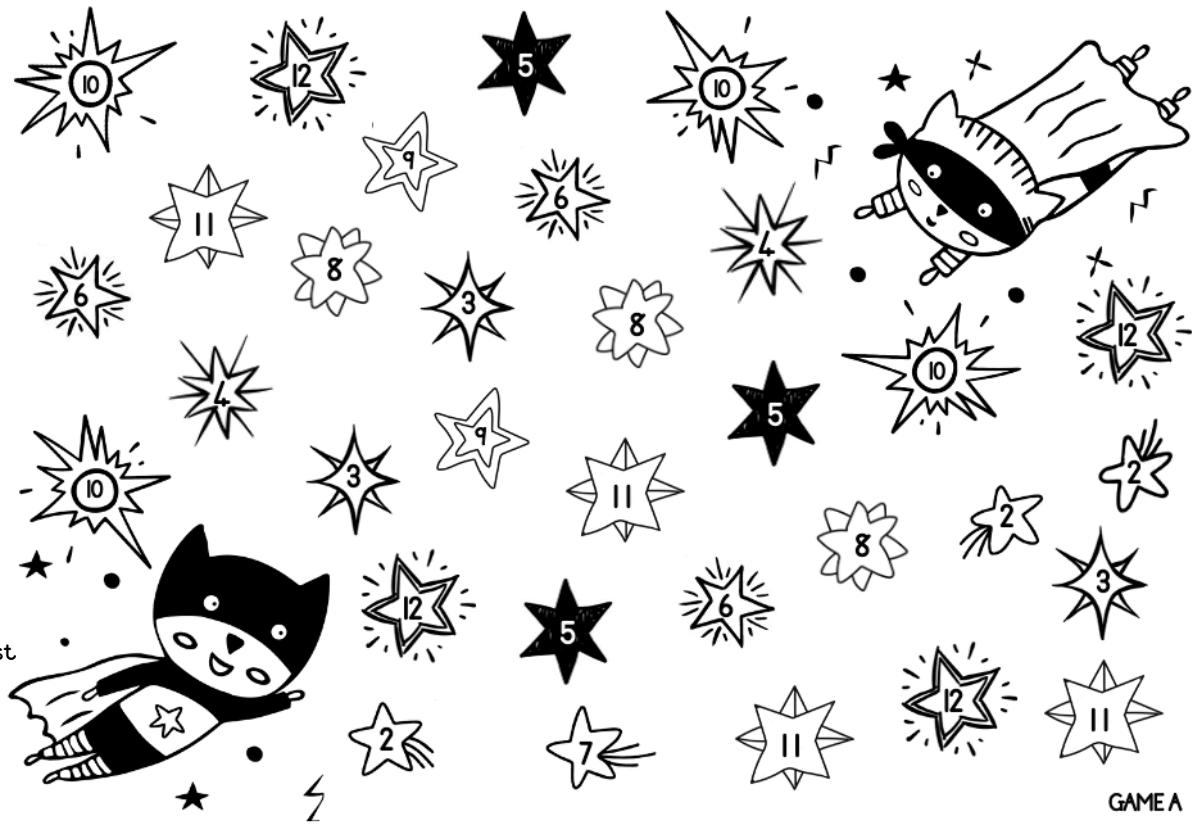
Sika eziphazili ngokuthi usike kulemigca icacileyo. Cela umntana wakho azidibanise. Cut out the puzzle by cutting along the bold lines. Ask your child to build it.

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

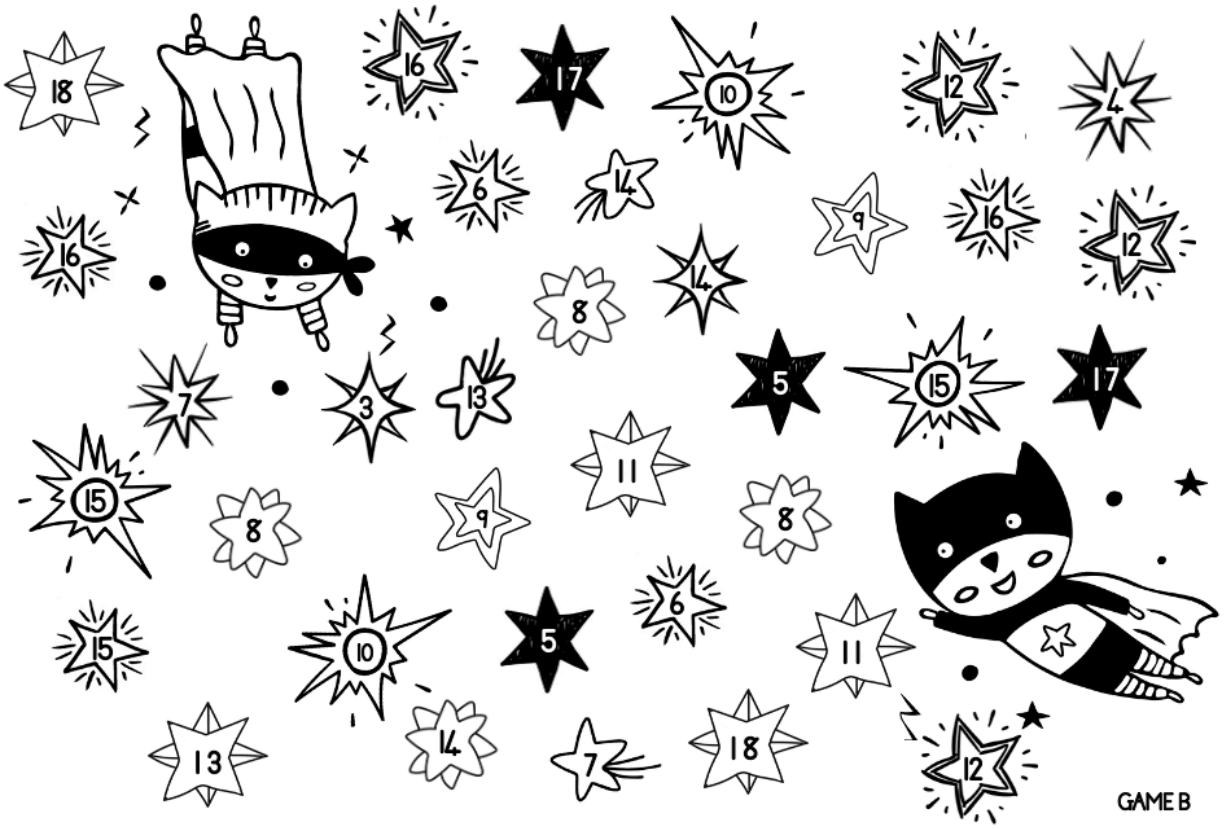
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Catching stars — Bamba iinkwenkwezi



These two superhero cats are flying around catching stars.
Ezikati zimbini zingamaqhawe ziyajikeleza zibhabha zibamba iinkwenkwezi.
How many stars can you catch?
Zingaphi iinkwenkwezi ongakwazi ukuzibamba wena?
You will need TWO dice.
Uzakusebenzisa amadayisi amabini.
Take it in turns to throw the dice and add the numbers.
Nikanani amathuba, niphose amadayisi nize nidibanise amanani.
If you can find a star with that number, cross it out.
Ukuba ufumene inkwenkwezi ngelonani, likrwele ngomgca.
At the end of the game, the person who crossed out the most stars is the winner.
Ekupheleni komdlalo, oyena mntu okrwele iinkwenkwezi ezininzi nguye ophumeleleyo.

Uzakusebenzisa amadayisi amathathu. You will need THREE dice to play this one.



1	2	3	4	5	6
1	2	3	4	5	6
1	2	3	4	5	6

You will need dice, but you can cut out the strip of numbers 1 – 6 on this page to use instead of dice.
Uzakudinga idayisi, kodwa unako ukusika umcwe wamanani 1 – 6 apha kweliphepha ukuba akunalo idayisi.

Cut these numbers out and fold them.
Sika lamanani uze uwagobe.

Pick a number for each turn instead of using dice.
Khetha inani qho ngexesha lakho endaweni yokuphosa idayisi.

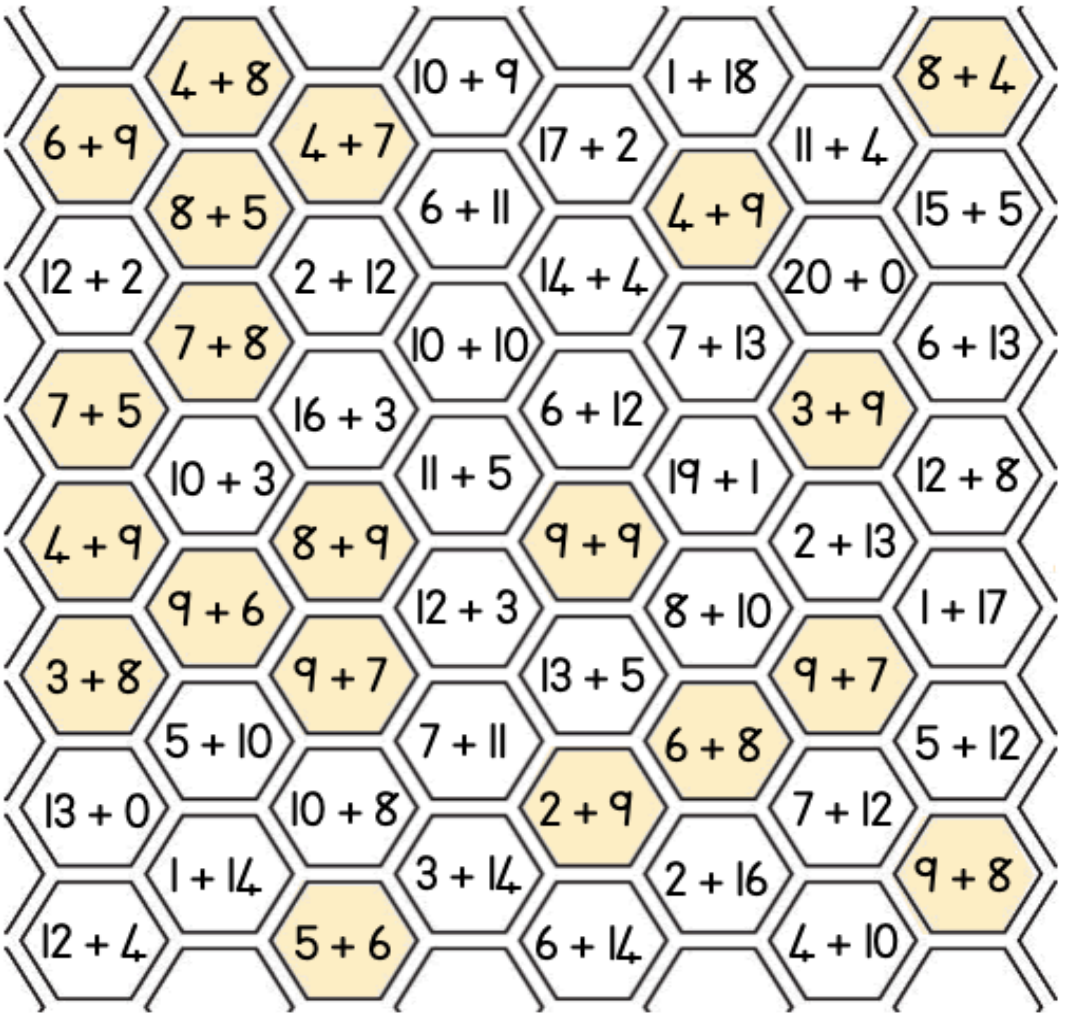
The bees race home.

Iinyosi zigoduka ngomdyarho.

The bees are on their way home. They decide to race. Who will get there first?

Iinyosi zisendleleni egodukayo. Zagqiba ekubeni zikhuphisane ngomdyarho. Ngeyiphi ezokufika kuqala?

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



idea from: math-salamanders.com

Cut out the colour strips at the bottom of this page.

Sika imicwe yamaphepha emibalabala ngezantsi kweliphepha.

One person must have all the red squares and the other person must have all the green squares.

Umntu omnye makathathe izikwere ezibomvu, ze omnye athathe eziluhlaza.

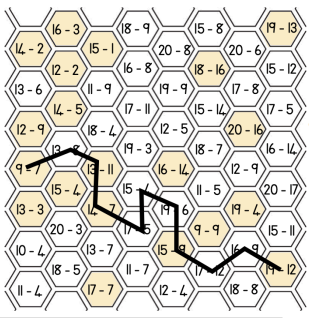
Instructions

Imiyalelo

1. Choose a sum in the first column.
   Khetha isibalo kumqolo wokuqala.
2. Work it out in your head and say the calculation and the answer.
   Sibale ngentloko, utsho indlela oyibale ngayo uze uxele impendulo yakho.
3. If you get it right you can, put a square on the calculation.
   Ukuba uyichanile, beka isikwere sakho kwisibalo.
4. Your friend can use the number strip to check your answer.
   Umhlobo wako angasebenzisa umncwe wamanani ukuze akhangele impendulo.
5. Take it in turns to do this.
   Yiphanani amathuba ukwenza nje.
6. You can only choose sums that are touching the one you are on.
   Ungakhetha izibalo ezithe nca kule ukuyo kuphela.
7. You can't choose a sum that the other player has already got.
   Awukwazi ukukhetha isibalo esisetyenziswa ngomnye umdlali.
8. The winner is the person to get to the other side first.
   Othe wafika kwelinye icala kuqala, nguye ophumeleleyo.

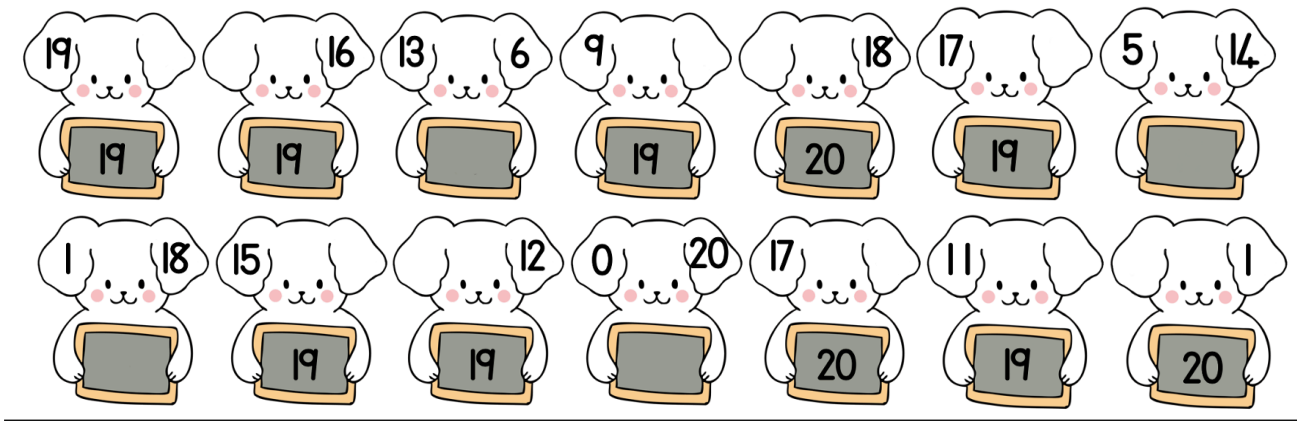
This is an example of a winning path:

Nanku umzekelo obonisa indlela ephumeleleyo:



Lamanani asezindlebeni zalenja enza elinani liyibambileyo. Fakela lamanani angekhoyo.

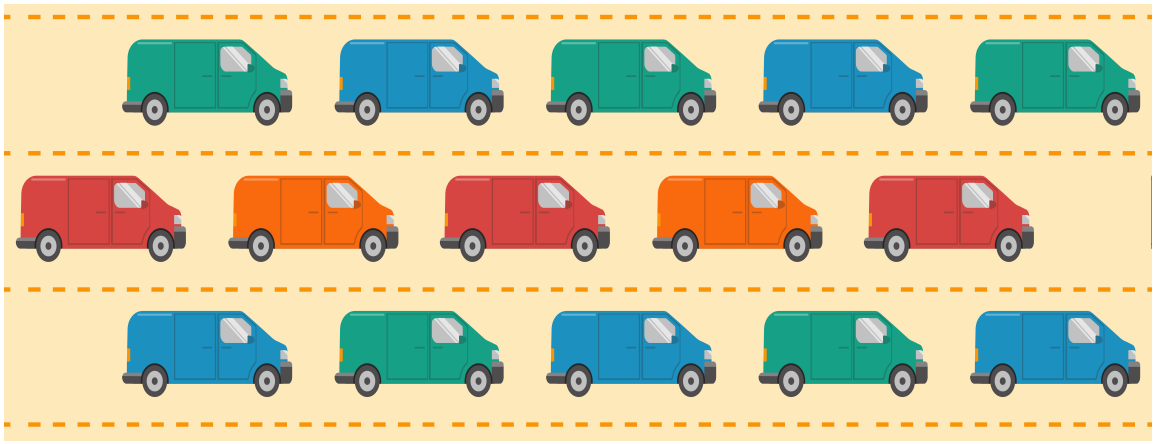
The numbers on each dog's ears add up to the number the mouse is holding. Fill in the missing numbers.



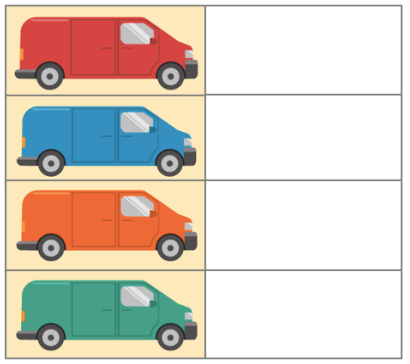
The work of the South African Numeracy Chair Project, Rhodes University is supported by the FirstRand Foundation (with the RMB), Anglo American Chairman's fund, the Department of Science and Technology and the National Research Foundation. Additional funding for club work and resources is provided by the Vestas Empowerment Trust.

SA NUMERACY CHAIR PROJECT

Paper counters for the bee game.



How many vans of each colour are there in this picture?
Zingaphi iinqwelo kumbala ngamnye apha kulomfanekiso?



Each van has 3 windows. Count in 3s to work out how many windows there are altogether.

Each van has 4 wheels. Count in 4s to work out how many wheels there are altogether.

Each van can take 5 passengers. Count in 5s to work out how many passengers can be taken by the top row of vans.

Each row of vans can take 25 passengers altogether. Count in 25s to work out how many passengers can be taken by all of the vans together.

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or download at-home resources from our library:
https://bit.ly/3etDmv0

Zingaphi iinqwelo kumbala ngamnye apha kulomfanekiso?

Zingaphi ezinqwelo zonke ziphelele?

Inqwelo nganye ineefestile ezintathu. Bala ngesithathu ukuze wazi ukuba zingaphi ezifestile zezinqwelo zonke zidibene.

Inqwelo nganye inamavili amane. Bala ngezine ukuze wazi ukuba mangaphi amavili ezinqwelo ewonke edibene.

Inqwelo nganye ikhwelisa abantu abahlanu. Bala ngezihlanu ukuze wazi ukuba bangaphi abantu abangakhwela kwezanqwelo zikumqolo ophezulu.

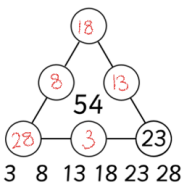
Umqolo ngamnye wezinqwelo ukhwelisa abantu aba-25 zidibene. Bala nga-25 ukuze wazi ukuba bangaphi abantu abangakhwela kwezinqwelo zonke zidibene.

15	4	20
6	5	8
12	30	10

Which is the largest number?
Which is the smallest number?
Which row has the highest total?
Add together the numbers in 3rd row.
How did you work this out?
Which two numbers add up to 20?
Find one number that is half of another?

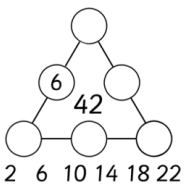
The three numbers in each side of the triangle must add up to the target number in the middle. Fill in the missing numbers, using the numbers below the triangle.

1.



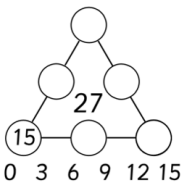
3 8 13 18 23 28

2.



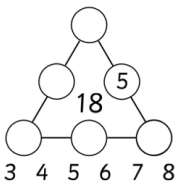
2 6 10 14 18 22

3.



0 3 6 9 12 15

4.



3 4 5 6 7 8

+	4	7
3	7	10
5	9	12

×	4	7
3		
5		

+		71
11	36	
	34	

×	5	7
3		
	20	

+	6	
		15
	11	18

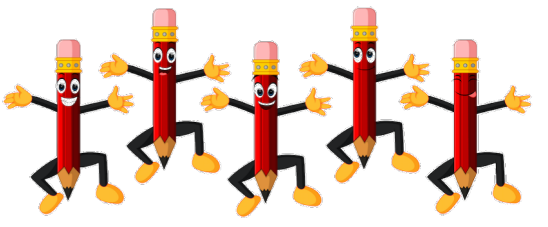
×	5	6
4		
	15	

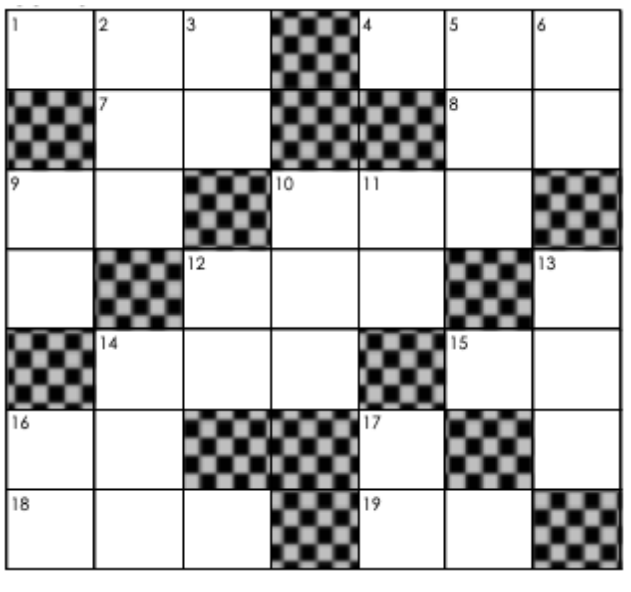
Add or multiply to fill in the missing numbers in each square.

Can you work out the value of each shape?

□ + ○ = 10 ○ =
△ + △ = 6 △ =
△ + ○ = 5 □ =

☆ + ○ = 12 ○ =
☆ - ○ = 0 △ =
△ + ○ = 7 ☆ =





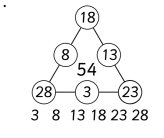
ACROSS

1	150+150+15
4	Double 80 + 2
7	Add20to44
8	Half of 42
9	22-12
10	344 + 100
12	100+200+20+5
14	Take 100 away from 369
15	25+25
16	15+15+15+15
18	Double 80 + double 2
19	Double 7

DOWN

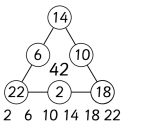
2	Add 100 to 60
3	74-20
5	Take 10 away from 634
6	30-9
9	1 ten and 7 ones
10	Add 10 to 419
11	Double15;+10+5
12	3 tens and 6 ones
13	Double 200 + double 2
14	Add 10 to 196
16	30+31
17	15+16

1.



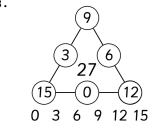
3 8 13 18 23 28

2.



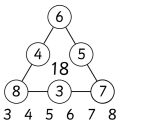
2 6 10 14 18 22

3.



0 3 6 9 12 15

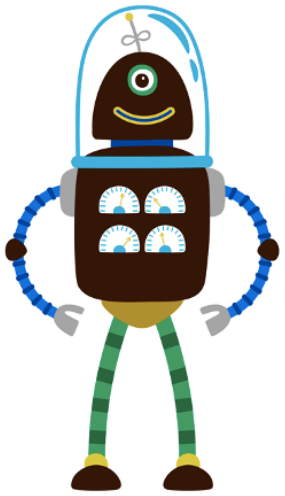
4.



3 4 5 6 7 8

□ + ○ = 10 ○ = 2
△ + △ = 6 △ = 3
△ + ○ = 5 □ = 8

☆ + ○ = 12 ○ = 6
☆ - ○ = 0 △ = 1
△ + ○ = 7 ☆ = 6

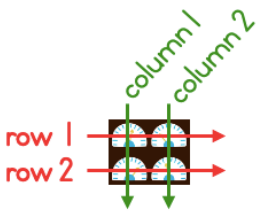


Android Arrays

Mr Array works in a special section of the factory. He makes robots that are made up of arrays.

Can you see the dials on his chest?
How many are there?

It is easy to count them, there are four!
They are in a very special arrangement. The dials are arranged into rows and columns. This is called an ARRAY.



If we multiply the number of rows and the number of columns, we will also know how many dials there are.

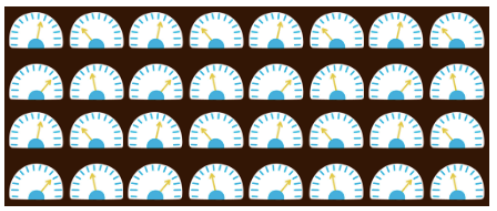
2 rows x 2 columns = 4

Fun Mathematics
Puzzles and Practice

(Intermediate Phase)

It is easy to see how many dials there are because there are only 4. This method is useful when there are too many to count. We can save time by just counting the number of rows and columns.

Can you use this method to work out how many are in this array?



Number or rows: _____

Before we help Mr Array to design some robots, let's check that we can work with arrays.
Look at each array and fill in the missing numbers. The first one is done for you.
Count the robots each time to check that your final answer is correct.

A

Rows	Columns	Calculation	Answer
4	3	4 x 3	12

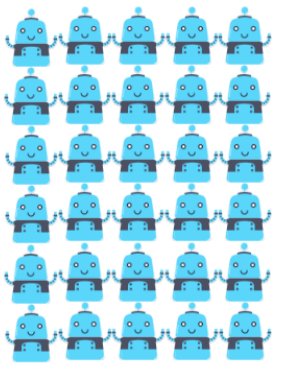
B

Rows	Columns	Calculation	Answer

C

Rows	Columns	Calculation	Answer

D



Rows	Columns	Calculation	Answer

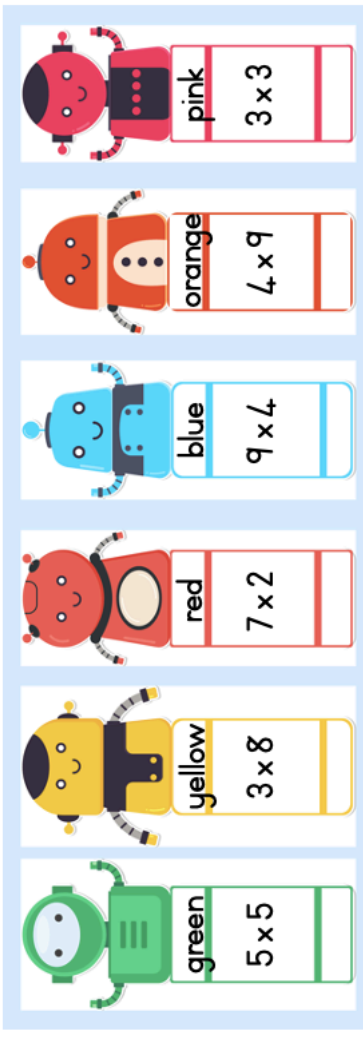
E

Rows	Columns	Calculation	Answer

F

Rows	Columns	Calculation	Answer

Create arrays on the grid paper below. Each robot tells you the size of the array you should colour, and what colour it should be.
Remember that the first number is the number of rows, and the second number is the number of columns.



Fun Mathematics Puzzles and Practice

(Intermediate Phase)

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

What shape have you made?

Answer these questions and colour in the correct block in the grid.

Half of 24
9 more than 10
5 tens and 6 ones
40 + 6
10 more than 45
9 sets of 5
11 more than 12
3 more than 25
3 tens plus 4
The number between 36 and 38
20 more than 44
20 less than 93
70 – 3
8 more than 70
8 tens and 3 ones
10 less than 99

Shape Math

Try to find the values of shapes by using the clues.

□ + ○ = 53 ○ =
△ + △ = 36 △ =
△ + ○ = 45 □ =

☆ + ○ = 20 ○ =
☆ - ○ = 2 △ =
△ + ○ = 23 ☆ =

SA NUMERACY CHAIR PROJECT

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Race to One Hundred

This game is for 2 – 4 players.

To play:

All players roll the dice and the player with the highest number plays first.

On each turn, players throw two dice, multiply the numbers together and move that number of spaces. Follow the directions according to the colour of the square the player lands on. The first player to reach 100 is the winner.

Go back to the last blue square	Oops! Go back 5 spaces
Great! Go to the next green square	You get an extra turn!

start

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

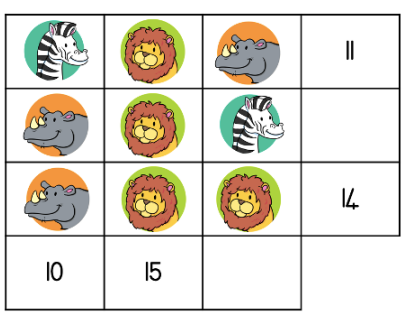
From: Mart Meij and the Best Books Panel

Each of these ten flamingoes has a number. One flamingo is the odd one out.

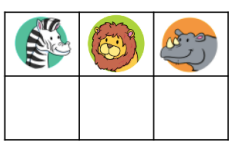
You know these facts:

- Exactly 3, and only 3, numbers belong in the 6 times table
- Exactly 3, and only 3, numbers belong in the 7 times table
- Exactly 3, and only 3, numbers belong in the 9 times table

Circle the number that is the odd one out?

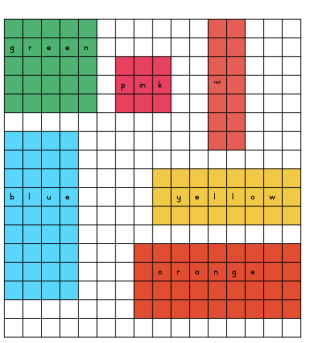


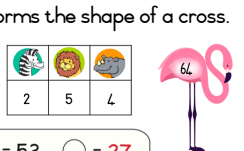
In this grid, each animal stands for a number. The numbers shown are the totals of the row or column of three. Find the missing numbers and say what number each animal stands for.



	Rows	Columns	Calculation	Answer
A	4	3	4 x 3	12
B	5	4	5 x 4	20
C	2	5	2 x 5	10
D	6	5	6 x 5	30
E	5	2	5 x 2	10
F	4	4	4 x 4	16

If the hundred grid is coloured correctly it forms the shape of a cross.



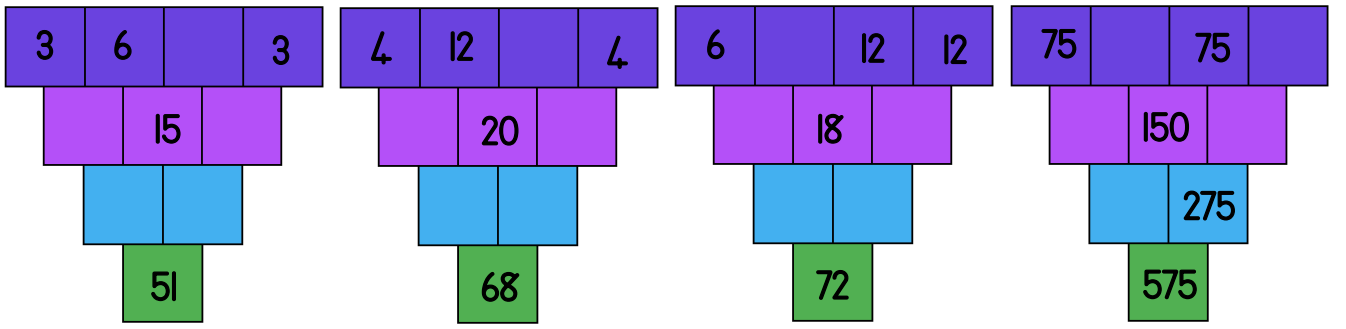


This game requires dice. if you don't have dice, then cut out the numbers below and put them into a container. The players should take two slips of paper for each turn instead of rolling dice.

1	2	3	4	5	6	1	2	3	4	5	6
1	2	3	4	5	6	1	2	3	4	5	6

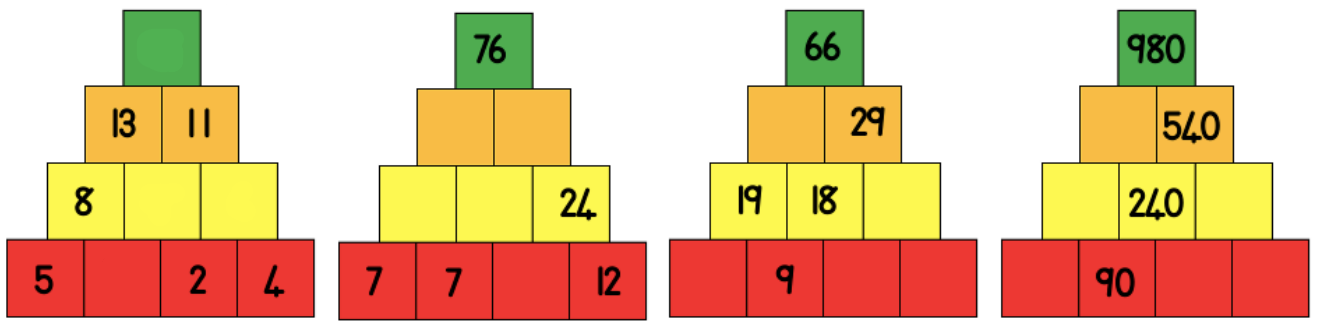
Find the patterns for the missing number to complete the grid.

			12	15	18		
				20			
	10	15	20				
	12				33	36	39
	14						
8		24					
			51	58			
							89
			68		76		99



Add 2 numbers to get the one below. Fill in the missing numbers.

Add 2 numbers to get the one above. Fill in the missing numbers.



Fill in the missing numbers. The numbers in the far right column are the total of the numbers from left to right. The numbers in the bottom row are the total of the numbers from left to right.

5	1	8		8	32
1	9	5	2	8	
	2		8	10	29
4	6	4	6	2	
5		5	10	2	26
21	22	25	36	30	

SOLUTION

32	8	10	8	1	5
25	8	2	5	9	1
29	10	8	3	2	6
22	2	6	4	6	4
26	2	10	5	4	5
134	30	36	25	22	21

99		76	72	68	64	60			
89					54				
79	72	65	58	51	44	37			
69					34				
59		48	40	32	24	16	8		
49			35			14			
39	36	33	30			12			
	31		25	20	15	10	5		
	26			20		8			
24	21	18	15	12	9	6	3		

1.

17	3	4	14
6	12	11	9
10	8	7	13
5	15	16	2

2.

23	9	10	20
12	18	17	15
16	14	13	19
11	21	22	8

3.

20	6	7	17
9	15	14	12
13	11	10	16
8	18	19	5

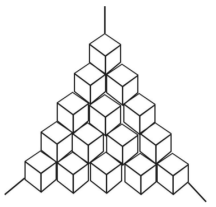
4.

16	2	3	13
5	11	10	8
9	7	6	12
4	14	15	1

How many questions can you answer in this quiz?

(from www.livingmaths.com)

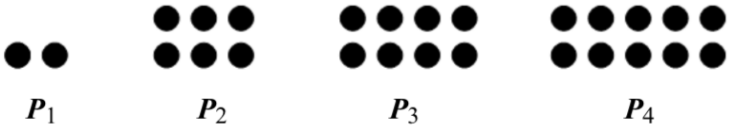
1. Which of these numbers, when multiplied by itself, gives an answer divisible by 9? 10 11 12 13



2. Building blocks are stacked in the corner of a room as shown below. How many blocks were used to build this structure?

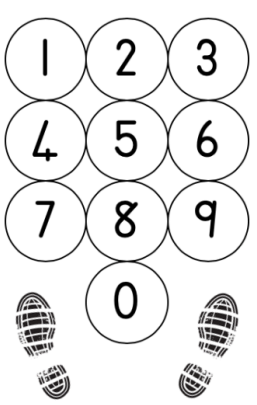
3. In 10 years' time the combined age of 3 sisters will be 100. What is their combined age now?

4. How many dots will be used for P_8?



Dancing Tables

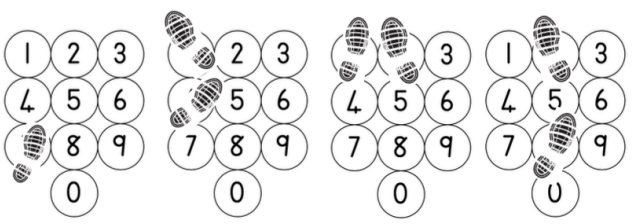
Use a large sheet of newsprint paper, or ten separate sheets of paper, or chalk to draw on concrete to create an area with numbers 0 – 9 for each child.
The size of the footprints should give you an idea of the size required.



The left foot is for tens

The right foot is for units

Challenge your child to 'dance' their multiplication tables. For example, the 7 x table is 7, 14, 21, 28, 35, etc.



As they jump, they should say the numbers out loud. This can be done as a fun way to practice multiplication tables.

Another way to play is to call out calculations that have answers between 0 and 99. Use the operations your child has been learning in class. Your child needs to jump correctly on the answer.
This also works well with groups of children as they can all jump to give an answer and it just takes one glance over the group to see who is correct or incorrect. In this way you can assess children's mental calculation skills without needing to go to each child at their desk. If you have an outside area, you can go outside and keep an even larger physical distance between the children.

SA NUMERACY CHAIR PROJECT

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www.ru.ac.za/sanc
or download at-home resources from our library: https://bit.ly/3etDmv0

The work of the South African Numeracy Chair Project, Rhodes University is supported by the FirstRand Foundation (with the RMB), Anglo American Chairman's fund, the Department of Science and Technology and the National Research Foundation. Additional funding for club work and resources is provided by the Vestas Empowerment Trust.

Every row and column in these squares has the same sum. Fill in the missing numbers.

1.

17	3	4	14
6	12		
10			13
	15	16	

2.

	9	10	
12			15
16	14		
11	21	22	8

3.

20	6		
9			12
	11	10	
		19	5

4.

16		3	13
	11		8
9		6	
4		15	1

SA NUMERACY CHAIR PROJECT

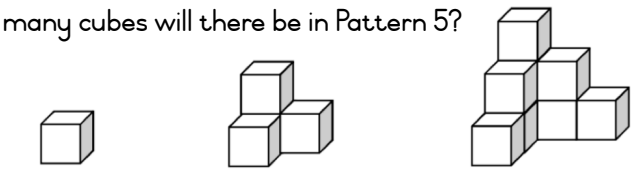
Quiz: 1) 12 X 12 = 144, which is divisible by 9 2) 35. Look at the structure as rows of staircases that decrease in height. Starting with 5 blocks high ending with one block high. (5+4+3+2+1) + (4+3+2+1) + (3+2+1) + (2+1) + 1 = 35 3) 70. because each of the three sisters will be 10 years younger (10 x 3) so you need to subtract 30 from 100. 4) 56 (it will have 8 rows and 7 columns)

How many questions can you answer in this quiz?

(from www.livingmaths.com)

1. All the digits of a three-digit number add up to 24. How many such three-digit numbers are there? (Digits can be repeated)

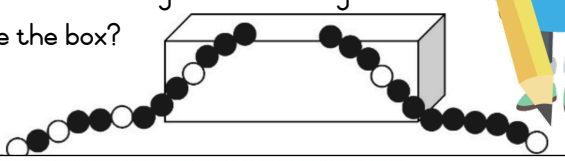
2. Thandi builds a pattern of cubes as shown. How many cubes will there be in Pattern 5?

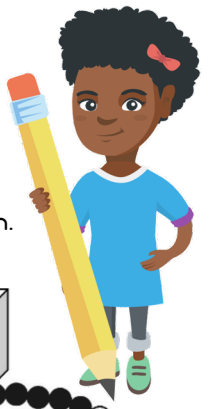


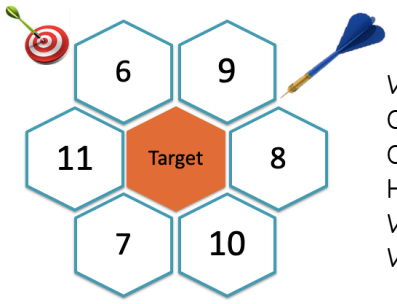
3. How many different even two-digit numbers can be made by using the 4 cards below, without using the same digit twice in a number?

6	2	5	4

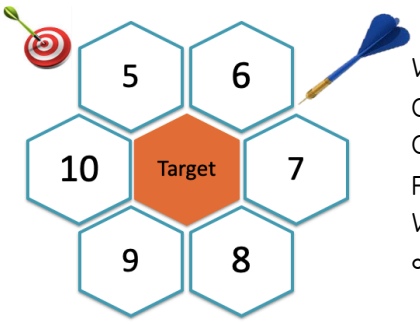
4. This string of beads was made according to a pattern. How many beads are there altogether including the beads hidden inside the box?



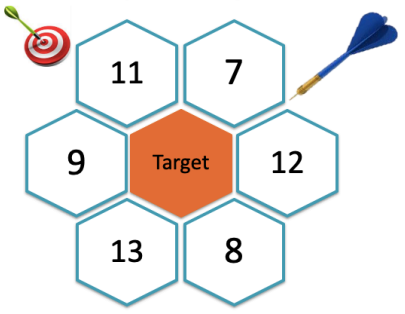




What scores could you get with two darts?
Could you score 16 with 2 darts?
Could you score 16 in more than one way?
How many darts would you need to score 28?
What is the largest score you can get with 3 darts?
What is the largest score you can get with 3 darts?

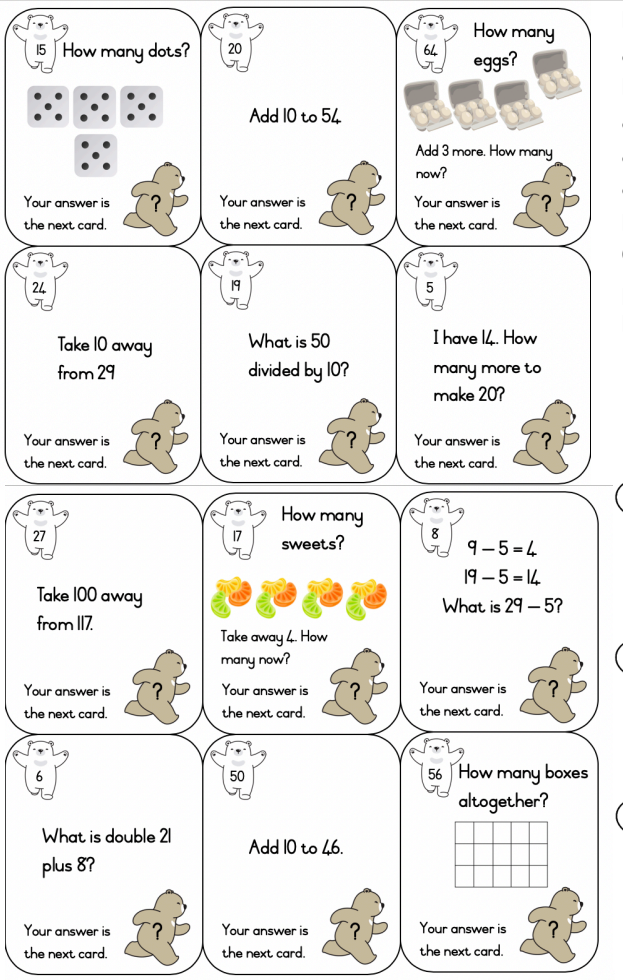


What scores could you get with two darts?
Could you score 14 with 2 darts?
Could you score 14 in more than one way?
Find all the ways of scoring 14.
What is the smallest score you could get with 3 darts?

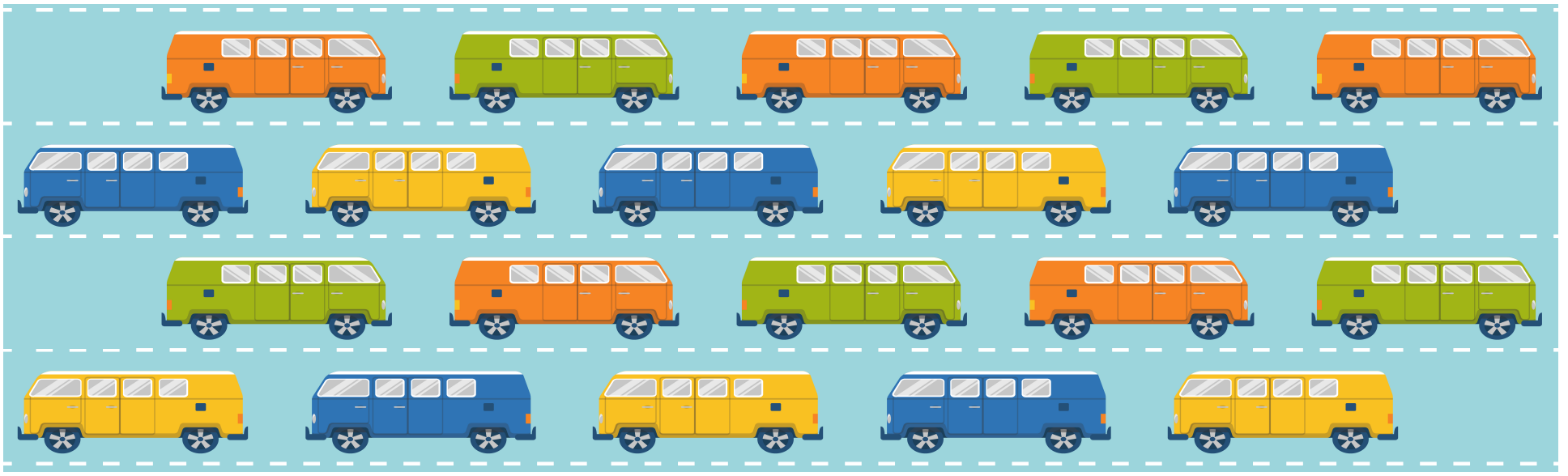


What scores could you get with two darts?
How many darts would you need to score 36?
Could you score 20 with 2 darts?
Could you score 20 in more than one way?
Find all the ways of scoring 20
What is the largest score you can get with 2 darts?
What is the smallest score you can get with 2 darts?

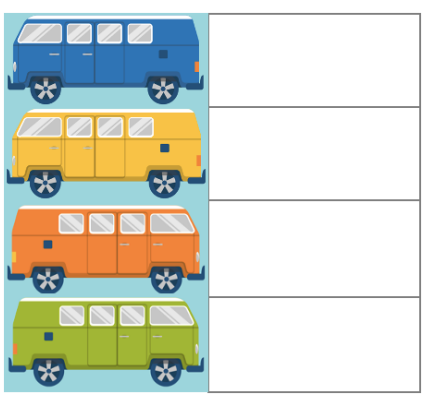
Quiz: 1) 10 (699, 969, 996, 789, 798, 879, 978, 987, 888. 2) 25 since the pattern grows by consecutive odd numbers 1, 1+3, 1+3+5, 1+3+5+7, 1+3+5+7+9. 3) 9 (62, 64, 24, 26, 56, 52, 54, 46, 42) 4) 36 since 1w 1b 1w 2b 1w 3b 1w 4b 1w 5b 1w 6b 1w 7b 1w



Each card has a question. Find the white bear with the correct answer. Read the question on that card, and find the next white bear with the answer. Cut the cards out and place them in order. Below is an example:



Zingaphi iinqwelo kumbala ngamnye apha kulomfanekiso?
How many vans of each colour are there in this picture?



Indlela nganye ineenqwelo ezintlanu. Zine iindlela. Bala ngezihlanu ukuze wazi ukuba zingaphi zonke ziphelele.
Each lane has 5 vans. There are 4 lanes (rows). Count in 5s to work out how many there are altogether.

Inqwelo nganye inabantu abathathu abahamba ngayo. Bala ngezithathu ukuze wazi ukuba bangaphi abantu bebonke kulomfanekiso.
Each van has 3 people travelling in it. Count in 3s to work out how many people there are altogether in this picture.

Inqwelo nganye inamavili amane. Indlela nganye inamavili anga-20. Bala nga-20 ukuze wazi ukuba mangaphi lamavili ewonke ephelele kulomfanekiso.
Each van has 4 wheels. Each row has 20 wheels altogether. Count in 20s to work out how many wheels there are altogether for the vans in the picture.

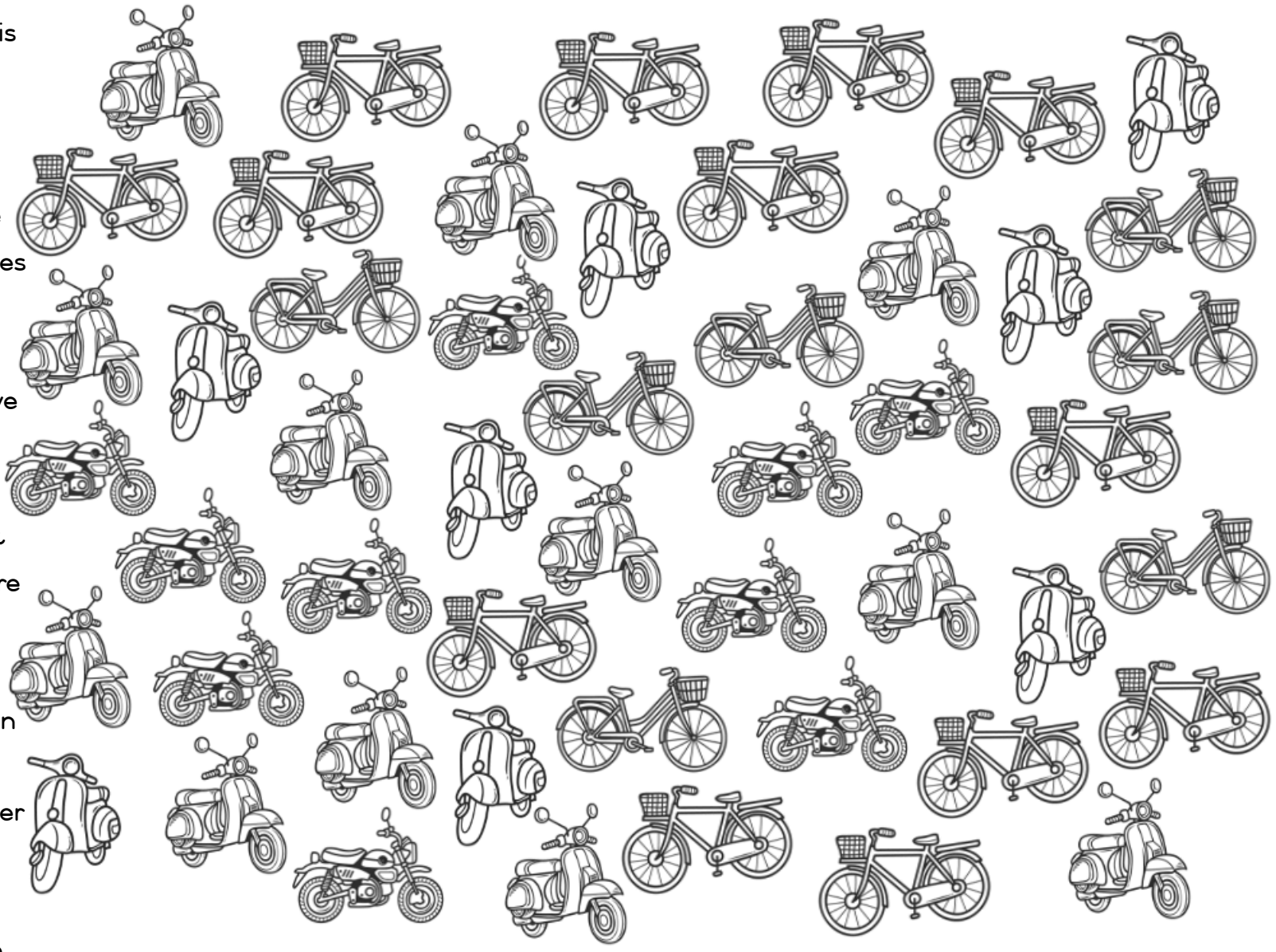
All of the vehicles on this page have 2 wheels.

Group the vehicles into groups of 5. Create the groups by drawing circles around them.

How many groups of five do you have?

Count in 5s to work out how many vehicles there are altogether.

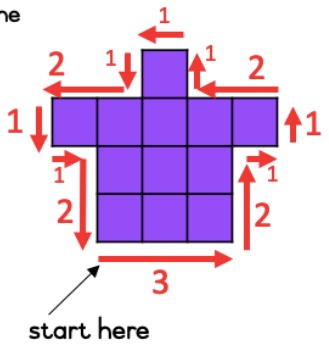
How many wheels are in each group of 5? Skip count using that number to work out how many wheels there are altogether on the page.

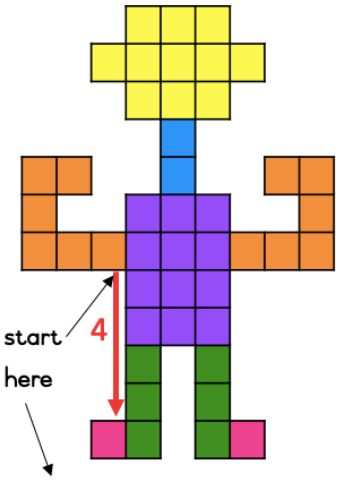


Robot Design

Before your robot can be made in the factory, you need to tell the machine how much material it will need. The machine needs to know the robot's PERIMETER and AREA.

The PERIMETER is the distance around the robot.
Imagine that you are walking around your robot and you are counting every step that you take. One step is the same as the length of one square.
The figure on the right has a perimeter of 18
Do you agree?





The AREA is the number of squares that make up the robot.

Do you agree that this robot is made up of 45 squares?

We say that the area of the shape is 45 squares.

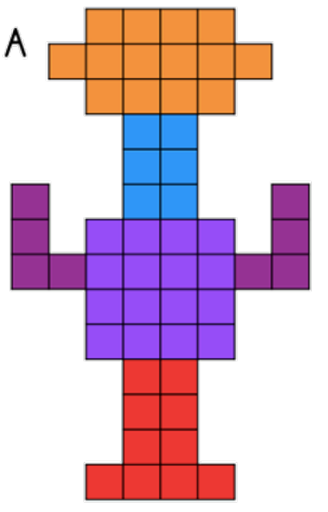
Trace your pencil around the robot, imagining you are walking around it.

Count every step that you take. Remember that one step is equal to one square length.

We have given you a place to start, the first section will take 4 steps.

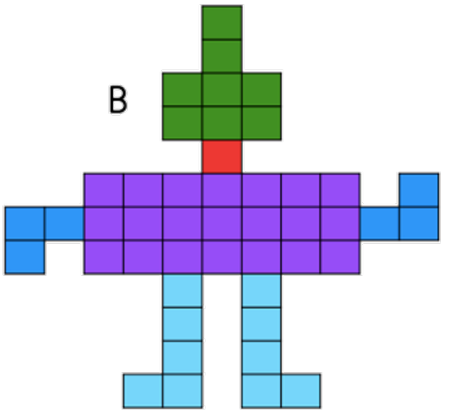
Did you get 72 steps?

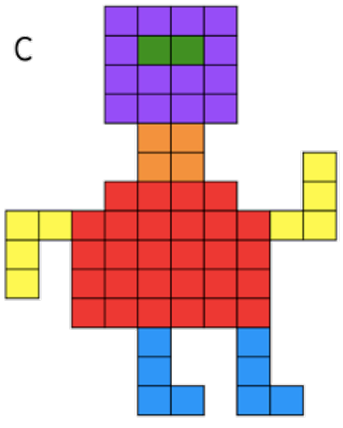
Look at the robots on the next page and work out the perimeter and area of each...



Perimeter: _____

Area: _____





Perimeter: _____

Area: _____

Perimeter: _____

Area: _____

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