MOVING ON UP!

Cambs Maths Team

Mathematics

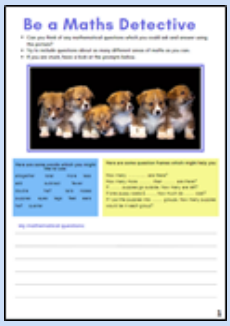
Cambridgeshire County Council

Introduction

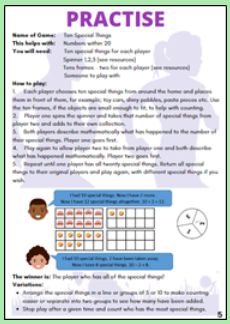
This pack has been designed to support your child in preparing to move up to their new year group in September. The activities included have been selected to encourage children to practise and develop a range of mathematical skills in fun and motivating ways.

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.

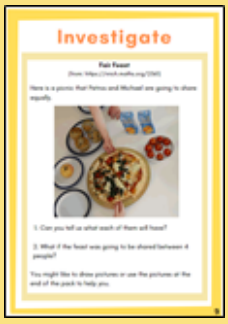
The following activity types are included in the pack:



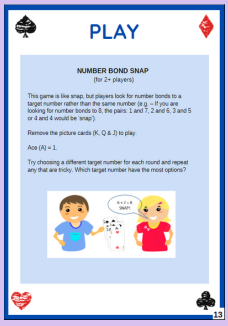
These activities support children in engaging with real-life maths, linking different areas of maths, and developing their use of mathematical vocabulary.



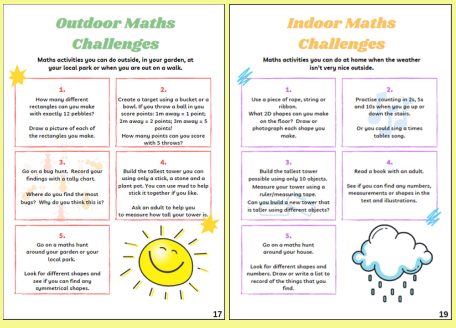
These activities support children in developing mathematical fluency and confidence.



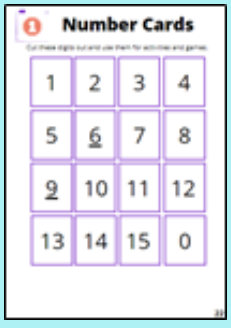
These activities support children in developing problem solving and reasoning skills and applying their learning to new situations.



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 fewer

double half tails noses

puppies eyes legs feet ears

half quarter

Here are some question frames which might help you:

How many …….. are there?
How many more ..... than ..... are there?
If ..... puppies go outside, how many are left?
If one puppy costs £....., how much do ..... cost?
If I put the puppies into ..... groups, how many puppies would be in each group?

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.

Here are some words which you might like to use:

square rectangle oblong
sides vertices whole
total altogether longer
above below shapes same
different

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 is the most common …….. in the picture?

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.

Here are some words which you might like to use:

same different altogether
total more fewer add subtract
take away double half row
arms hair skirt shorts trousers
eyes ears boys girls

Here are some question frames which might help you:

How many …….. are there altogether?
How many more …….. than …….. are there?
How many fewer …….. than …….. are there?
If ..... children went out to play, how many would be left?
How many more children would you need to make a group of .....?

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.

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 fruits blueberries
strawberries blackberries tomatoes

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?
If there are ..... blueberries in one container, how many are there altogether?

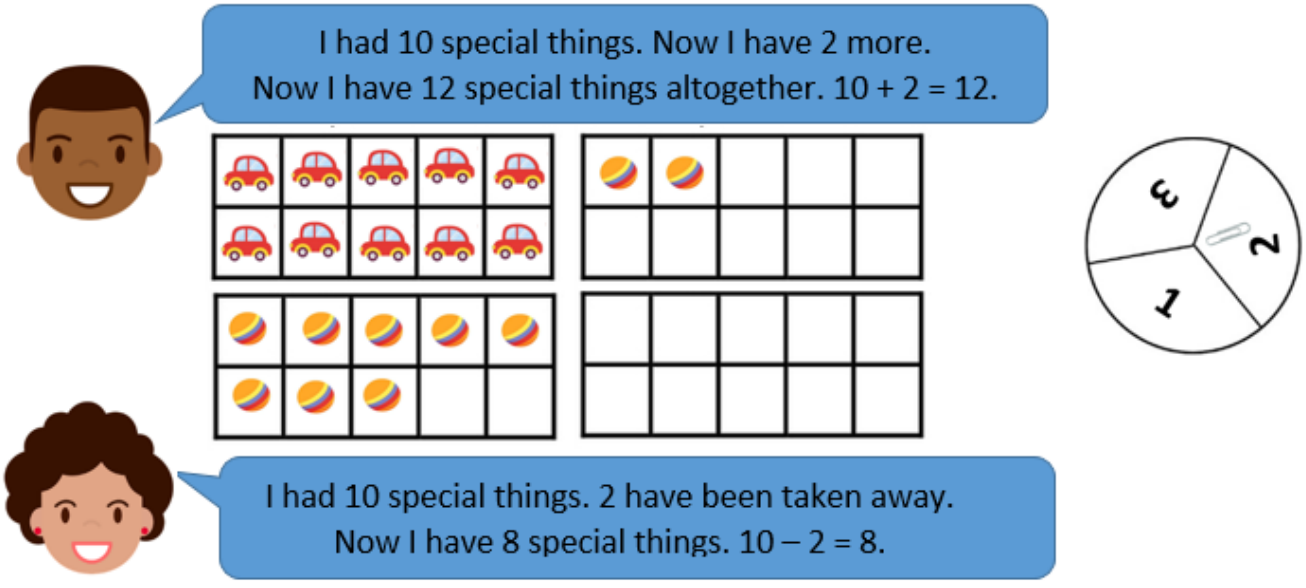
My mathematical questions:

PRACTISE

Name of Game: Ten Special Things
This helps with: Numbers within 20
You will need: Ten special things for each player
Spinner 1,2,3 (see page 22)
Tens frames – two for each player (see page 23)
Someone to play with

How to play:

1. Each player chooses ten special things from around the home and places them in front of them, for example; toy cars, shiny pebbles, pasta pieces etc. Use the ten frames, if the objects are small enough to fit, to help with counting.
2. Player one spins the spinner and takes that number of special things from player two and adds to their own collection.
3. Both players describe mathematically what has happened to the number of their special things. Player one goes first.
4. Play again to allow player two to take from player one and both describe what has happened mathematically. Player two goes first.
5. Repeat until one player has all twenty special things. Return all special things to their original players and play again, with different special things if you wish.



The winner is: The player who has all of the special things!

Variations:

- Arrange the special things in a line or groups of 5 or 10 to make counting easier or separate into two groups to see how many have been added.
- Stop play after a given time and count who has the most special things.

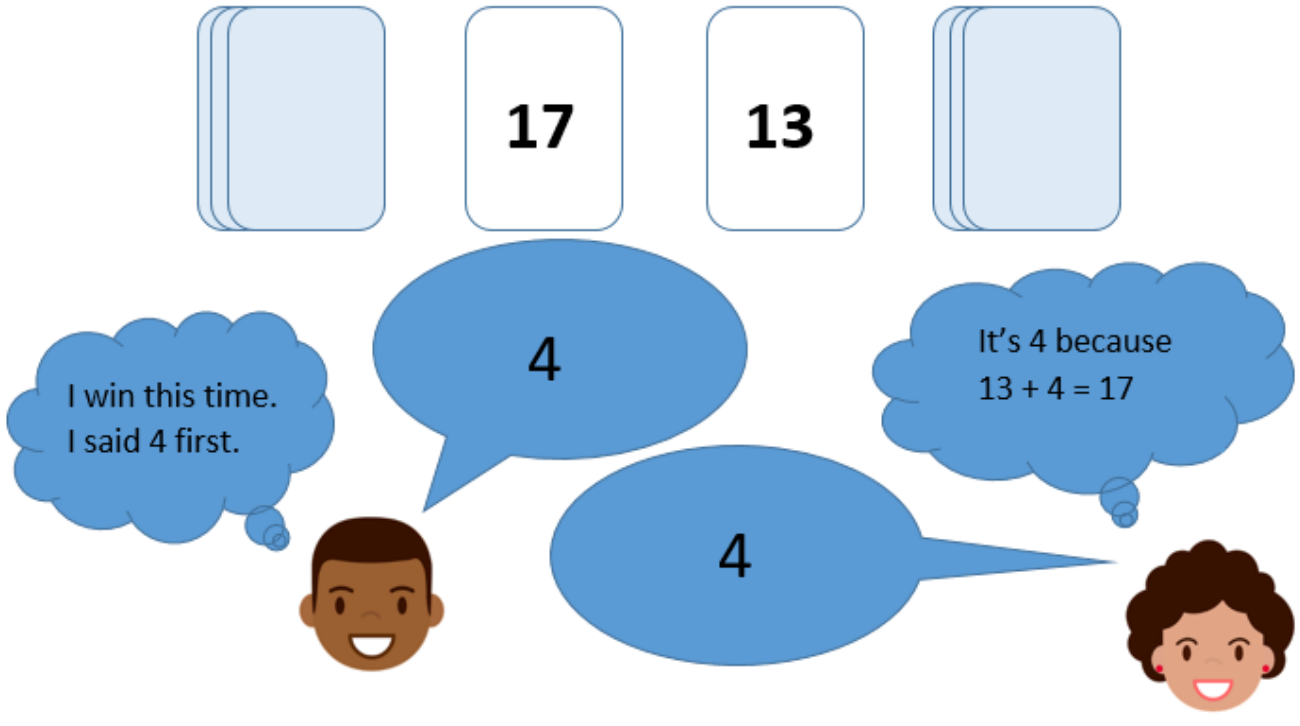
PRACTISE

Name of Game: Bond Bonanza
This helps with: Number bonds from 11 to 20
You will need: Two sets of number cards 11 to 20 (Pages 24 & 25)
Someone to play with

How to play:

1. Use two sets of number cards 11 to 20. Shuffle each set and place face down, keeping in two separate piles.
2. Turn over both top cards at the same time – each person can turn over the card closest to them.
3. The first person to call the number bond that pairs with the smallest number to make the largest number keeps both cards.
4. If both players call the correct answer at the same time, keep the cards to one side and the winner of the next round keeps all of the cards.
5. Repeat until all of the cards have been turned over.

Example:



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

Variations:

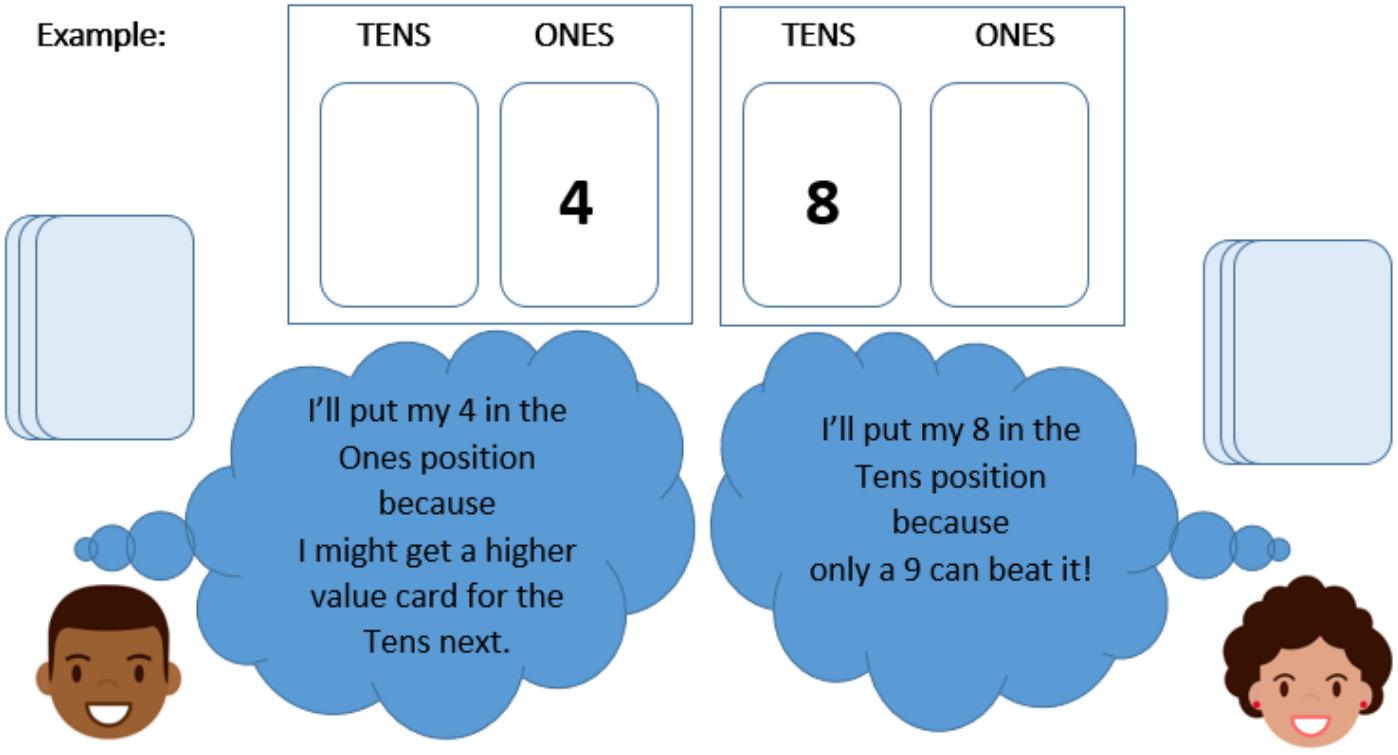
- Use two sets of number cards 0 to 10 to practise number bonds from 0 to 10.
- Use one set of number cards 0 to 10 and one set of number cards 11 to 20 to practise number bonds from 0 to 20.

PRACTISE

Name of Game: Place Value Victory
This helps with: Place value (Tens and Ones)
You will need: Two sets of digit cards 0 to 9 (see page 26)
Two place value templates - Tens and Ones (see page 27)
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 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 number card and places it in the remaining position on their place value template. Player two does the same.
4. The player who has made the highest value number keeps all four number cards. Repeat, taking turns to start, until all of the original cards have been turned over.



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

Variations:

- Make the lowest value number to win.
- Make the number closest to a given number to win, e.g. 50.

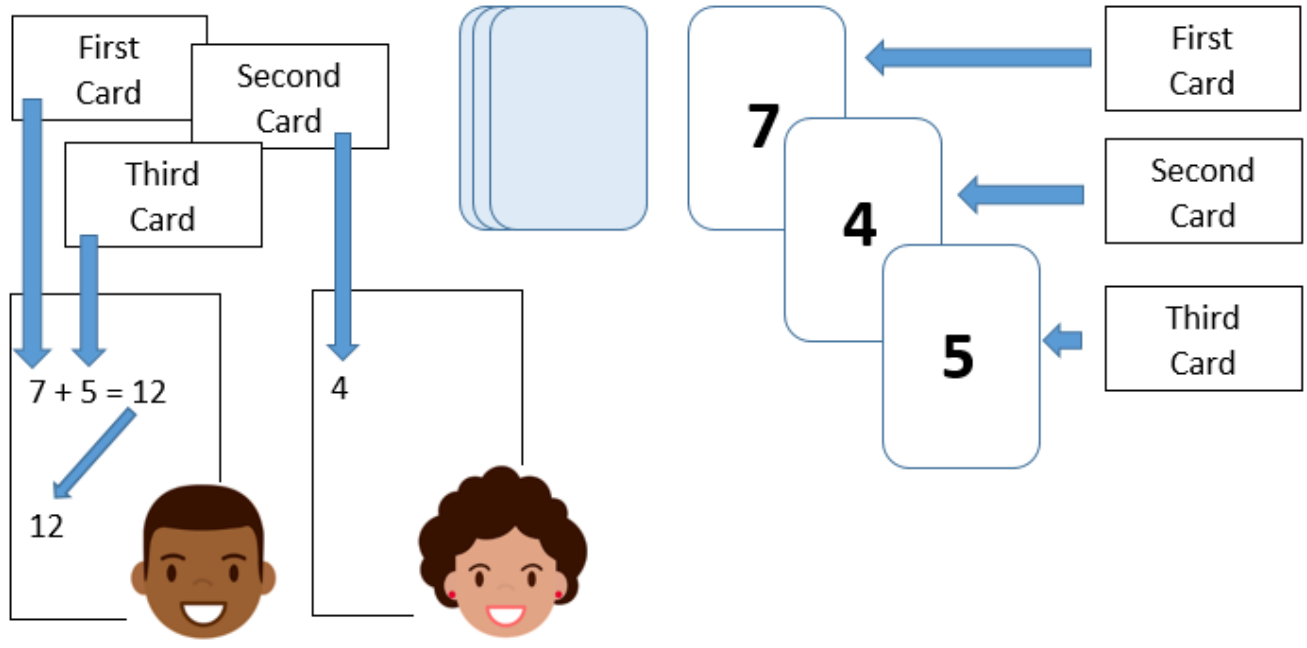
PRACTISE

Name of Game: Target Makers
This helps with: Addition and subtraction (single digit to 50)
You will need: Two sets of digit cards 0 to 9 (see page 26)
Paper and pencil for each player
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 turns over the top number card and writes this on their paper. Player two does the same with the second number card.
3. Player one turns over the third digit card and adds this to their first number. This should be recorded as a number sentence with the total being the first number of the next addition number sentence. Player two does the same.
4. Shuffle and re-use the digit cards if all of the cards from the pile are used.
5. Repeat, taking turns to start.

Example:



The winner is: The player who reaches, or passes, 50 first!

Variations:

- Change the winning target number to a lower (e.g. 20) or higher (e.g. 100) value
- Start at a given value (e.g. 20, 50 or 100) and record subtraction number sentences to reach zero.

PRACTISE

Name of Game: How Many Multiples?

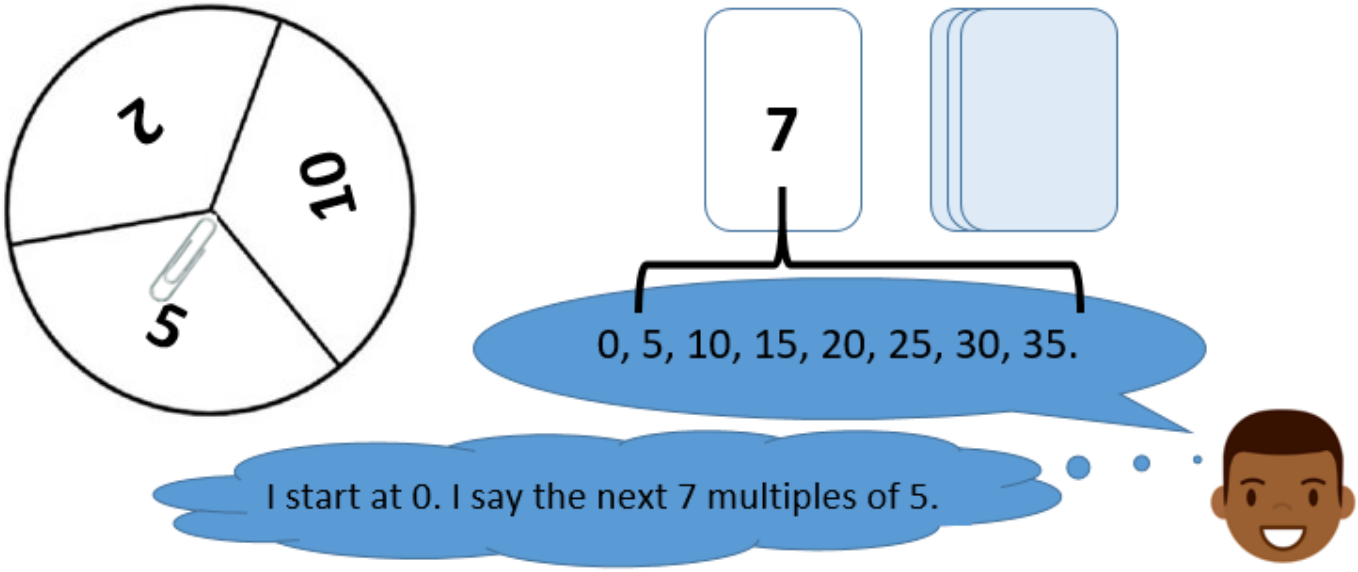
This helps with: Counting in steps/multiples of 2, 5 and 10 from zero

You will need: One set of digit cards 0 to 9 (see page 26)
One spinner (2, 5 and 10) (see page 22)
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 how many multiples to count aloud.
2. Player one spins the spinner to find which multiple to count aloud, starting from 0 (zero).
3. Player one keeps the digit card if they say the correct steps/multiples 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:



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

Variations:

- Use set of number cards 11 to 20 (see page 24) to give more steps/multiples.
- Use a second set of number cards (0 to 9 or 11 to 20) and shuffle to give a start number other than zero.

Investigate

Fair Feast

(from: https://nrich.maths.org/2361)

Here is a picnic that Petros and Michael are going to share equally.

1. Can you tell us what each of them will have?

2. What if the feast was going to be shared between 4 people?

You might like to draw pictures or use the pictures on pages 28 and 29 to help you.

Investigate

Pairs of Numbers

(from: https://nrich.maths.org/7233)

If you have ten counters numbered 1 to 10, how many can you put into pairs that add to 10?

Can you use them all?
Say how you got your answer.

Now put the counters into pairs to make 12.
Can you use them all?
Say how you got your answer.

Now put the counters into pairs to make 13.
Can you use them all?
Say how you got your answer.

Now put the counters into pairs to make 11.
Can you use them all?
Say how you got your answer.

What other numbers below 20 can you make with pairs of counters?
What happens to the number of unused counters as the total gets larger?

You may like to use the counters on page 30 to help you.

Investigate

Two, Four, Six, Eight

(from: https://nrich.maths.org/175)

Use these cards to make number sentences with their answers:

Like this one:

In each calculation you must only use a card once,
but you can re-use them in your next number sentence if you want to.

1) Can you find a way to use all the cards in one calculation?

2) Can you find all the possible ways to use the cards?

3) Ben says "I think you could make the same number of sentences if the numbers were 1, 3, 5 and 7 and not 2, 4, 6 and 8."
Explain why he is wrong.

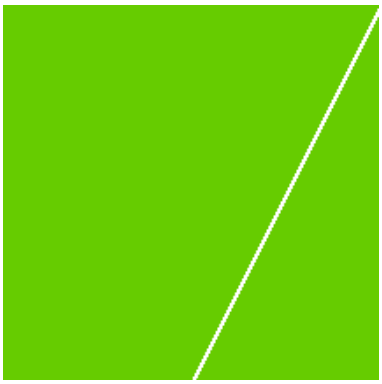
You may like to use the cards on page 31 to help you.

Investigate

Tangram Tangle

(from: https://nrich.maths.org/2398)

The square below has been cut into two pieces:

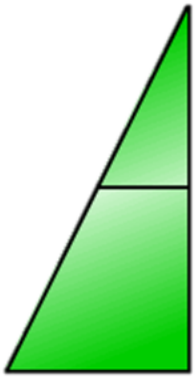


It is possible to fit the pieces together again to make new shapes. How many different ones can you make?

If you must match whole sides to each other so that the corners meet, how many new shapes can you make?

Watch out for shapes which are really the same but just turned round or flipped over.

Here is one to get you started:



Cut out the shapes on page 32 to help you with your investigation.

PLAY

NUMBER BOND SNAP

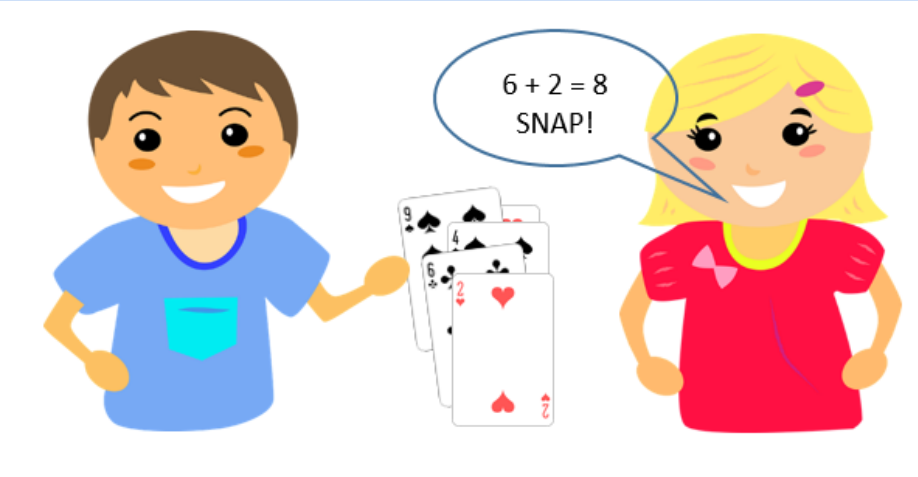
(for 2 or more players)

This game is like snap, but players look for number bonds to a target number rather than the same number (e.g. – If you are looking for number bonds to 8, the pairs: 1 and 7, 2 and 6, 3 and 5 or 4 and 4 would be ‘snap’).

Remove the picture cards (K, Q & J) to play.

Ace (A) = 1.

Try choosing a different target number for each round and repeat any that are tricky. Which target number have the most options?



PLAY

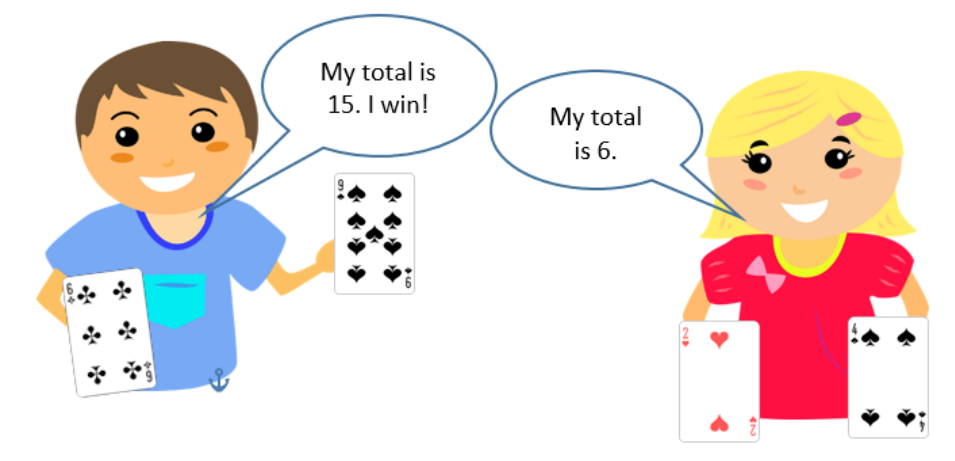
TAKE 2

(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.



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!

(for 1 or more players)

Take out the picture cards (K, Q & J) and the tens and shuffle the deck.

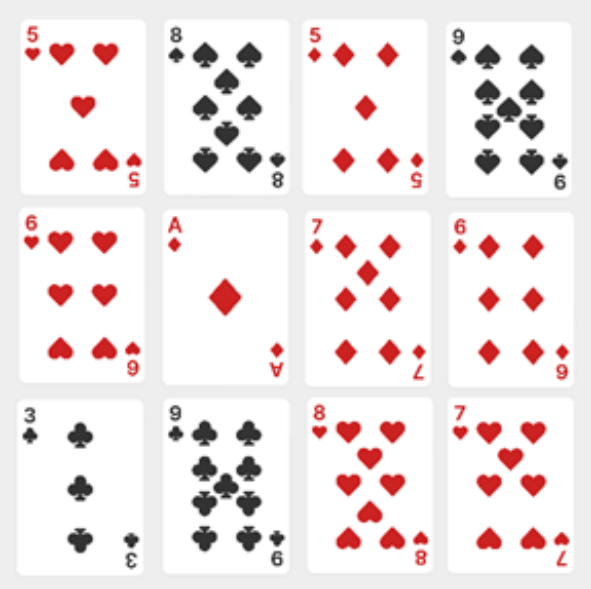
Ace (A) = 1.

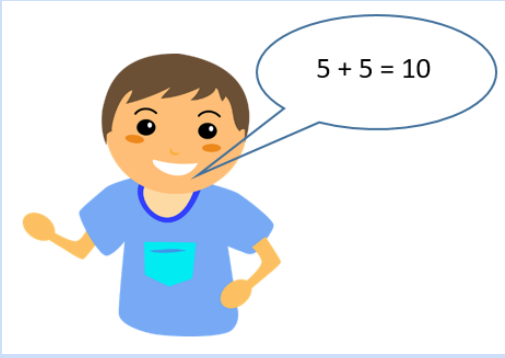
Place 12 cards face up in 3 rows of 4.

Take turns choosing a set of cards which have a total of 10.

Fill in the spaces with new cards. Play continues until no more sets of ten can be formed. The winner is the player who finishes with the most cards.

When a player plays alone, the object of the game is to find the maximum number of cards that have a sum of ten.





Can you see any other pairs which make 10?

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 card greater than 3? (Yes)
Is the card a five? (No)
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.

How many different rectangles can you make with exactly 12 pebbles?

Draw a picture of each of the rectangles you make.

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! How many points can you score with 5 throws?

3.

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?

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 maths hunt around your garden or your local park.

Look for different shapes and see if you can find any symmetrical shapes.

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.

Write directions from your house to the nearest post box. Use positional words, (e.g. next to) and directional language (e.g.,turn right). Then follow your own instructions when you next go for a walk with an adult.

8.

Find a straight stick. Can you find another object that is the same length as the stick?

Can you find one that is half as long? How about one that is double the length of your stick?

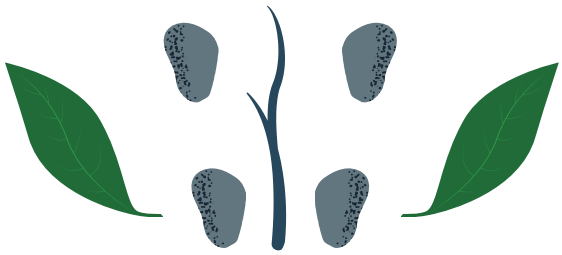
9.

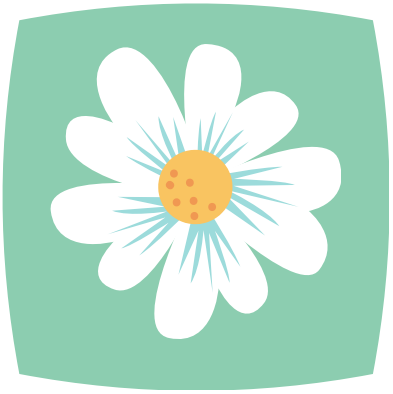
How many times can you throw and catch a ball in one minute?

Challenge other people in your house to see if they can beat your score.

10.

Make a symmetrical pattern using sticks, leaves and stones.





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.
What 2D shapes can you make on the floor? Draw or photograph each shape you make.

2.

Practise counting in 2s, 5s and 10s when you go up or down the stairs.

Or you could sing a times tables song.

3.

Build the tallest tower possible using only 10 objects.
Measure your tower using a ruler/measuring tape.
Can you build a new tower that is taller using different objects?

4.

Read a book with an adult.

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

5.

Go on a maths hunt around your home.

Look for different shapes and numbers. Draw or write a list to record the things that you find.

6.

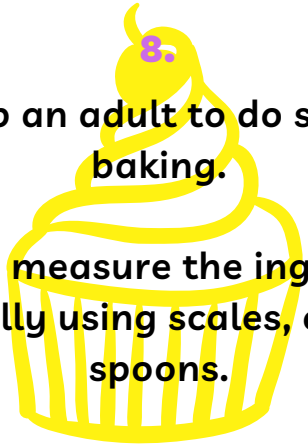
Write directions from your bedroom to the front door using distances and directions. Ask a family member to try out your instructions. Do they work? Try other routes around your home.

7.

Write or draw a timetable for your day.

Record the time next to each activity by looking at the clock.

8.



Help an adult to do some baking.

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

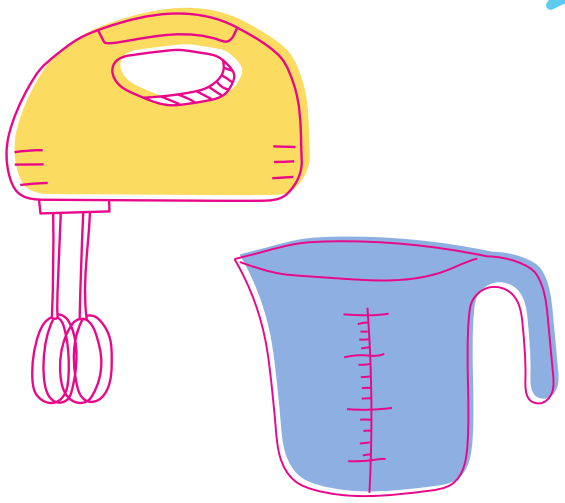
9.

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.

Challenge yourself to do as many star jumps as you can in one minute.

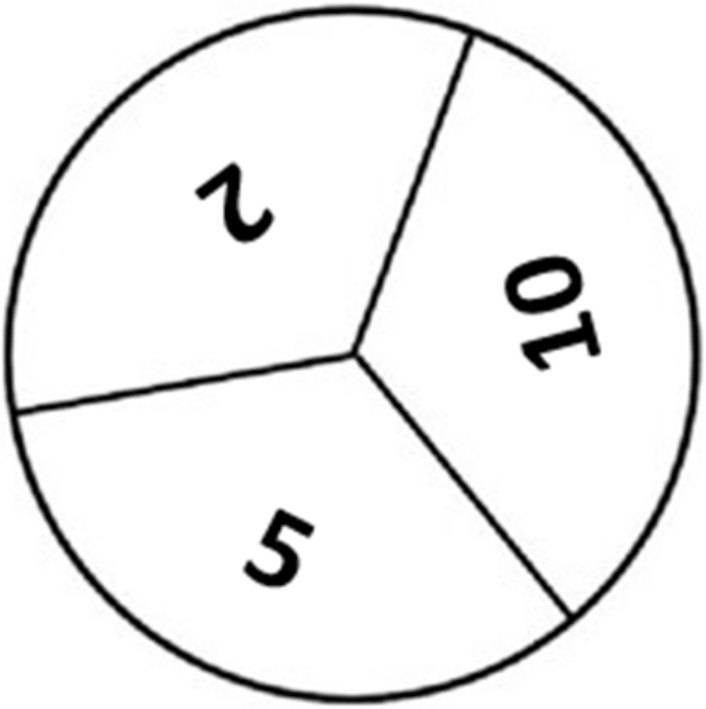
You could challenge yourself or others to beat your personal best score.

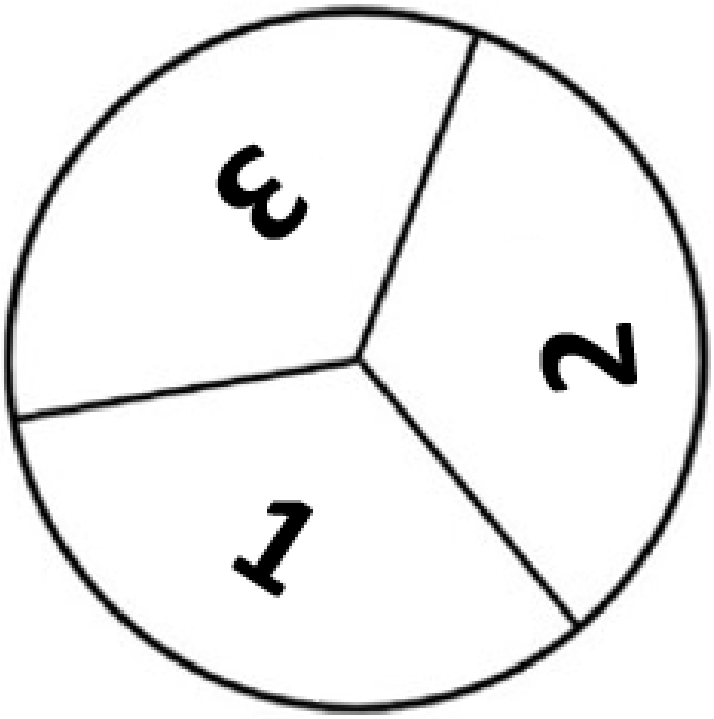


Some of these activities are easier and safer to do with an adult to help you.
Share your learning together and have fun!

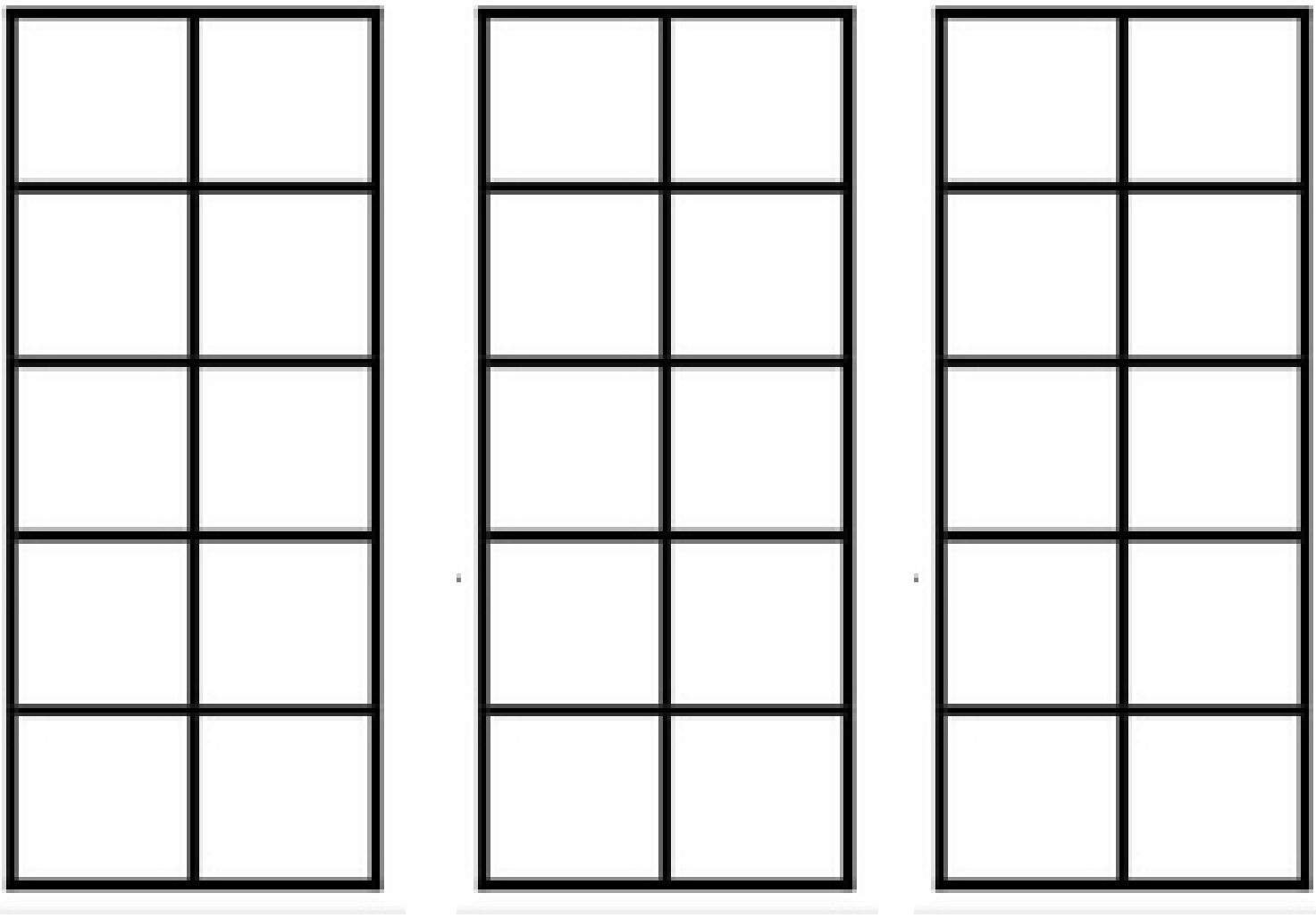
Spinners
1,2,3 and 2,5,10.

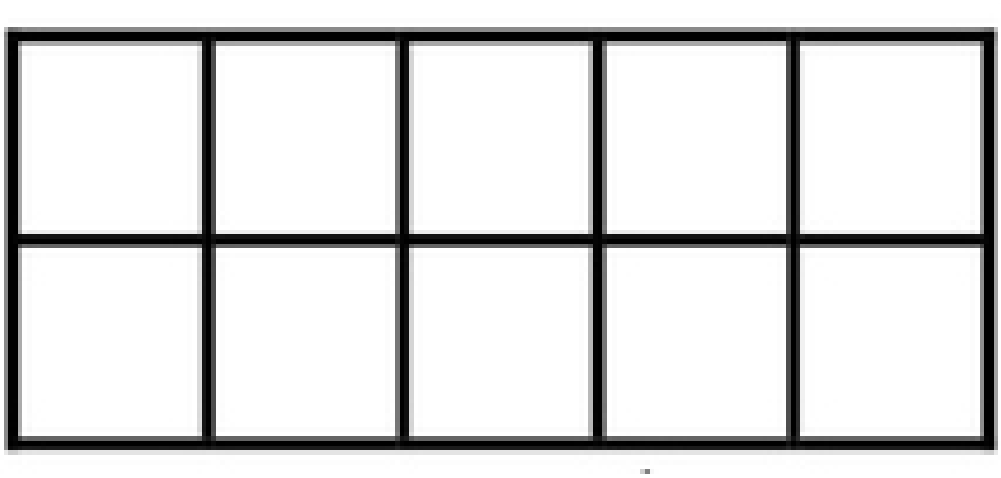
1. Lay the paperclip at the centre of the spinner.
2. Hold your pencil with the point inside the paper clip, at the centre of the spinner.
3. Flick the paper clip to spin around the pencil.
4. Wait for the paper clip to come to rest and see which section it is in.
5. If the paper clip rests on a line,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





Ten Frames





Number Cards to 20

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

6	13	20
5	12	19
4	11	18
3	10	17
2	9	16
1	8	15
0	7	14

Number Cards to 20

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

6	13	20
5	12	19
4	11	18
3	10	17
2	9	16
1	8	15
0	7	14

Digit Cards

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

0	1	2	3	4
5	6	7	8	9

0	1	2	3	4
5	6	7	8	9

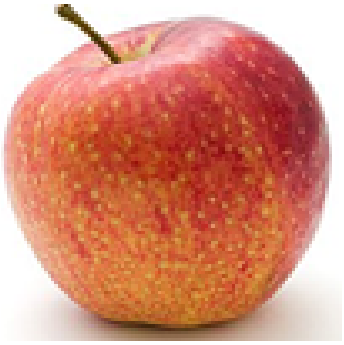
Place Value Templates: Tens and Ones

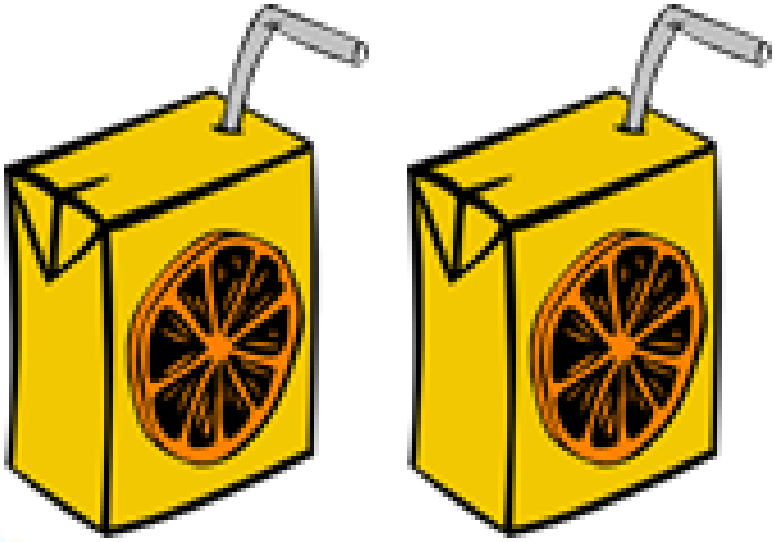
Tens	Ones

Tens	Ones

Fair Feast Resources

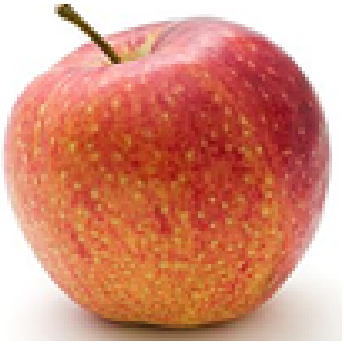
These pictures might help you with the sharing between 2 people problem. Cut them out if you would like to.

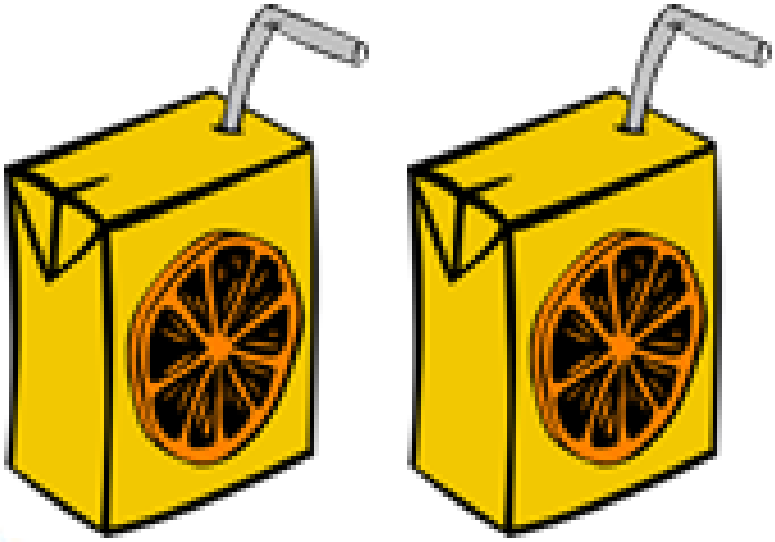




Fair Feast Resources

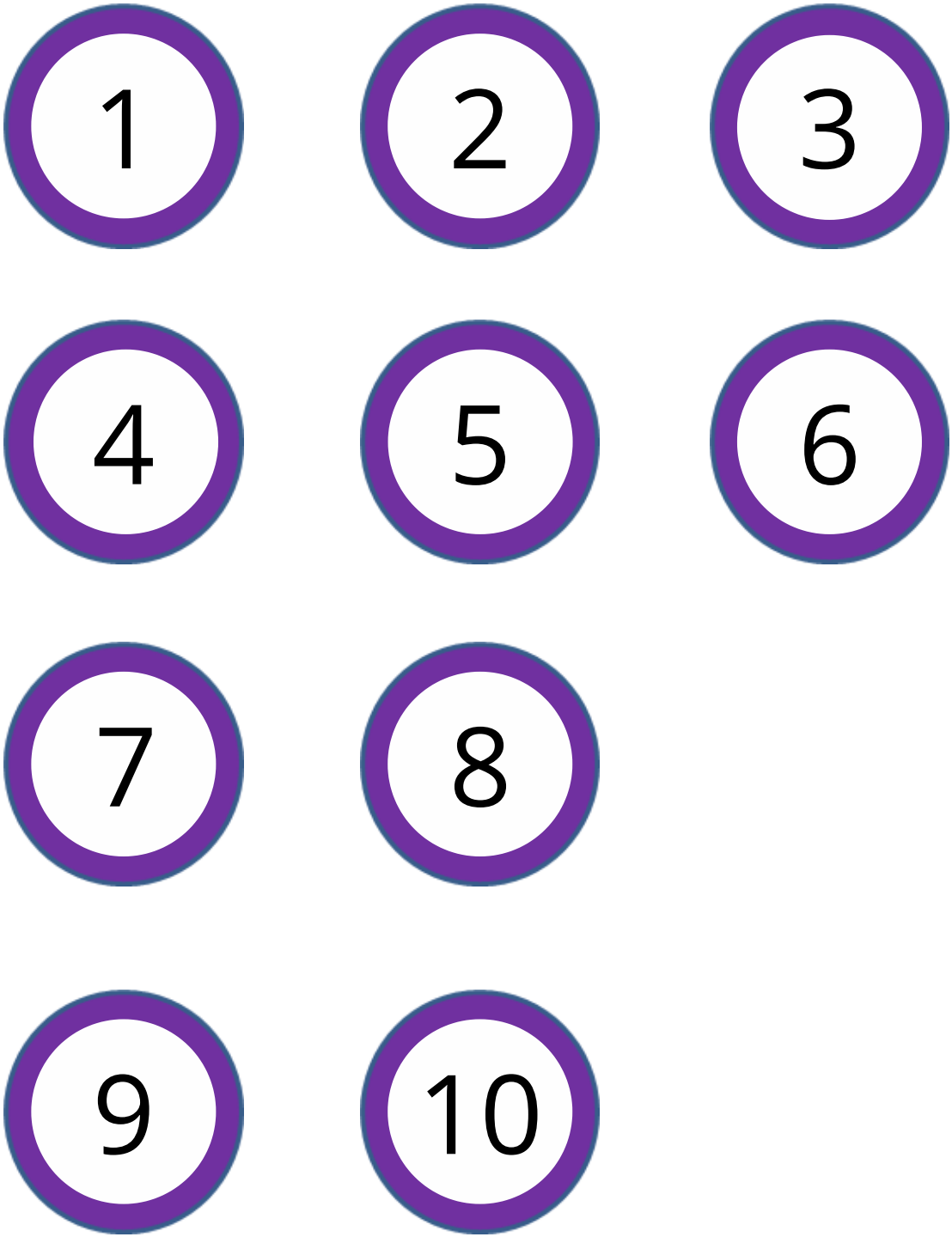
These pictures might help you with the sharing between 4 people problem. Cut them out if you would like to.





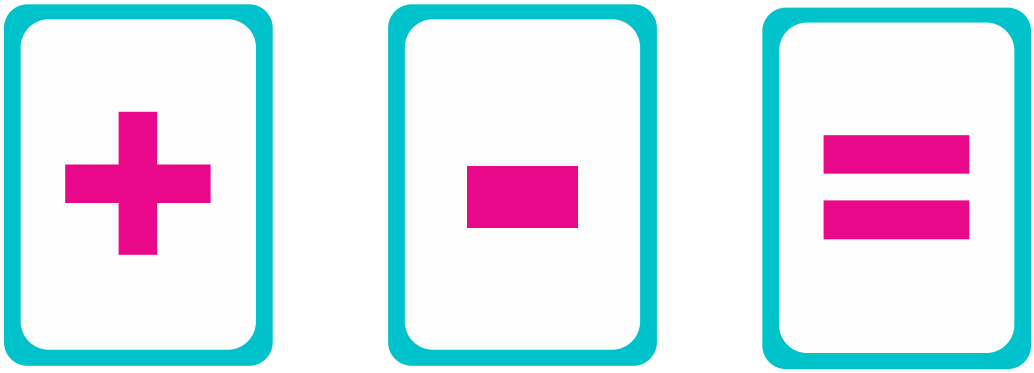
Pairs of Numbers Resources

Cut these counters out carefully if you would like to use them.



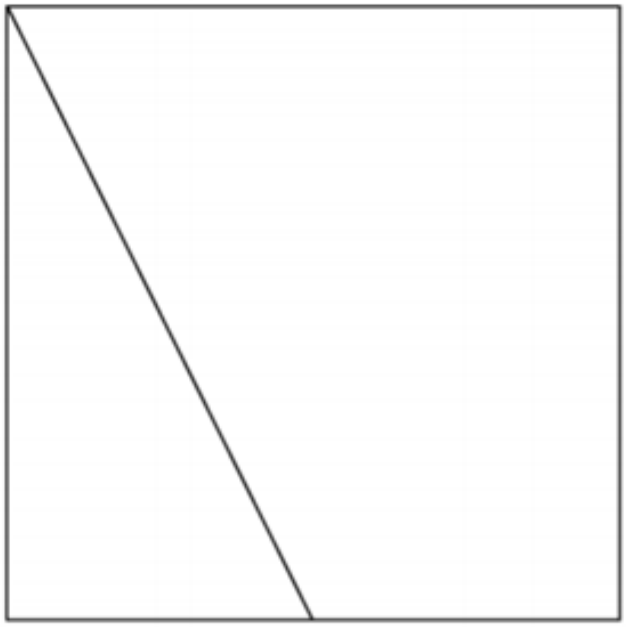
Two, Four, Six, Eight Resources

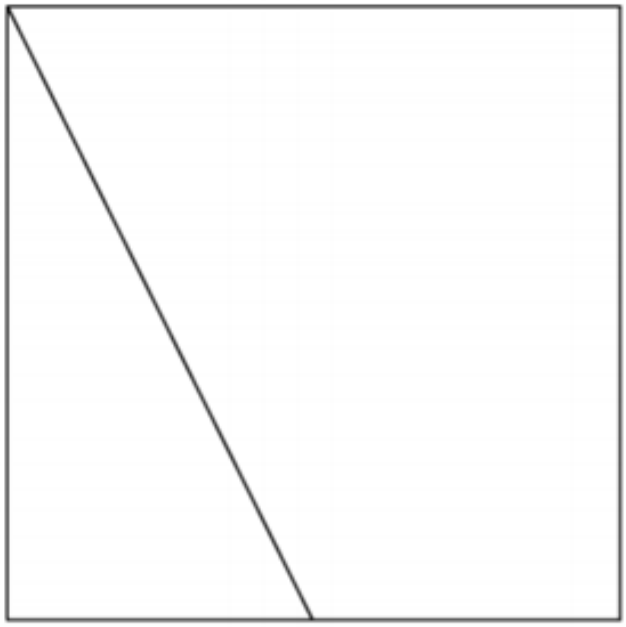
Cut these cards out carefully if you would like to use them.

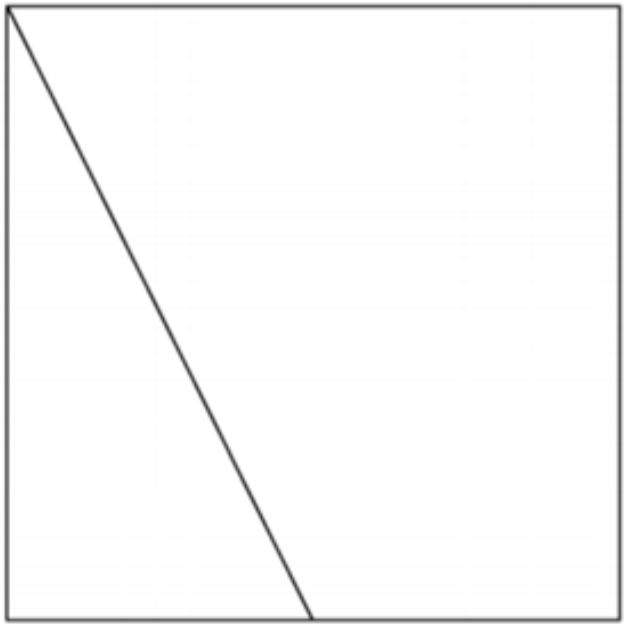


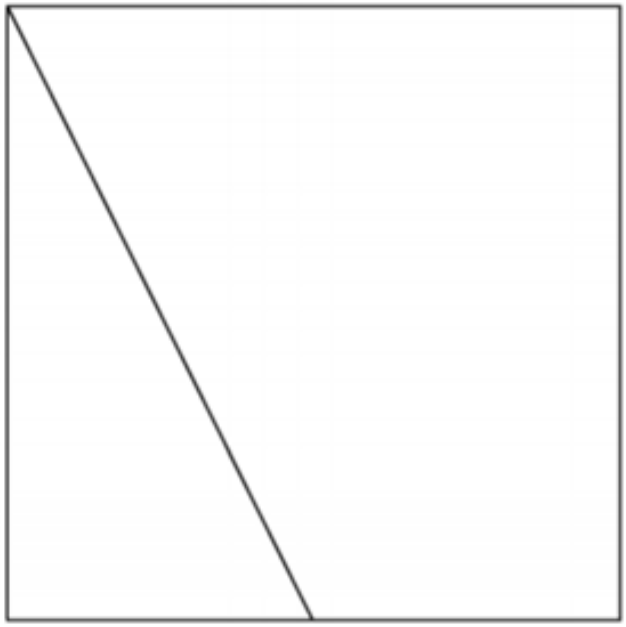
8 Tangram Tangle

Cut out one or more of these shapes carefully and use them for the Tangram Tangle investigation:



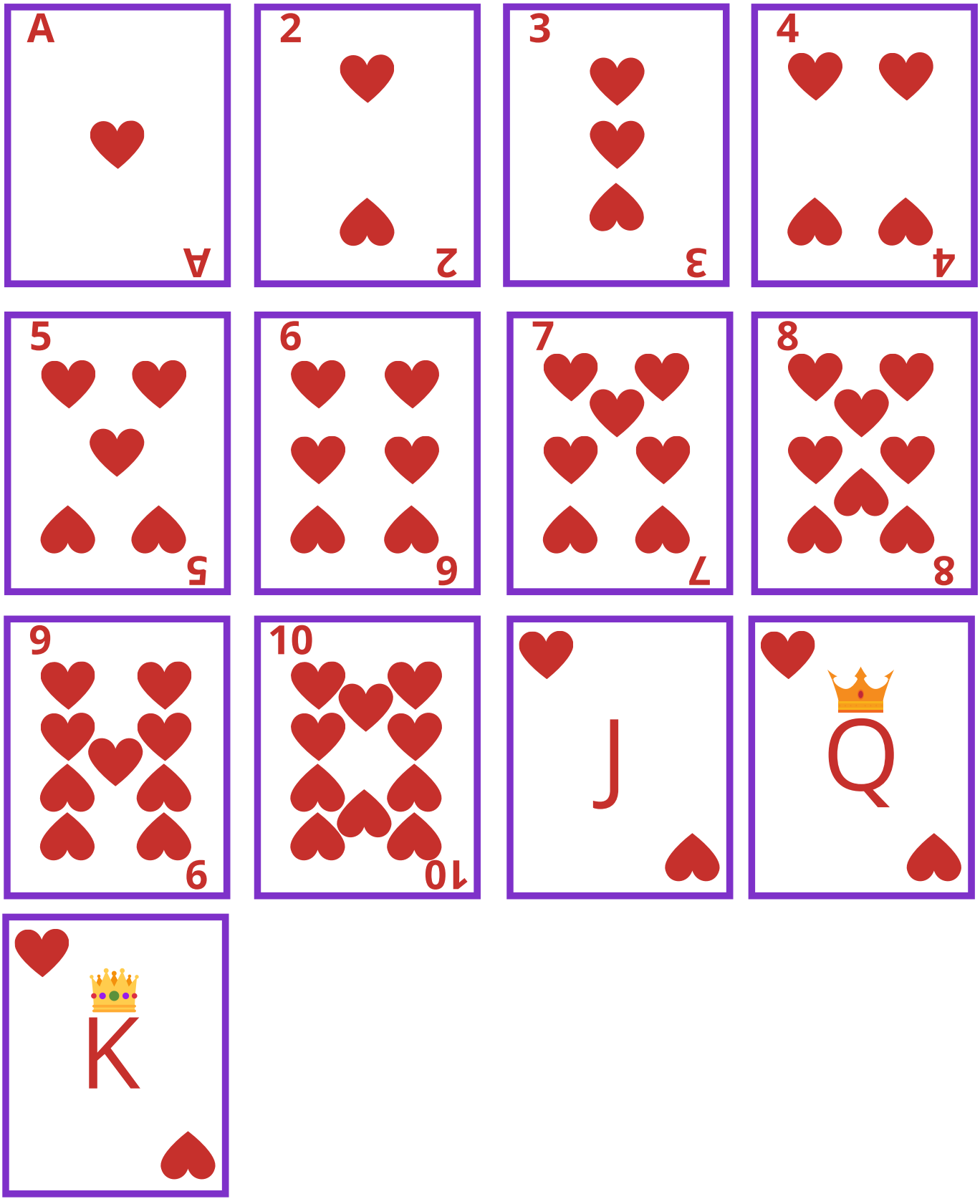






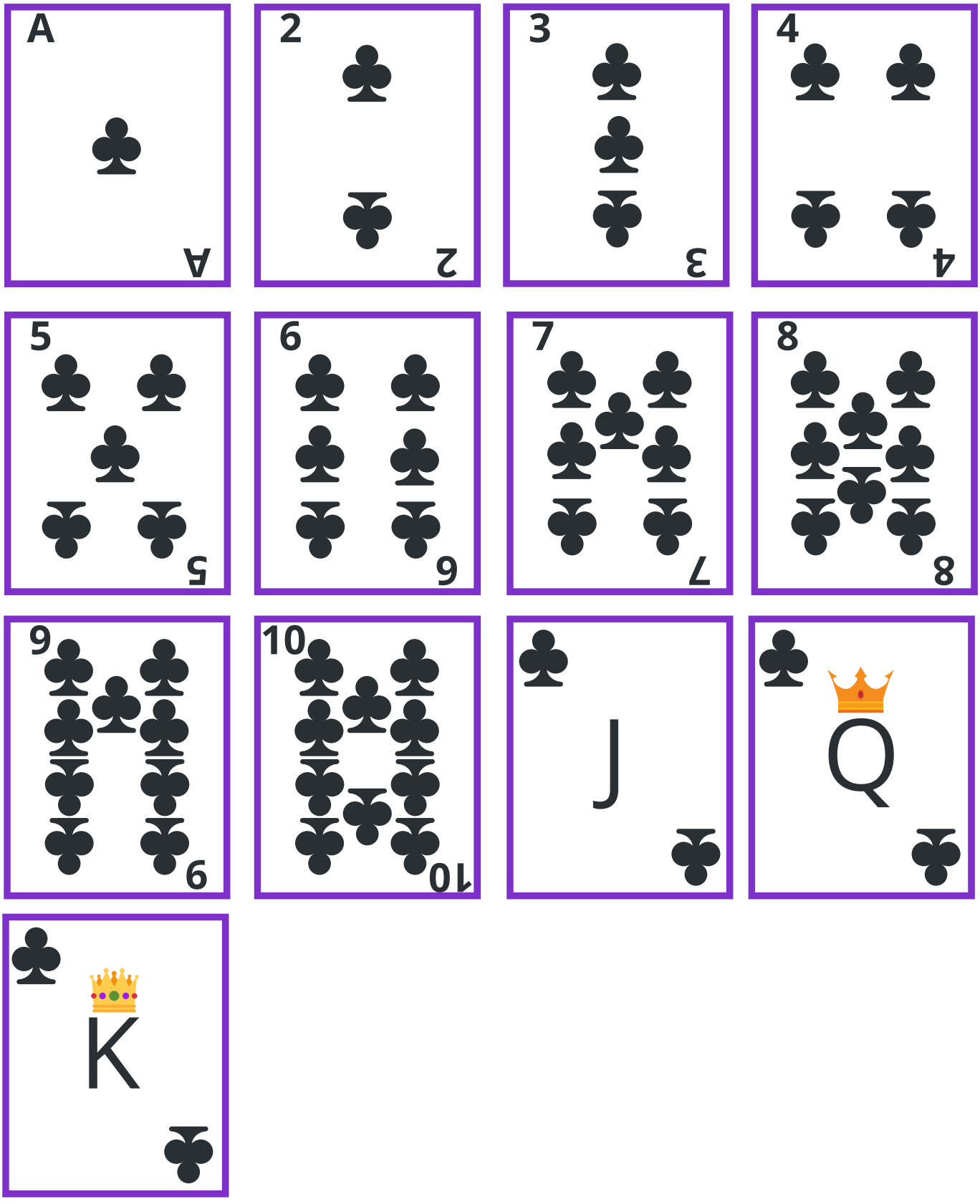
9 Playing Cards 1

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



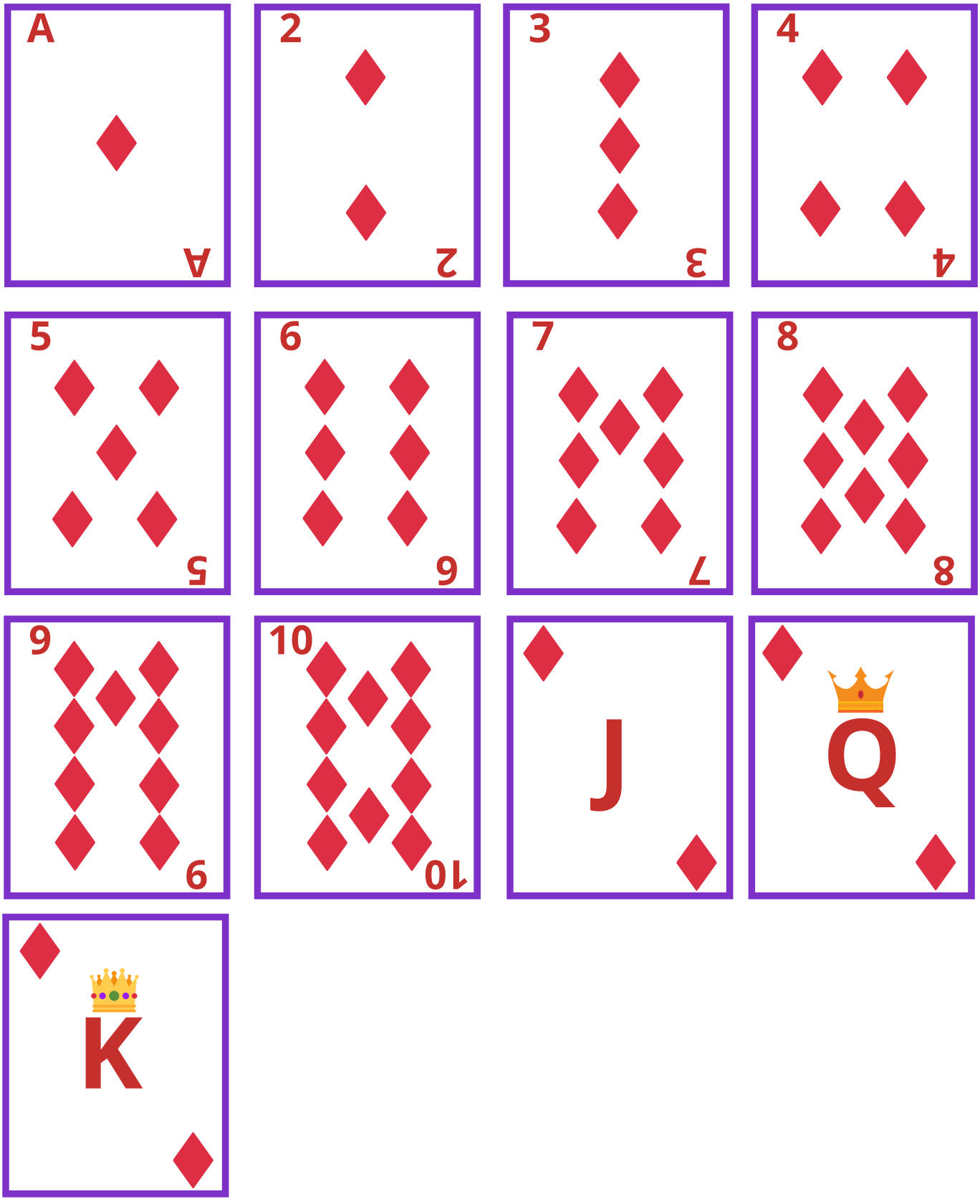
9 Playing Cards 2

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



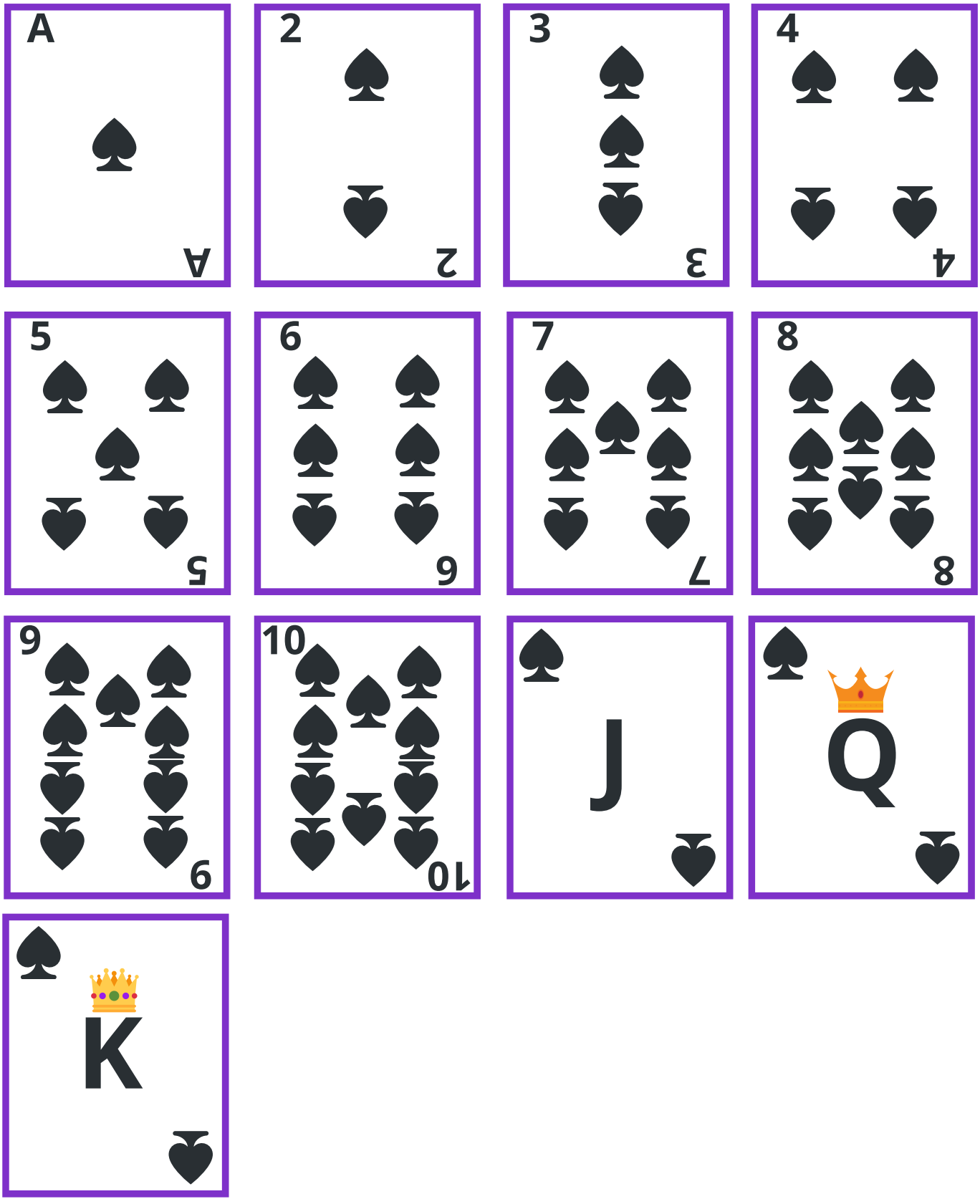
Playing Cards 3

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



9 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