

MOVING ON UP!



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>

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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.



Try to include questions about as many of these areas of maths as you can:

Addition and Subtraction
 Multiplication and Division
 Fractions, Decimals & Percentages
 Position and Direction
 Money
 Measures
 Shape

Here are some question frames which might help you:

How many are there altogether?
 How many more than are there?
 If each bottle of costs £.....,?
 What fraction of the are?
 If this is $\frac{1}{5}$ of the items in a shop,?
 If 25% of the soda cans are sold,?

My mathematical questions:

Be a Maths Detective

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- If you are stuck, have a look at the prompts below.



Try to include questions about as many of these areas of maths as you can:

Addition and Subtraction
Multiplication and Division
Fractions, Decimals & Percentages
Position and Direction
Measures
Shape (including angles)

Here are some question frames which might help you:

How many are there altogether?
How many more than are there?
How many different can you see?
If you scored, and on your go?
What fraction of the are?
If each players go takes minutes,?
I scored altogether in three throws. What are the different ways I could have done this?
How many different ways are there to score ?

My mathematical questions:

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.



Try to include questions about as many of these areas of maths as you can:

Addition and Subtraction
Multiplication and Division
Fractions, Decimals & Percentages
Position and Direction
Measures
Shape (including angles)

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 angles are there?

Can you use some of these words in your questions?

obtuse acute right angle horizontal vertical
diagonal parallel

My mathematical questions:

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.



Try to include questions about as many of these areas of maths as you can:

Addition and Subtraction
Multiplication and Division
Fractions, Decimals & Percentages
Position and Direction
Money
Measures
Shape

Here are some question frames which might help you:

How many are there altogether?

How many more than are there?

If each chocolate costs £.....,?

What fraction of the chocolates are?

If this is $\frac{1}{8}$ of the chocolates on display in a shop,?

If % of the chocolates are sold,?

My mathematical questions:

PRACTISE

Name of Game: Show What You Know
This helps with: Number facts
You will need: Two sets of digit cards 0 to 9 (see page 22)
Pencil and paper to keep score
Someone to play with

How to play:

1. Shuffle each set of digit cards 0 to 9 together and place them face down in one pile.
2. Player one turns over the top three cards to create a three digit number.
3. Player two tells player one what they know about this number, but cannot repeat a similar statement. For example, only one addition fact to make the number.
4. Player one awards one point for each correct statement. Player two's turn ends when they cannot think of any more facts, give an incorrect statement, duplicate a similar statement or reach ten points.
5. Repeat, with roles reversed, so that each player describes three different numbers.

Example:

The diagram shows a three-digit number 324 formed by three cards. To the left of the cards are several blue speech bubbles containing mathematical facts related to the number 324:

- I am divisible by 3
- 80 + 80 + 80 + 80 + 4
- 24 more than 300
- Half of 648
- Double 162
- 400 - 76
- 3 Hundreds, 2 Tens and 4 Ones

To the right of the cards is a blue speech bubble from a girl saying: "They are all correct. You can have 7 points."

The winner is: The player who has the most points after each person has described three different numbers!

Variations:

- Turn over two digit cards to generate a two digit number for each player.
- Each player has a time limit, e.g. one minute, to jot down as many facts as they can (without duplicating similar ideas).

PRACTISE

Name of Game: Place Value Victory

This helps with: Place value (Thousands, Hundreds, Tens, Ones, tenths, hundredths)

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

Two blank place value templates (see page 24)

Someone to play with

How to play:

1. Use two sets of digit cards 0 to 9 with two decimal point cards. Shuffle each set and place face down, keeping separately, one pile for each player.
2. Use one blank place value template for each player. Player one turns over their top digit card and decides where to place this card 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. Play continues placing the third and fourth number cards into position. If the decimal point card is turned over, this should be placed in one of the remaining empty places.
4. The player who has made the highest value number scores one point.
5. Repeat, taking turns to start.

Example

3	6	.	7
---	---	---	---

8	.	1	2
---	---	---	---



36.7 is greater than 8.12 so I win one point.

I placed 8 first. It was going to be 8 Thousand but the decimal point has changed the value of the number.



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. 50

PRACTISE

Name of Game: Factor Frenzy

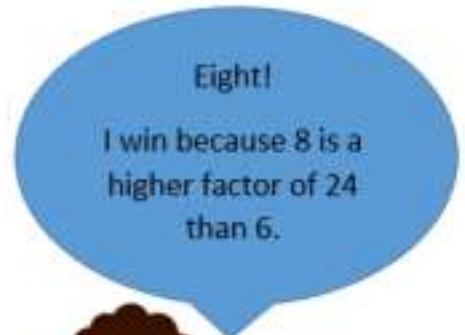
This helps with: Multiplication tables (0-12)

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, side by side as in the example below. Both players turn over the top card from each pile, at the same time, to create a two digit number.
2. Both players call out a factor of the number. If both players call at the same time, the highest correct factor wins and that player takes the digit cards. If both players call out the highest correct factor together, both cards should be placed aside to be taken by the winner of the next round. Special Rule: The number itself can only be called as a factor if the number is prime i.e. the only factors are one and itself.
3. If both players call out the same correct factor (not being the highest factor), play continues and players may call out again to find a higher value correct factor first.
4. If neither player can give a highest correct factor first, the number cards are moved to one side and carried forward to be won at the next turn.
5. Continue play by turning over the second digit card from each pile, at the same time. Repeat until all of the cards have been turned over.

Example:



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

Variations:

- Take turns to have first attempt at calling out a factor. If not correct, the other player can claim the cards if they say a correct factor.

PRACTISE

Name of Game: Calculate and Compare

This helps with: Addition and subtraction (Thousands, Hundreds, Tens, Ones)

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

Two place value templates – Thousands, Hundreds, Tens and Ones (see page 25)

Pencil and paper for jottings and recording

Someone to play with

How to play:

1. Use two sets of digit cards 0 to 9. Shuffle together and place face down.
2. Player one takes the top four digit cards and places them on the first place value template, then puts the next four cards on the other template, in the order they were taken, starting with the Thousands and finishing with the Ones.
3. Player one finds the total of both numbers (add them together) and the difference between both numbers (subtract the smaller number from the larger number, or count on from smallest to largest). Jottings may help. Player two checks and awards one point for each correct calculation. If Player two disagrees, the correct calculation should be shown but no points are given.
4. All digit cards are reshuffled for player two to repeat the activity. This time Player one checks, corrects if necessary and awards points as appropriate.
5. A bonus point is awarded for the player who made the greatest total and another bonus point is awarded for the player who made the smallest difference. Repeat three times.

Example:

Th	H	T	O
6	5	3	1

Th	H	T	O
2	8	0	3



The total is 9334 ($6531 + 2803$)
The difference is 3728
($6531 - 2803$)

My total needs to be greater
than 9334 and my difference
needs to be smaller than 3738



The winner is: The player with the most points after three games!

Variations:

- Change the size of number, e.g. use Hundreds, Tens and Ones only.
- Focus on addition or subtraction only.

Investigate

Fifteen Cards

(from: <https://nrich.maths.org/7506>)

I have **fifteen** cards numbered **1 - 15**.

I put down **seven** of them on the table in a row:



Here are some clues for you to follow:

The numbers on the first two cards add to 15.
The numbers on the second and third cards add to 20.
The numbers on the third and fourth cards add to 23.
The numbers on the fourth and fifth cards add to 16.
The numbers on the fifth and sixth cards add to 18.
The numbers on the sixth and seventh cards add to 21.

You may like to use the number cards on page 23 to help you with the following questions:

- 1) What are my cards?
- 2) Can you find any other solutions?
- 3) How do you know you've found **all** the different solutions?
- 4) Can you create your own problem using 7 different numbers for someone at home to solve?

Investigate

Count Me In

(from: <https://nrich.maths.org/13263>)

Have a look at the numbers in the grid below and then try answering the questions.

45	48	56	98	102
108	171	174	182	216
222	224	318	322	324

- 1) Which of the numbers above would you come to when counting in sixes from zero? How do you know?
- 2) Would you get to some of the numbers if you were counting in sevens from zero? Which ones?
Can you explain how you arrived at your answers?
- 3) Could some of the numbers be reached if you were counting in nines from zero? Which ones?
Again, how do you know?
- 4) Would your answers be the same if you counted in the same step sizes but down from 350 in each case? How do you know?

Now try answering the questions about these numbers:

76	175	200	310	350
390	400	520	555	606
650	710	888	900	975

- 1) Looking at the numbers above and this time counting in 25s from zero, which numbers will you say?
- 2) If you were counting in 25s from 10, which numbers would you say this time? How can you work this out without actually counting?

Investigate

Multiply Multiples

(from: <https://nrich.maths.org/10421>)

In this calculation, each square represents a missing digit:

$$\square 0 \times \square = \square 0 \times \square$$

One possible solution is:

$$10 \times 2 = 20 \times 1$$

- 1) Can you work out some different solutions?
- 2) Have you worked out all the possible solutions?
- 3) Did you work systematically?

Now try this:

$$\square 00 \times \square = \square 00 \times \square$$

One possible solution is:

$$100 \times 2 = 200 \times 1$$

Can you work out some different solutions?

Investigate

Round the Dice Decimals

(from: <https://nrich.maths.org/10438>)

Imagine you have two dice, each of them with faces labelled from 1 to 6.



When the dice are rolled they can be combined in two different ways to make a number less than 10 with one decimal place.

For example, if I roll a 3 and a 1, I can combine them to make 3.1 or 1.3

Now round each of these numbers to the nearest whole number:

3.1 rounds to 3 and 1.3 rounds to 1.

Repeat for other rolls of the dice. Use the dice templates at the end of the pack to make two dice to help you if you would like to.

You may want to record the results in a table like this:

Numbers rolled	1st decimal number	Rounds to	2nd decimal number	Rounds to
3 and 1	3.1	3	1.3	1
2 and 6	2.6	3	6.2	6

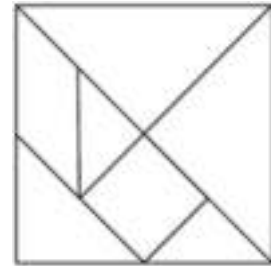
- 1) Are there any numbers between 1 and 10 that can't be made? Explain your answer.
- 2) Do both of the numbers you make ever round to the same whole number?
- 3) What would happen if instead of the numbers 1 to 6 you had the numbers 4 to 9 on the dice?

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 26.

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



QUICK DRAW MULTIPLICATION (for 2 players)

Picture cards (K, Q, J) = 10, Ace (A) = 1.

Deal out all of the cards to the two players.

One player calls, "Draw!" and both players turn over their top card and place it face up in the centre. The players multiply the two numbers that are showing and the first player to say the product (answer) out loud wins the two cards.

After all cards have been used, the players count the number of cards that they have won. The winner is the person who has the most cards.





PLAY



CLOSE CALL

(for 2 to 4 players)

You will need:

- A deck of cards (or the playing cards from pages 28 - 31)
- Paper and a pen or pencil

Use only the Ace - 9 cards for this game. The Ace (A) card is worth 1.

Shuffle the deck and deal each player 6 cards.

Each player selects four of their cards and creates two 2-digit numbers from them. The goal is to create two numbers that have a sum as close to 100 as possible, without going over. (For example, a player may choose to use the cards 3, 6, 7, and 2, creating the calculation: $32 + 67 = 99$.)

After players have made their selections, they place their cards face up in front of them, arranging them so other players can see which two numbers they have created.

The player who has the numbers with a total closest to 100, without going over, wins a point.

In the case of a tie, a point is awarded to each player

Use your paper to record the scores.

Shuffle the cards before dealing another round.

Play continues for 5 rounds. The player with the most points after the last round wins the game.





PLAY



FLIP OUT

(for 1 or more players)

You need:

- 1 deck of cards (or half a deck) and a piece of paper for each player.
- A timer.

Picture cards (K, Q & J) = 10, Ace (A) = 1.

Each player shuffles his/her deck and lays it face down on the table.

The player with the timer calls out, "Go!" and then all players flip over one card at a time, calculating a running total of the values on the cards as they go and recording their working.

After thirty seconds, one minute, or two minutes (depending on the confidence of the players), play stops and the players write down their total, e.g. 50 for this set:

$1 + 4 = 5$, $5 + 10 = 15$, $15 + 3 = 18$, $18 + 10 = 28$, $28 + 10 = 38$, $38 + 8 = 46$,
 $46 + 4 = 50$.

Players check each other's totals. The winner is the one with the highest total, but if a total is wrong, the player cannot be the winner of that round.

Play again.





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)

Is the value of the card a factor of 10? (No)

Is the card a multiple of 2? (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.

The next time you go on a walk, see if you can find any examples of palindromes – words, numbers or sequences that are the same forwards as they are backwards.

2.

Use natural materials or objects in your garden to make a model of a 3D shape.



3.

Write directions from your house to the nearest bus stop. Use estimated distances and compass directions if you can. Then follow your own instructions when you next go for a walk with an adult.

4.

Look for outdoor patterns (e.g. on leaves, buildings, on insects). Can you describe or draw the patterns carefully? What shapes can you see? Do any of the patterns repeat?

5.

Go on an angle hunt outside.

Make a list, draw a sketch or take a photo of all the acute and obtuse angles you can see.

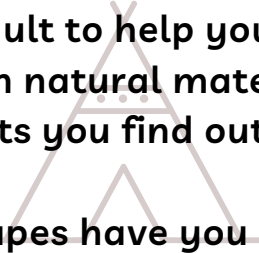




6.

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

What shapes have you created?



7.

Make a boat or raft using natural materials, including sticks and leaves.

How many small pebbles can your boat or raft hold before it sinks?

8.

Ask an adult to help you to carry out a traffic survey.

How many different types of transport can you spot in 10 minutes?

Think about how you could record and present your results.

9.

How far can you run in 30 seconds? How will you measure the distance?

Use your answer to estimate:
a) how long it would take you to run 50m; b) how far you think you can run in 90 seconds.

10.

Can you use natural materials to make a bridge that is strong enough for a ball, or toy car to roll across?
Which shapes did you use to make your bridge strong?



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 quadrilaterals? Draw a picture of the shapes that you make and label any right angles and parallel lines.

2.

Make your own board game to play with your family.

You could make the board with part of a cardboard box or cereal packet.

3.

Design your own zoo. Draw a map showing a bird's eye view and include a symbol for each feature. Think about how big each enclosure will be and mark the measurements on your map.

4.

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

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

5.

Go on a maths hunt around your kitchen. What numbers can you find? Can you find any decimal numbers or fractions? Now compare this to your bedroom. Where do you think you will find the most?



6.

Write a price list, using pounds and pence, for clothes you might buy in a shop.

Calculate the new price of each item if there is a 10% off sale.

7.

Keep a weather diary. Design a key and use symbols to record the weather each morning and afternoon.

Find the temperature from the TV or the internet.

8.

Ask an adult to help you to cook or bake something tasty. You can measure the ingredients carefully using weighing scales. Ask the adult to help you with any chopping and when using the oven.

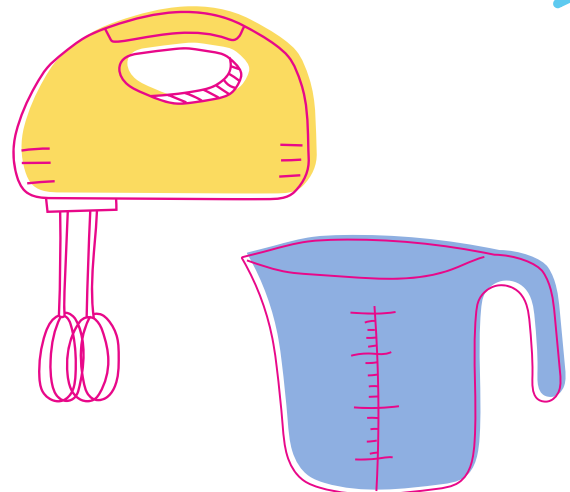
9.

Find an unopened package of food which has a label telling you how much it weighs. Use your package to help you to estimate the mass of other items. Use weighing scales to find out how accurate your estimates were.

10.

Go on a 3D shape hunt around your home. Are there any shapes you can't find?

Make a model of one of the shapes you haven't found, using paper, card or other materials like Lego or Play-Doh.



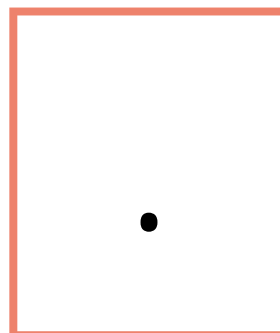
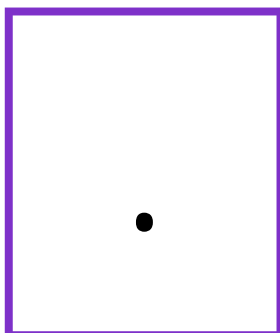
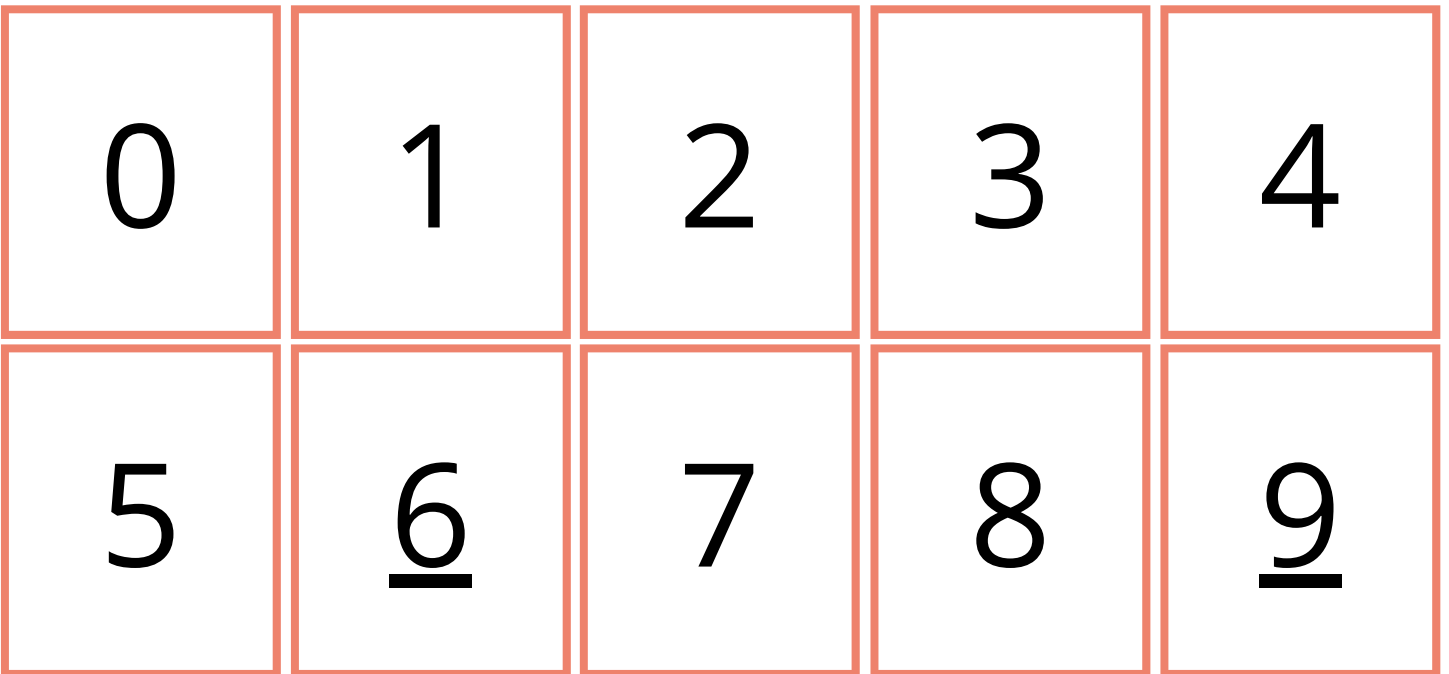
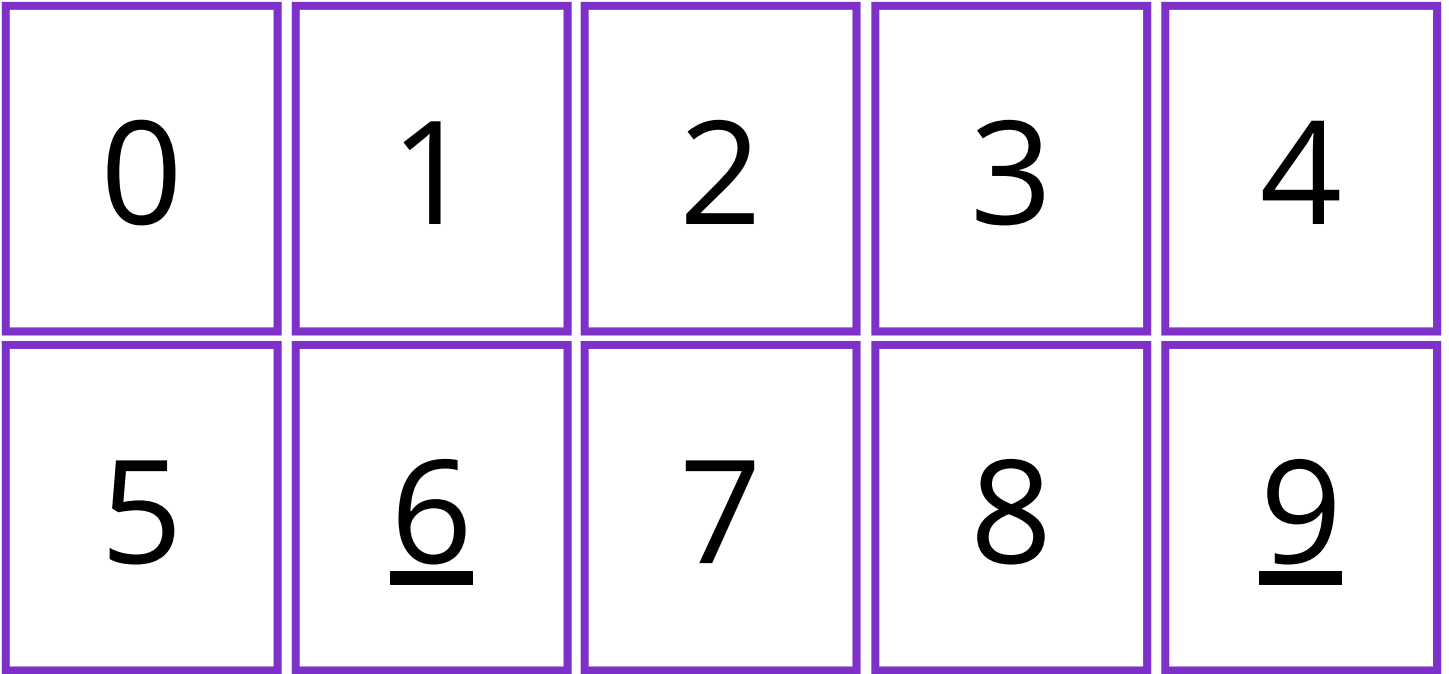
Some of these activities are easier and safer to do with an adult to help you.

Share your learning together and have fun!



Digit Cards with Decimal Points

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





Number Cards to 15

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

5

10

15

4

9

14

3

8

13

2

7

12

1

6

11



Place Value Template: Blank



Place Value Template: Thousands, Hundreds, Tens and Ones

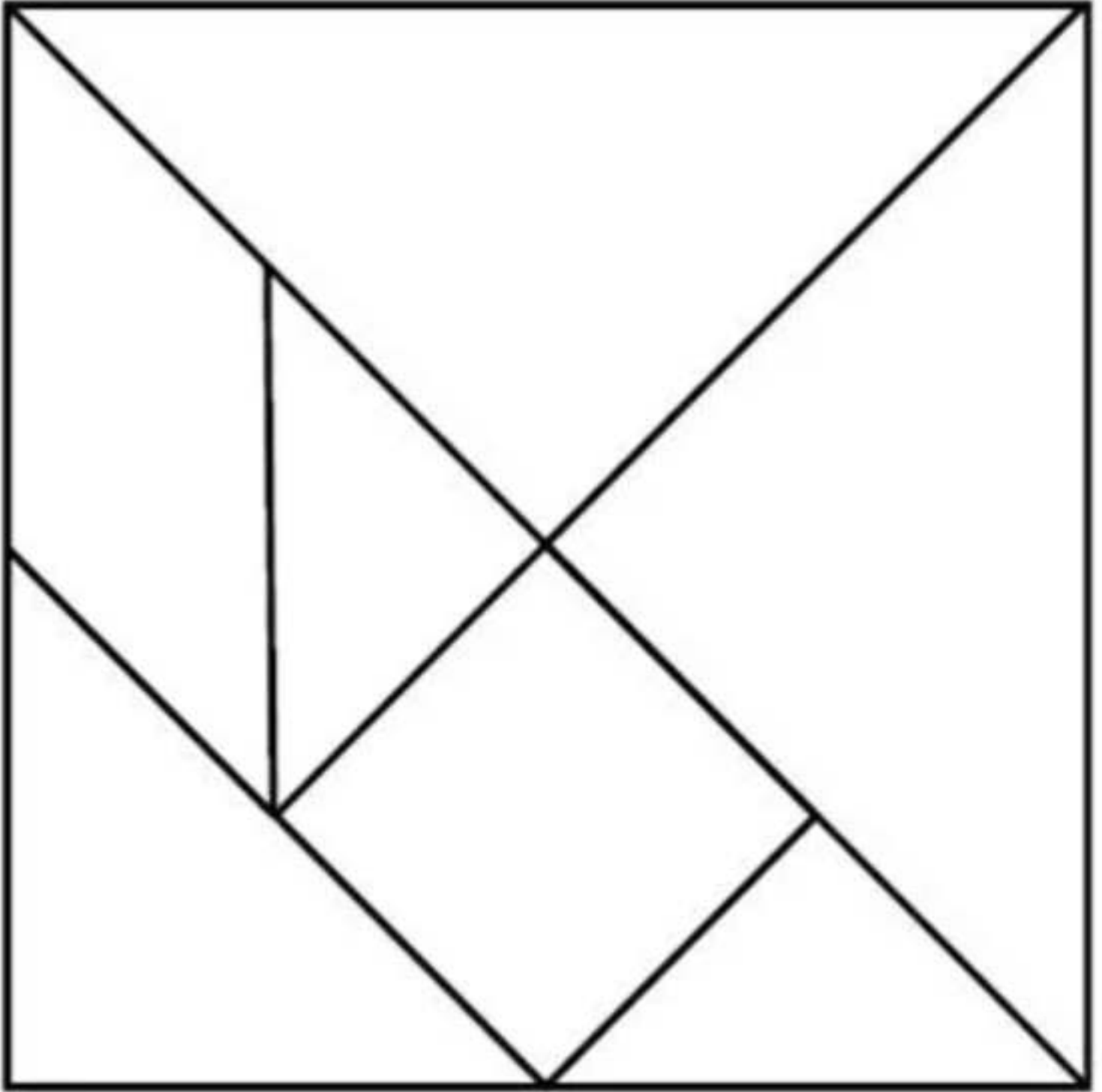
	Thousands
	Hundreds
	Tens
	Ones

	Thousands
	Hundreds
	Tens
	Ones



Tangrams

Carefully cut out the seven shapes below.





Multiplication Tables

Squares

Use these tables squares for checking or practising multiplication facts.

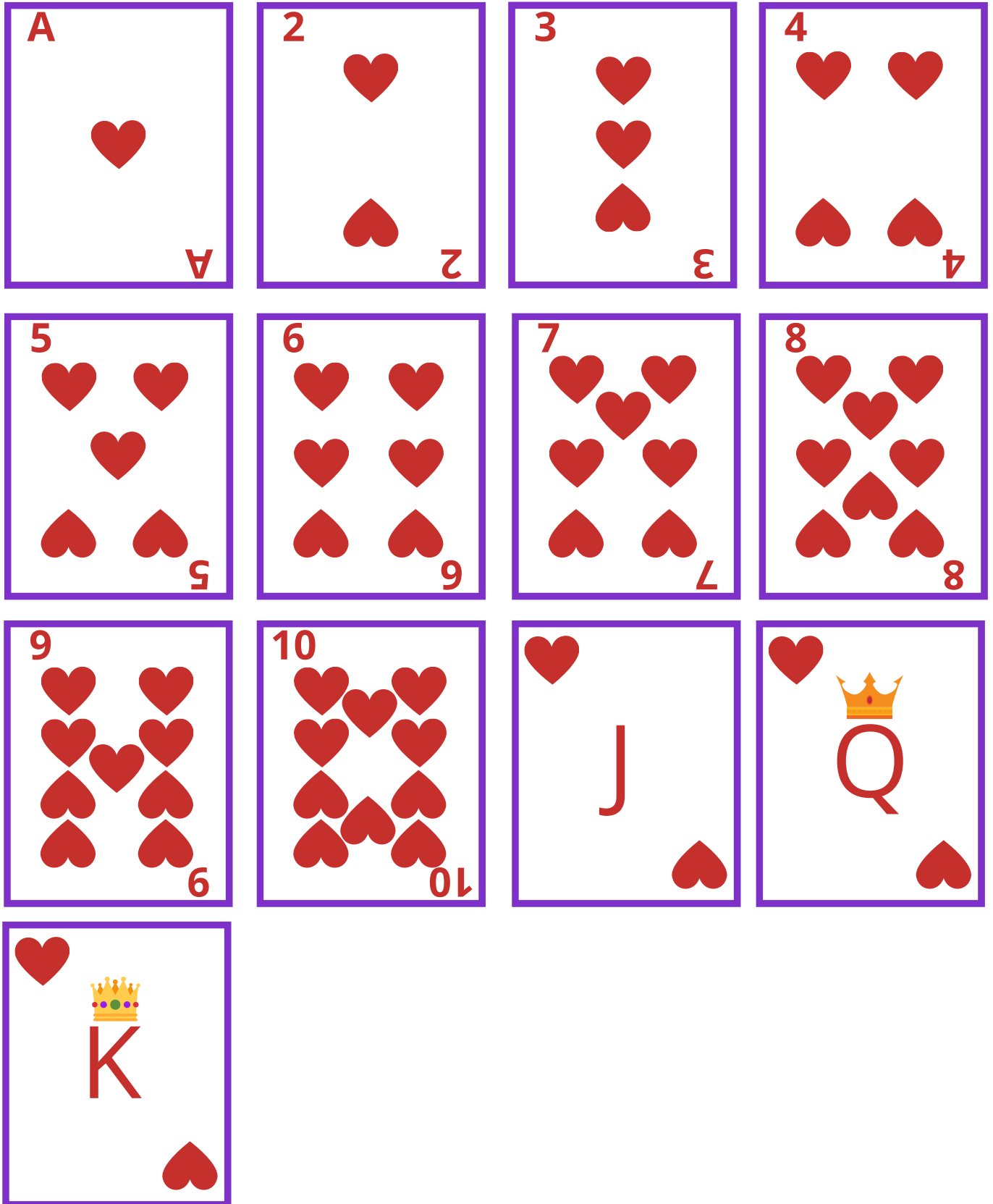
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	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

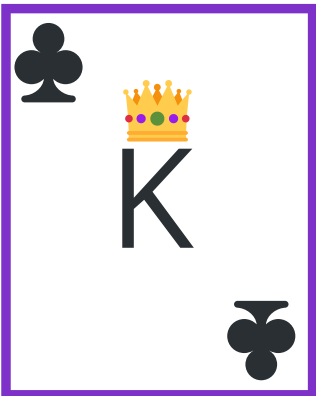
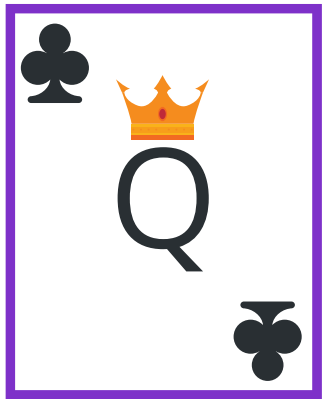
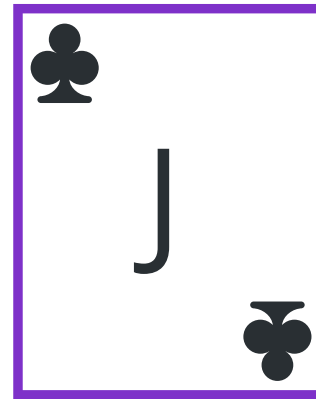
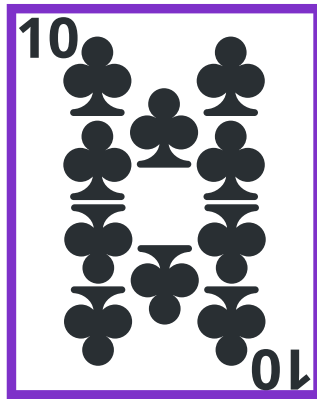
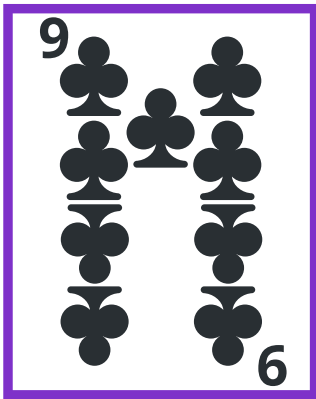
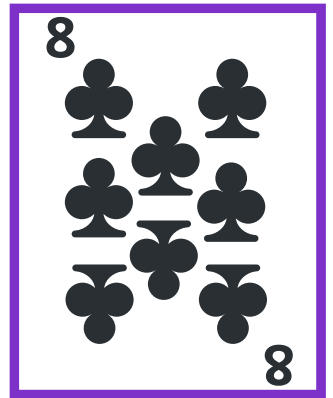
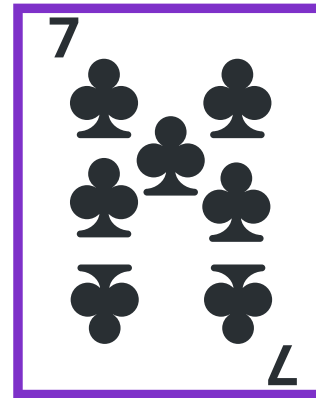
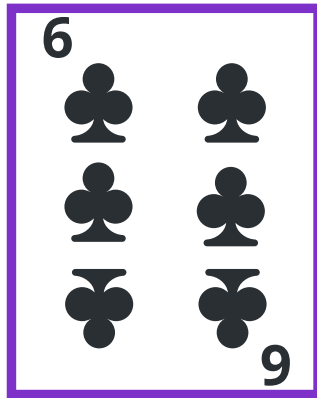
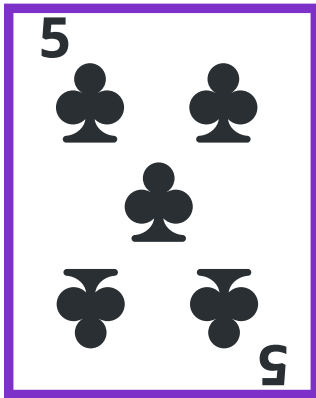
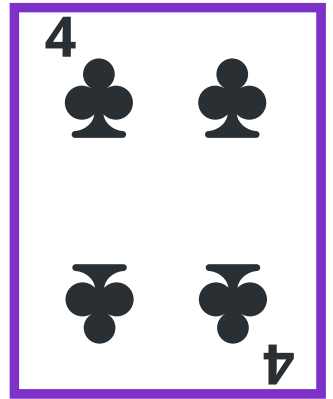
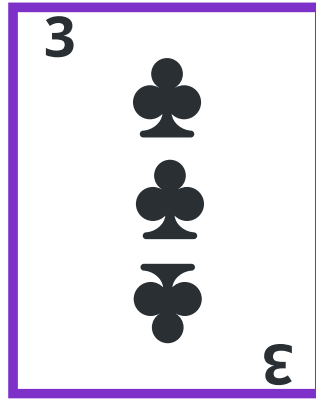
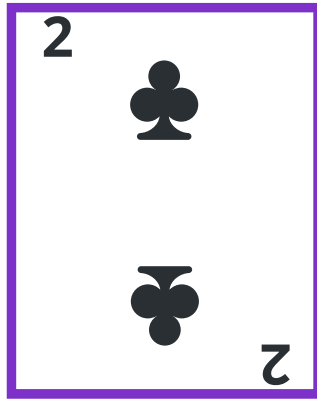
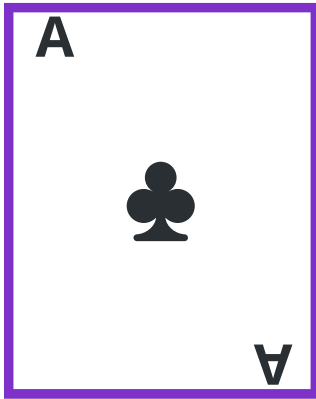
Cut these cards out and use them for activities and games.





Playing Cards 2

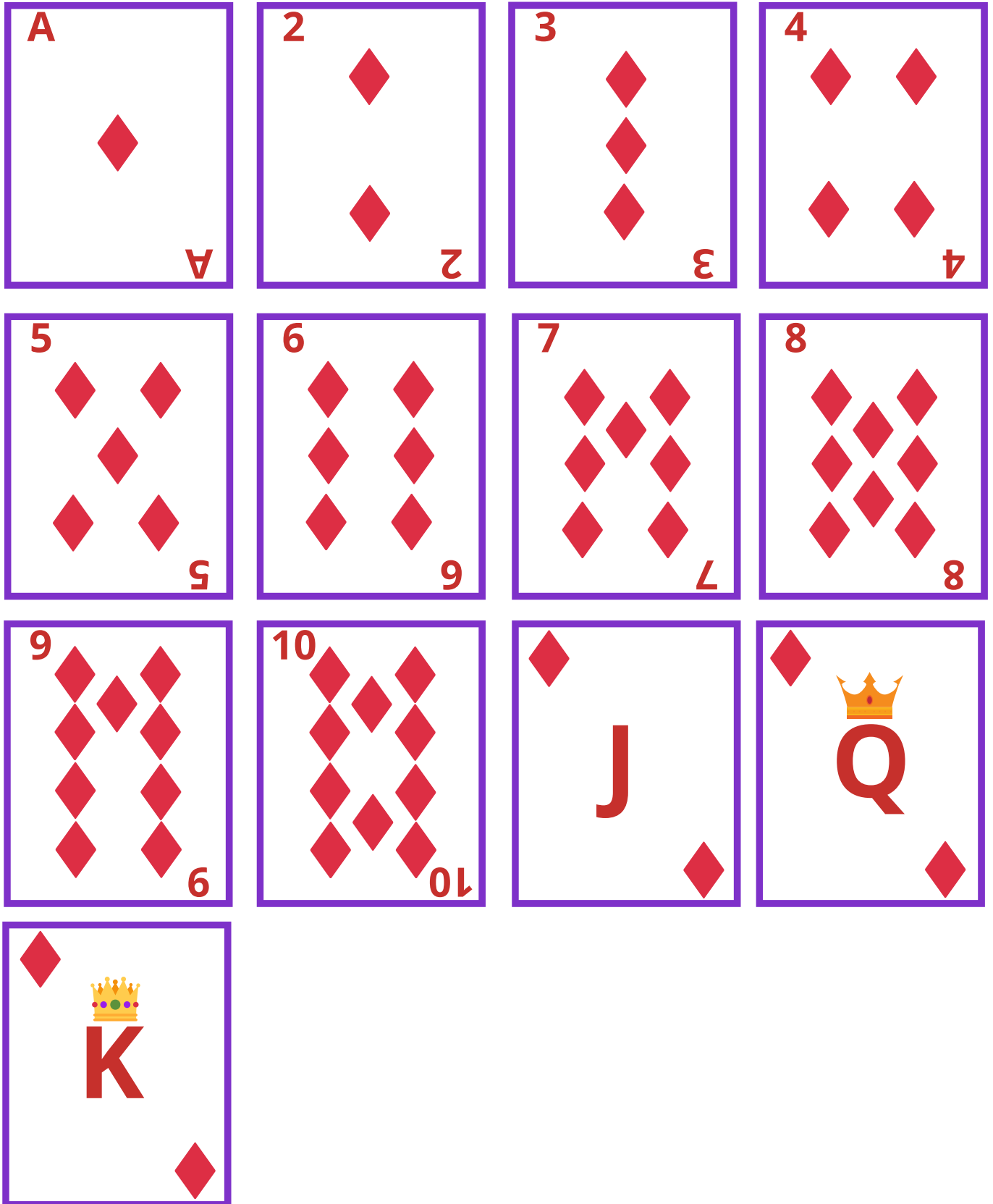
Cut these cards out and use them for activities and games.





Playing Cards 3

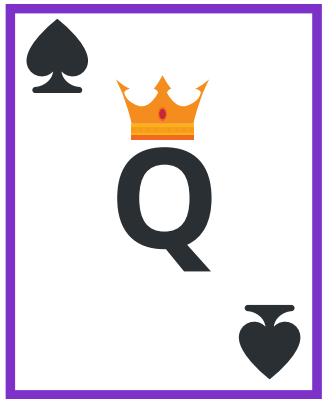
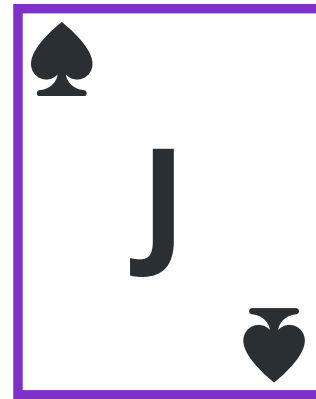
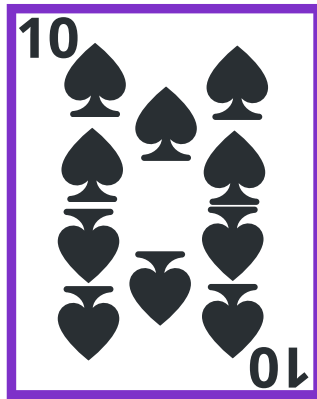
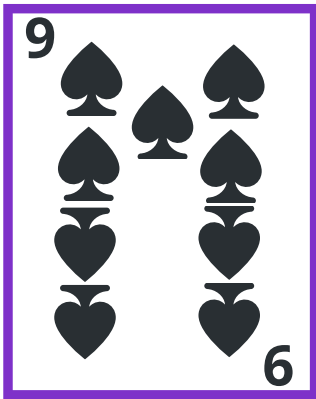
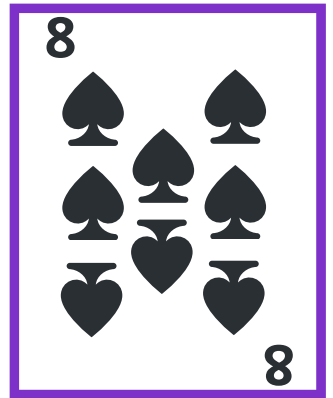
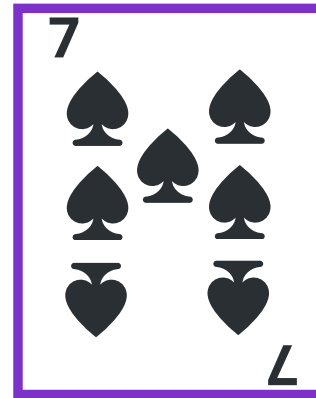
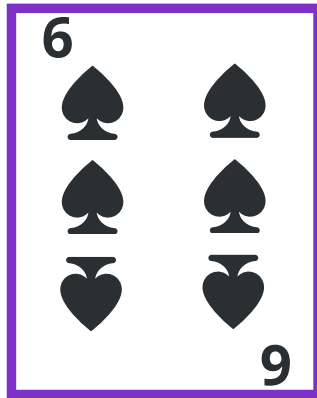
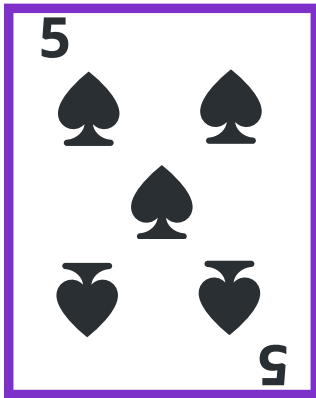
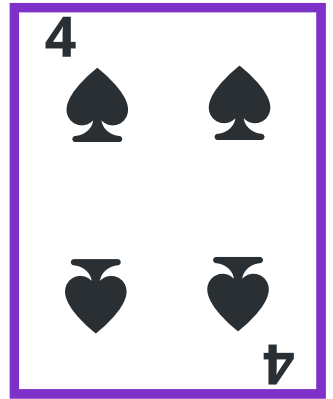
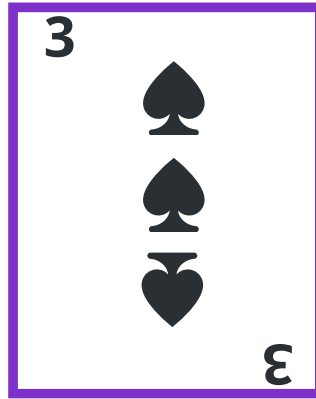
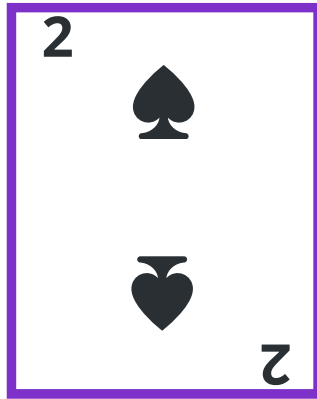
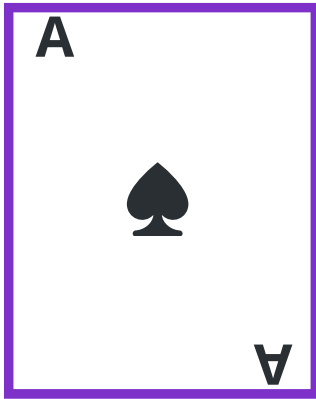
Cut these cards out and use them for activities and games.





Playing Cards 4

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



This booklet was produced by the Cambridgeshire
County Council Maths Team.



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