Maths NI Improvement

Parent Booklet

Help

Out with

Maths in the

Evening

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Foundation Stage (P1-2): Targets & Strategies

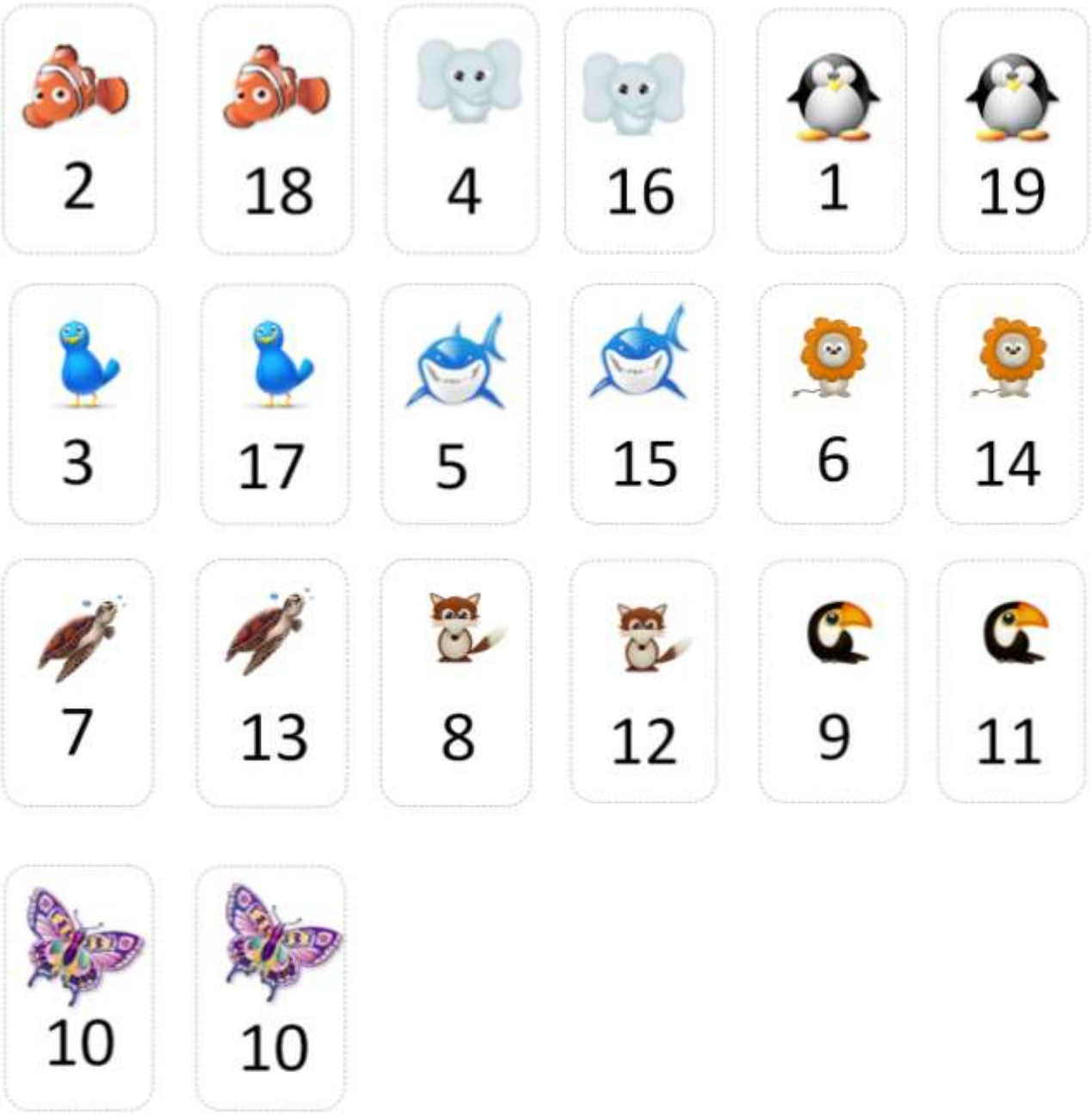
During foundation stage your child may be working on the following;

- Count orally in 1's and 10's forwards/backwards from/to zero within 50
- Count orally in 1's, 2 's forwards/backwards from different starting numbers within 20
- Count orally in 10's forward/backwards from a given number within 50
- Recognise, read and write the numbers up to 20, then 50
- Order numbers – know number before, after, between within 20, then 50
- Order set of consecutive and random numbers within 20, then 50
- Work out one more, two more, three more - demonstrate understanding that when adding, answer will be larger
- Work out one less, two less, three less than a number - demonstrate understanding that when subtracting, answer will be smaller
- Add two numbers fewer than ten by counting on e.g. 6+3 is 6, 7, 8, 9
- Take away one, two or three from a number up to 12
- Know/understand number facts to 5, 10
- Identify missing numbers in a sequence within 20
- Add 1,2,0 to any number, answers within 10, then 20
- Know doubles to 5+5
- Know 3+2 and 2+3 to complete number stories to 5
- Subtract 1,2,0 from any number, answers within 10
- Demonstrate understanding of commutative nature of addition
- From 3 given numbers within 5, give 4 number facts

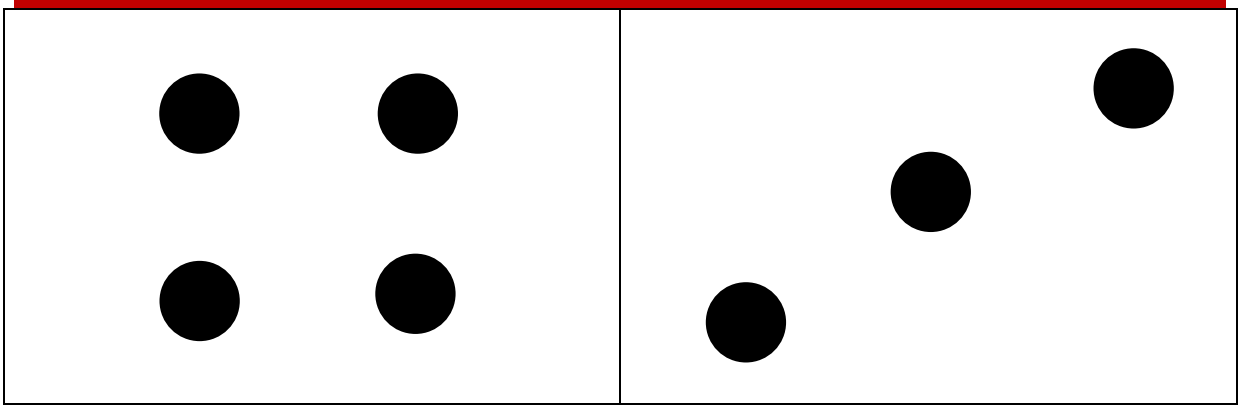
Number Cards 1 - 20

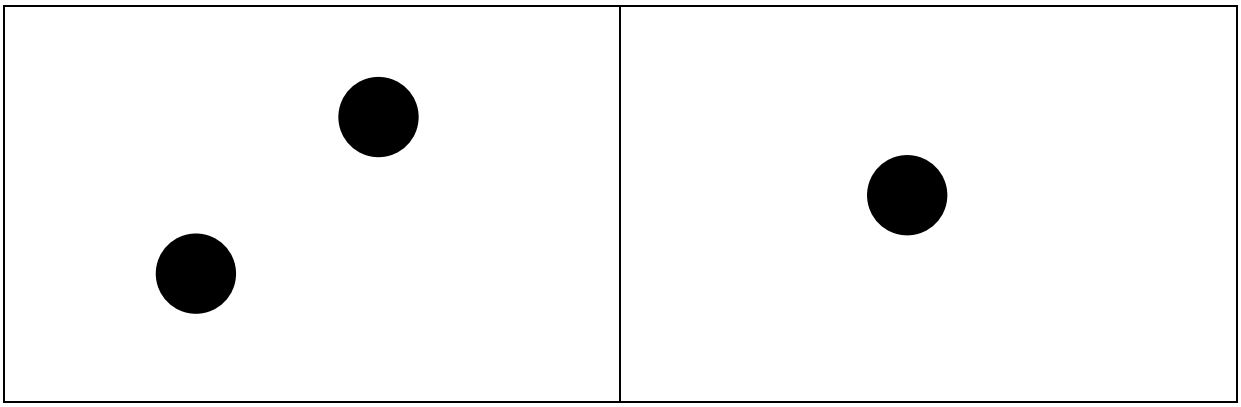
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20

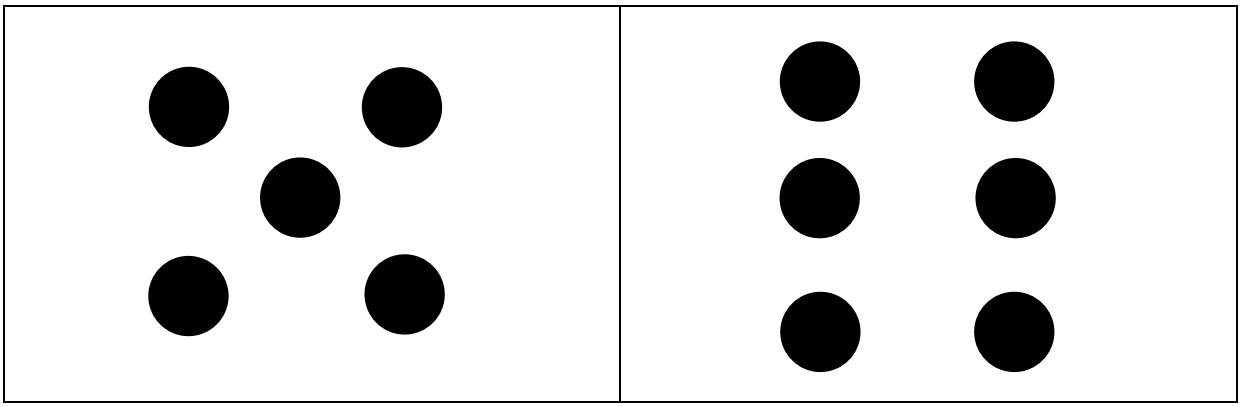
Number Matching Cards (up to 20)

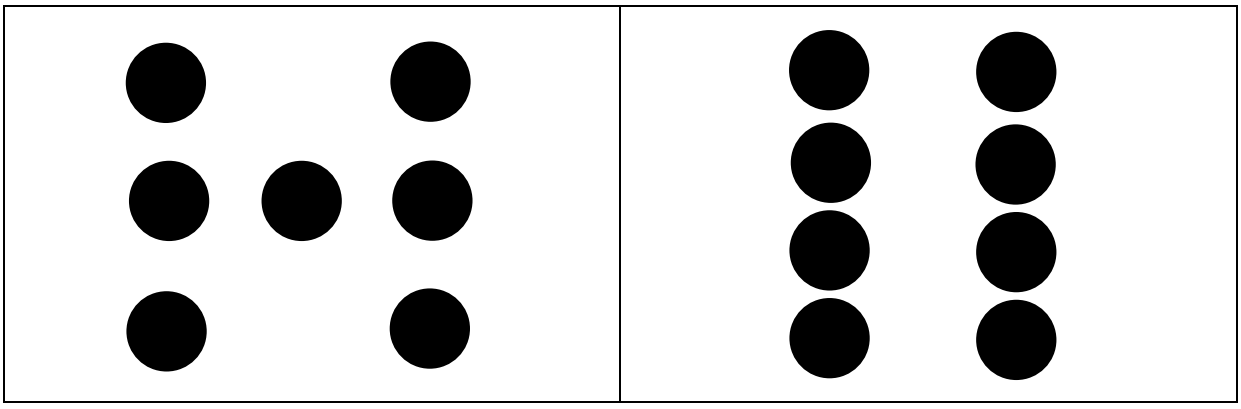


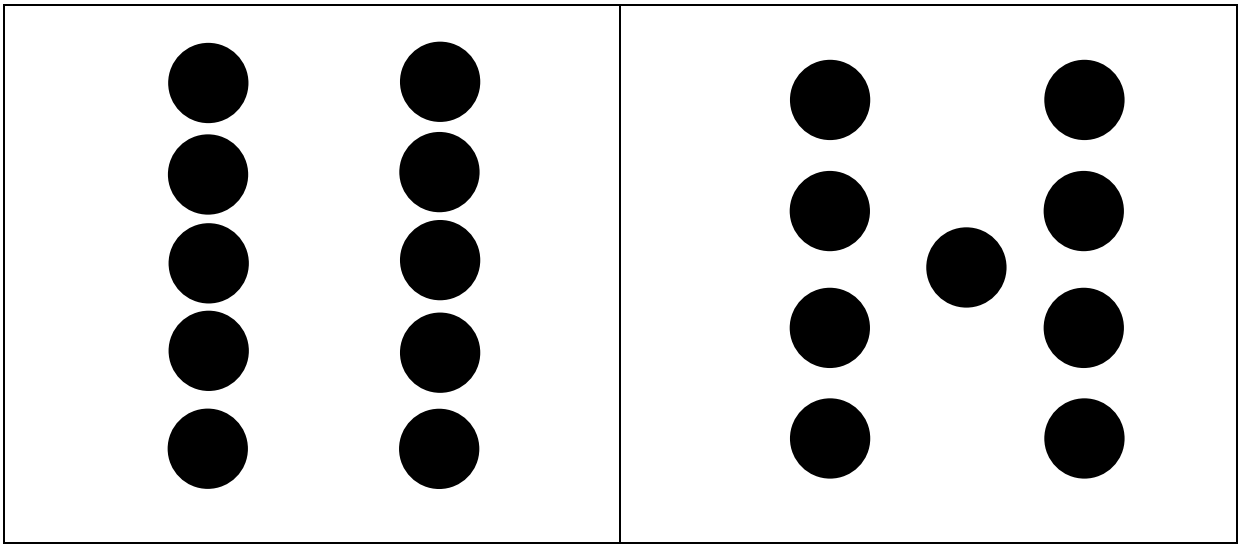
Dominoes

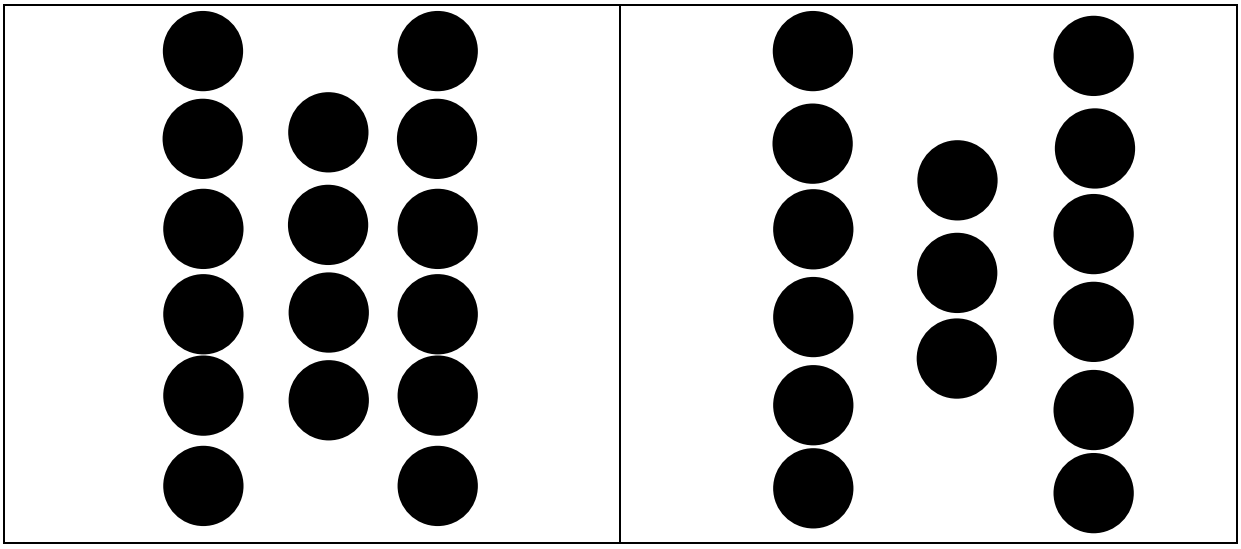


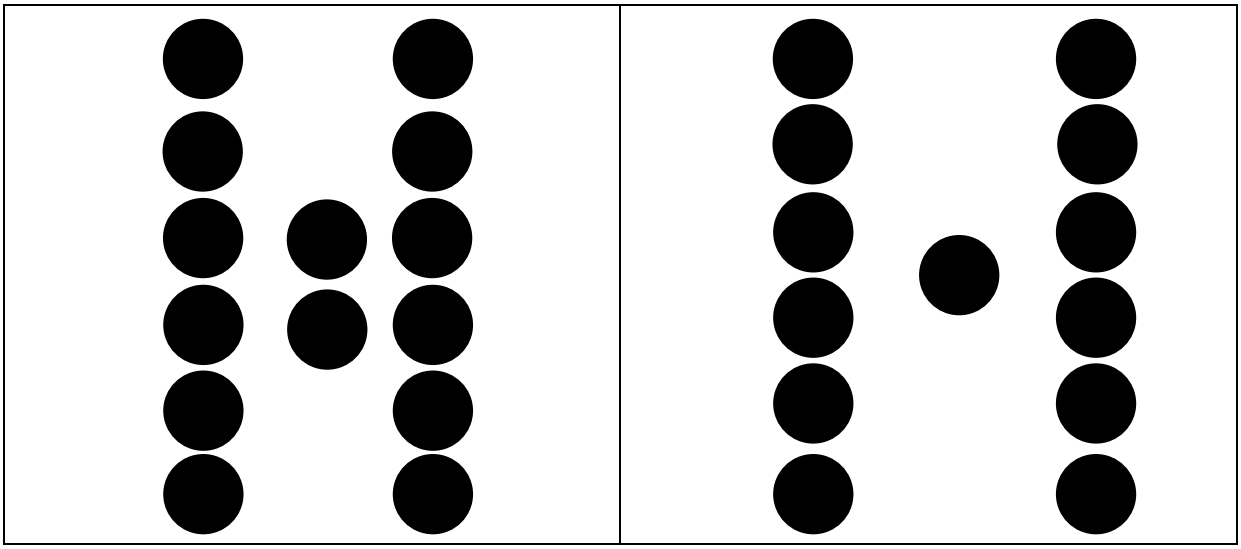




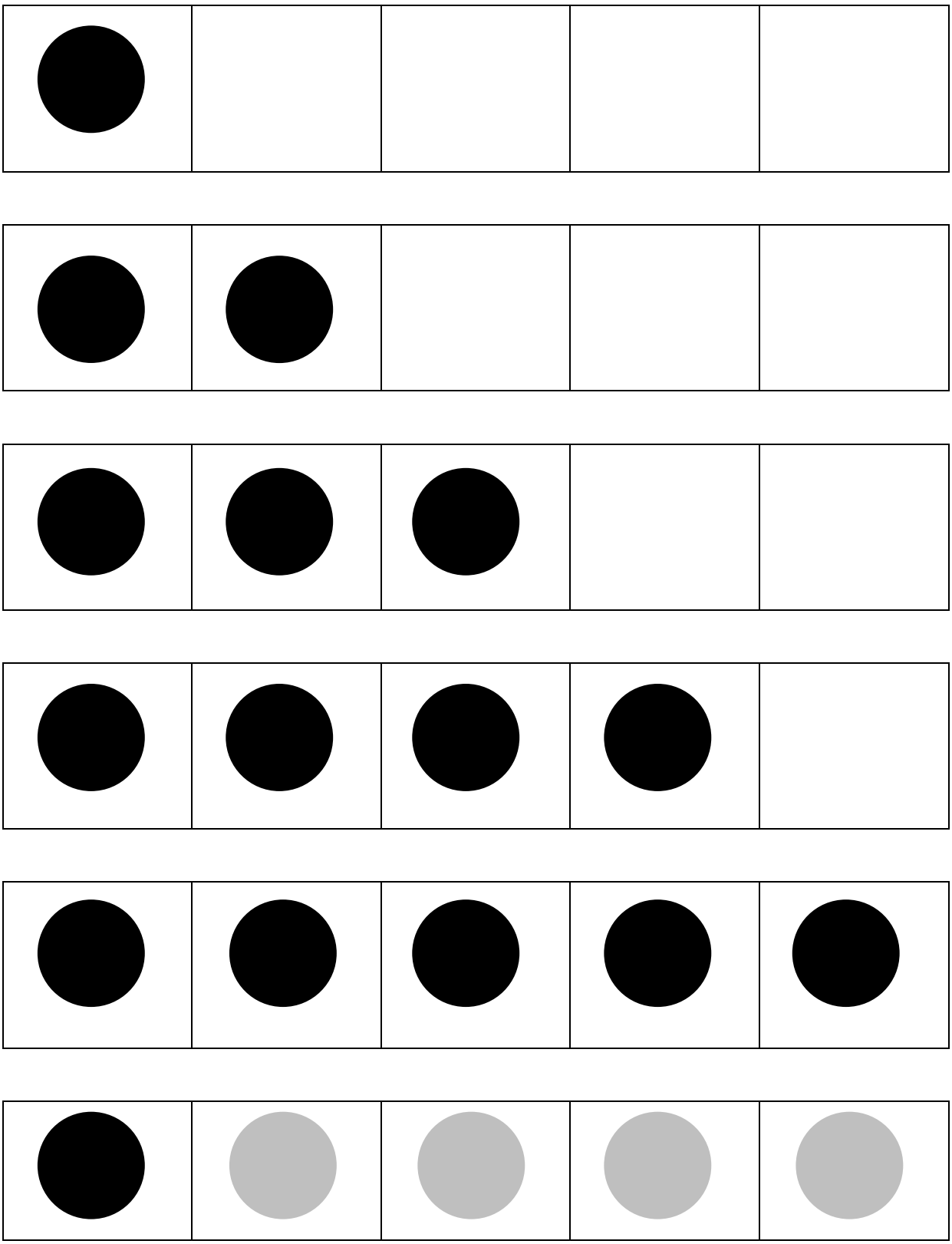


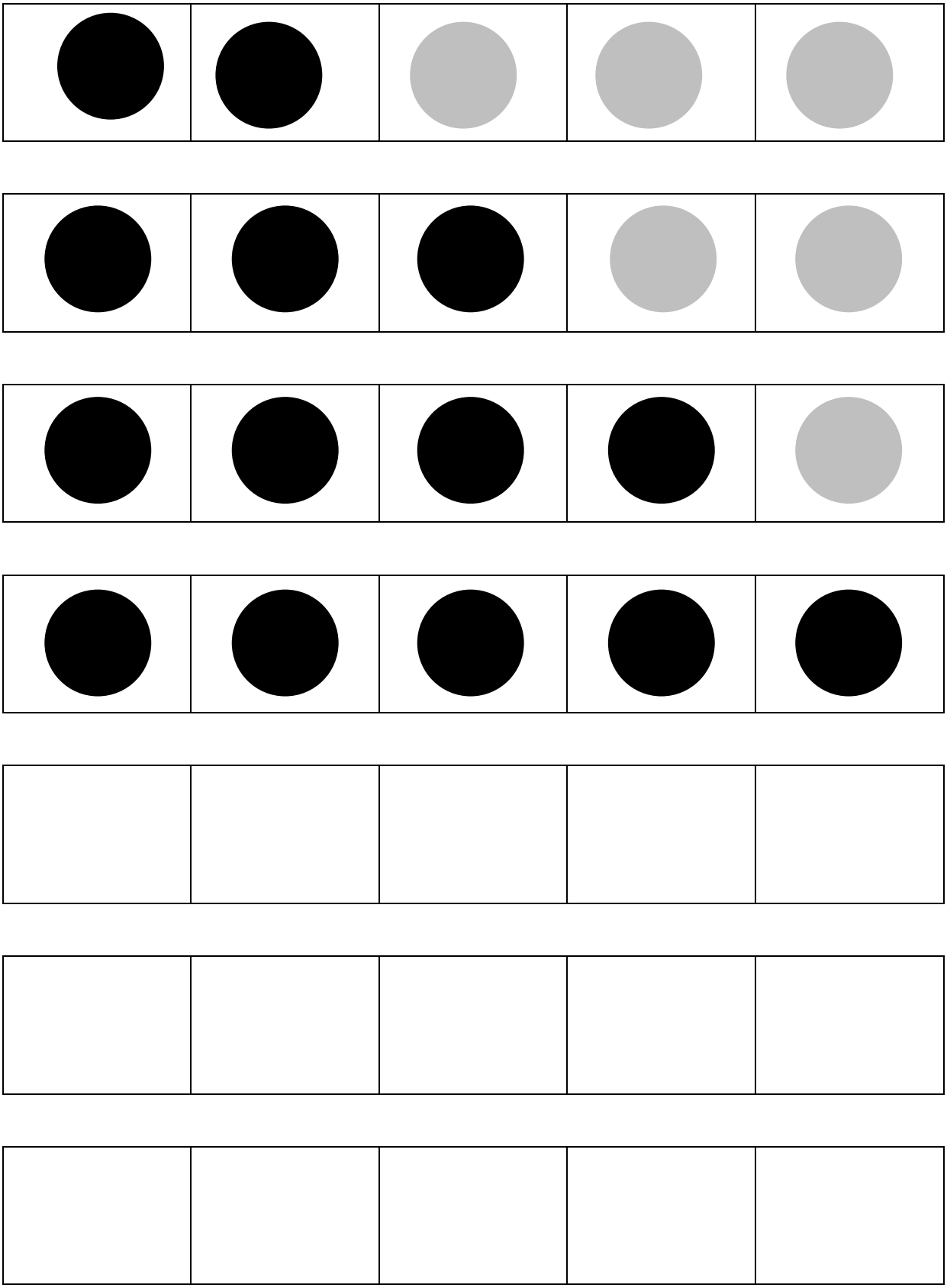




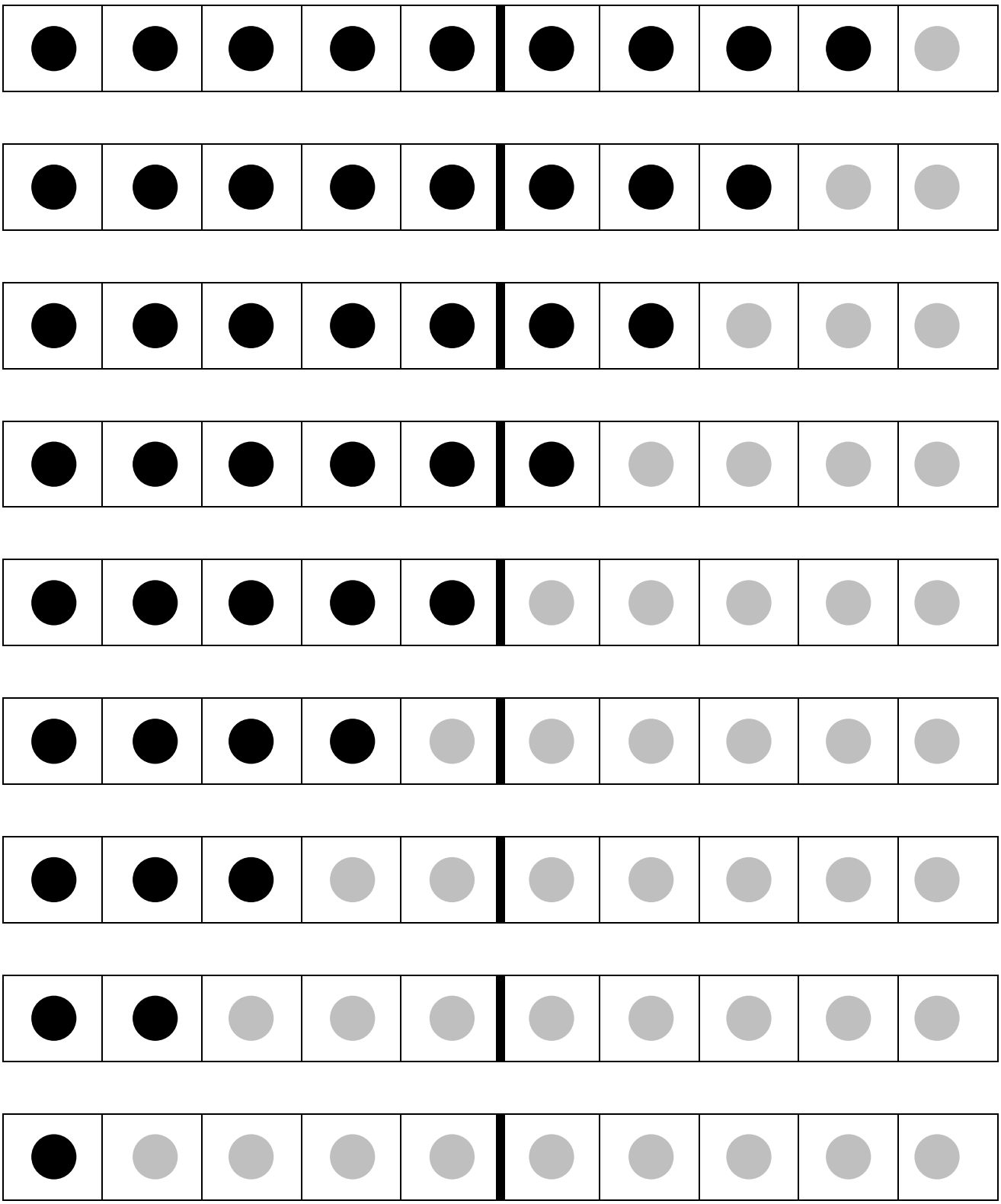


5 Frame





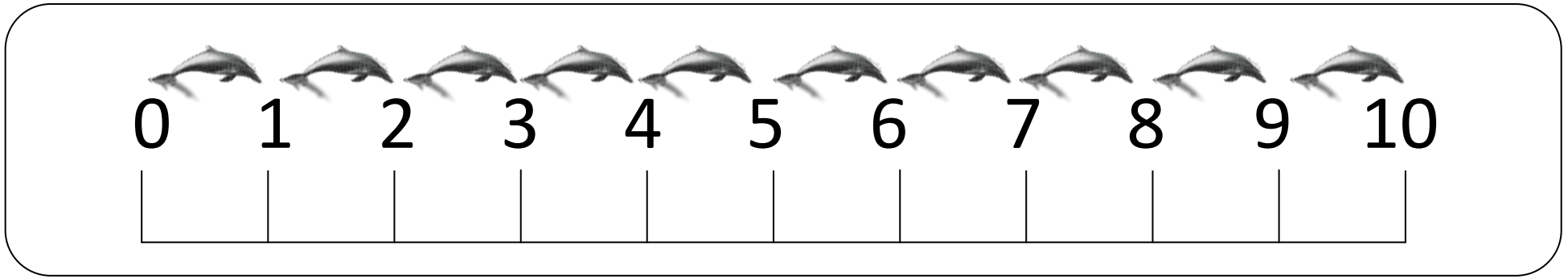
Dotted Numbers to 10

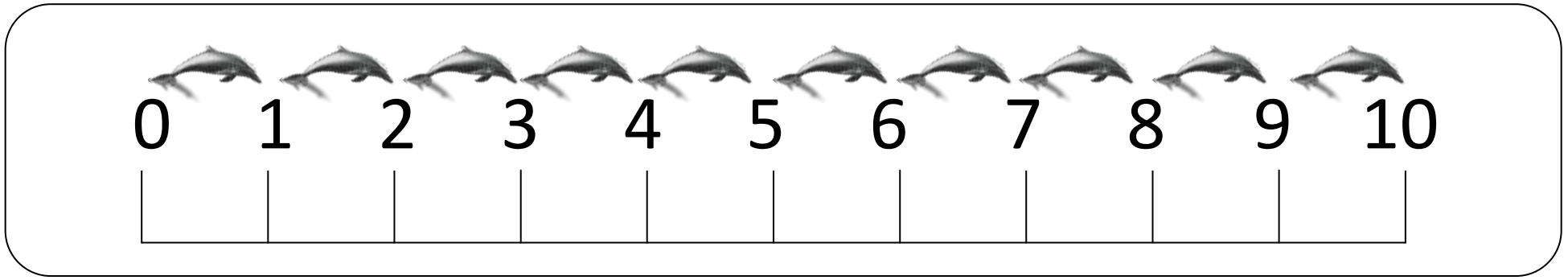


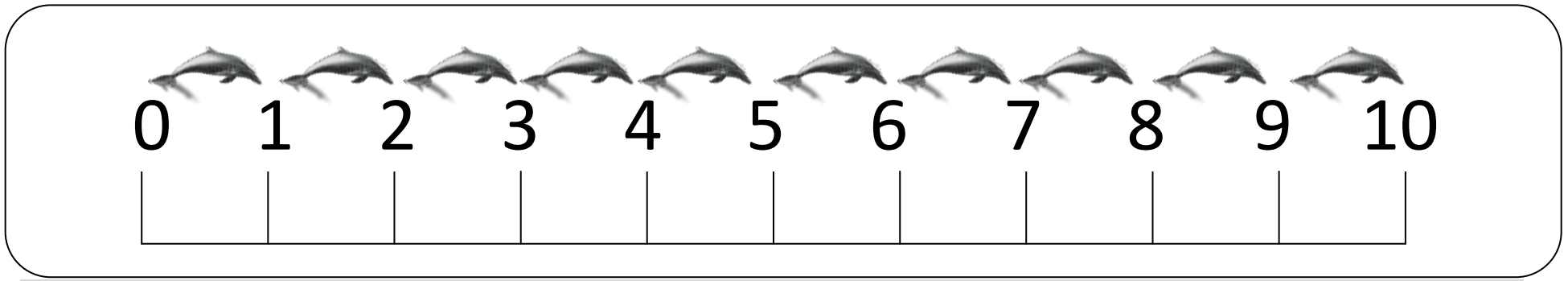
10 Frame

20 Frame

Numberlines (1-10)







I can write my numbers (1-10)

Add 1, 2, 0 from any Number, Answers within 10

1	7	4	5	4	5
2	6	6	5	7	3
1	3	8	6	6	4

A game for two players

You need: dice marked 1, 2, 0 and an ordinary 1-6 dice, plus counters of two different colours.

- Take turns to roll the dice. Add the two numbers together and find the correct answer on the grid and cover it with one of your counters.
- The winner is the one who has most counters on the board, after all the numbers are covered.

Subtract 1, 2, 0 from any Number, Answers within 10

1	0	1	2	2	0
6	1	2	3	4	4
4	3	5	5	3	1

A game for two players

You need: dice marked 1, 2, 0 and an ordinary 1-6 dice, plus counters of two different colours.

- Take turns to roll the dice. Subtract the smaller number from the larger. Find the answer on the grid and cover it with one of your counters.
- When all the numbers are covered, winner is the one who has most counters on the board.

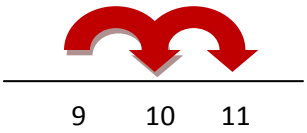
Counting On/Back

Teaching Activities

Note: Pupils may use number lines where and when appropriate

A. Counting on (1's)

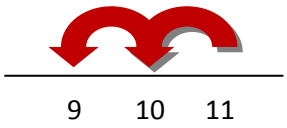
Example: 9-11



- Count from 9 to 11, and say it after me. Ready; 9,10,11
- Now count from 12 to 14, and I want you say it after me. Ready; 12, 13, 14
- This can be repeated for any 1, 2, or 3 digit number. E.g. 69, 70, 71 or 99, 100, 101
- Count from 9 to 13 and I want you to say it after me. Ready; 9, 10, 11, 12, 13
- Now, count from 9 to 13 by yourself
- Similarly 24 to 28, 99 to 103

B. Counting Back (1's)

Example: 9-11



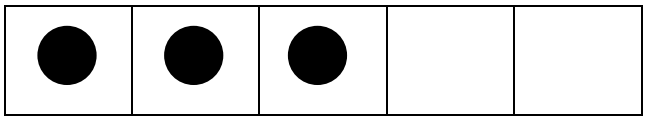
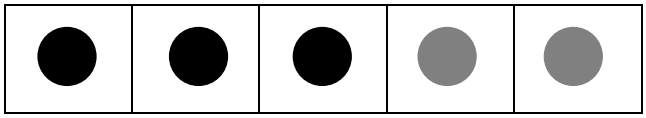
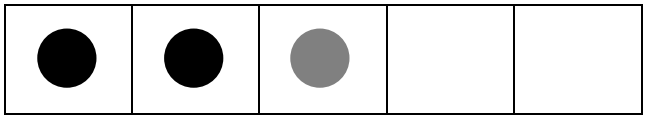
- Count backwards from 11, and say it after me. Ready; 11, 10, 9
- Count backwards from 14, and say it after me. Ready 14, 13, 12
- Count backwards from 8, and I want you to say it after me. Ready; 8, 7, 6
- The decade 10-12 is particularly difficult, so loads of practice is required using 3 numbers before progressing to the next step of 5 successive numbers
- Now, count from 14 back to 9 by yourself
- Similarly, 18 to 14; 20 to 16; 68 to 64; 82 to 78; 103 to 99.

C. Counting Forwards/Backwards (alternately and sequence)

For this section the teacher's words are plain and pupil's words are in (brackets):

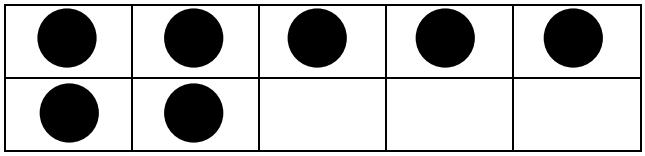
- This time we'll take turns to say the numbers. I will say 15, then you say 16, and we will keep going like that. Ready; 15, (16), 17, (18), …
- Now we'll swop around. You start with 92. Ready; (92), 93, (94), 95, …
- Let's try that going backwards. I'll start off. Ready; 21, (20), 19, (18), …
- This time we'll go backwards again and you can start from 34. Ready; (34), 33, (32), …
- This time I'll say a list of numbers and you tell me what the next number is. Ready; 11, 12, 13, (?); 27, 28, 29, (?)
- Now we'll try that backwards. Ready; 21, 20, 19, (18); 34, 33, 32, (31)
- I'll say a number and you tell me what number comes after it. Ready; 6, (7); 16, (17); 26, (27) etc.
- This time you tell me what number comes before the number I say. Ready; 93, (92), 53, (52), 33, (32), 30, (29), 41, (40) etc.

Structures to Five

<table>
<tr>
<td>Combinations to 5
  </td>
<td>Questions:
1. How many dots altogether?
2. How many more to make five?</td>
</tr>
<tr>
<td>Partitions of 5
  </td>
<td>Questions:
1. How many dots altogether?
2. How many are black?
3. How many are grey?</td>
</tr>
<tr>
<td>Sample Related Task
  </td>
<td>Questions:
1. How many black dots?
2. How many grey dots?
3. How many altogether?</td>
</tr>
<tr>
<td colspan="2">Other Questions (with or without material):
1. How many is 1 and 2 more?
2. What goes with 2 to make 5?
3. How many is 5 take away 4?
4. Tell me 2 numbers that make 5?</td>
</tr>
</table>

Structures to Ten

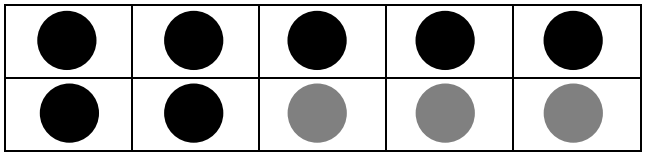
Combinations to 10



Questions:

1. How many dots?
2. How many more to make 10?

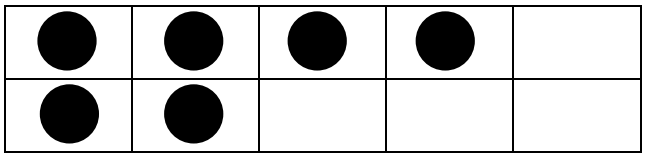
Partitions of 10



Questions:

1. How many dots?
2. How many are red?
3. How many are yellow?

Sample Related Task



Questions:

1. ***How many dots?***
2. ***How did you do it?***

Possible Solutions:

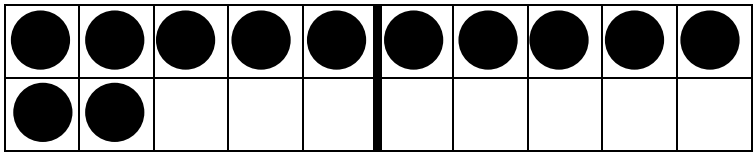
1. Fill the top row i.e. add 1 then take if away from the bottom.
2. Move 1 dot from bottom row to fill out top row leaving 5+1.
3. Move 1 dot from top row to leave 3+3.

Other Questions (with or without material):

1. Tell me 2 numbers that make 10?
2. How many is 4 and 2 more?
3. What goes with 4 to make 10?
4. What is 10-2?

Structures to Twenty

Combinations and Partitions to 20

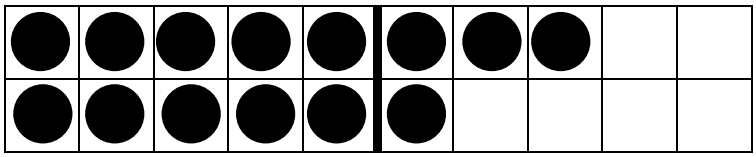


Questions:

1. How many dots?
2. How many more to make 20?

(Also, tasks involving partitioning a full 20)

Sample Related Task:



Questions:

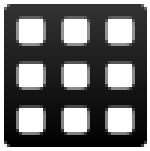
1. How many dots on top?
2. How many dots on bottom?
3. How many dots altogether?

Other Questions (with or without material):

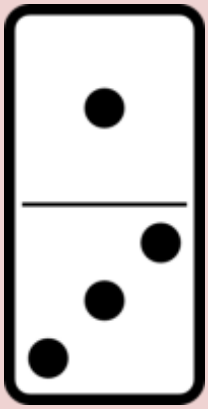
1. What goes with 14 to make 20?
2. What goes with 3 to make 20?
3. Tell me 2 numbers that make 17?
4. How many is 20 take away 7?
5. How many is 14 and 2 more?

Games

Counting

Game	Equipment	Instructions
Collect in Twos	• 1-6 die • Approx 40 counters	1. Ask the children to take turns to throw the die and collect the corresponding number of counters. The aim is to make piles of two counters. Each child must say how many counters they already have before taking their turn at throwing the die. 2. The first child to collect 20 counters is the winner.
Make 10	• 10 frame • 20 counters • Penny	1. Give each child one ten frame as a game board, and 10 counters 2. Ask the children to take turns to toss the penny. Tell them that if they toss heads they can put one counter on the grid. If they toss tails they put two counters on the grid 3. First, the children aim to put ten counters on the grid 4. When they have done this, the children then have to remove all their counters. Once again, if they toss heads they can remove one counter from the grid, if they toss tails they can remove two counters from the grid from the grid 5. The first child to have no counters on the grid is the winner ***Variation:*** children do not have to remove the counters. The winner is the first child to have ten counters on the grid.
 **Make 20**	• 1-6 Die • Approx 40 counters • 20 Frame	1. Give each child two 20-frames as a game-board, and 20 counters. Let the children take turn to throw the die. They look at the number thrown on the die, then put that number of counters onto their grid(s). At first, the children aim to put 20 counters on the grids. 2. When they have done this, they then have to remove all their counters, by throwing the die and removing the corresponding number of counters from their grid(s) 3. The first child to have no counters on the grids is the winner ***Variation:*** children do not have to remove the counters. The winner is the first child to have 20 counters on the grid.

Comparing & Ordering

Game	Equipment	Instructions
Throw and Collect	2x 1-6 dice Approx 20 counters	1. Give each child a die 2. The children throw their dice simultaneously 3. The child who throws the larger number wins and collects a counter 4. The game continues until one child has collected 10 counters Variations: • Use 1-12, 7-12 or 1-20 dice • The child who throws the smaller number wins and collects a counter
Rearrange the Cards	0-10 number cards	1. Ask the children to shuffle the cards and then lay them face down in a row 2. The game begins with one child picking up any number card. The child says the name of the number and puts it down in the correct place. 3. The child picks up the card that is already in that place and gives it to the next child, who in turn has to put the card face up in the correct place and so on. 4. If the space where the card belongs is already empty, then the card is put down and the game continues with any randomly chosen card Variations: • Let the children use a set of 1-20 number cards
 **Matching 5**	1-4 Dotted Cards 1-4 numbered cards (refer to 5 frame p8)	1. Sort a pile of 1-4 dotted cards and a pile of 1-4 numbered cards face down 2. Objective is to match pairs to make 5

Key Stage 1 (P3-4): Targets & Strategies

During KS1 your child may be working towards achieving and being competent in the following areas;

- Count to 1000 and be able to recognise, read or write any 3-digit number
- Count in tens. E.g. 36, 46, 56, 66, 76, 86, 96, 106, 116 …
- Know the pairs of numbers which make ten. E.g. 4+6, 7+3, 5+5 …
- Add 2 single digit numbers bridging 10 e.g. 6+8
- Add two numbers by counting on the tens and then counting on the units. E.g. 46+23
- Add a string of small numbers. E.g. 6+4+7+2+6
- Add 10, 20 or 30 or 40 to a number. E.g. 94+20
- Subtract one number from another when the numbers are close. E.g. 43-37
- Subtract one number from another when the numbers are not close. E.g. 54-9
- Know the 2x, 3x, 5x, 9x and 10x tables (if necessary, using fingers fast!)
- Recognise dividing as the opposite of multiplying. E.g. 27/3 means 'How many 3's in 27?'
- Recognised odd and even numbers
- Double numbers up to 20 and halve even numbers up to 40
- Add/Subtract 1,2, 0 to any number, answers within 100
- Add/Subtract 10 to/from a 2-digit number, answers within 100
- Subtract a single digit from 20
- Add a single digit to a 2 digit number without bridging 10 (54+3)
- Subtract a single digit from a number within 20, without bridging 10 (17-4)
- Subtract a single digit from a 2-digit number without bridging 10 (56-4)
- Know position of tens digit indicates its value
- Know all single digit subtraction facts within 10
- Find what must be added to a number to make 20
- Find what must be added to a multiple of 10 to make 100 (60+?=100)
- Find what must be added to any 2 digit number to make the next highest multiple of 10 (33+?=40)
- Find what must be subtracted from any 2 digit number to make the next lower multiple of 10 (47-?=40)
- Add/subtract a multiple of 10 to/from a multiple of 10, answers within 100 (30+40, 60-20)
- Add/subtract 9, 11 to/from any 2 digit number, answers within 100
- Add/subtract a multiple of 10 to/from any 2 digit number, answers within 100 (o) (34 + 50, 89-40)
- Use to add/subtract 21, 31, 19, 29 etc to/from any 2 digit number, answers within 100 (47+29, 53-19)
- Know position of hundreds digit indicates its value
- Understand zero as a place holder
- Know multiplication facts for 1x, 2x, 5x, 10x tables

50 Grid (Un-Numbered)

50 Grid (Numbered)

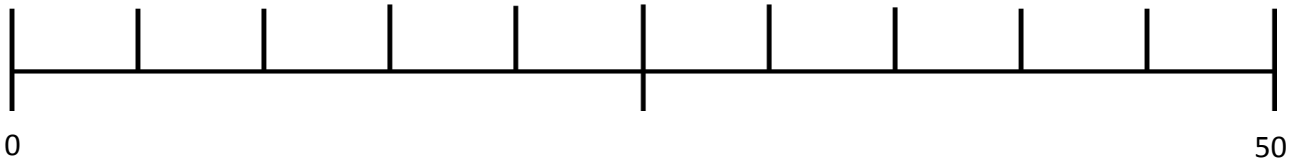
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

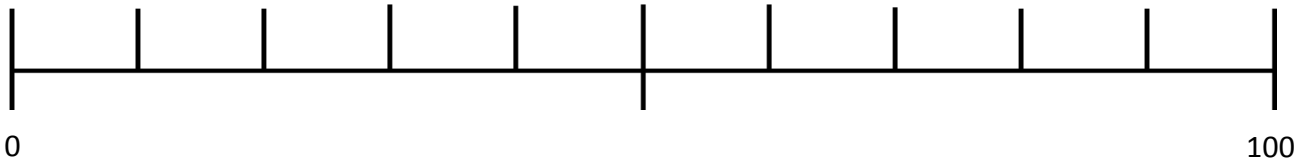
100 Square (Un-Numbered)

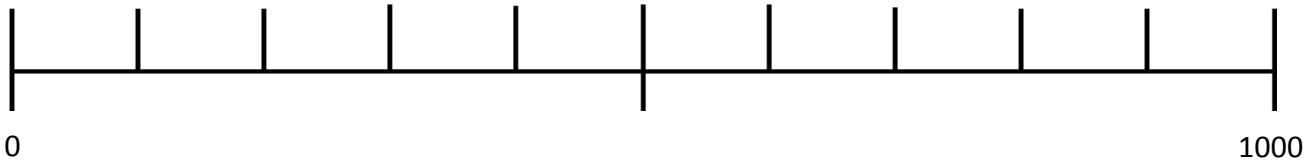
100 Square (Numbered)

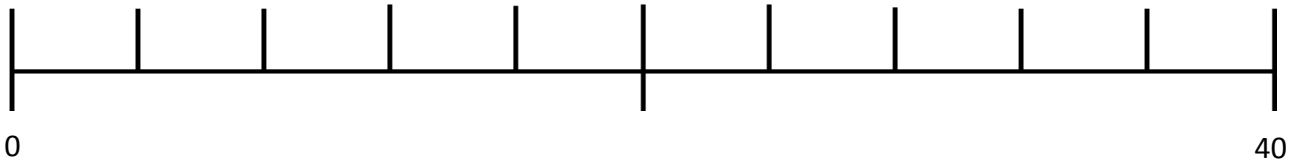
1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

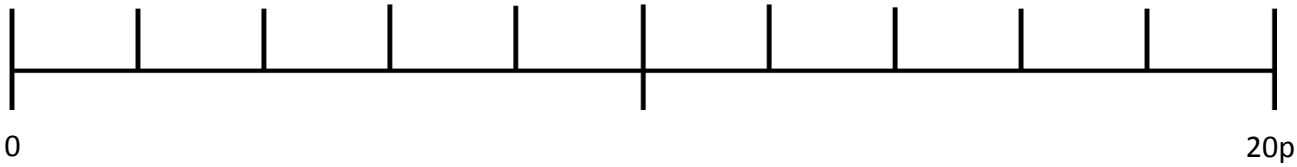
Counting On/Back using Empty Number Line (No Strip)

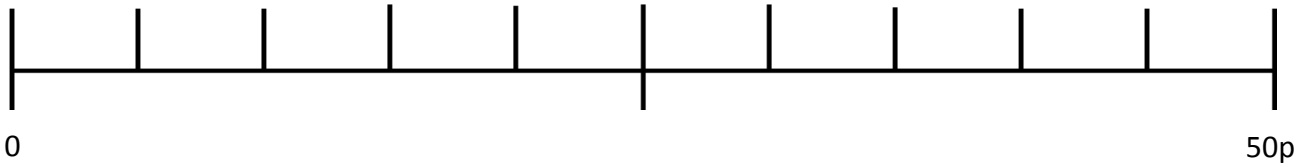


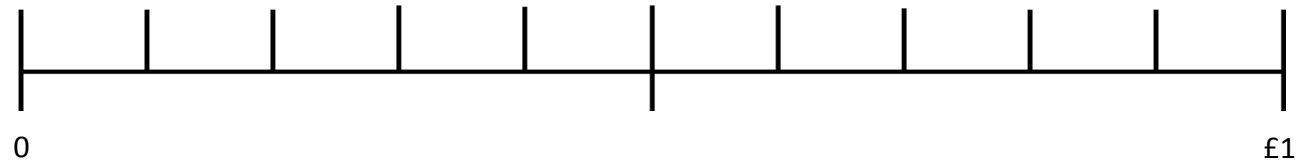


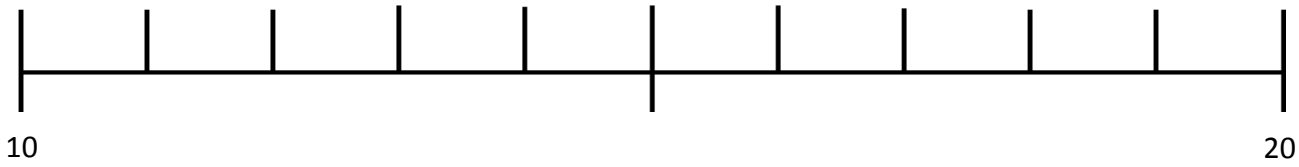


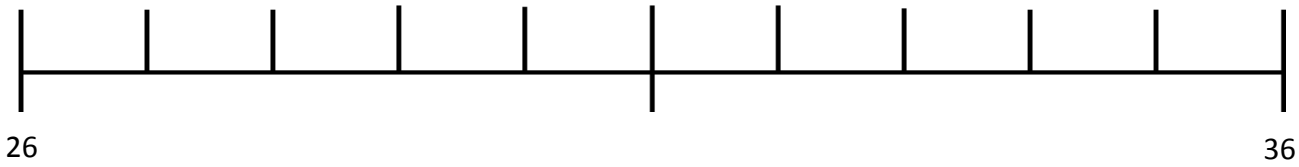










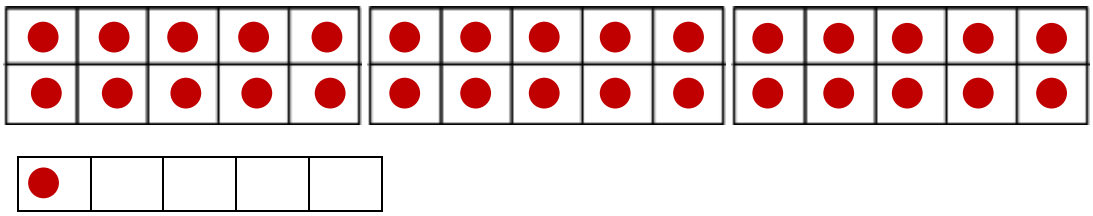


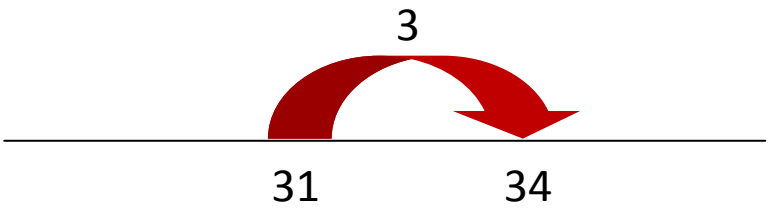
Typical Questions to ask your child:

1. What number is this?
2. Point/Show me e.g. 90
3. Use different starting numbers e.g. 10-20, 36-46
4. Count in 4s (4x tables)
5. Show me 37p. How much more to make 50p? £1 etc.

Higher Level Combining

31 + 3 = ?

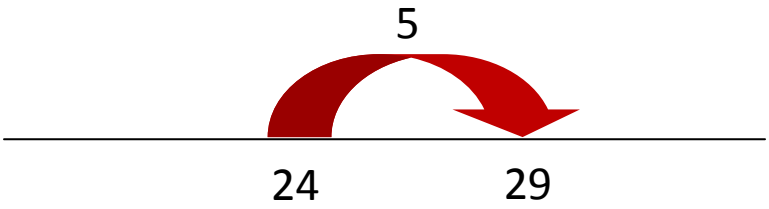




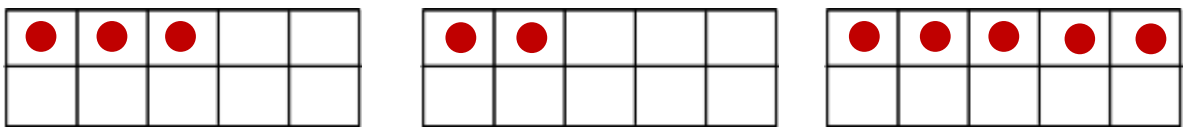
24 + □ = 29

Display, then screen

Display, then screen



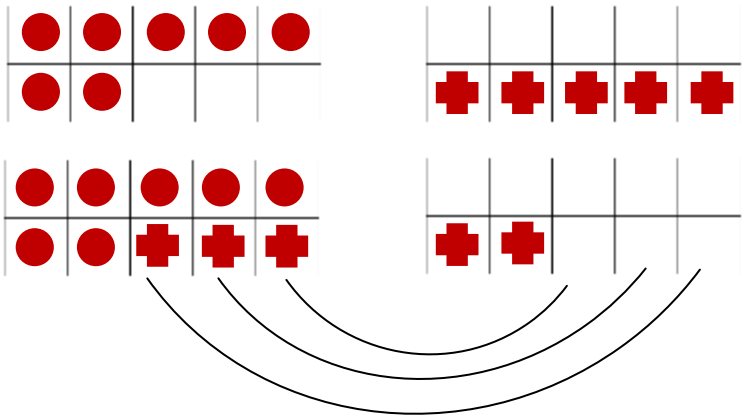
Combining 2 single-digit numbers



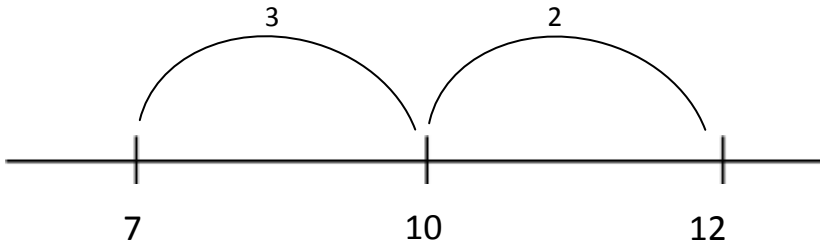
Higher Level Partitioning

Example 1

7 + 5 = ?

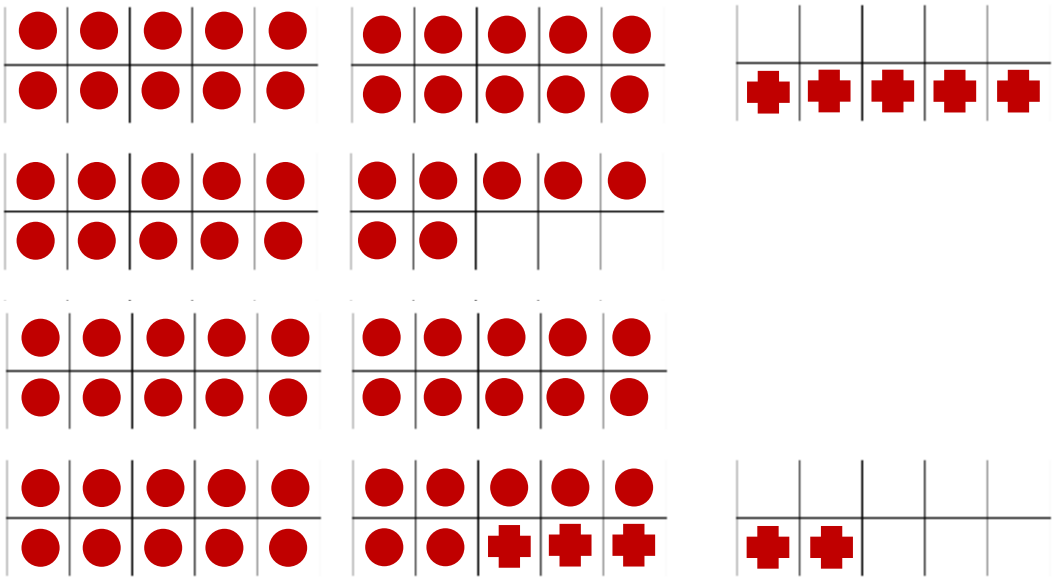


7 + 5 = 12
7 + 3 + 2 = 12

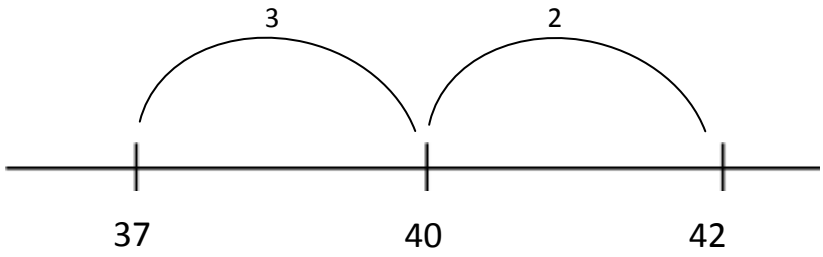


Example 2

37 + 5 = ?



37 + 5 = 42
37 + 3 + 2 = 42

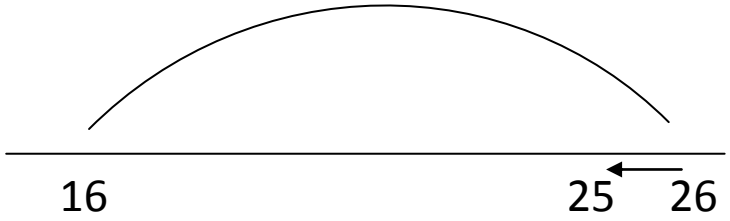
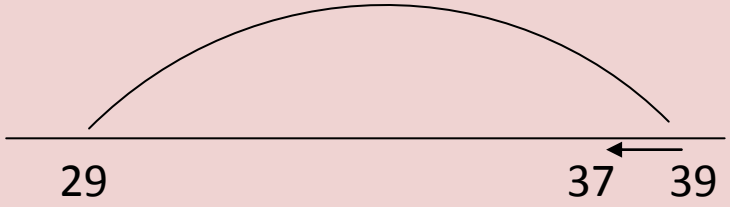
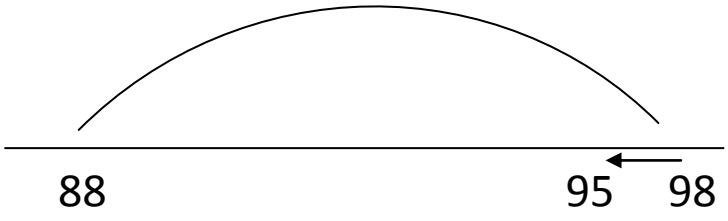


Rounding and Adjusting Strategy

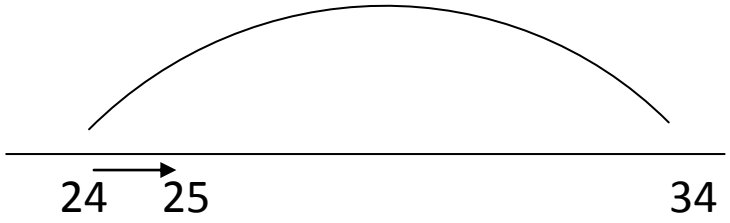
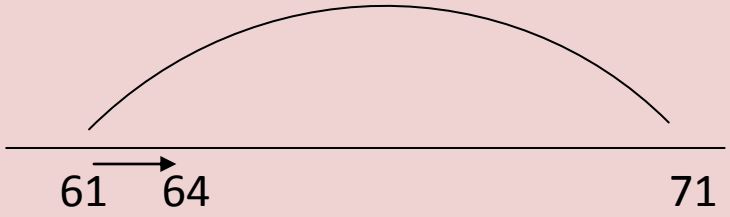
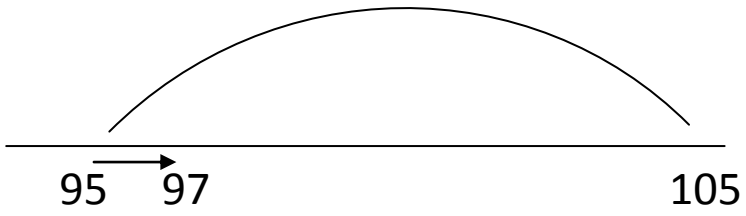
Sometimes it is easier to adjust when adding or subtracting numbers. This is often the 'forgotten' strategy.

All you need to do is draw an empty number line.

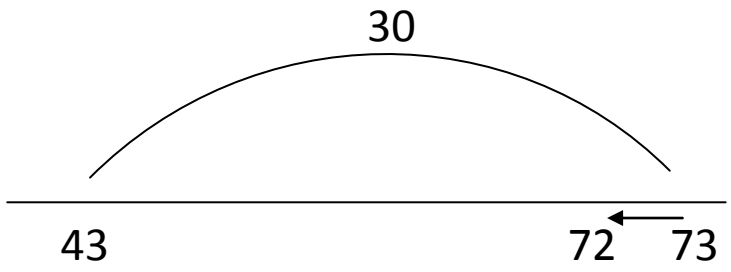
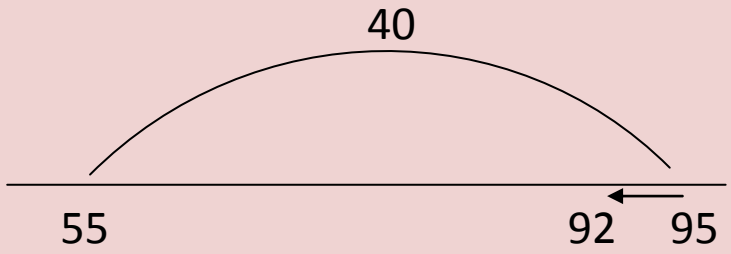
1. **Adding 'near 10' to a number**

Example 1	**16 + 9 = 25** **16 + 10 – 1 = 25** 
Example 2	29 + 8 = 37 29 + 10 – 2 = 37 
Example 3	88 + 7 = 95 88 + 10 – 3 = 95 

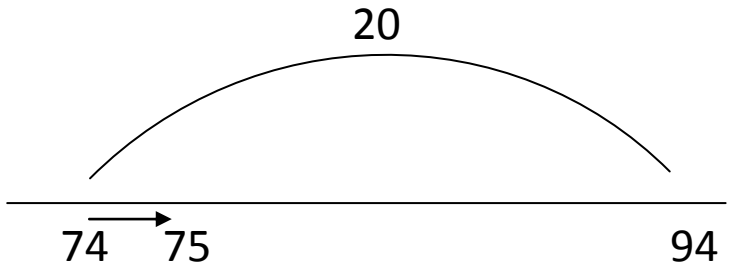
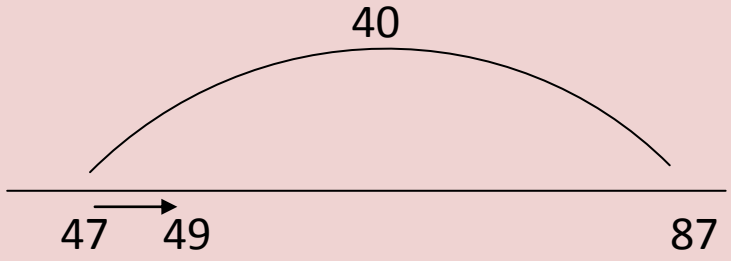
2. Subtracting to a 'near 10' from a number

Example 1	**34 – 9 = 25** **34 – 10 + 1 = 25** 
Example 2	71 – 7 = 64 71 – 10 + 3 = 64 
Example 3	105 – 8 = 97 105 – 10 + 2 = 97 

1. Adding to a 'near multiple of 10'

Example 1	**43 + 29 = 72** 
Example 2	55 + 37 = 92 

2. Subtracting to a 'near multiple of 10'

Example 1	**94 – 19 = 75** 
Example 2	87 – 38 = 49 87 – 40 + 2 = 49 

Which Strategy is Best?

When pupils have worked through a variety of mental strategies e.g;

- Counting on/back
- Rounding/adjusting
- Combining
- Partitioning etc.

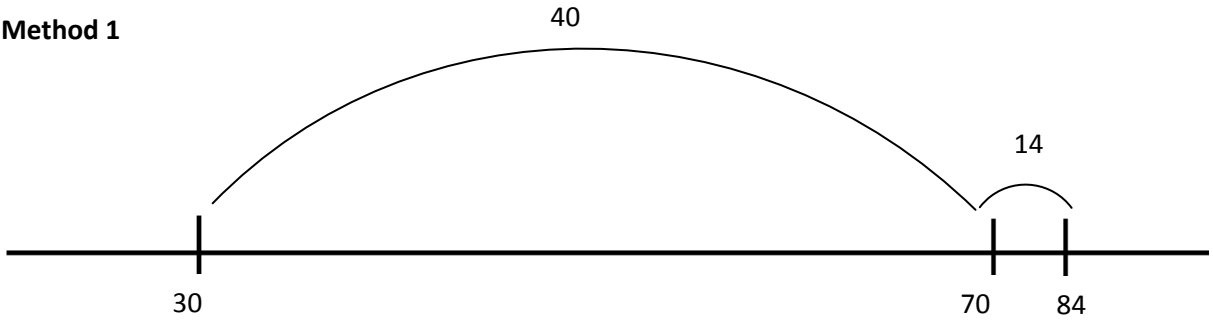
they can use the most efficient/practical one (or very often the one they feel most comfortable with).

This final example shows a variety of ways to do the same problem mentally.

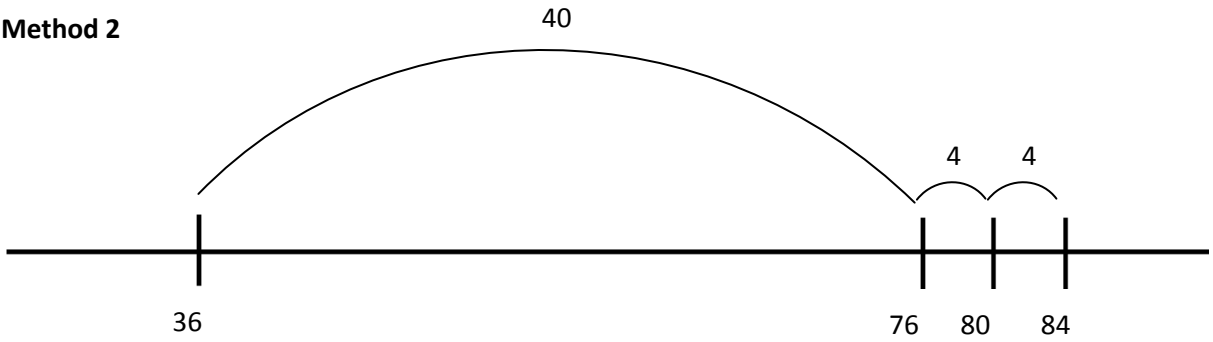
Problem:

For his break, Charlie buys a banana at 36p and a bottle of water at 48p. How much does he owe the shop?

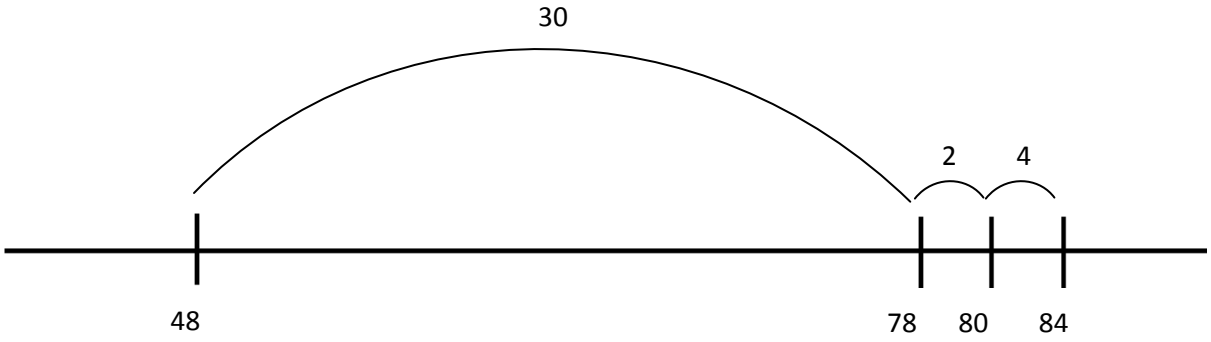
Method 1



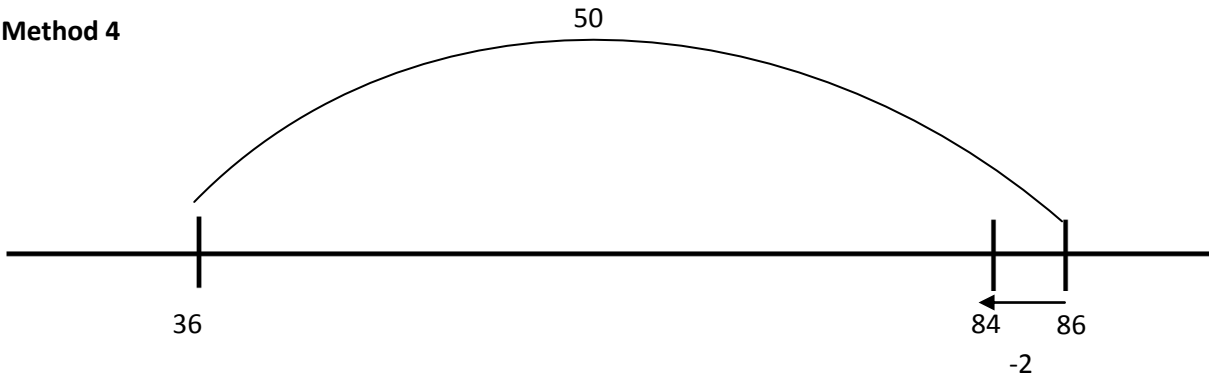
Method 2



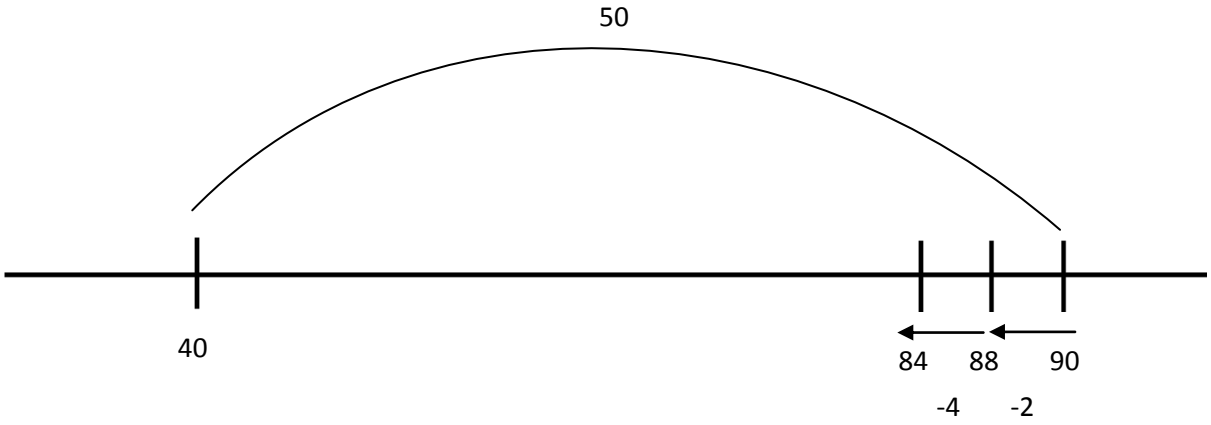
Method 3



Method 4



Method 5



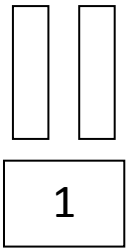
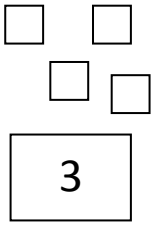
Subtraction by Decomposition

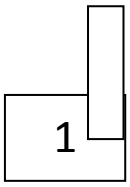
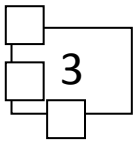
One of the best resources to use is money; 10ps, 1ps.

Don't go back to 'your way' of doing subtraction, go with the way your child is doing It in school!

TIP:
GOOGLE ENLVM
BROWSE ACTIVITIES
GOT TO NUMBER AND OPERATION
PREK – 2
A) BASE BLOCKS ADDITION
B) BASE BLOCKS SUBTRACTION

Example: 24 - 13

	Tens			Units	
					

	Tens			Units	
					

Example 2: 34 – 15

This time it is not as simple as this sum involves using “Decomposition”.

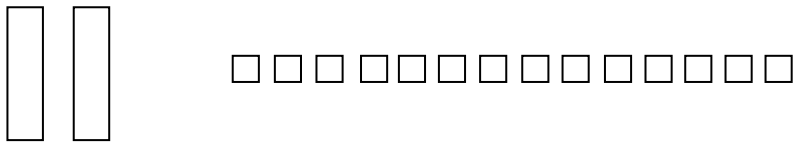
34
-15

1 5

_____ OR _____

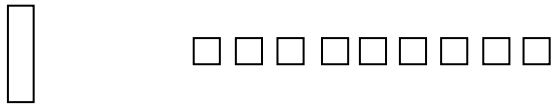
This time, we cannot take away 5 units because there are only 4 units so we must ‘exchange’ 1 Ten for 10 Units and therefore we have:

$2^{1}4$
-15



1 5

19



_____ OR _____

Through time and practice, we can leave out the right hand side of the problem. However, this takes Time, Practice and Patience.

Useful Websites/Links

Website Address	Details
http://nlvm.usu.edu/en/nav/vlibrary.html	Go to PreK – 2 Base Blocks Base Blocks Addition Base Blocks Subtraction
www.topmarks.co.uk	Go to Whiteboard Resources Go to Maths KS1 – loads of activities in all areas of maths. Or Go to Parents Resources
www.clounagh.org	
www.ictgames.com	
www.mathsisfun.co.uk	
www.counton.org	
www.mad4maths.com	

Games

- Jigsaws (number)
- Interactive jigsaws in Topmarks
- Go to – Parents
- Go to – Maths Games
- Playing Cards
- Money Games
- Ludo
- Snakes/Ladders
- Connect 4
- Dominoes
- Draughts
- Simple Sudoku

Helping out at Home

Out and About

- Plan your trip around the shops
- Recognising new coins 20p, 50p, £1, £2
- Change from 10p, 20p, 50p, £1 – adding/subtracting
- Exchanging coins for least amount
- Sequence shopping from lightest to heaviest

In the Kitchen

- Read analogue/digital clock
- Sharing out dinner (e.g. pizzas etc)/fractions
- Reading scales on kettle, weighing scales -working out how much to fill, get to 1kg etc
- Non uniform measuring – Baking: how many spoonfuls of flour weigh 100g etc.

Around the House

- Talk about different shapes, squares, rectangles, triangles, circles etc.
- Estimate lengths, widths, heights etc.

Helping out at Home

Out and About

- Sorting Coins
- Playing with 1p, 2p, 5p, 10p, 20p
- Making /ordering lists
- Estimating e.g. how many bags?
- Change from 5p, 10p, 20p

In the Kitchen

- Measures – Full/Half Full/Nearly Fully/Empty
- Maths Vocabulary
- Numbers in the kitchen: microwave, TV, radio, clock

Around the House

1. Can you put these in order?
2. Find Sky Sports 1? Etc
3. Weighing: Heavier/Lighter – Heaviest/Lightest
4. Fractions – half an apple, kit kat, sandwich etc.

Useful Websites/Links Key Stage 2 (P5-7): Targets & Strategies

During KS1 your child may be working towards achieving and being competent in the following areas;

P5

- Read/write simple fraction notation
- Count forwards/backwards in halves, quarters
- Know near doubles within 20 (8+7)
- Know components of the number 20 (16+4)
- Know all remaining addition facts within 20
- Add 3 single digit numbers
- Subtract any number from 20
- Know all remaining subtraction facts within 20
- Find halves of even numbers within 20
- Find doubles of multiples of 100 up to 500+500
- Add/subtract 100 to/from multiples of 100 within 1000 (300+100, 700-100)
- Add/subtract two 2 digit numbers within 100, without bridging 10 (35+22, 67-34)
- Find what must be added to any 2 digit number to make 100 (34+?=100)
- Add/subtract multiples of 100 to/from multiples of 100 within 1000 (300+400, 900-300)
- Find what must be added to multiples of 100 to make 1000 (400+?= 1000)
- Find what must be added to/subtracted from any 3 digit number to make the next higher/lower multiple of 10, 10 (234+?=240, 456-?=450, 647+?=700, 278-?=200)
- Add 100 to any 2 or 3 digit number within 1000 (345+100)
- Subtract 100 from any 3 digit number (478-100)
- Add a multiple of 100 to a 2-digit multiple of 10 (30+400)
- Add a multiple of 100 to any 2 or 3 digit number within 1000 (34+400, 327+500)
- Subtract a multiple of 100 from any 3 digit number (578-300)
- Calculate doubles of multiples of 50, answers within 1000 (double 450)
- Derive corresponding halves

- Calculate double of multiples of 10 up to 200 (double 130)
- Derive corresponding halves
- Know multiplication facts for 3's, 4's x. Tables

P6

- Count, read and write any number, including a decimal number. E.g. 3.05
- Put a set of numbers, including decimals, in order of size. E.g. 3.03, 3.3, 3.31, 30001
- Know the pairs of numbers which make one hundred – e.g. 46+54
- Add two numbers in their heads. E.g. 34+15+9+2
- Add or subtract multiples of 10 or 100. E.g. 3046-800
- Subtract one number from another when the numbers are close. E.g. 609-587
- Subtract one number from another when the numbers are not close. E.g. 514-29
- Know their tables up to 10x10 and be able to use these facts to do simple divisions. E.g. 4x8=? And 32 ÷4=?
- Multiply or divide by 10 or 100. E.g. 13x10, 245x100, 5.2x10, 350÷10
- Multiply a 2-digit number. E.g. 5x14
- Double and halve numbers to 1000

P7

- Count, read, write, order numbers to 100,000
- Estimate the total of 2 or 3 items in a shopping list (£2.99+£4.49+£1.99)
- Count read write order decimal numbers to 2dp
- Find simple non-unitary fractions of quantities by dividing by denominator, multiplying by numerator (2/3 of 15)
- Find 20%, 30%, 40% … 90% of quantities by finding 10% and multiplying appropriately (40% of 80)
- Add 4 or more single digit numbers
- Add any number to a multiple of 1000 (4000+423)
- Subtract a multiple of 1000 from any 4 digit number (4567-3000)
- Add any 2 digit numbers including bridging the 10 and 100 (67+77)
- Subtract a 2 digit multiple of 10 from any 3 digit multiple of 10 without bridging through the hundred (670-430)
- Add/subtract decimals to 1 dp decimal number greater than 1 to make the next whole number (23.2+?=24)
- Multiply a 2 digit multiple of 10 by a single digit (40x7)
- Multiply a 3 digit multiple of 100 by a single digit (400x7)
- Multiply a 3 digit number by 100 (456x100)
- Multiply two 2 digit multiples of 10 (30x60)
- Divide whole numbers by 100, whole number answers (4600÷100)

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20

Times Tables Square

Memorise all the multiplication tables to 10x10. This will help with loads of multiplication problems.

3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Multiples Charts

Numbers

Prime numbers

Prime numbers are special numbers that can only be divided by themselves and 1

19 is a prime number. It can only be divided by 1 and 19.

The number 1 is not thought of as a prime number.

9 is **not** a prime number. It can be divided by 3 as well as 1 and 9.

The prime numbers below 20 are:

2, 3, 5, 7, 11, 13, 17, 19

Triangular Numbers

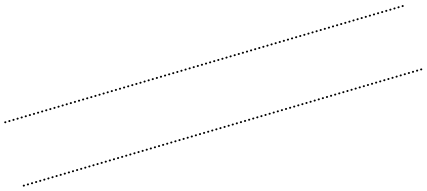
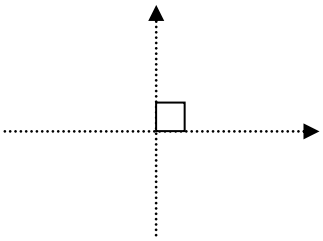
A number than can make a triangular dot pattern.

Example: 1, 3, 6 and 10 are triangular numbers.

1	2	3	4	5
1 Dot	**3 Dots**	**6 Dots**	**10 Dots**	**15 Dots**

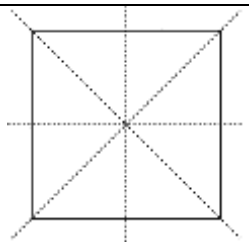
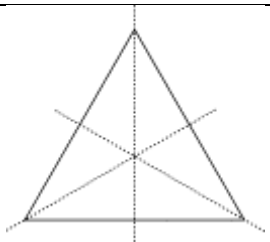
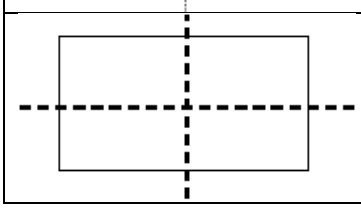
Useful Definitions of Lines

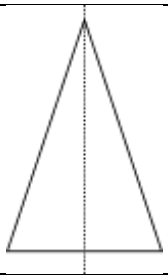
Lines

Parallel lines are always the same distance apart.	
Perpendicular lines cross at right angles to each other.	

Lines of Symmetry

A 2D shape is symmetrical if a line can be drawn through it so that either side of the line looks exactly the same. The line is called a **line of symmetry.**

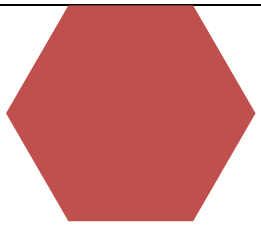
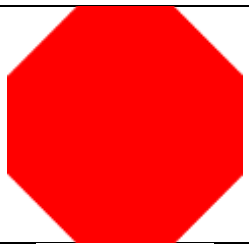
	**Square** 4 lines of symmetry
	**Equilateral Triangle** 3 lines of symmetry
	**Rectangle** 2 lines of symmetry

	**Isosceles Triangle** 1 line of symmetry
	Parallelogram 0 lines of symmetry

Shapes

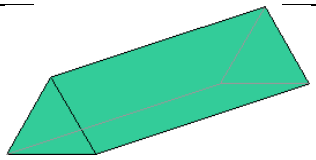
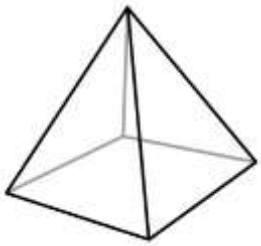
2D Shapes

	Squares have 4 straight sides and 4 corners. All the sides are the same length
	Circles only have one side and no corners.
	This is a pentagon. It has 5 straight sides and 5 corners. All the sides are the same length.
	Rectangles have 4 sides and 4 corners. They have 2 long sides and 2 short sides.
	Triangles have 3 sides and 3 corners.
	This is a hexagon. It has 6 sides and 6 corners. All the sides are the same length

	
	This is an octagon. It has 8 sides and 8 corners. All the sides are the same length.
	A semi-circle has one straight side and one curved side. 2 semi-circles make a circle.

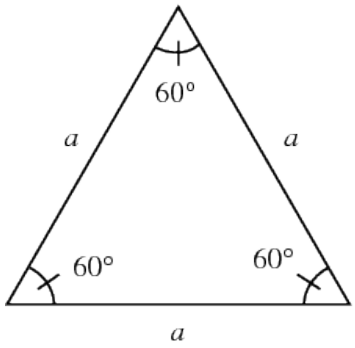
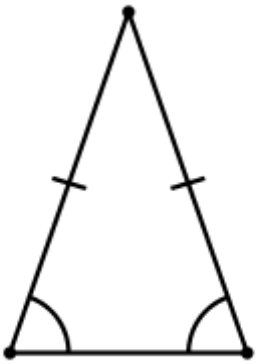
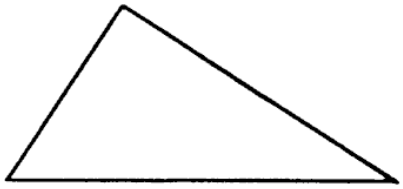
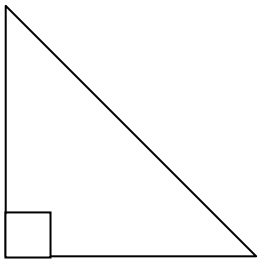
3D Shapes

	This 3D shape has not flat faces and no straight edges. It has just one curved face. This is a sphere.
	This 3D shape has one curved face and one flat face. The flat face is a circle. This is a cone.
	This 3D shape has 6 flat square faces, 12 straight edges and 8 corners. This is a cube.

	This 3D shape has one curved face and 2 flat circular faces. This is a cylinder.
	This 3D shape has 6 flat faces; 2 are squares and 4 are rectangles. It has 12 straight edges and 8 corners. This is a cuboid.
	This 3D shape has 5 flat faces; 2 are triangles and 3 are rectangles. It has 9 straight edges and 6 corners. This is a triangular prism.
	This 3D shape has 5 flat faces; 4 are triangles and 1 is a square. It has 8 straight edges and 5 corners. This is a square based pyramid.
	This 3D shape has 4 flat triangular faces. It has 6 straight edges and 4 corners. This is a triangular based pyramid.

Triangles

Triangles have **three** sides. There are many different types of triangles:

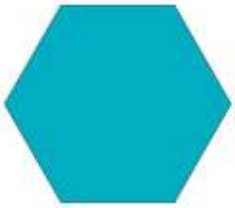
 **Equilateral triangle**	• 3 equal sides • 3 equal angles of 60^{o}
 **Isosceles Triangle**	• 2 equal sides • 2 equal angles
 **Scalene triangle**	• No equal sides • No equal angles
 **Right-angled triangle**	• One of its angles is a right angle (90^{o})

Polygons

Polygons are shapes with **many straight sides:**

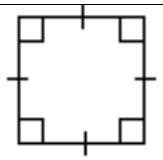
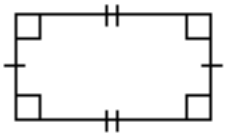
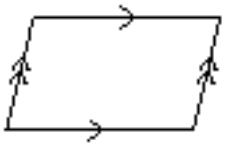
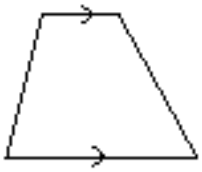
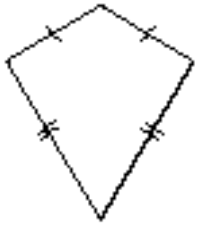
- **Regular** polygons have equal angles and sides of equal length
- **Irregular** polygons have sides of different lengths

Here are some common polygons:

Pentagons have 5 sides	 A regular pentagon
Hexagons have 6 sides	 A regular hexagon
Heptagons have 7 sides	 A regular heptagon
Octagons have 8 sides	 A regular Octagon

Quadrilaterals

Quadrilaterals have four sides. Here are some special quadrilaterals:

 **Square**	• 4 equal sides • 4 right angles
 **Rectangle**	• 2 pairs of equal sides • 4 right angles
 **Parallelogram (squashed rectangle)**	• 2 pairs of equal sides • Opposite sides are parallel • Opposite angles are equal
 **Trapezium**	• One pair of parallel sides of different lengths
 **Kite**	• 2 pairs of equal sides next to each other • No parallel sides
Rhombus (squashed square)	• 4 equal sides • Opposite sides are parallel • Opposite angles are equal

Multiplication Definitions

Here are some of the words which we use when doing multiplication sums. Have look below to see how they can be used in the simple sum 2x2=4.

Multiply	•If you multiply 2 by 2 you get 4.
Multiple	•4 is a multiple of 2.
Times	•2 times 2 is 4.
Sets of	•2 sets of 2 make 4.
Lots of	•2 lots of 2 make 4.
Groups of	•2 groups of 2 make 4.
Factors	•2 is a factor of 4. One number is a factor of another number if it divides or goes into it exactly.
Product	•The product of 2 and 2 is 4.

Percentages (%)

Percent means 'out of 100' • **The sign % stands for 'per cent' which means 'out of 100'.**	**Example:** • **40% means 40 out of 100** • **11% means 11 out of 100**
Converting between percentages and decimals • **To change a percentage to a decimal,** divide by 100 • **To change a decimal to a percentage,** multiply by 100	Example: • Change 48% to a decimal: 48 ÷ 100 = 0.48 • Change 0.67 to a percentage: 0.67 x 100 = 67%
Converting between percentages and fractions • **Write the percentage as a fraction over 100 and then simplify**	Example: 60% means $\frac{60}{100}$ $\frac{60}{100} = \frac{6}{10} = \frac{3}{5}$
Learn these equivalent fractions and percentages	½ = 50% ¼ = 25% 1/10 = 10% ¾ = 75% 1/5 = 20%
Percentage of a number	Example: To find 20% of 30 is to first find 10% of 30 and then multiply by 2. 10% of 30 is 30÷10=3 2x3=6 Or recognise that 20% is equivalent to one fifth, and so just divide 30 by 5. 30÷5=6

Time

Analogue Clock

There are 60 minutes in an hour.

There are 15 minutes in a quarter of an hour.

There are 5 minutes between each number and the next.

There are 30 minutes in half an hour.

- The **large** hand on a clock is always the minute hand.
- The **small** hand on a clock is always the hour hand.
- Before noon is known as **AM** and afternoon is known as **PM**.

24 Hour Clock

12 Hour Clock	24 Hour Clock		12 Hour Clock	24 Hour Clock
12pm	1200		12am	0000
1pm	1300		1am	0100
2pm	1400		2am	0200
3pm	1500		3am	0300
4pm	1600		4am	0400
5pm	1700		5am	0500
6pm	1800		6am	0600
7pm	1900		7am	0700
8pm	2000		8am	0800
9pm	2100		9am	0900
10pm	2200		10am	1000
11pm	2300		11am	1100

Units of time

1 minute	•60 seconds
1 hour	•60 minutes
1 day	•24 hours
1 week	•7 days
1 fortnight	•14 days
1 year	•12 months/52 weeks/365 days
1 leap year	•366 days

How many days?

Remember:

30 days has September, April, June and November.

All the rest have 31.

Except for February all alone, which has 28 days clear but 29 in each leap year.

Measuring

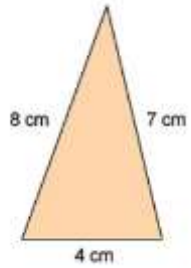
Perimeter

What is perimeter?

The perimeter is the **distance** all the way around the **outside** of a 2D shape.

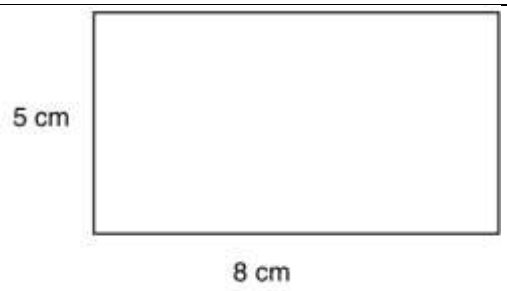
To work out the perimeter, **add up the lengths of all the sides**.

Example:

	The perimeter of this shape is: 8 + 4 + 7 = 19cm

In a rectangle opposite sides are equal, so to work out the perimeter of a rectangle you just need to know the length and width.

Example:



Here the length is 8 cm and the width 5cm.

Method 1

Length = 8cm and width = 5cm
Perimeter = 8 + 5 + 8 + 5 = 26cm

Method 2

Because opposite sides are equal you can also work out the perimeter in this way:
Double the length, double the width, then add the results together.

(8x2) + (5x2) = 16 + 10 = 26

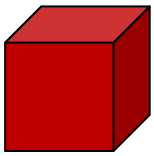
Volume

Each of these two cuboids has the same volume, 10 cm^3, and the same dimensions: length 5cm, width 2cm, height 1cm.

The volume of the first can be found by counting the unit cubes.

The volume of the second is found using the rule:

Volume of a cube or cuboid = length x breadth x height



This cube has sides of length 3cm

Its volume is 3 x 3 x 3 = 27cm3

Measuring Capacity

Capacity or **volume** is a measure of how much space something takes up. Measuring spoons or measuring jugs can be used to measure capacity.

To find the Volume or Capacity of a cube or cuboid container:

Volume = Length x Breadth x Height

Units of measurement:

- cm^3
- m^3

Metric Units of Capacity

Capacity is measured in millilitres (ml) and litres (l).

- 1l – 1000ml
- ¾ l – 750 ml
- ½ l – 500 ml
- ¼ l – 250 ml

Use these tips to estimate capacity:

- 5 ml is about the capacity of a teaspoon.
- 1l is about the capacity of a large carton of fruit uice

Imperial units of capacity

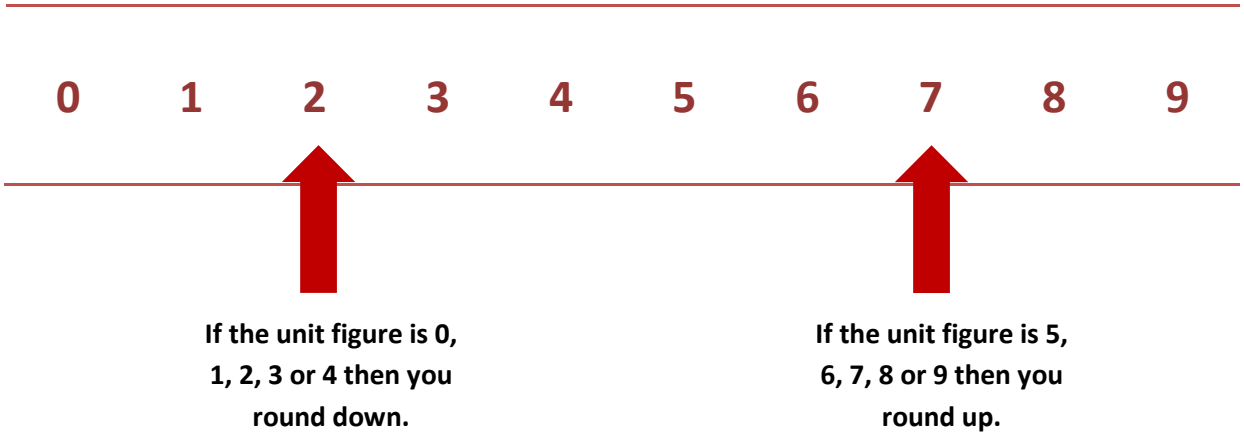
- Pints and gallons are old units of capacity (imperial units)
- There are 8 pints in a gallon
- A pint is equal to just over half a litre
- A gallon is roughly equal to 4.5 litres

Rounding tens, hundreds and thousands

Rounding a number is another way of writing a number approximately. We often don't need to write all the figures in a number, as an approximate one will do.

Rounding to the nearest ten

To round a number to the nearest 10, you have to decide if the number is nearest to 10, 20, 30 etc. To do this you follow a rule.



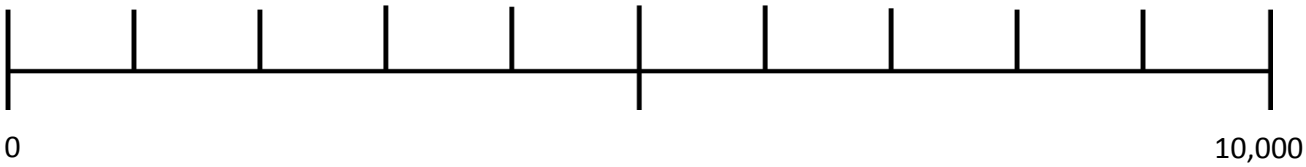
Question: Is 37 nearer to 30 or to 40?

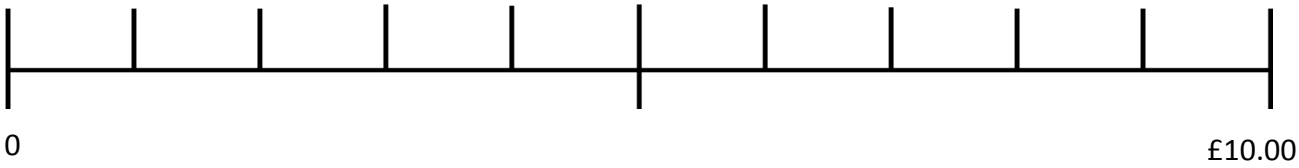
- As the unit figure is 7, you round up to 40.
- Rounding to the nearest 10 can help you estimate the cost of your shopping.

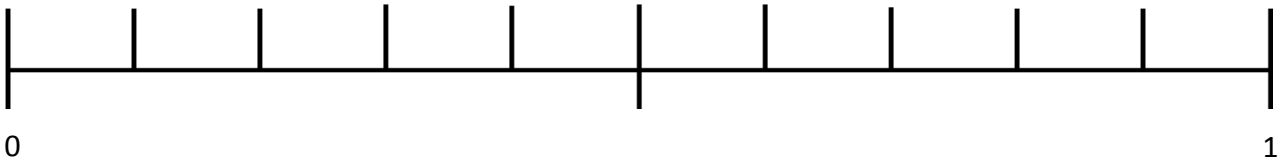
Rounding to the nearest hundred

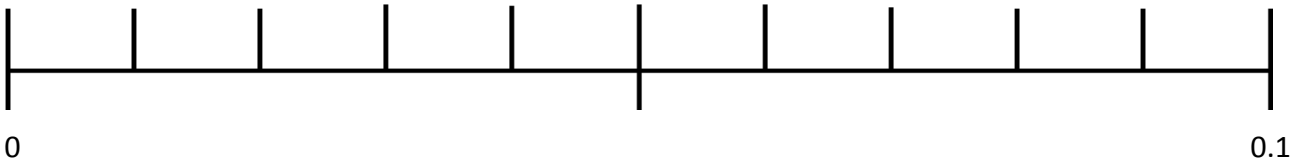
To round a number to the nearest 100, you have to decide if the number is nearest to 100, 200, 300 etc. The rule is the same as for rounding to the nearest 10, but this time look at the tens figure.

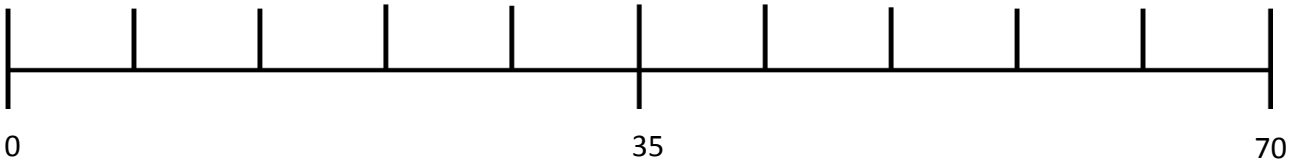
Empty Number Line Ideas (No Strips)











Useful Websites/Links

(Also look at KS1)

Website Address	Details
www.woodlands-junior.kent.sch.uk	Go to KS2 maths Or Google 'School Zone'
www.clounagh.org	
www.bbc.co.uk/schools/ks2bitesize/maths	
www.topmarks.co.uk	Go to KS2
www.mathsisfun.com	Good for Multiplication
www.mad4maths.com	
www.ictgames.com	
www.counton.org	

Games

- Jigsaws
- Playing Cards
- Monopoly
- Snakes & Ladders
- Dominoes
- Droughts
- Chess
- Sudoku
- Bingo

Website Address
http://illuminations.nctm.org (Good for Combining, Partitions, +
http://www.primaryresources.co.u /maths/mathsB1.htm
http://www.suffolkmaths.co.uk (Useful ideas with playing cards)

Helping out at Home

Out and About

- Change from 50p, £1, £2, £5, £10, £20
- Work out %, fractions 'of' and 'off' e.g. 1/3 off, 25% discount etc.
- 'Buy 1 get 1 free, 6 for 5, 50% extra
- Estimate shopping list
- Credit Card Uses

In the Kitchen

- Cost of a meal for 3, 4 etc
- Sequencing packages in the kitchen – heaviest – lightest
- Cooking times

Around the House

- Symmetry
- Area
- Perimeter
- Direction N, S, E, W, NE, SE, SW, NW etc.

	Then Click on 'Set 1'
http://www.topmarks.co.uk/	Go to Foundation
www.bbcbitesizemaths.co.uk	
www.clounagh.org	
www.nrich.maths.org	Go to primary (Lower) Click on 'Strategy Games'

Games

- Jigsaws (Number)
- Shopping (Counts)
- Hop scotch
- Playing cards
- Money Spins (heads/tails)
- Ludo
- Dominoes

Resources

- Counting frames to 20
- Reversible (2 colour) Counters
- Dice
- Blank Dice