

Using Maths P1-P4

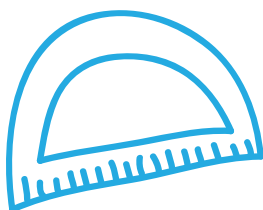
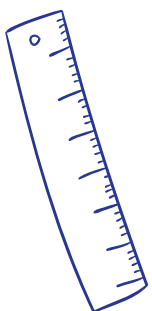
$\sqrt{9}$



$1+3$



$\sqrt{9}$



$\sqrt{9}$



2

2

$\sqrt{9}$

3



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2+2 is still 4!!

Despite all the technological advances that have been introduced to schools and home through PCs, laptops, tablets, iPads, etc. etc., our children still need to know some basics and understand how to work things out in Maths.

Sometimes, as parents and schools, we have to be careful not to get too carried away with the “right” answer. It is very important to know why it is correct, and how we arrived at that answer.

Sitting down with your child and asking them to explain how they do their sums can be as useful as getting the correct answer.

One other very important tip is to give your child “Wait Time”. Don’t jump in right away if your child hasn’t given an immediate answer. If you do they will sit back and let you continue to do it.

Useful Tips and Questions.

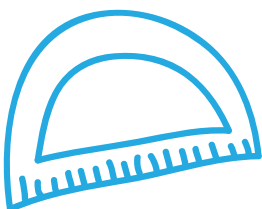
On a piece of card or paper write the sum: $9+3$
and ask your child

“Do you know what the answer to that is?”

Then underneath that sum write the sum: $9+4$
and ask your child

“Do you know what the answer is?” and “Was the first sum any help?”

Repeat the steps above for



$$9+5$$
$$9+6$$



On a piece of card or paper write the sum: $6+6$

Ask your child “Do you know what the answer is?”

Underneath put the sum: $7+5$

Ask your child “Do you know the answer?” “Was the first sum any help?”

Keep repeating for

$$8+4$$

$$9+3$$

In these examples, and others, the important issue is to try to get your child to explain HOW they did the sum or calculation, not just give the answer.

Write out random numbers suitable for your child Eg. 1-10 or 1-100 and ask them to put in the correct order but also explain WHY they put them in that order.

Write a few sums out where they are “bridging” the 10. Eg. $7+5$ and get them to use a strategy other than counting in ones. Listen to them explaining. They may say something like “I added 3 more to make 10 and then 2 more to make 12”

Eg. $15-6$ “I split the 6 up into 5 and 1. I took the 5 away from 15 to get back to 10 and then 1 away from 10 leaves 9”



It may seem easy to us adults, but it is vital to allow the children to explain how and why they did the problem, and give them time as well.

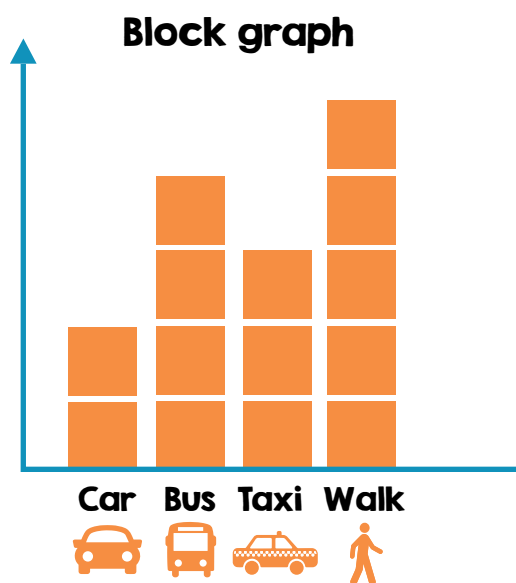
Problem-solving Strategies

The main strategies are:

- Look for a pattern
- Guess and check (trial and improvement)
- Make a picture or diagram
- Use logical reasoning
- Make it simpler
- Work backwards
- Make a list or table

MAKING A TABLE

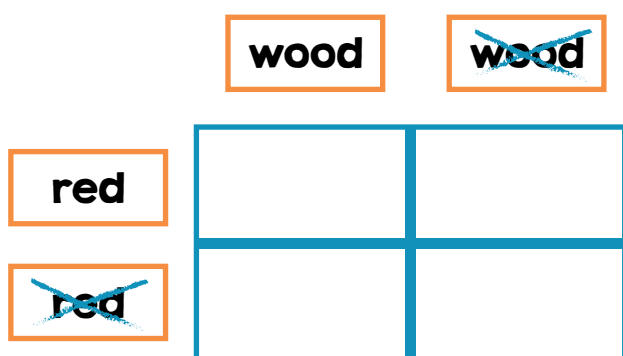
Bird Count		
	Sparrows	Robins
FRIDAY	I	IIII
THURSDAY	IIII	III
WEDNESDAY	II	I
TUESDAY	IIII	II
MONDAY	II	I
		



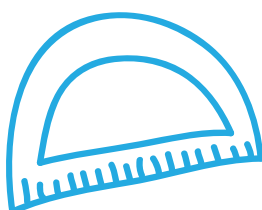
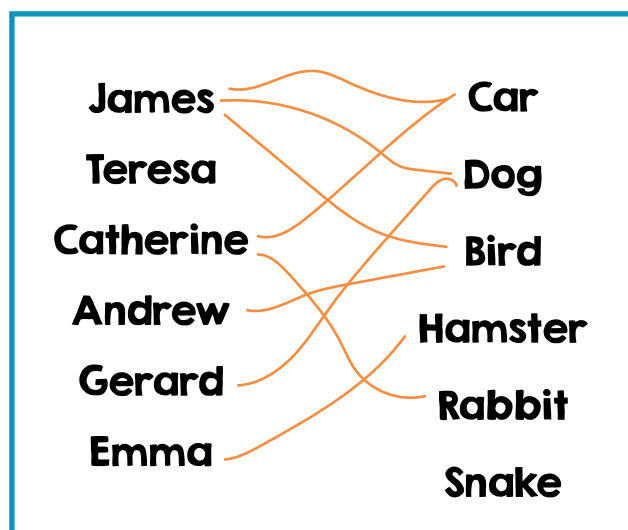
Pictogram

4 years old						
5 years old						
Number of children	1	2	3	4	5	6

Carroll diagram

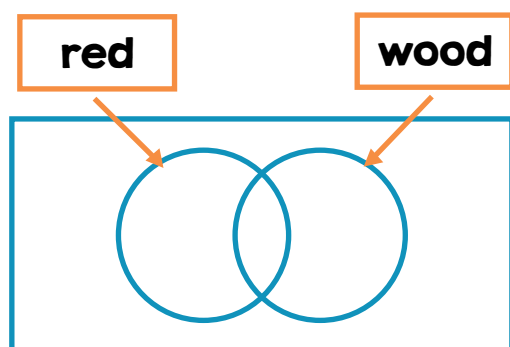


Mapping diagram



$\sqrt{9}$

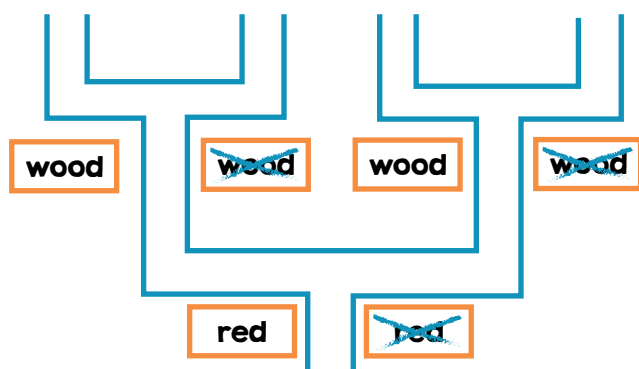
Venn diagram



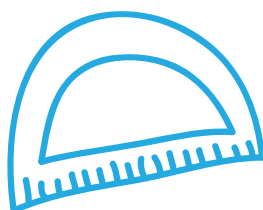
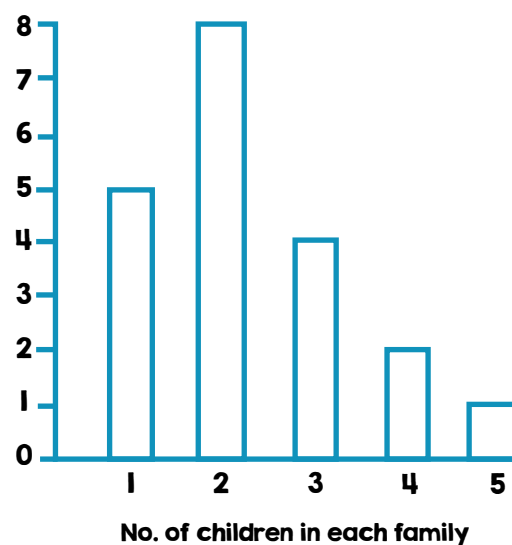
Frequency table

Blackbird	XX	2
Sparrow	XXXXX	5
Robin	X	1
Blue Tic	XXX	3

Tree diagram



Bar chart



$$\sqrt{9}$$

13

31

Using “Post Its” or cards:

Write out the numbers ‘13’ and ‘31’ a number of times
and sort in two

16

Carroll diagrams

~~not 16~~

Using “Post Its” or cards:

Write out ‘16’ and others numbers and then sort into two piles.

Carroll diagrams

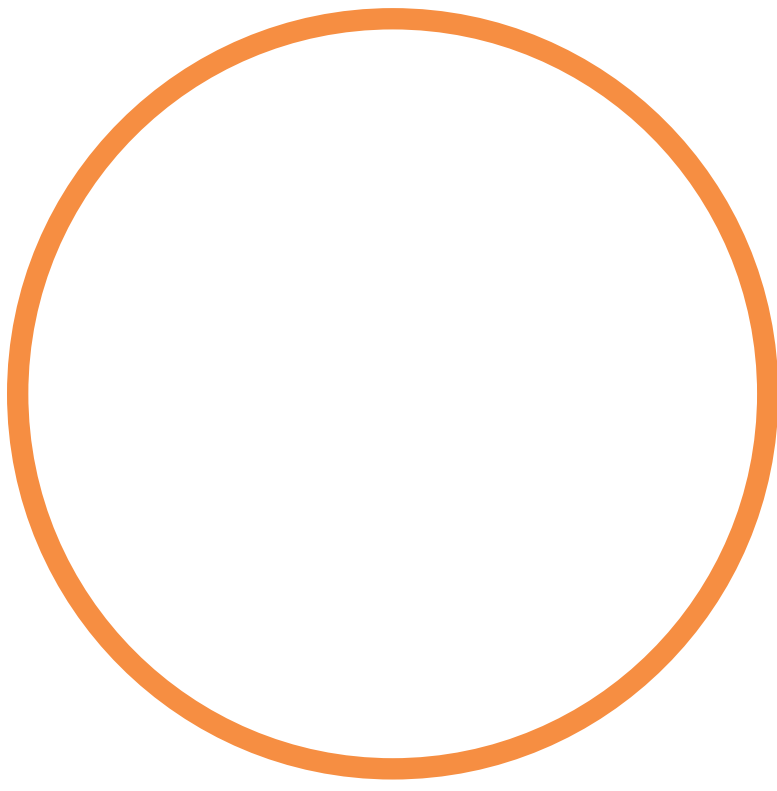
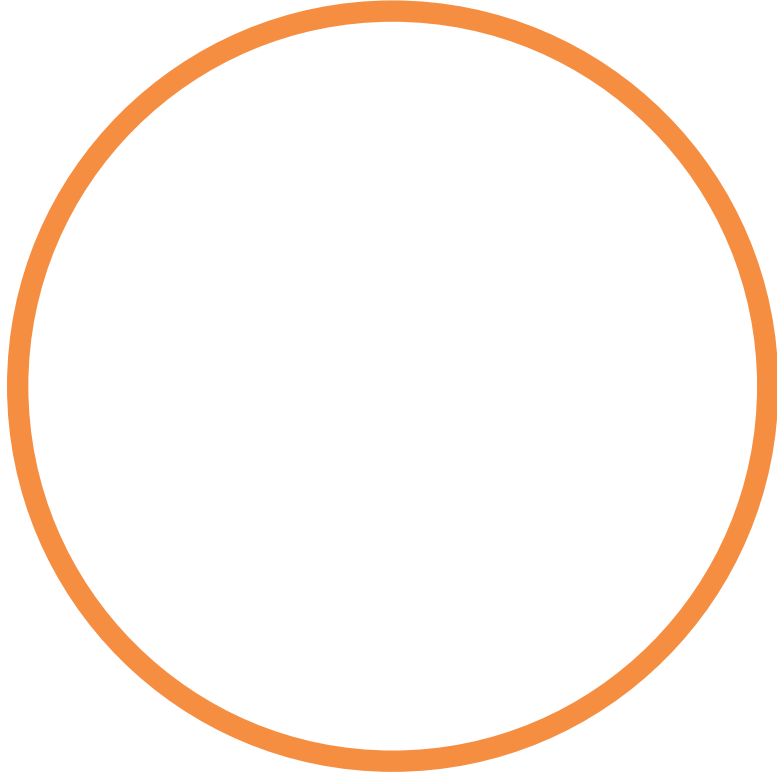
brown coins

~~**brown coins**~~

Sort a pile of coins into two piles

Venn or sorting diagrams

silver coins **not silver**

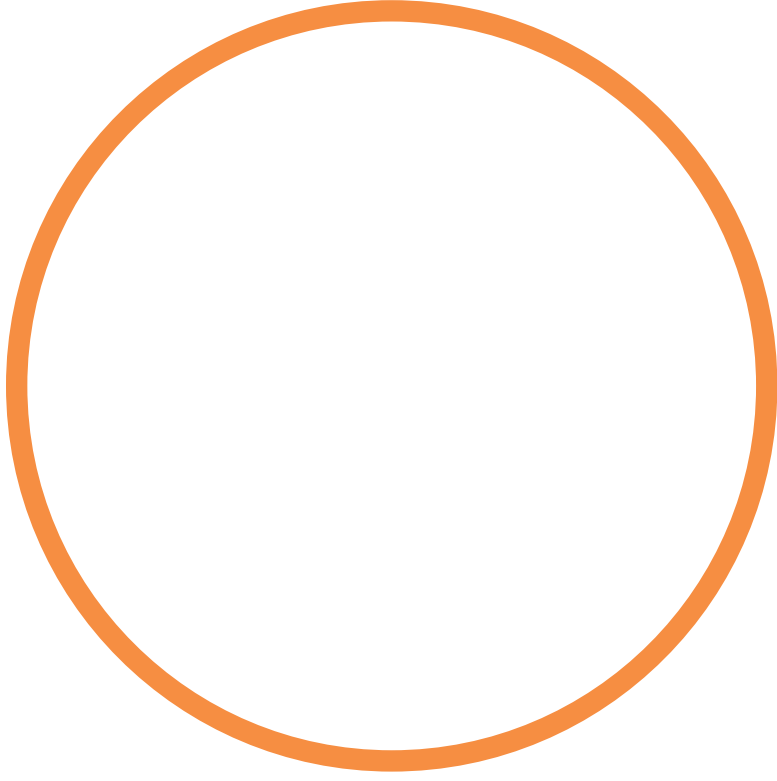


Sort a pile of coins into two categories (Silver, Not silver)

Venn diagram

coins with straight edges

not straight
(anywhere outside the circle)

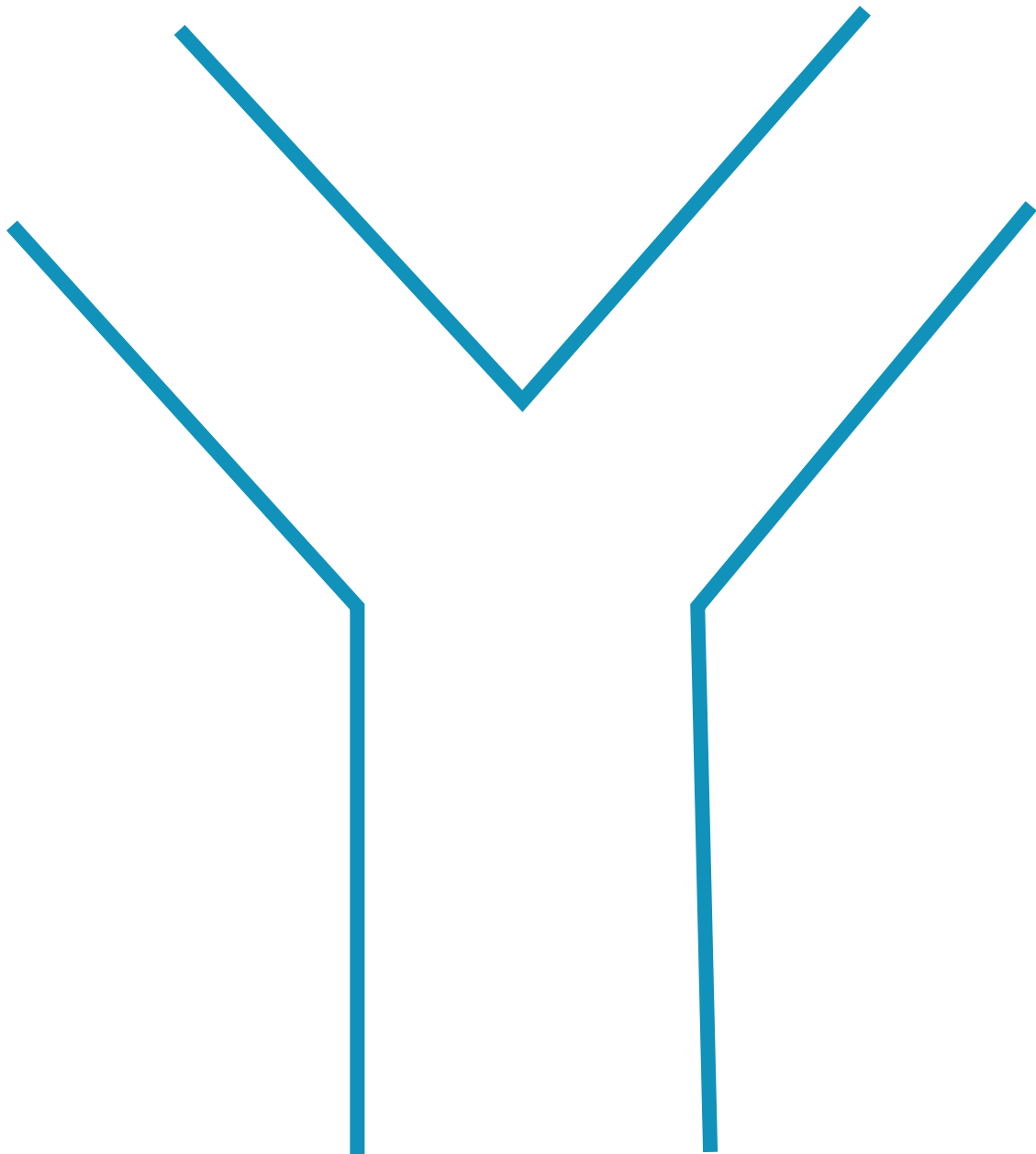


Sort a pile of coins into two categories.

Tree diagram

10p coins

~~**10p coins**~~



Sort a pile of coins into two branches:

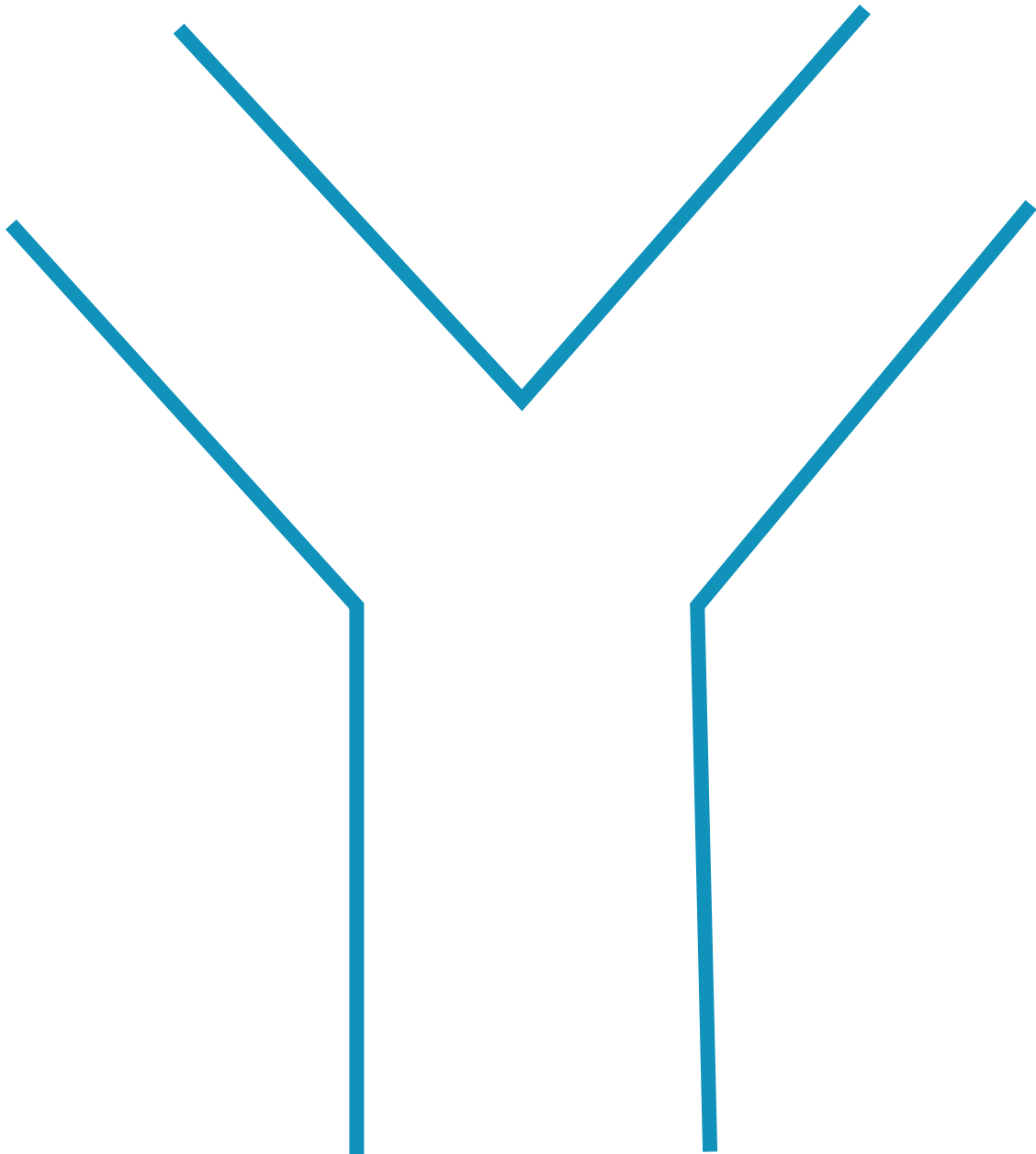
-10p coins

-not 10p coins

Tree diagram

odd number

even number






Write out a few random numbers on 'Post Its' and place them as either:

- Odd**
- Even**

Weighing the same

**Find how many ‘scoops’ of different materials
eg. balance 2 marbles.
Don’t forget to estimate first.**

Record your results in this table:

Material	This number of scoops weigh the same as two marbles:	
	Estimate	Measure
sand 		
rice 		
sugar 		




Teaching Points:

- Are all scoops the same?
- Do all materials weigh the same?

Weighing the same

Now find the number of these things which weigh the same as two marbles:

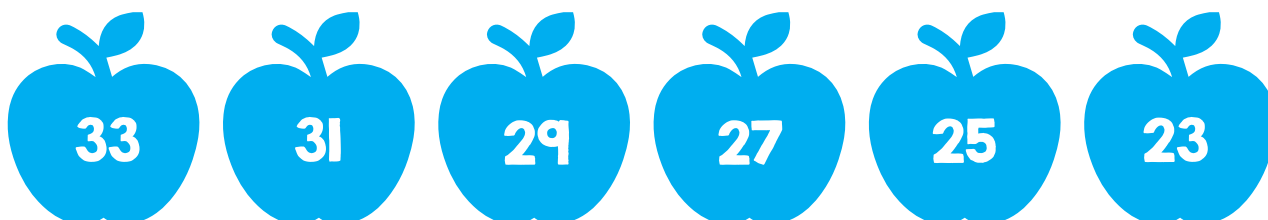


Object	This number balance 2 marbles:	
	Estimate	Measure
cube 		
clothes peg 		
2p coin 		

Teaching Points:

- How is this different than using scoops?
- Are there any problems using cubes, pegs, coins?

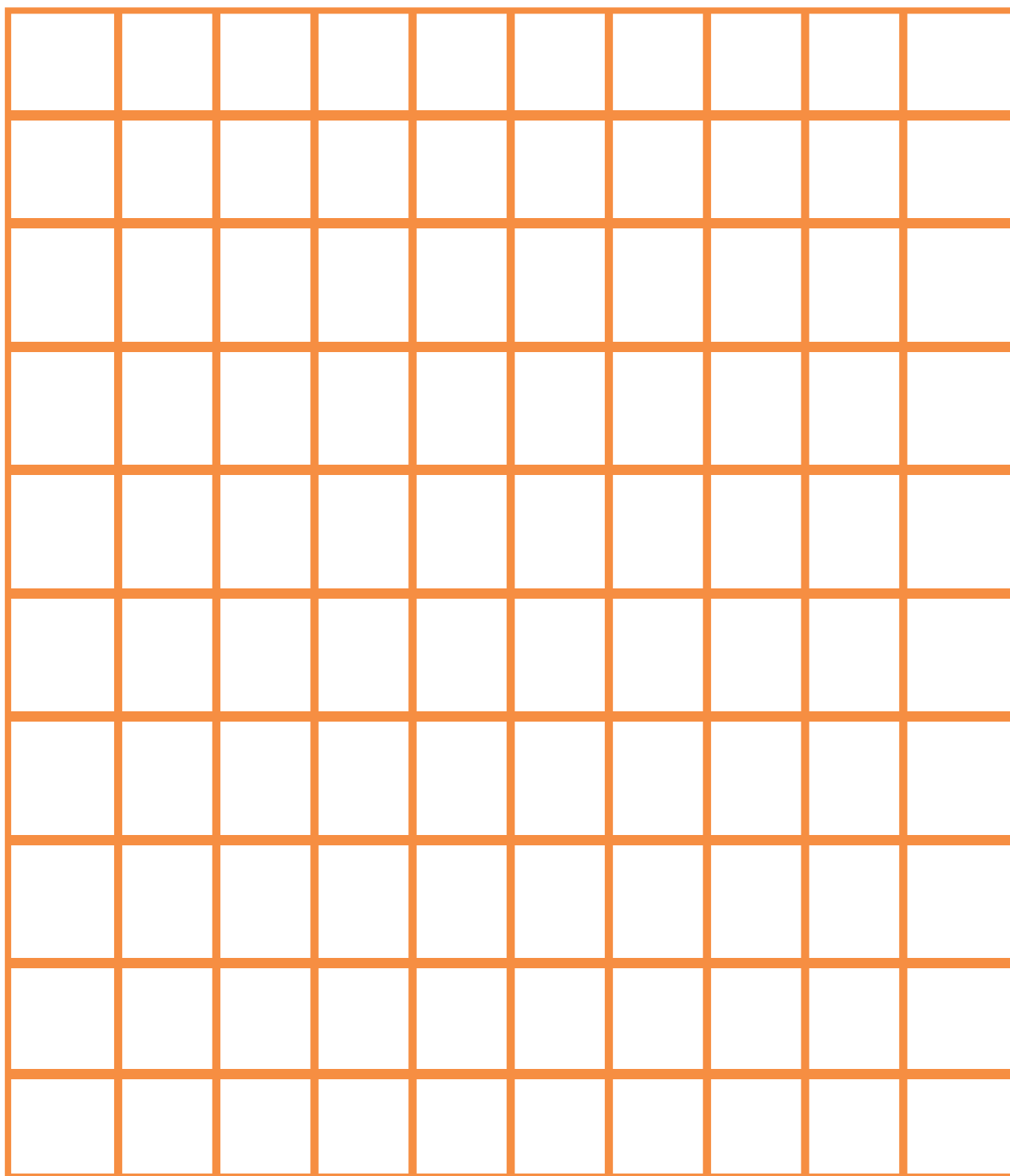
Looking for a Pattern.



Numbered Hundred Square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Blank Hundred Square



Finding your way around the hundred square

If you place counters on each of the sets of numbers below on a hundred square (numbered or blank), you will make a shape or letter.

-See if you can discover all of the shapes and letters below:

1. 33 43 53 63 64 65 66

2. 56 65 67 74 76 78

3. 69 79 89 99 68 70

4. 15 16 17 27 37 36 35 25

5. 36 35 44 54 65 66

6. 91 81 71 62 63 74 84 94

7. 69 59 49 39 29 28 27 37 47 48

8. 34 44 54 64 74 52 43 44 45 46 54

9. 24 25 26 27 36 45 54 55 56 57

10. 2 12 22 32 42 43 44 45 46 54 34

11. 44 54 65 76 87 78 69 60 50 39 38 47 36 35

-Design your own pattern and write down the numbers.

-Try it out on a friend.

Hundred square shapes

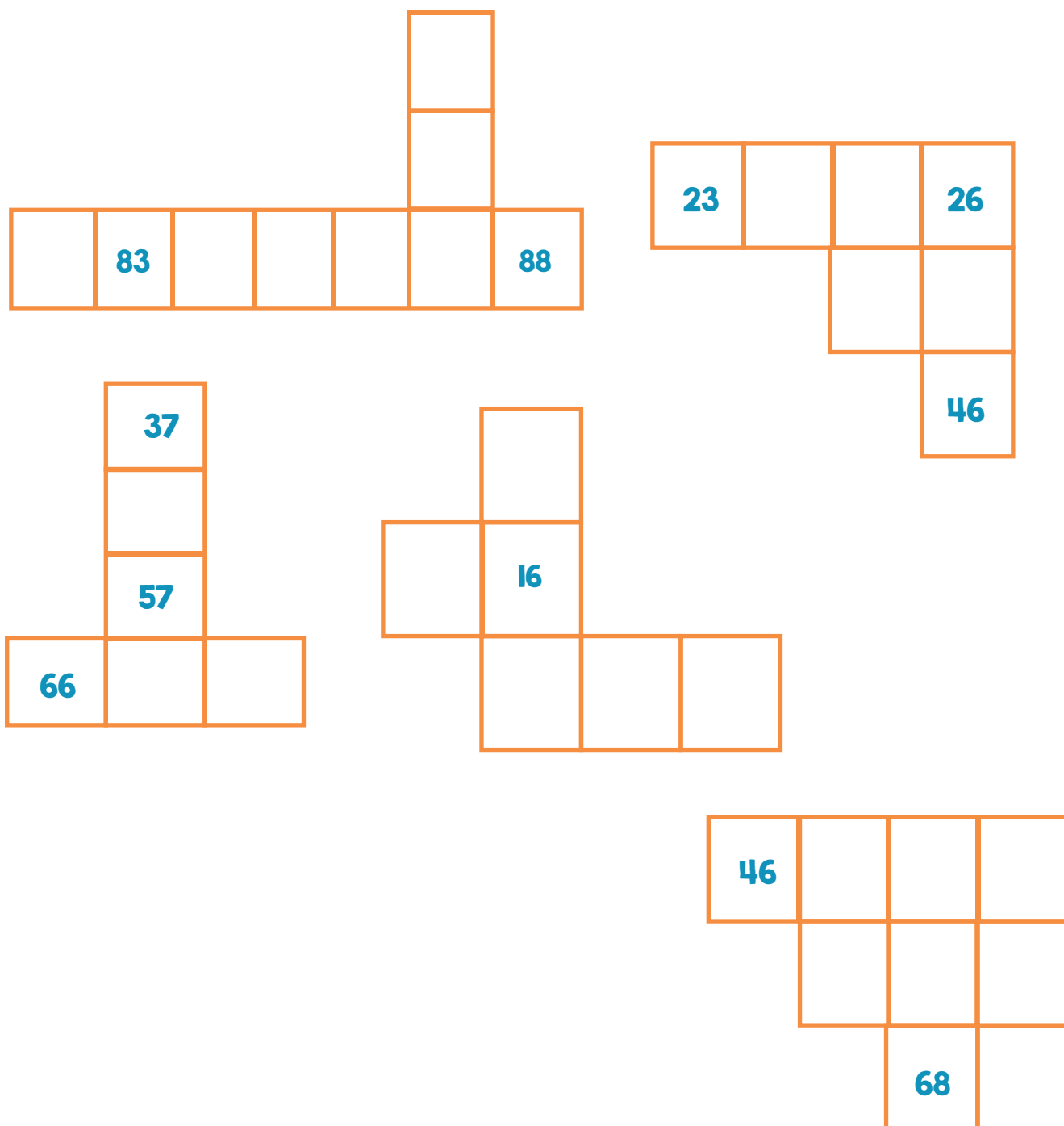
The shapes below have been cut from a hundred square.
Fill in the blanks without using a hundred square to help you.

The shapes are arranged in three rows within a blue border:

- Top row:**
 - A vertical strip of 6 squares. The 4th square from the top contains the number 51.
 - A cross shape with 5 squares. The center square contains the number 34.
 - A shape with 5 squares. The top square contains 36, and the bottom-right square contains 57.
- Middle row:**
 - A shape with 7 squares. The 2nd square from the left contains 18, and the square below it contains 28.
 - A 3x3 square with 9 squares. The middle-left square contains 64, and the middle-middle square contains 65.
 - A shape with 5 squares. The top-right square contains 78.
- Bottom row:**
 - A shape with 6 squares. The 2nd square from the left contains 88, and the bottom-right square contains 100.
 - A shape with 6 squares. The top-middle square contains 12, and the bottom-left square contains 31.
 - A shape with 7 squares. The bottom-right square contains 75.

Brick Wall

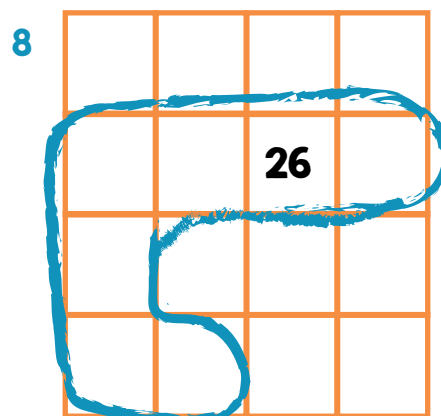
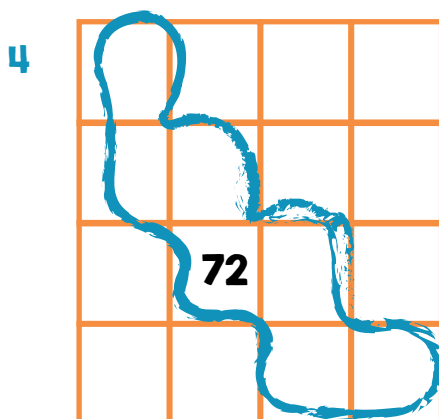
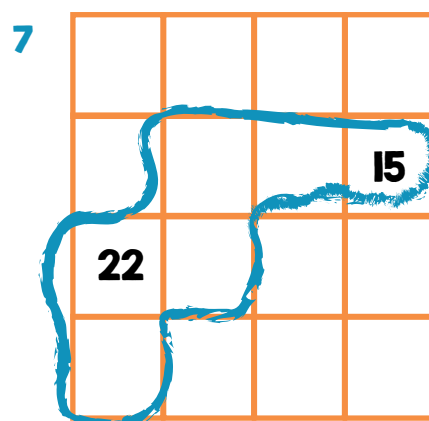
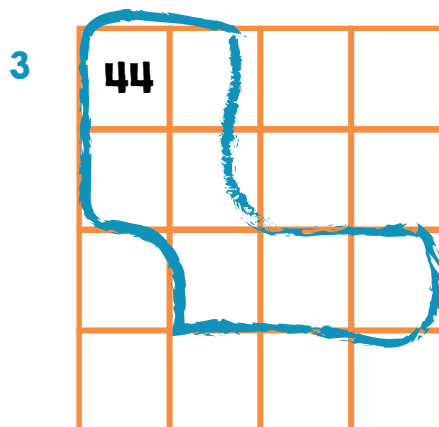
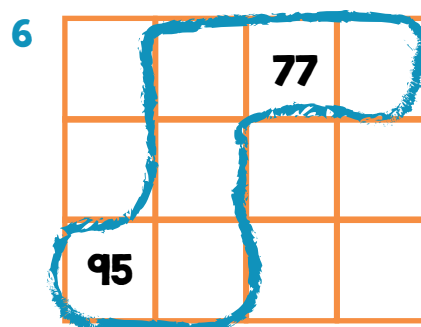
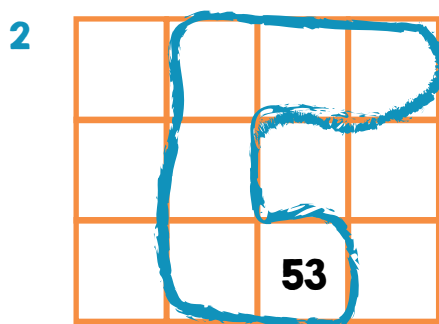
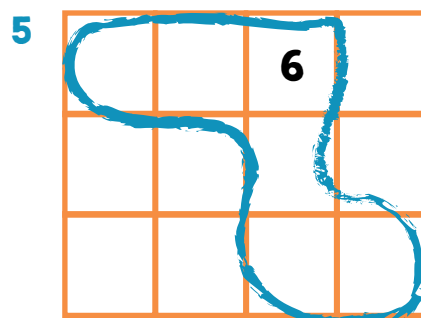
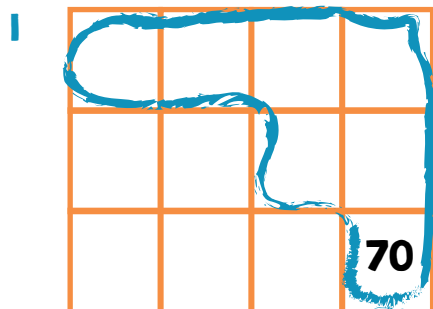
This wall has fallen down. Can you put the numbers back on the bricks? Use a 100 square to help.



Circle the largest number in each group.

Snakes

Fill in the number snakes below without looking at the hundred square.



Make up some of your own now.

Fifty Piece Jigsaw

Cut out the pieces. Make a rectangle with the numbers in order from 1-50.

6	7	
16	17	18
	27	

29	30
39	40
49	50



21	22
31	32



2	3	4	5
		14	15

23	24
33	
43	

41	42
----	----

I		
II	12	13

8	9	10
	19	20



	25	26	
34	35	36	37
44	45		



		28
		38
46	47	48

Colour it on the Hundred Square

Colour in the square which corresponds to the answer to each question and see a pattern emerge.

1 - I less than 48

2 - I less than 25

3 - I less than 75

4 - I less than 38

5 - I less than 58

6 - I less than 15

7 - I less than 28

8 - I less than 68

9 - I less than 85

10 - I less than 78

11 - I less than 88

12 - I less than 18

13 - I less than 45

14 - I less than 35

15 - I less than 55 and I less than 65

Colour it on the Hundred Square

Colour in the square which corresponds to the answer to each question and see a pattern emerge.

1 - 2 more than 72

2 - 2 more than 47

3 - 2 more than 3 tens and 2 more than 4 tens

4 - 2 more than 51

5 - 2 more than 82

6 - 2 more than 56

7 - 2 more than 61

8 - between 4 & 7

9 - between 94 & 97

10 - 2 more than 66

11 - 2 more than 85

12 - 2 more than 75

13 - between 14 & 17

14 - 2 more than 37

15 - between 20 & 31

Colour it on the Hundred Square

Colour in the square which corresponds to the answer to each question and see a pattern emerge.

1 - 9 plus 9

2 - 10 more than 48

3 - 10 more than 38

4 - 9 plus 7

5 - 10 more than 68

6 - 10 more than 18

7 - 8 plus 9

8 - 10 more than 28

9 - 7 plus 8

10 - 10 more than 58

11 - 10 more than 78

12 - 7 plus 7

13 - 10 more than 88

14 - 8 plus 5

15 - 10 more than 13

Colour it on the Hundred Square

Colour in the square which corresponds to the answer to each question and see a pattern emerge.

1 - between 54 and 58

2 - between 61 and 63

3 - between 78 and 81

4 - odd numbers between 34 and 41

5 - between 71 and 73

6 - between 41 and 43

7 - between 30 and 34

8 - between 48 and 50

9 - odd numbers 63 and 70

10 - between 51 and 53

11 - odd numbers between 43 and 48

12 - between 74 and 76

13 - between 76 and 78

14 - between 39 and 41

15 - between 58 and 61

MAKE A PICTURE



Combining and Partitioning

Structures to Five

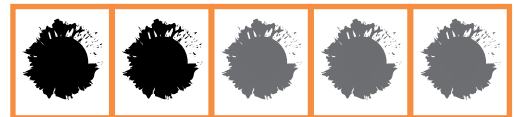
Combination to 5



How many dots?

How many more to make five?

Partitions of 5



How many dots?

How many are black?

How many are grey?

Simple related task:



How many black dots?

How many grey dots?

How many all together?

Other questions (using frames):

What goes with 1 to make 5?

Tell me 2 numbers that make 5?

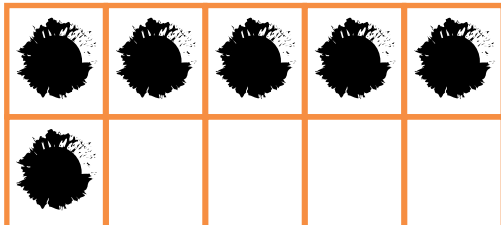
How many is 5 take away 2?

How many is 1 and 3 more?

Combining and Partitioning

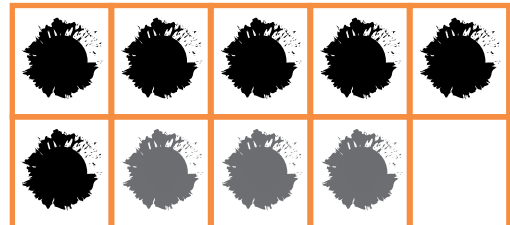
Structures to Ten

Combination to 10



How many dots?
How many more to make ten?

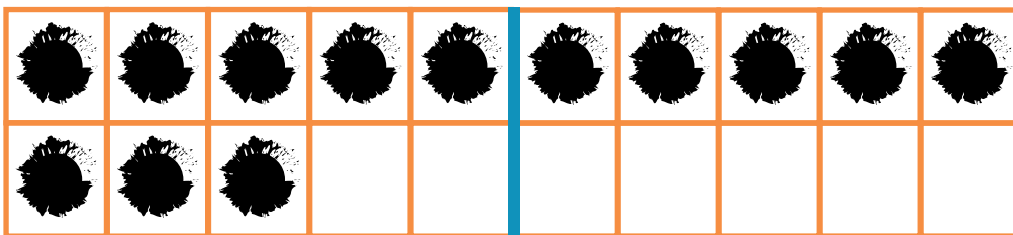
Partitions of 10



How many dots?
How many are black?
How many are grey?

Structures to Twenty

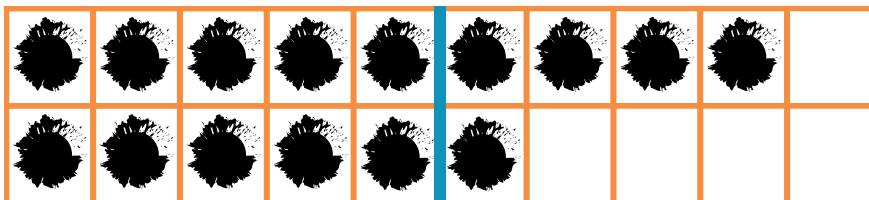
(using reference numbers of 10, 5 and doubles)



How many dots?
How many more to make 20?

Combining and Partitioning

Sample related task:



How many dots on top?

How many dots on bottom?

How many dots altogether?

Other questions (using frames):

What goes with 12 to make 20?

What goes with 7 to make 20?

Tell me 3 numbers that make 19?

How many is 20 take away 9?

How many is 17 and 2 more?

Countdown from 10

8	9	4	5	4	7
7	8	9	8	5	6
9	6	5	6	7	4

A game for two players. You need a dice; plus counters of two different colours. Take turns to roll the dice. Subtract the number from 10. Find the answer on the grid and cover it with one of your counters.

When all numbers are covered, winner is the one who has most counters on the board or 3 in a row Vertical, Horizontal, Diagonal.

Double Trouble

12	2	6	8	4	10
8	4	12	2	12	6
10	2	6	8	10	4

A game for two players. You need a dice and counters of two different colours. Take turns to roll the dice.

Double the number. Find the answer on the grid and cover it with one of your counters.

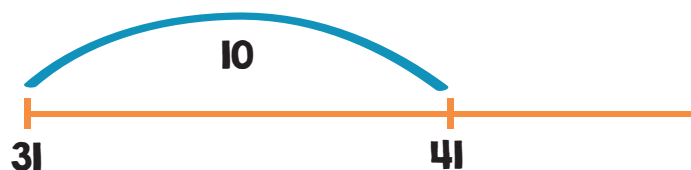
When all numbers are covered, winner is the one who has most counters on the board or 3 in a row Vertical, Horizontal, Diagonal.

Off the decade

51	71	26	42	2	16
5	14	36	63	74	65
34	56	75	54	25	43
1	12	32	21	3	33
41	73	44	35	61	23

Roll two dice. Use these numbers to make a 2-digit number.
 Eg. if you roll a 1 and a 3 you could make 13 or 31. Add 10 to,
 or subtract 10 from that number.

Get player to draw out the answer on an empty
 number line (ENL) Eg. $31 + 10$



Find it on the grid and cover the answer with one of your counters.
 First player to get 4 counters in a line wins.

32	36	34	35	37
34	37	38	32	39
39	36	33	34	36
34	35	31	39	35
31	38	35	33	37

Aim: Cover three in a row with your counters.

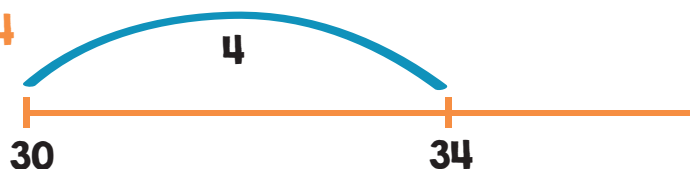
Materials: Board game, two kinds of counters, dice or spinner 1-9

How to play:

1. Player one rolls or spins to determine the amount to add to 30.
2. Player says the addition number sentence and places the counter on the answer.

Get player to draw out the answer on an ENL

Eg. $30 + 4$



3. The next player rolls or spins, adds, and places the counter on the answer.
4. Players take turns until one player has 3 counters in a row.

Up and Over the Bridge

57

57

61	65	63	62	64
65	66	62	65	63
66	64	61	66	62
63	66	62	64	65
64	61	65	63	61

Aim: Cover three in a row with your counters.

Materials: Board game, two kinds of counters, cube or spinner 4-9

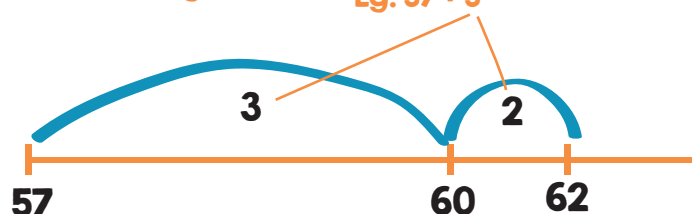
How to play:

1. Player one rolls or spins to determine the amount to add to 57.
2. Player says the addition number sentence and places the counter on the sum.

Get player to draw out the answer on an ENL

Eg. $57 + 3$

Eg. $57 + 5$



3. The next player rolls or spins, adds, and places the counter on the sum.
4. If the sum is already occupied, the player may spin or roll again.
5. Players take turns until one player has 3 counters in a row.

Back Over the Bridge

38	36	34	35	37
34	37	38	33	38
37	36	33	34	36
34	35	37	38	35
33	38	35	36	37

Aim: Cover three in a row with your counters.

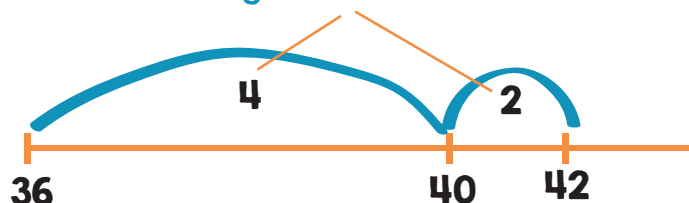
Materials: Board game, two kinds of counters, cube or spinner 4-9

How to play:

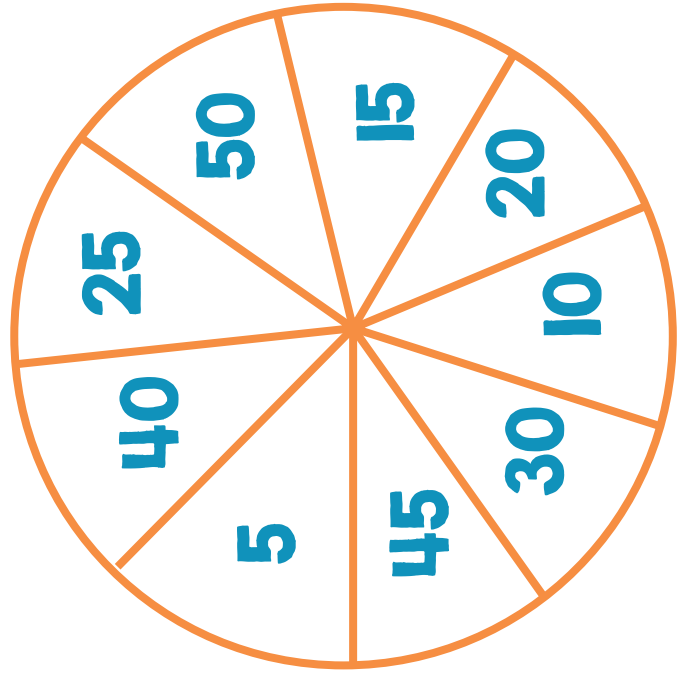
1. Player one rolls or spins to determine the amount to subtract from 42.
2. Player says the subtraction number sentence and places the counter on the answer.

Get player to draw out the answer on an ENL

Eg. $42 - 6$



3. The next player rolls or spins, subtracts, and places the counter on the answer.
4. Players take turns until one player has 3 counters in a row.



Time to Combine

20	50	15	40	10	55	30	45
40	30	35	20	15	30	20	10
50	45	10	55	50	10	40	35

Materials: game board, spinner, two kinds of markers, pencil and paper clip.

Directions:

1. Rotate the spinner to create a number representing the number of minutes past the hour (Example: If it lands on a 20, the number of minutes past the hour would be 20).
 2. Decide how many minutes would be needed to reach the next hour. Since there are 60 minutes in an hour, decide how many more it would take to equal 60. (Eg. If a 20 is spun, a marker would be placed on 40 since $20 + 40 = 60$, and 20 minutes past the hour is 40 minutes until the next hour).
 3. Place the marker on the game board that represents the missing amount.
- The winner is the first player with 3 markers in a row, horizontally, vertically or diagonally.

Adapted from "Developing Number Knowledge (7-11)" SAGE Publications.

A Bunch of 5s

35	15	30	0	25
10	40	5	35	45
25	45	20	40	15
30	10	45	20	40
20	35	15	30	25

How to play:

Use a 0-9 spinner.

1. Multiply the number you roll or spin by 5. Use a marker to cover that number.
2. Winner is the player who covers 3 in a row.

50 Grid and 3 Dice

You have to try to get 4 numbers in a row; horizontally, vertically or diagonally. At the same time try to stop your partner from getting 4 in a row.

You need:

3 dice

A 50 grid

Counters or cubes of 2 different colours

How to play:

Take turns at throwing 3 dice

Use the 3 numbers and +, -, x and / or ÷ to make the number you want.

Eg. if you throw 1, 4 and 3; some numbers you could make are:

8 : $1+4+3$

2 : $1+4-3$

13 : $3 \times 4 + 1$

1 : $4 \div 1 - 3$

etc

Take time to think of many different solutions before you decide which is best for you.

When you have decided, place your counter on that number on the grid.

The winner is the first person to get 4 counters in a straight line!
(Shorter game - play first to get 3 in a straight line)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Give Me 10

Instructions

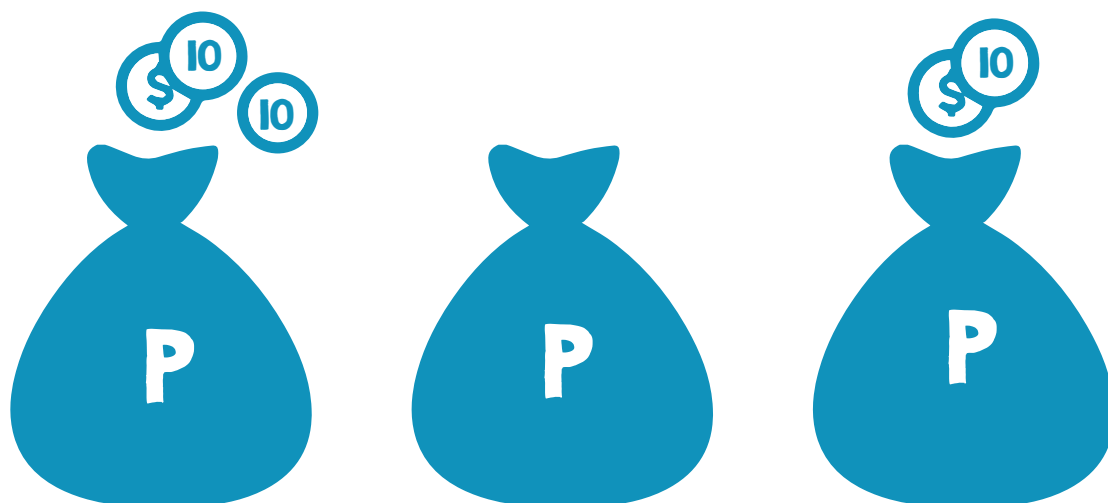
You will need:

- a dice
- 1p, 2p and 5p coins
- one 10p coin
- 2 counters (different colours)
- 2 purses

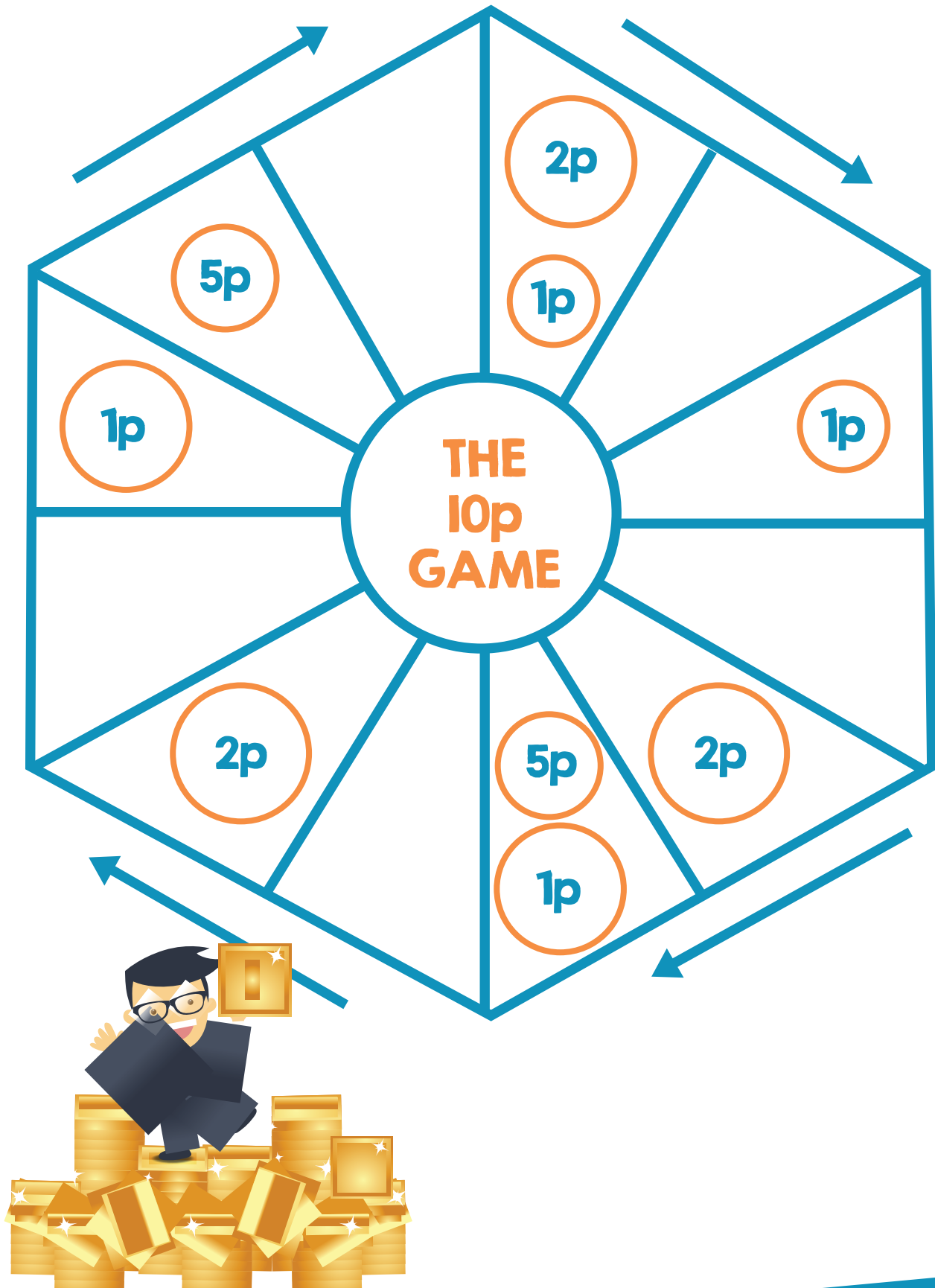
How to play:

- Play this game with a partner.
- Select a counter and a purse.
- Have a bank of coins.
- Place your counter on any blank space on the track.
- Take turns to throw the dice and move your counter clockwise one space for each spot on the dice.
- If you land on a space showing coins, take those coins and put them in your purse.
- The first player to have 10p or more in their purse is the winner.

Winner: Change your coins for the 10p coin.



Money



Looking for a Score

Instructions

You will need:

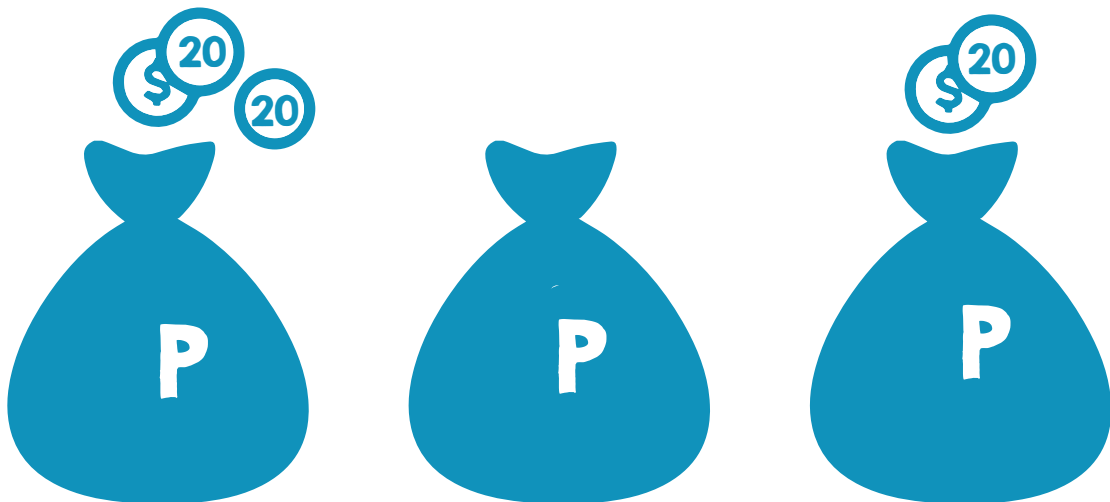
- a dice
- 1p, 2p and 5p and 10p coins
- one 20p coin
- 2 counters (different colours)
- 2 purses

How to play:

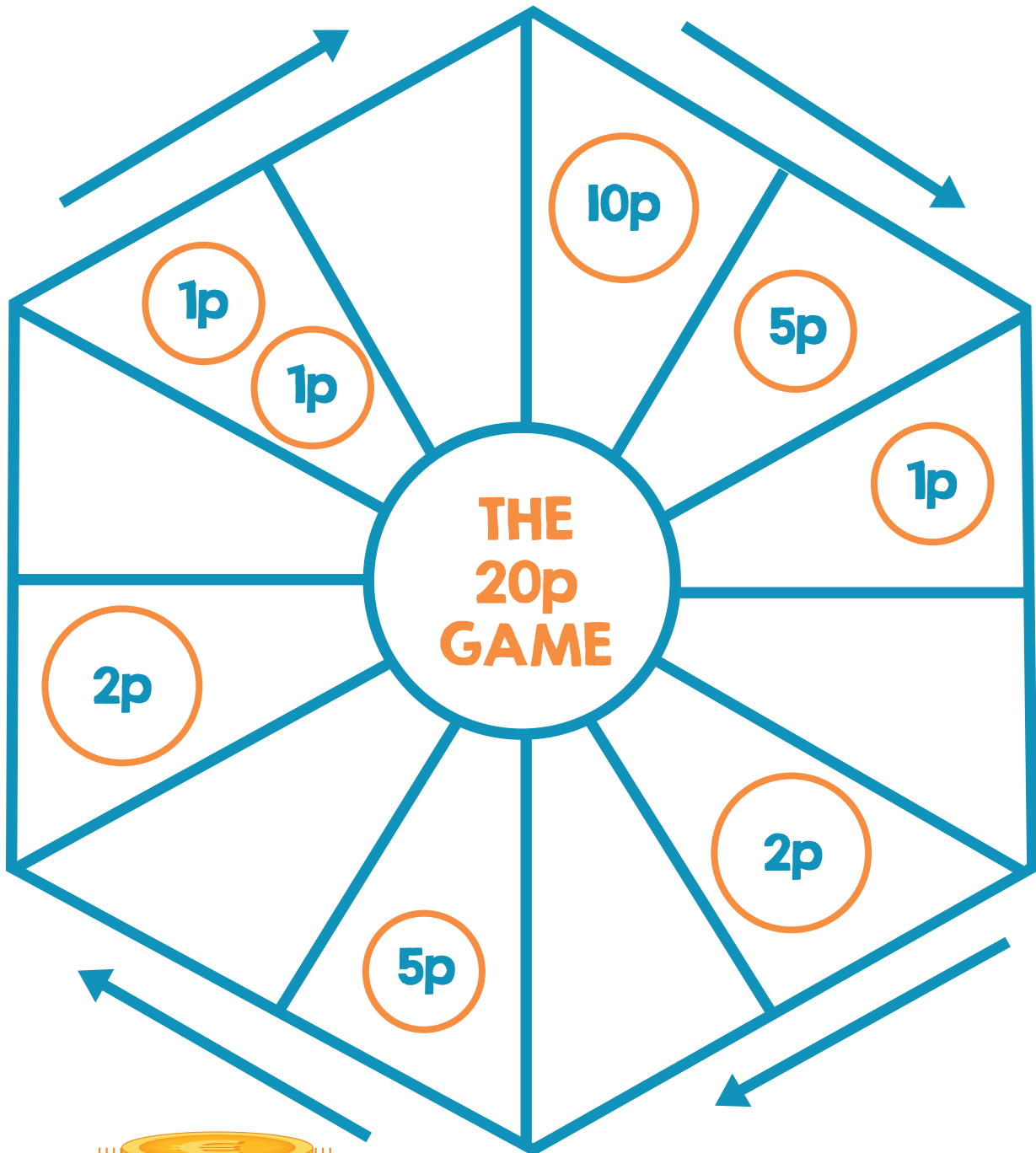
Play this game with a partner.

- Select a counter and a purse.
- Have a bank of coins.
- Place your counter on any blank space on the track.
- Take turns to throw the dice and move your counter clockwise one space for each spot on the dice.
- If you land on a space showing coins, take those coins and put them in your purse.
- The first player to have 20p or more in their purse is the winner.

Winner: Change your coins for the  20p coin.



Money



REAL LIFE PROBLEMS



The Fair

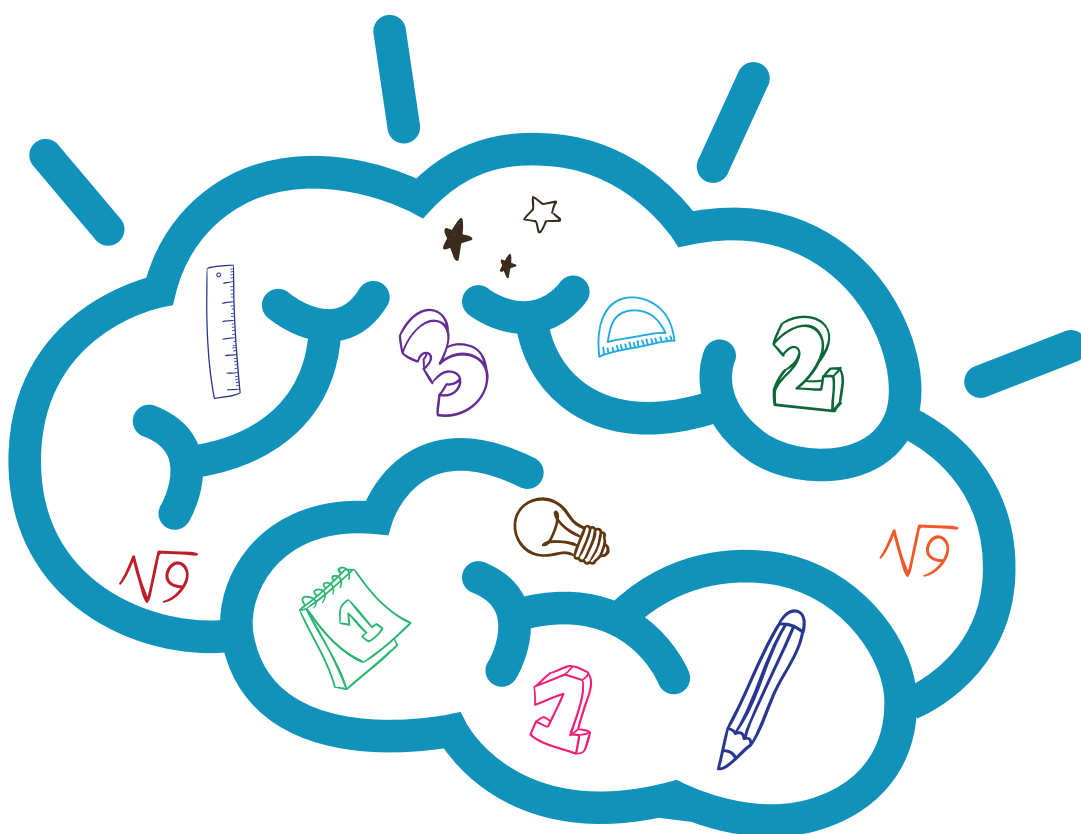
1. There are 3 bumper cars. Each car holds 2 people.
How many people can go on the ride altogether?
2. a) 3 boys go on a ride. It costs 10p a ride. How much did it cost altogether?
b) How much change would they get if they paid with a £1 coin?
3. Mark and Rob went on the ghost train. It cost 20p each.
How much did it cost altogether?
4. Darren bought a toffee apple for 55p. How much change did he get from his £1 coin?
5. The roller coaster holds 5 people in a carriage.
There are 4 carriages. How many people will be on a full ride?
6. Darren went on the waltzers. One go is 50p. How much did it cost for him to go on twice?
7. As Tom is a child, he can go on the roller coaster half price.
The normal price is 40p. How much does he need to pay?
8. Darren spent 49p on the slot machines. He finished with 4p.
How much money did he start with?
9. Tom went on the dodgems 6 times. Each time cost 19p.
How much did he spend altogether?
10. They all started to walk home at 4:10pm. They arrived home at 5 o'clock.
How long did it take them to get back?

Name:	Date:	
Problem	+ - X ÷	Sum
1. There are 3 bananas in the bowl. If I eat 1, how many are left?	+ - X ÷	
2. 8 children get a sweetie from the jar. There are only 2 left. How many sweeties were in the jar to start with?	+ - X ÷	
3. 5 chocolate biscuits are left. If I buy 7 more, how many now?	+ - X ÷	
4. There are 8 children in the blue group. 2 children are off. How many are left?	+ - X ÷	
5. 11 birds are in a tree. 6 fly away. How many now?	+ - X ÷	
6. There are 10 toys on the shelf. 4 toys are sold. How many are left?	+ - X ÷	
7. 6 people are on the bus. 5 more get on. How many altogether?	+ - X ÷	
8. Each roll gets 2 sausages. How many sausages on 3 rolls?	+ - X ÷	
9. Alan has 2 books, Scott has 3 and Andy has 4. How many books altogether?	+ - X ÷	
10. Share 4 apples equally between 2 children. How many each?	+ - X ÷	
11. Thomas has 12 toffees. He gives 2 to his teacher and 1 to his friend. How many does he have left?	+ - X ÷	
12. 4 kittens are in a basket. 1 gets out and 2 more get in. How many are in the basket now?	+ - X ÷	

Brain teasers

Puzzles to test Mathematical skills

Age 6-8



Count the rectangles

How many rectangles can you see?



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Brainteasers

Puzzles to test Mathematical skills

Age 6-8

Ice creams

Jack, Chris and Bob are brothers.
Their corner shop sells three kinds
of ice cream: strawberry, vanilla and banana.



Jack said: "Each of us likes only two of the ice creams."

Bob said: "Each of the ice creams is liked by only two of us."

Chris said: "Jack likes strawberry and I don't like banana."

Which flavours of ice cream does Bob like?

Adapted from www.tes.co.uk

Name.....

Number	Make 10	Make 20
5	5	15
6		
2		
8		
9		
7		
1		
4		
3		
10		
6		
9		
5		
10		
4		
1		
3		
7		
2		
8		

Name.....

Number	Make 10	Number	Make 100
5	5	50	50
6	4	60	40
8		80	
7		70	
9		90	
2		20	
1		10	
4		40	
3		30	
6		60	
9		90	
5		50	
4		40	
1		10	
3		30	
7		70	
2		20	
8		80	
6		60	
5		50	

Name_____

Number	Make 10	Number	Make 100	Number	Make 1000
5	5	50	50	500	500
6	4	60	40	600	400
8		80		800	
7		70		700	
9		90		900	
2		20		200	
1		10		100	
4		40		400	
3		30		300	
6		60		600	
9		90		900	
5		50		500	
4		40		400	
1		10		100	
3		30		300	
7		70		700	
2		20		200	
8		80		800	

Name.....

Number	Make 100	Number	Make 100p	Number	Make £20
50	50	50p	50p	£10.50	£9.50
60	40	60p	40p	£10.60	£9.40
80		80p		£10.80	£9.20
70		70p		£10.70	
90		90p		£10.90	
20		20p		£10.20	
10		10p		£10.10	
40		40p		£10.40	
30		30p		£10.30	
60		60p		£10.60	
90		90p		£10.90	
50		50p		£10.50	
40		40p		£10.40	
10		10p		£10.10	
30		30p		£10.30	
70		70p		£10.70	
20		20p		£10.20	
80		80p		£10.80	
60		60p		£10.60	
50		50p		£10.50	
40		40p		£10.40	

Useful websites For Foundation/KSI

www.illuminations.nctm.org

(Install Google Chrome to speed up access)

Search for Five Frame or Ten Frame - Pre K-2 - Number and Operations

It is very visual and has a voice over which asks the tasks to be performed.

There are four main activities which are all worth trying out, particularly for Foundation Stage (PI/P2).

www.topmarksmaths.co.uk

Go to Whiteboard Resources - KSI Problem Solving

This is an excellent site for real life money/shopping problems.

There are two main activities, one stage problem and a two stage problem. Well worth a visit.

www.primaryresources.co.uk

Go to Maths - Solving Problems - Word and Real Life Problems.

Loads of resources for all ages here for your child to try out with you.

www.nrichmaths.org

Search for KSI Problems or Early Years Problems and there are loads of excellent examples to choose from. Work through some of these with your child.

Other useful materials , activities and games can be found on www.clounagh.org and Developing Number Knowledge (Sage publications).

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