3 ♠	4 ♠
5 ♠	6 ♠	7 ♠	8 ♠
9 ♠	10 ♠	♠ J	♠ Q
♠ K			
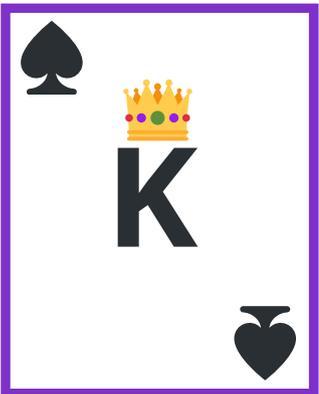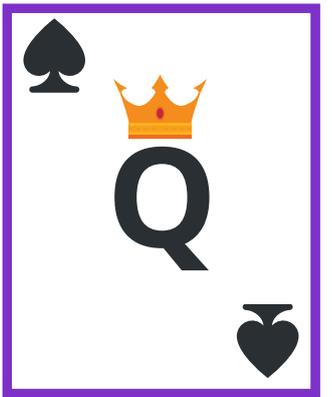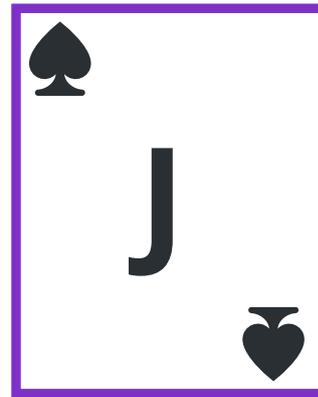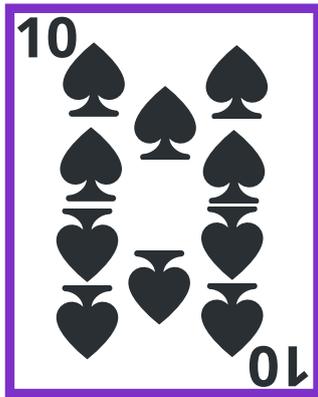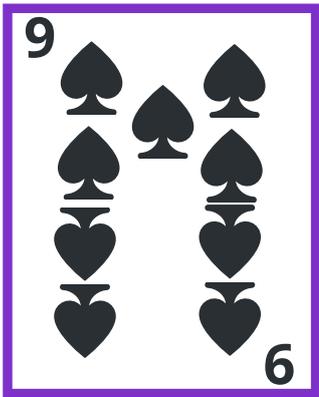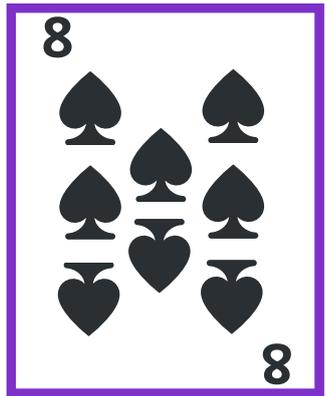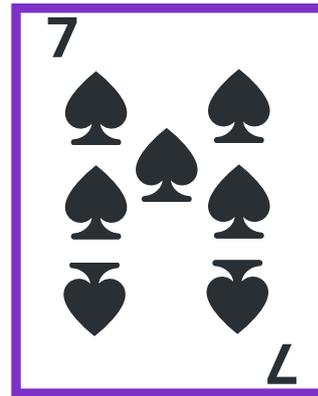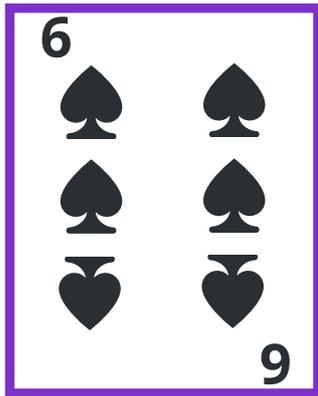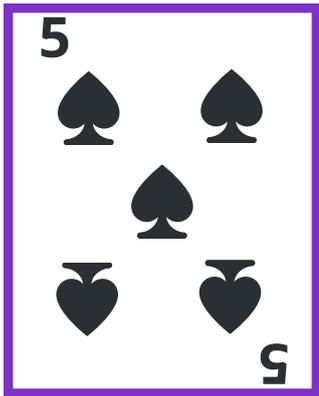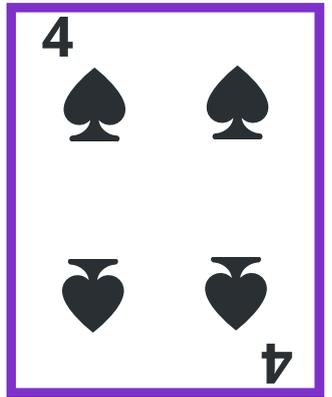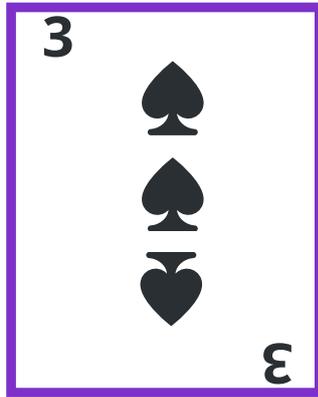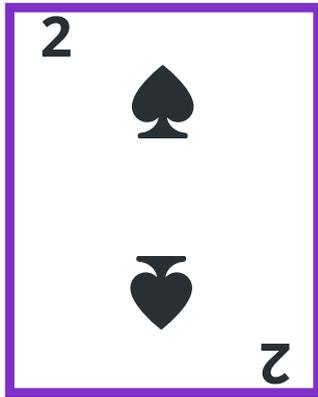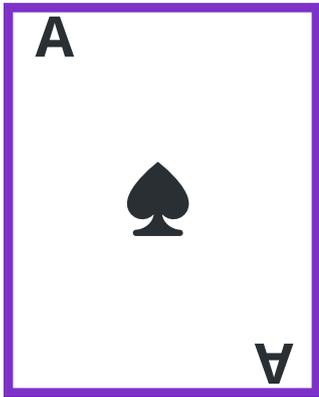
This booklet was produced by the Cambridgeshire County Council Maths Team.

Cambs Maths Team

Cambridgeshire County Council

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https://www.cambslearntogether.co.uk/home-learning/summer