Maths Parent Workshop

FoxFederation

Nick Marsh – Maths lead

What we will cover today

FoxFederation

- How we teach maths at Fox
- Key concepts covered in Key Stage 1
- How you can support home

What is teaching for Mastery?

FoxFederation

What does it mean to Master something?

FoxFederation

- I know how to do it
- It becomes automatic and I don't need to think about it e.g. driving a car
- I'm really good at doing it
- I understand what I am doing
- I can show someone else how to do it.

What is teaching for mastery?

FoxFederation

Teach less but teach it better

Go slow to go fast

Go deep to build firm foundations - depth is simplicity, not complexity, so accessible for all

Whole class teaching – to maximise teacher input with additional pre-teaching/intervention for those who need it.

Going deep to build firm foundations

FoxFederation

Nina - you can halve it because it's an even number.

Juan - double 4 is 8.

Alaia - half of 4 is equal to 2.

Ryota 2 + 1 + 1 = 4

What do we know about 4?

Julia - He has two hands and two legs which is 4.

Jowan - The number is 4.

Lara - 4 is even.

Aidan - 1 + 1 + 1 + 1 is 4.

Vera - 2 + 2 = 4

Ethan - 16 - 12 = 4

Ioanna - 4 + 0 = 4

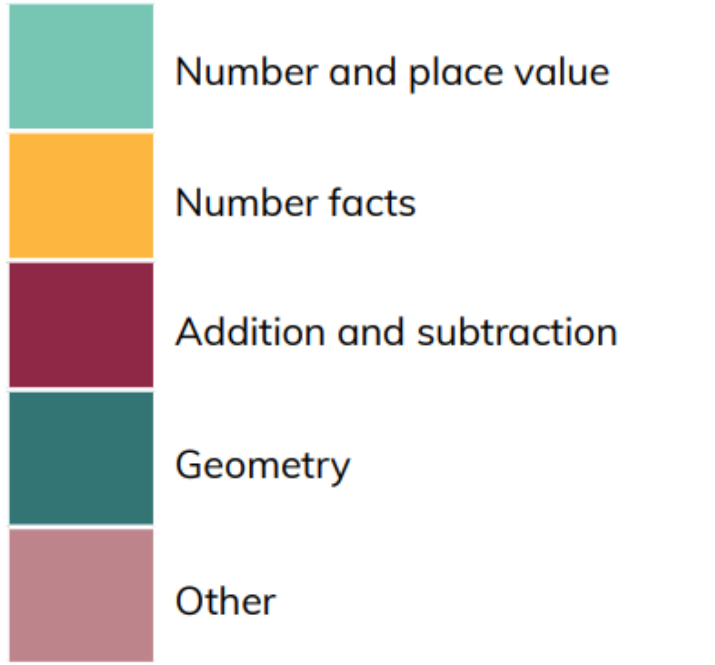
Pablo - one fewer than 5 is 4

Revisiting key concepts throughout our curriculum

FoxFederation

Year 1

	Unit	Unit name
Autumn 1	1	Previous Reception experiences and counting within 100
Autumn 2	2	Comparison of quantities and part–whole relationships
	3	Numbers 0 to 5
Spring 1	4	Recognise, compose, decompose and manipulate 2D and 3D shapes
	5	Numbers 0 to 10
Spring 2	6	Additive structures
	7	Addition and subtraction facts within 10
Summer 1	8	Numbers 0 to 20
Summer 2	9	Unitising and coin recognition
	10	Position and direction
	11	Time



Revisiting key concepts throughout our curriculum

FoxFederation

Year 2

	Unit	Unit name
Autumn 1	1	Numbers 10 to 100
	2	Calculations within 20
Autumn 2	3	Fluently add and subtract within 10
	4	Addition and subtraction of two-digit numbers (1)
Spring 1	5	Introduction to multiplication
	6	Introduction to division structures
Spring 2	7	Shape
	8	Addition and subtraction of two-digit numbers (2)
Summer 1	9	Money
	10	Fractions
	11	Time
	12	Position and direction
Summer 2	13	Multiplication and division – doubling, halving, quotitive and partitive division
	14	Sense of measure – capacity, volume, mass

- Number and place value
- Number facts
- Addition and subtraction
- Multiplication and division
- Geometry
- Other

How do we teach Maths at Fox?

FoxFederation

- 4/5 taught maths lessons per week
- Additional Mastering Number session x 3 per week (Fluency, number sense focus)

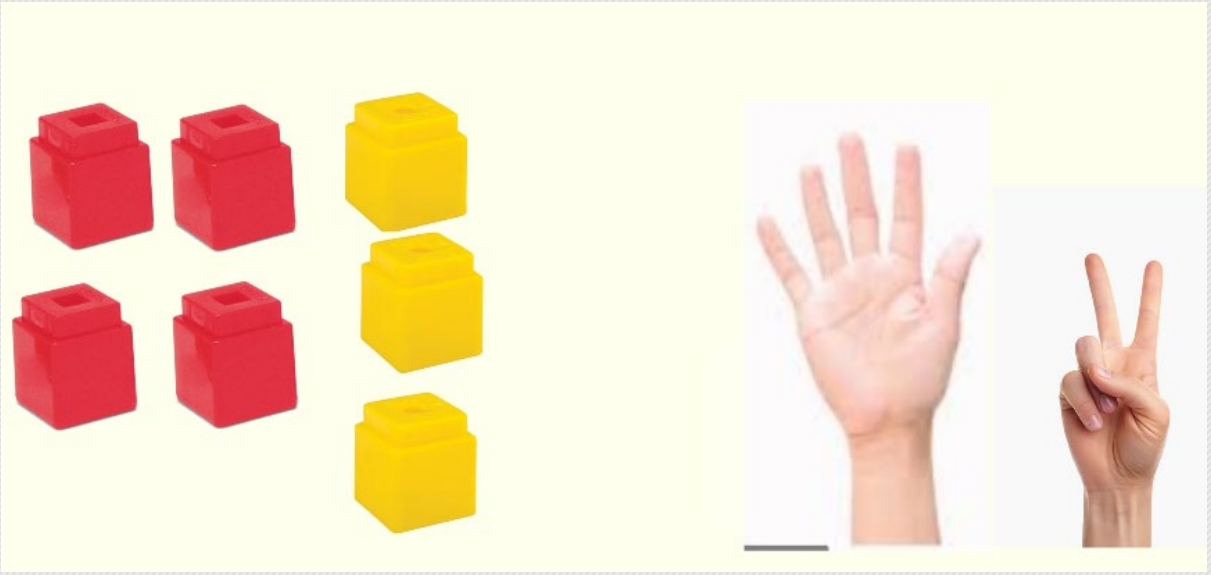
Concrete > Pictorial > Abstract

FoxFederation

If children play with mathematical objects before they are asked to solve problems with them, they are more successful and more creative.

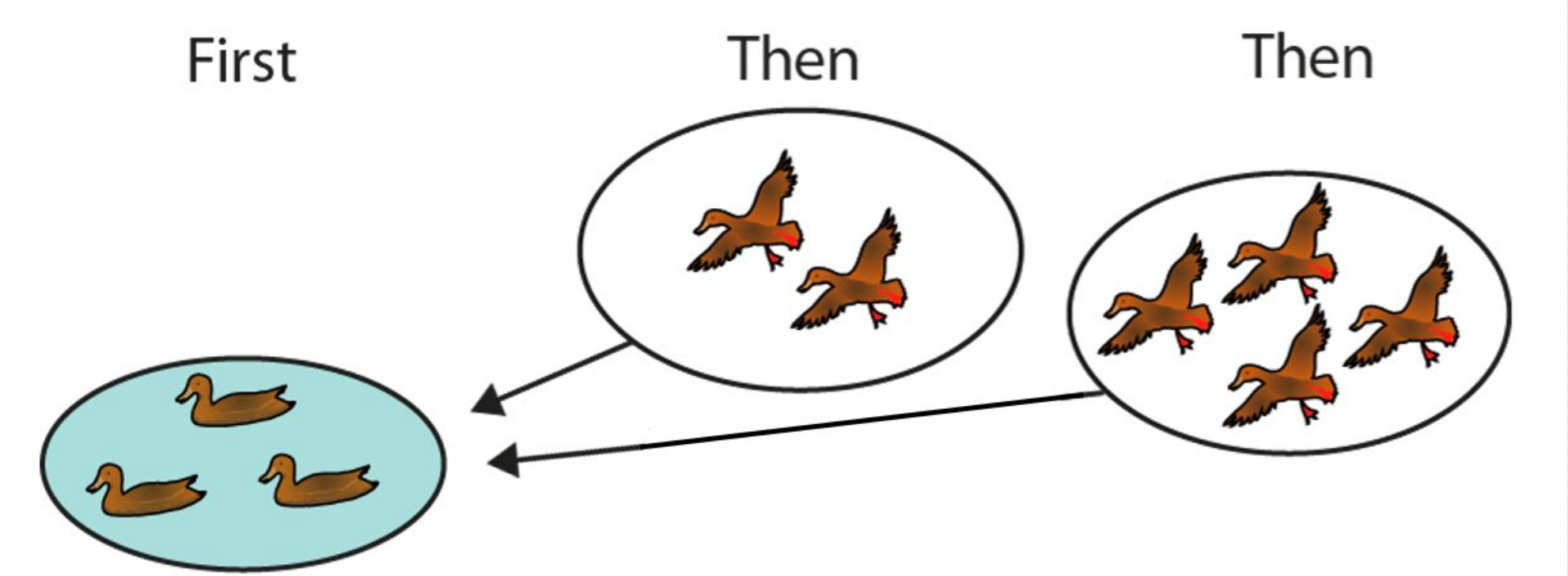
Representations – Concrete

FoxFederation



Pictorial

FoxFederation



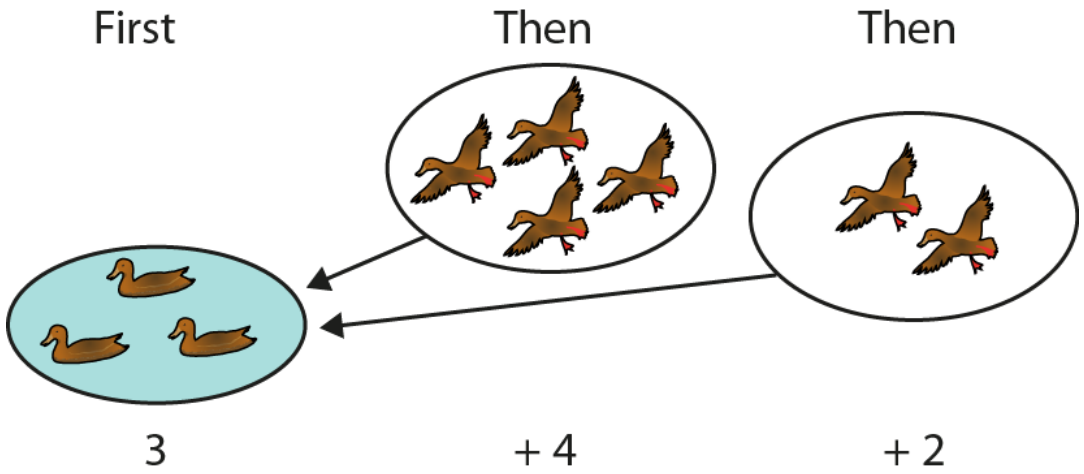
Abstract

FoxFederation

10-7= 3

1+1+1= 3

4 + 7 =



How do we teach maths?

FoxFederation

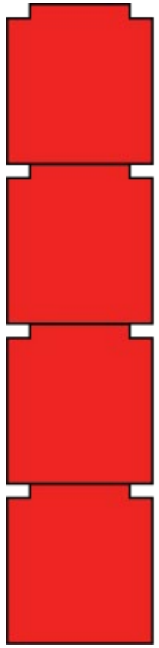
There is a great emphasis on speaking and listening

- Vocabulary
- Questioning
- Mathematical Vocabulary
- Reasoning and explanation
- Pushing the children to answer in full sentences with sentence scaffolds.

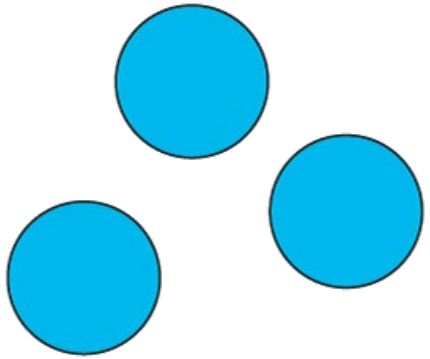
This is an essential part of children showing they have mastered a concept.

Can they explain their understanding.

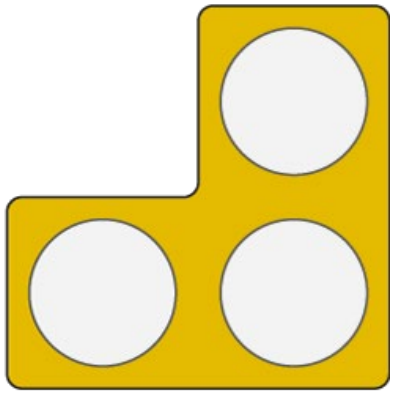
Which of these doesn't represent three?



4



3



3

Consolidating foundational skills

FoxFederation

Key stage 1 - consolidating key foundational skills

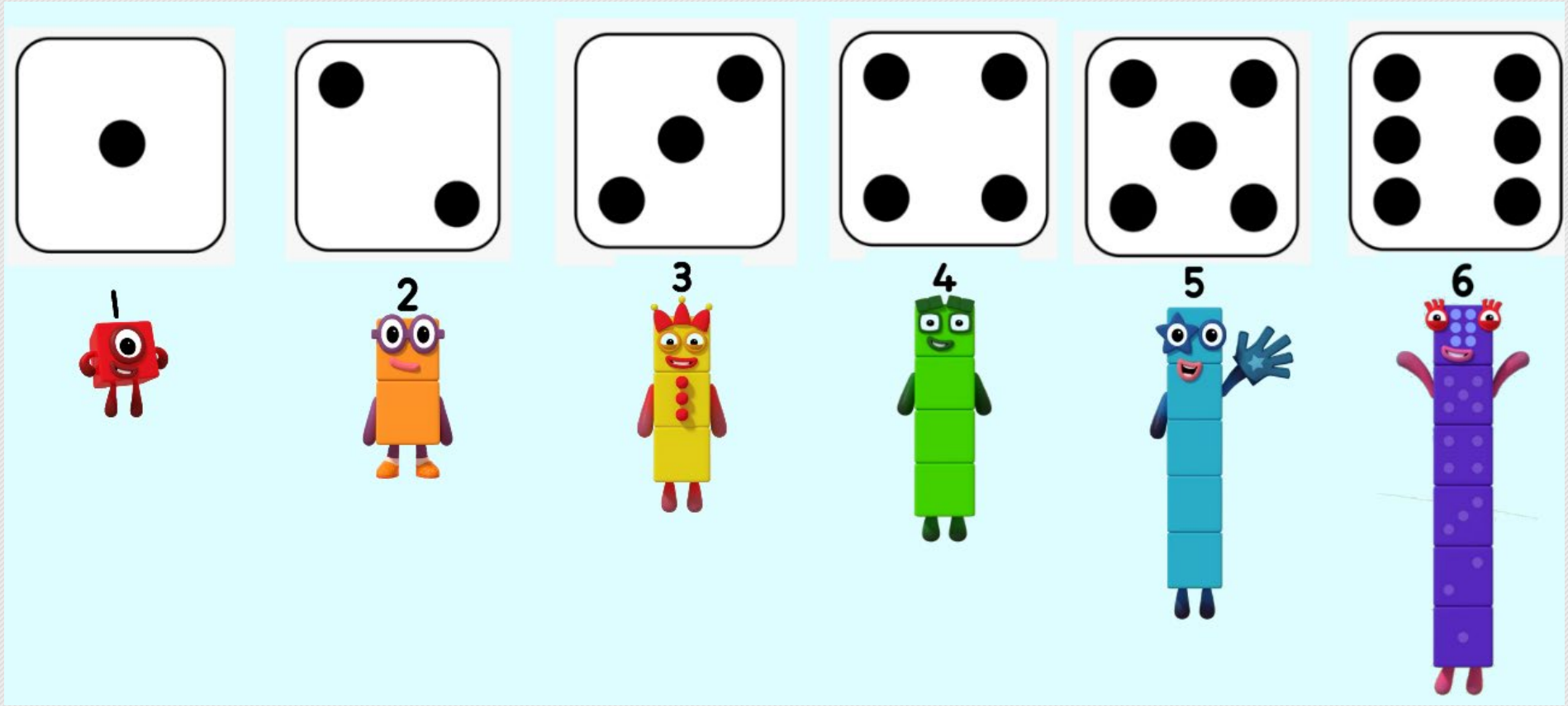
FoxFederation

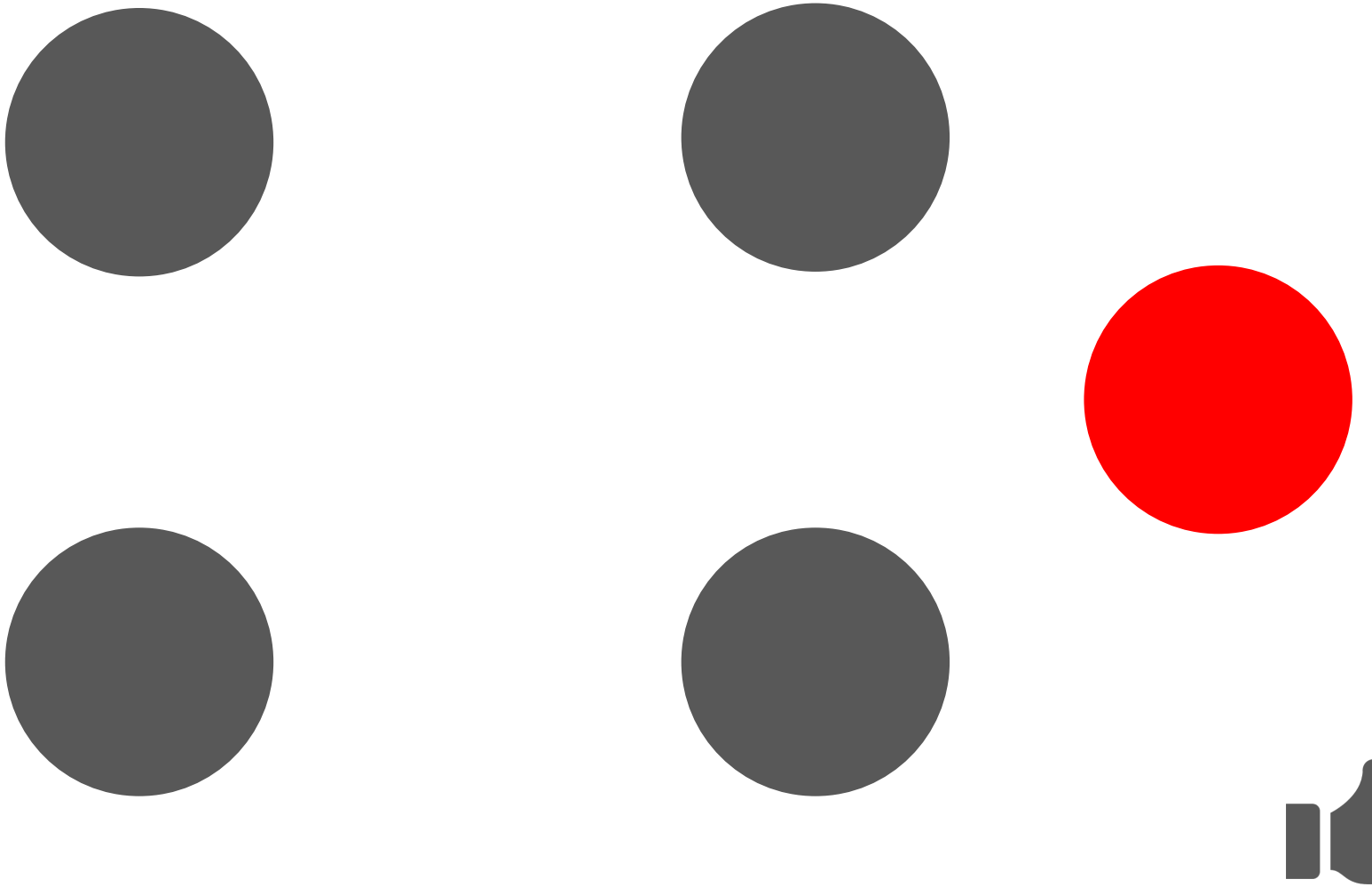
- Subitising
- Cardinality, ordinality and counting
- Composition
- Comparison

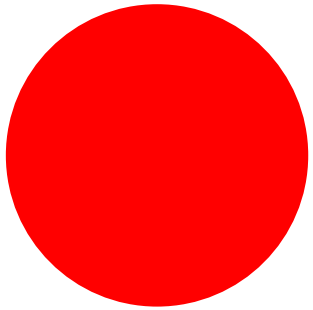
Subitising

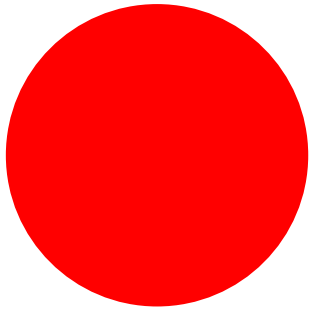
How many?
More/fewer/equal to
Altogether

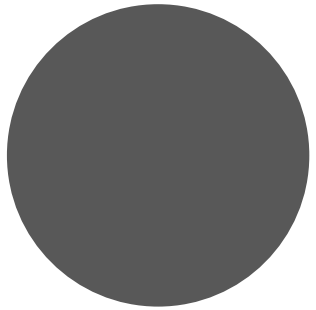
Same/different

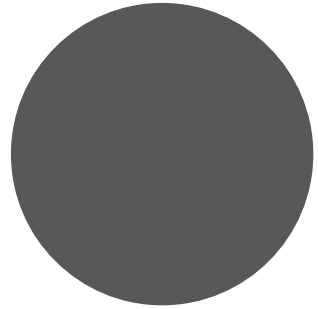


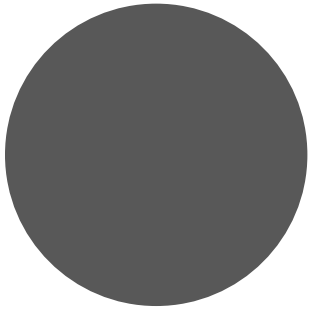


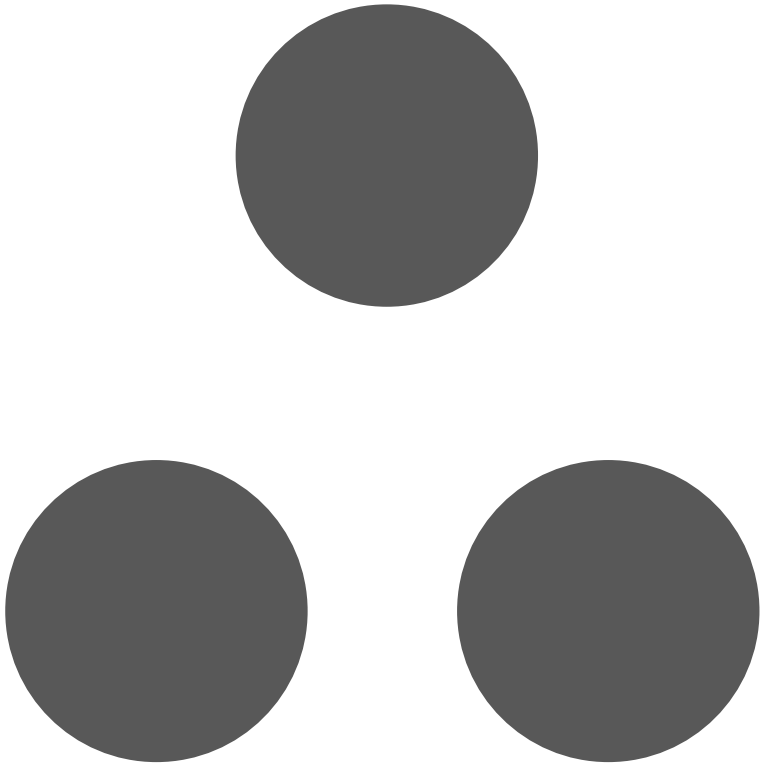


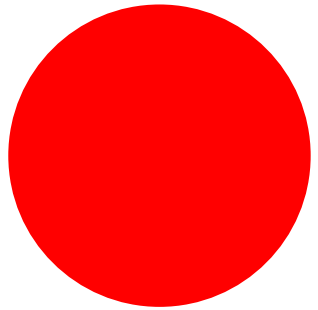




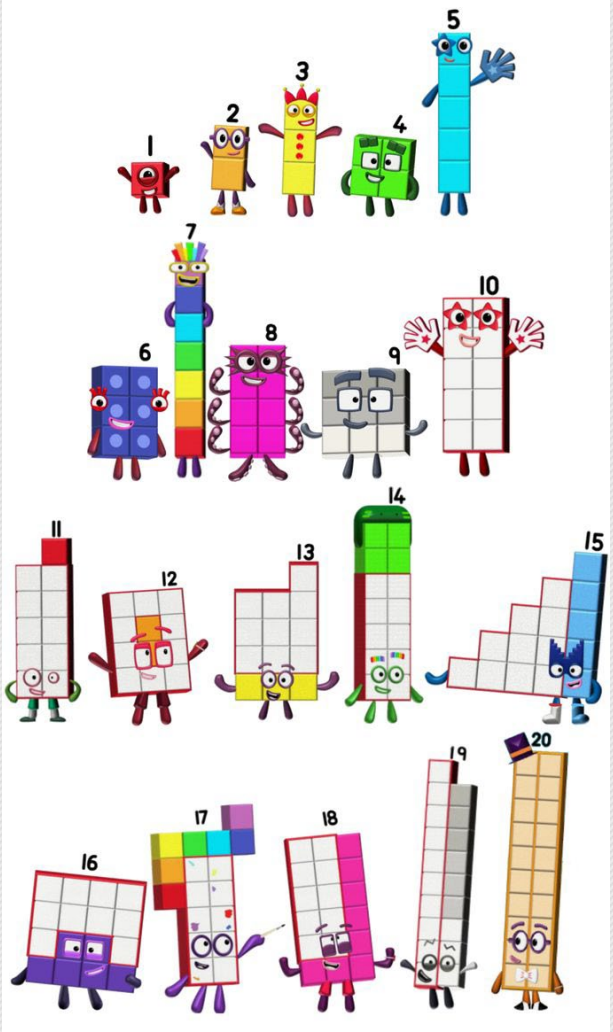


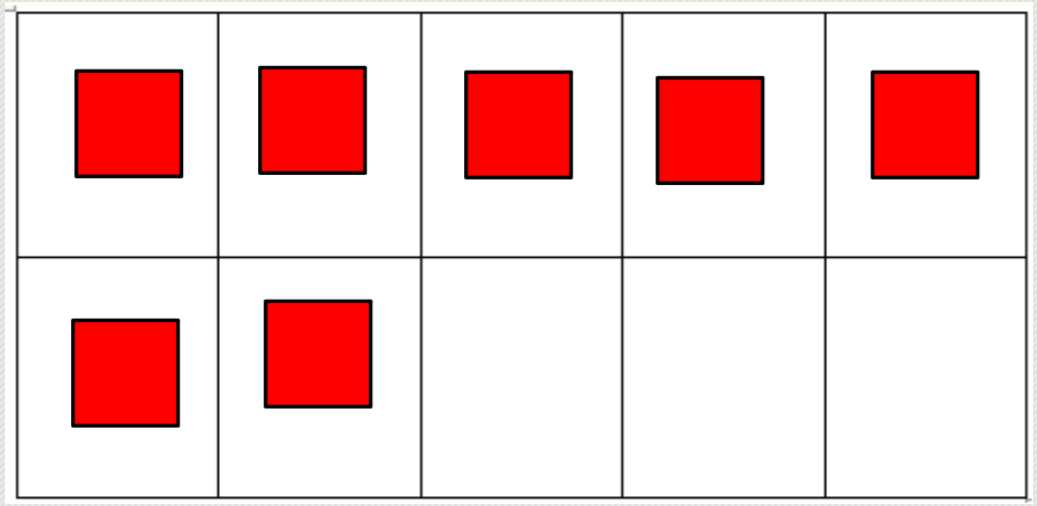






Cardinality, ordinality and counting

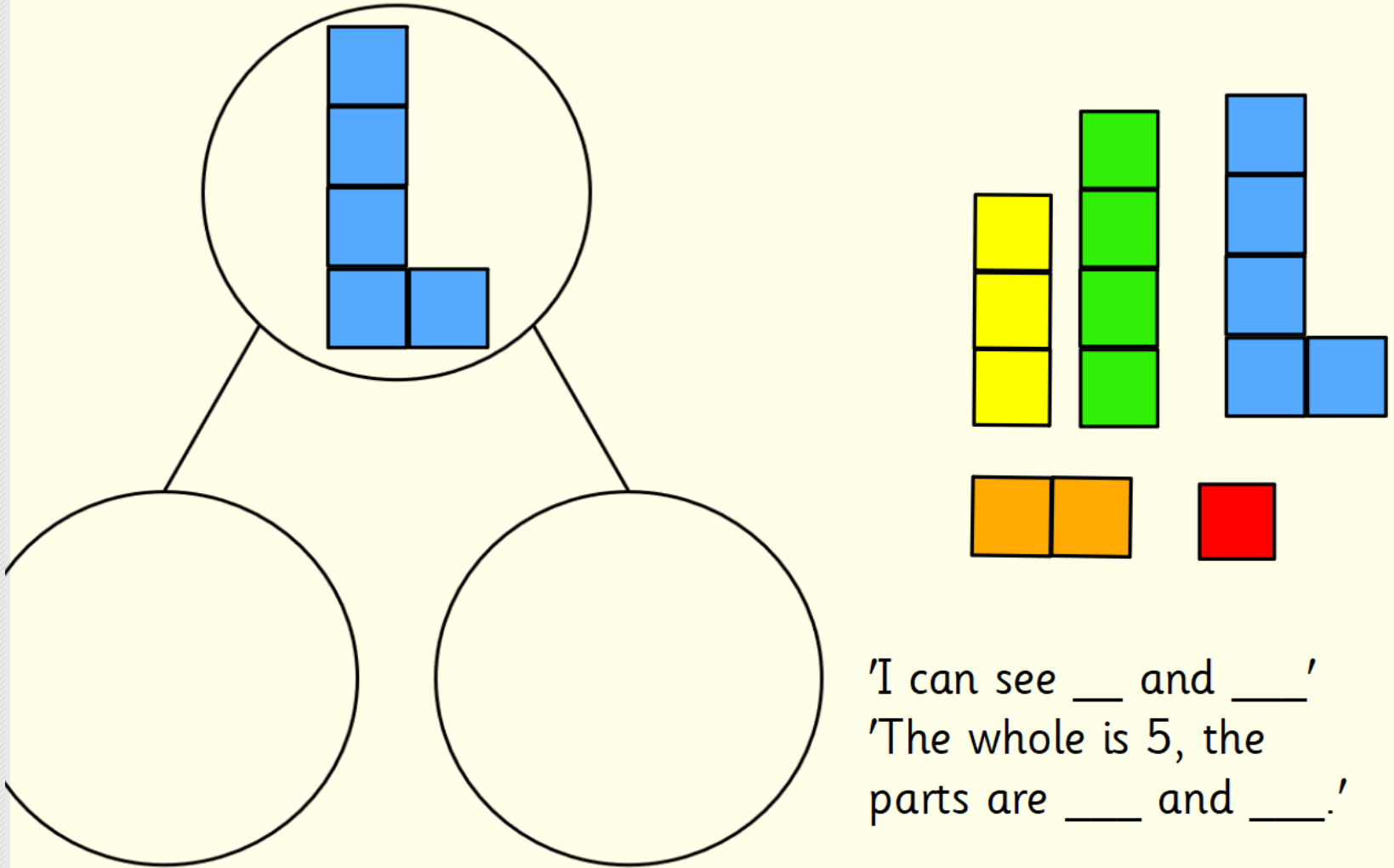




- Knowing the final number is the number of the total
- Counting in order, counting on, counting backwards
- 1:1 correspondence with objects
- Recognising numerals

Composition

What numberblocks can you see inside number 5?



'I can see __ and ___'
'The whole is 5, the parts are ___ and ___.'

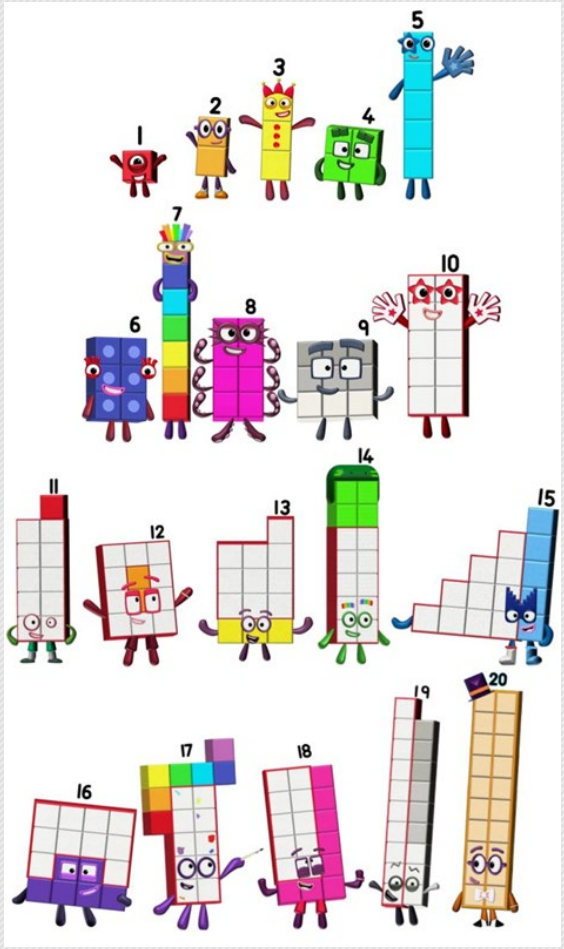
Add
Plus
Addition
Minus
Subtract
Take away
Subtraction

Part part whole
Equation
Is equal to

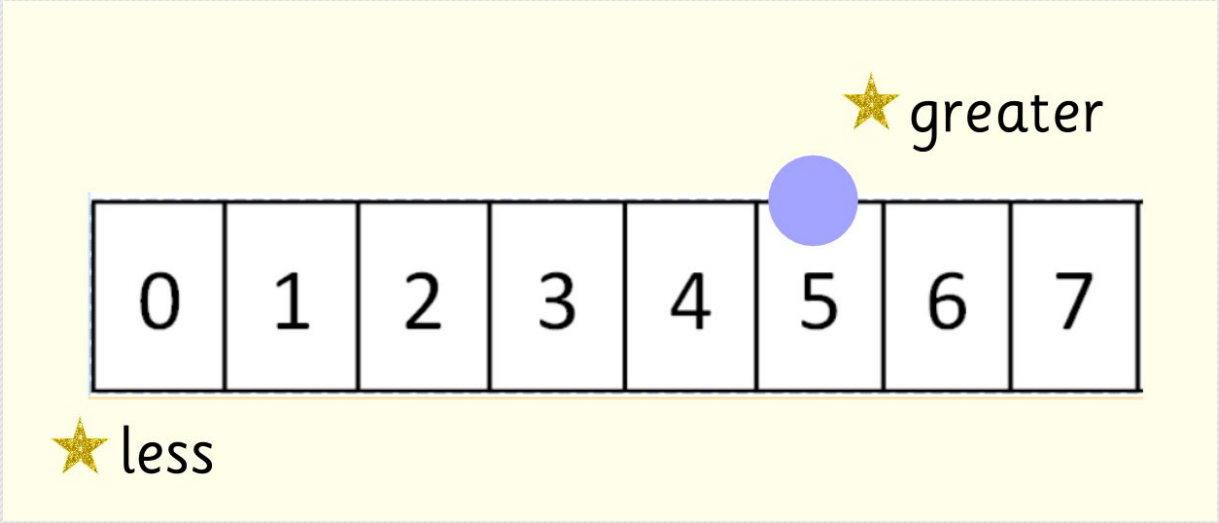
Comparison

FoxFederation

- More and fewer



- Greater and less



Fluency - Key strategies

FoxFederation

How do we teach maths?

FoxFederation

Fluency forms a key part of our teaching…but fluency is not just about speed.

It is about being **efficient, flexible and accurate.**

Mastery of number bonds is a key focus of Key Stage 1.

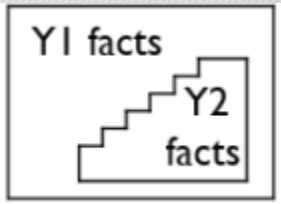
+	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18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

- Memorising facts
- Using and applying these facts.
- Making patterns and connections.
- Understanding mathematical laws.

How do we teach maths?

FoxFederation

Adding 1	Bonds to 10	Adding 10	Bridging/ compensating
Adding 2	Adding 0	Doubles	Near doubles



+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 +	4 + 6	4 + 7	4 + 8	4 + 9	4 + 10
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5	5 + 6	5 + 7	5 + 8	5 + 9	5 + 10
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4	6 + 5	6 + 6	6 + 7	6 + 8	6 + 9	6 + 10
7	7 + 0	7 + 1	7 + 2	7 + 3	7 + 4	7 + 5	7 + 6	7 + 7	7 + 8	7 + 9	7 + 10
8	8 + 0	8 + 1	8 + 2	8 + 3	8 + 4	8 + 5	8 + 6	8 + 7	8 + 8	8+ 9	8 + 10
9	9 + 0	9 + 1	9 + 2	9 + 3	9 + 4	9 + 5	9 + 6	9 + 7	9 + 8	9 + 9	9 + 10
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10

How do we teach maths?

FoxFederation

Key strategies in Year 1

- Counting forward and backwards within 100
- Adding 1 (e.g. 7 + 1 and 1 + 7)
- Doubles
- Adding 2 (e.g. 4 + 2 and 2 + 4)
- Number bonds to 10 (e.g. 8 + 2 and 2 + 8(Questioning
- Adding 10 to a number (e.g. 5 + 10 and 10 + 5)
- Adding 0 to a number (e.g. 3 + 0 and 0 + 3)
- The ones without families: 5 + 3, 3 + 5, 6 + 3, 3 + 6)

How do we teach maths?

FoxFederation

Key strategies in Year 2

Focus more on knowing or deriving facts

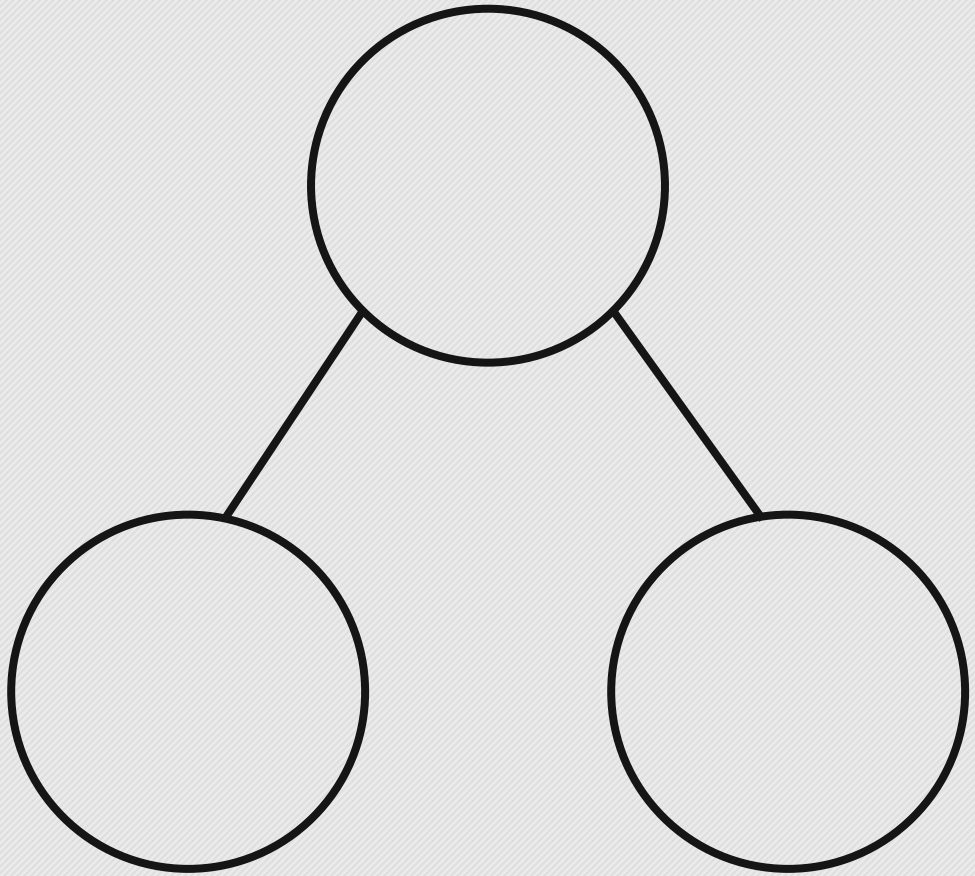
- Doubles: 7 + 7
- Near doubles: 8 + 9 = 8 + 8 + 1
- Bridging: 8 + 9 = 8 + 2 + 7
- Compensation: 8 + 9 = 7 + 10
- Skip counting in 2s, 5s, 10s

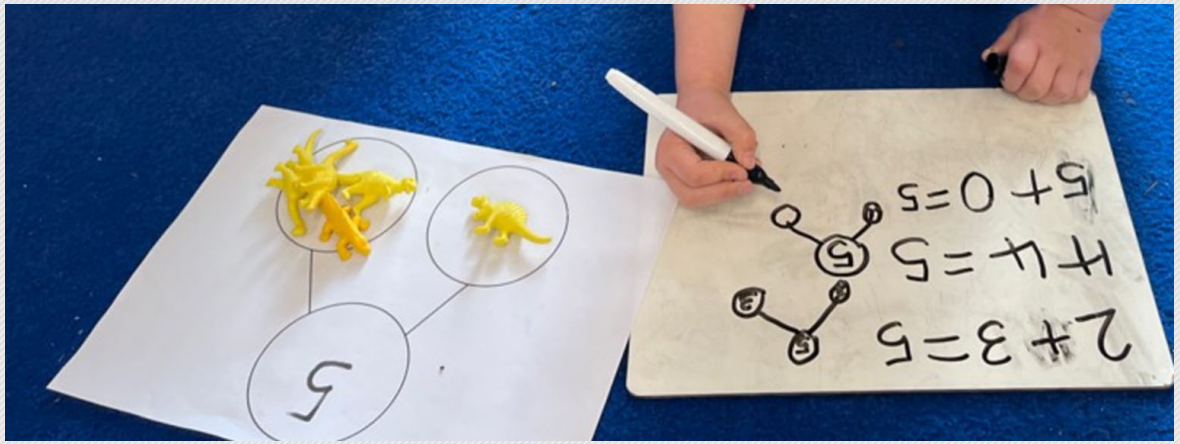
Key representations

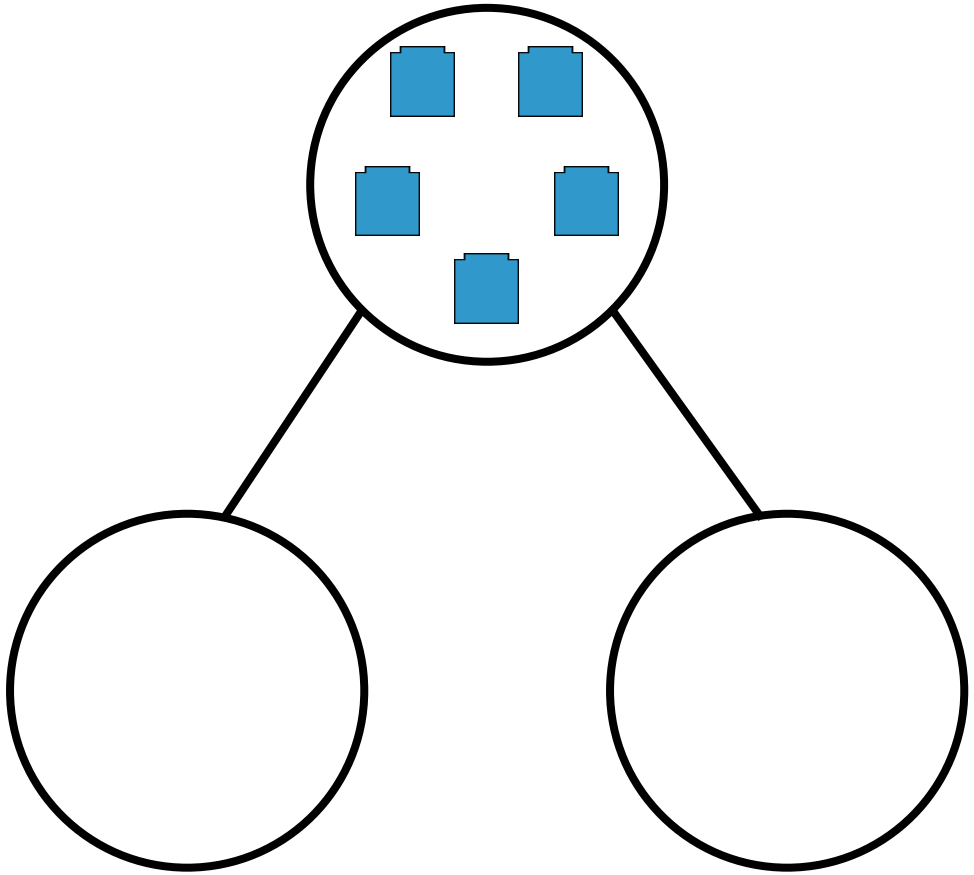
FoxFederation

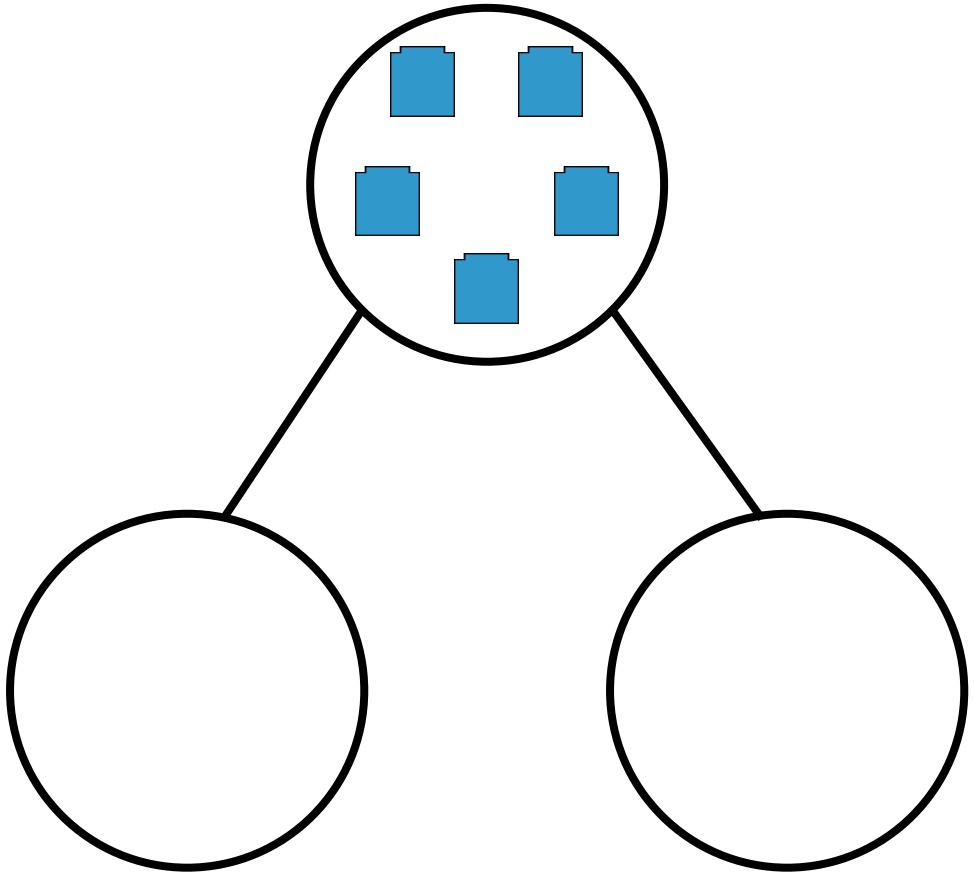
Part-part-whole model

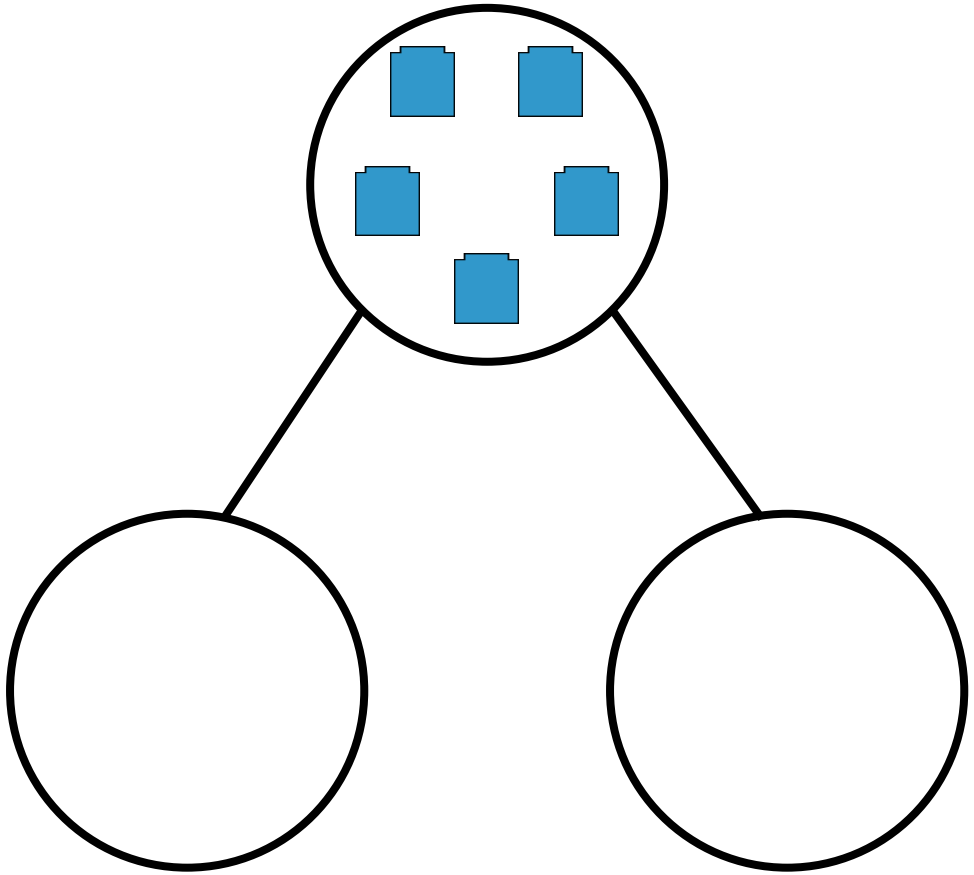
FoxFederation

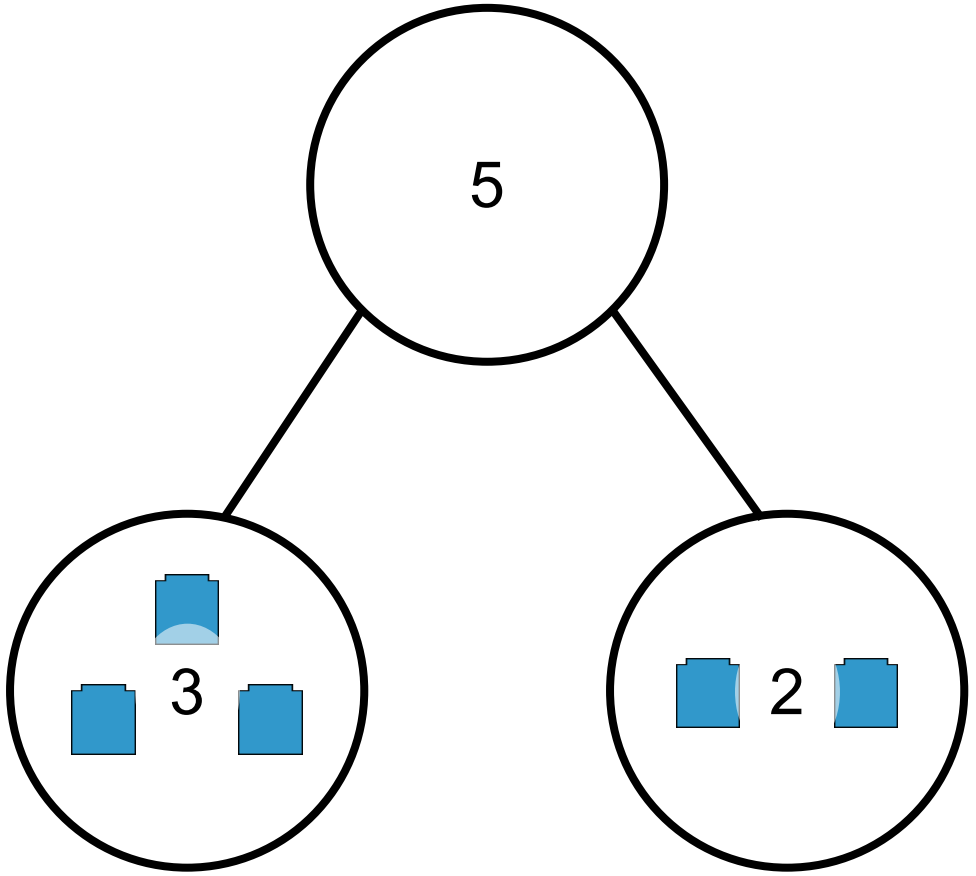


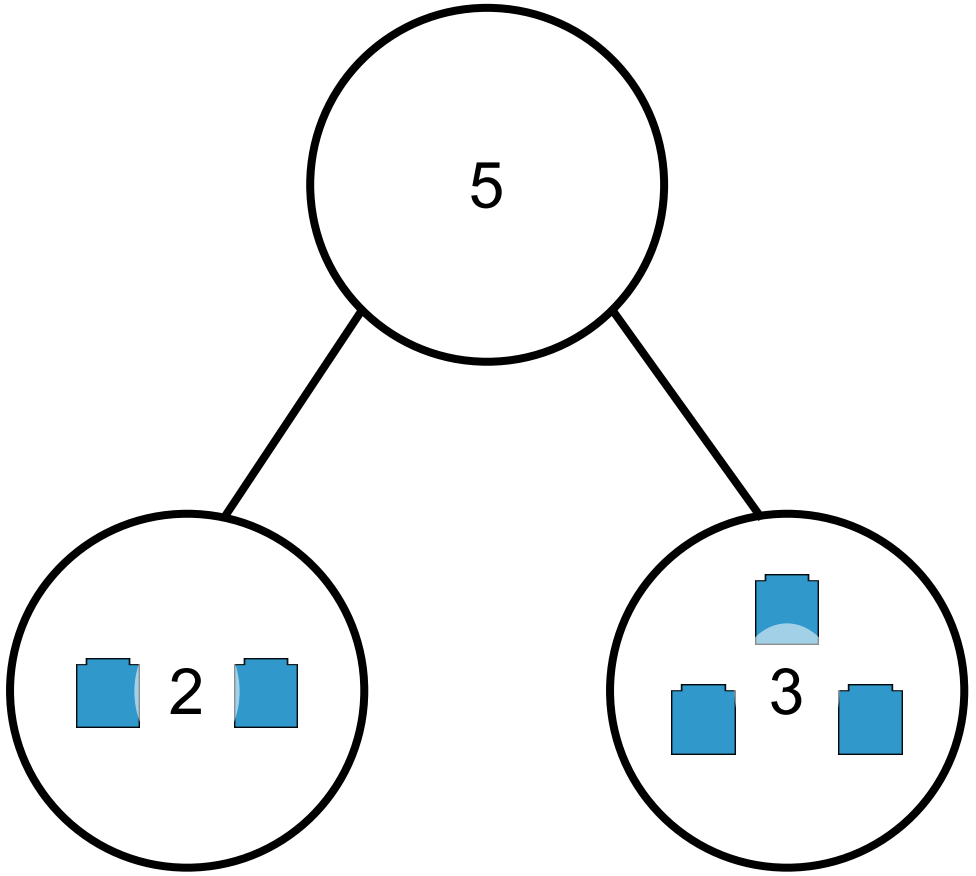


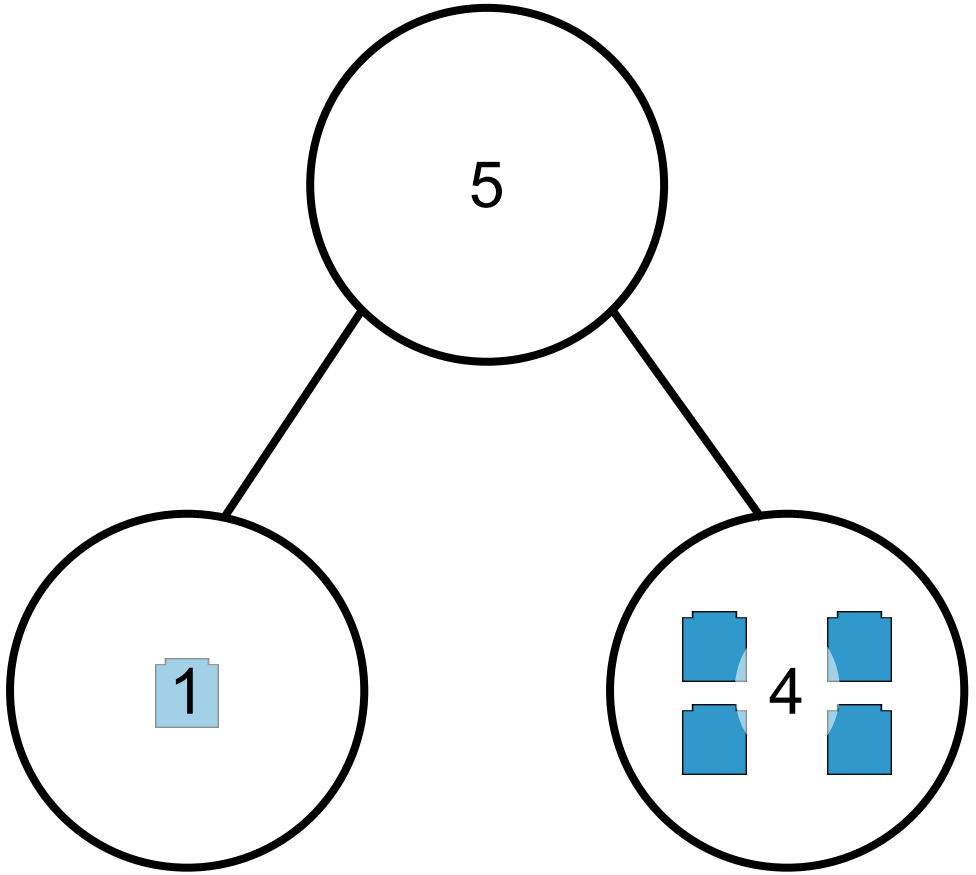


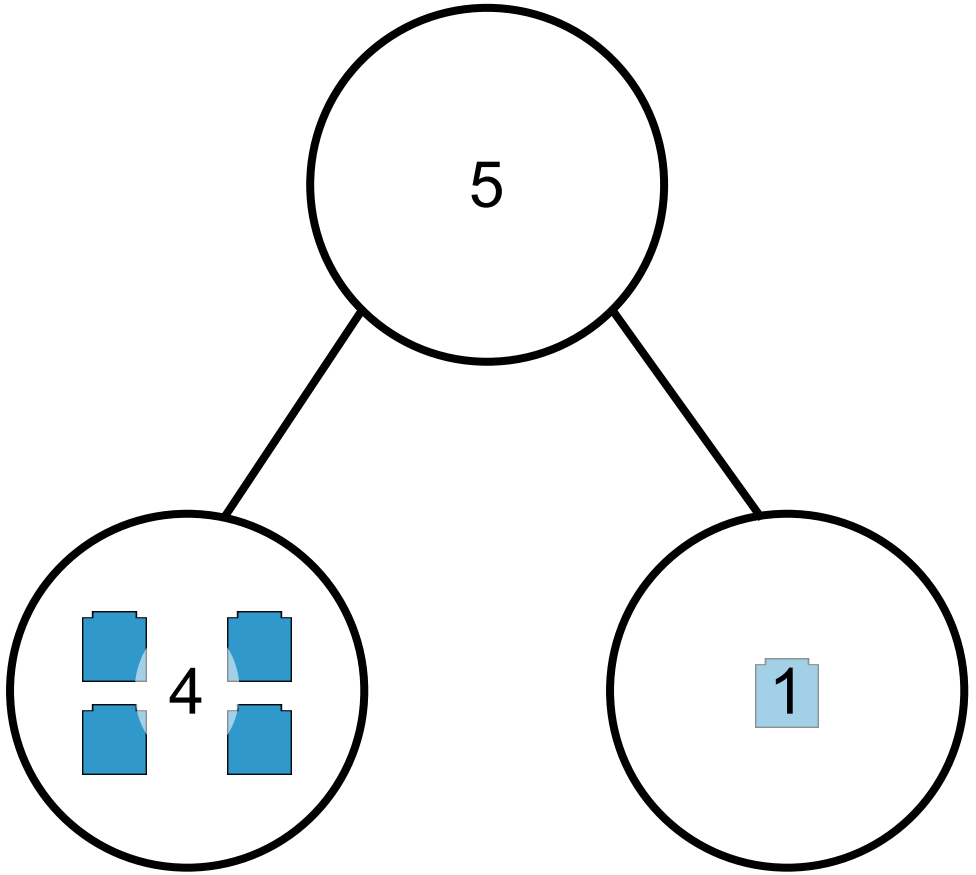


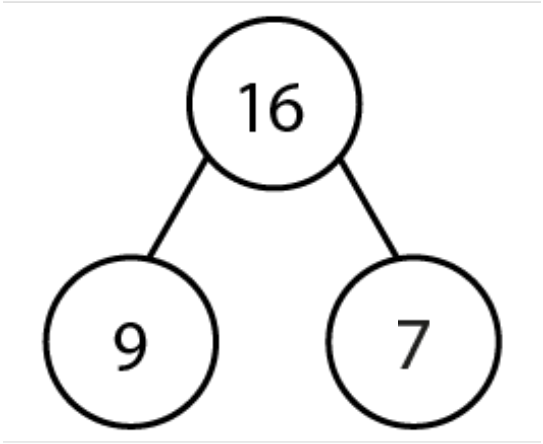






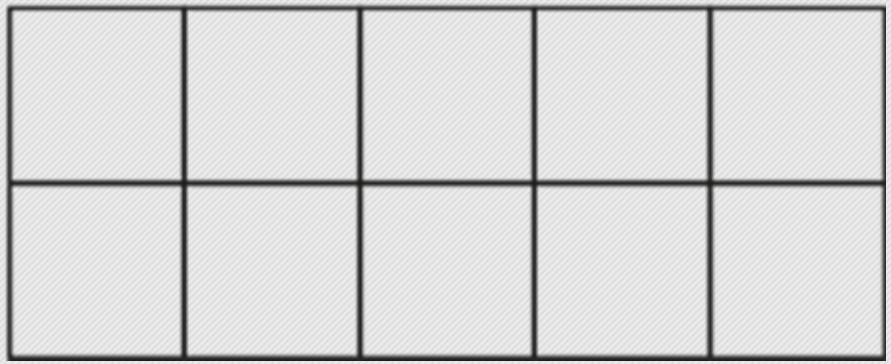


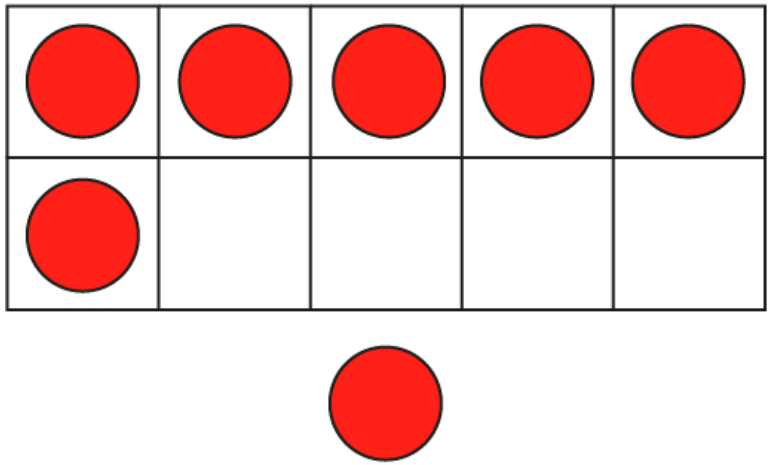




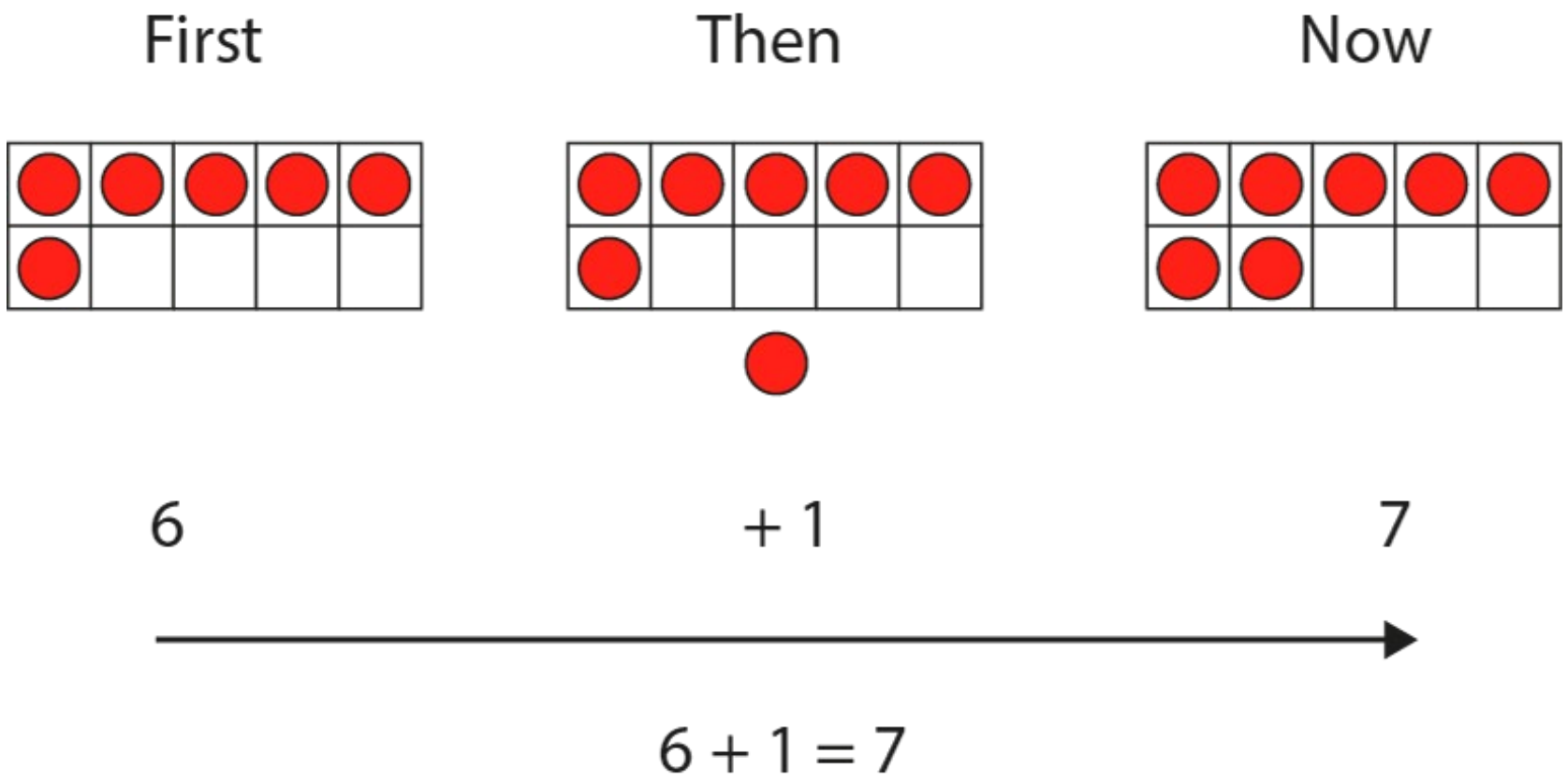
Tens frame

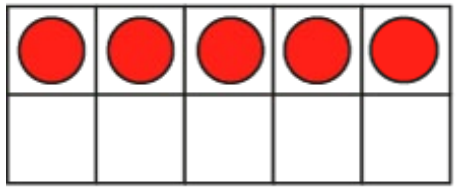
FoxFederation



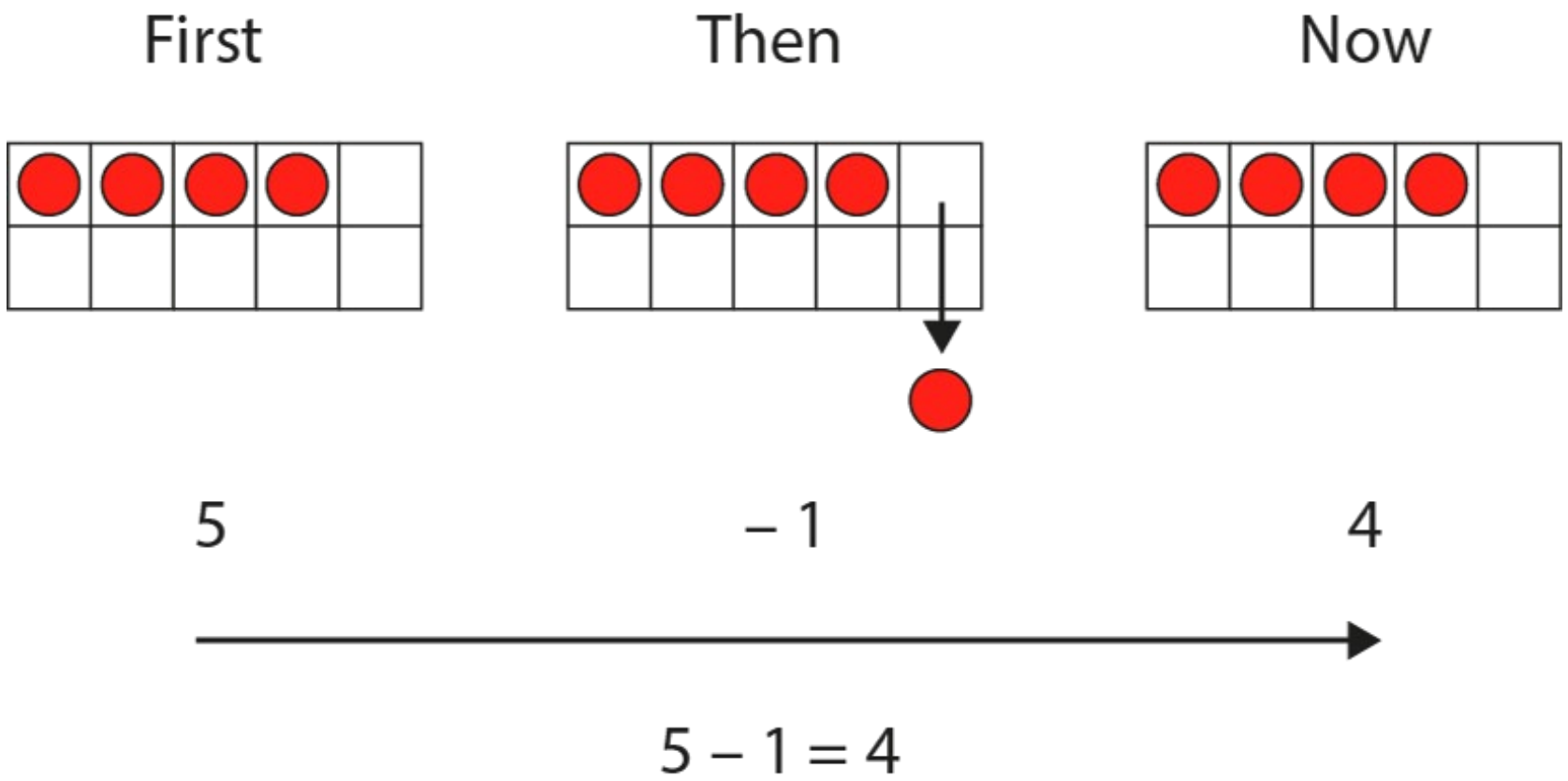


$6 + 1 = 7$

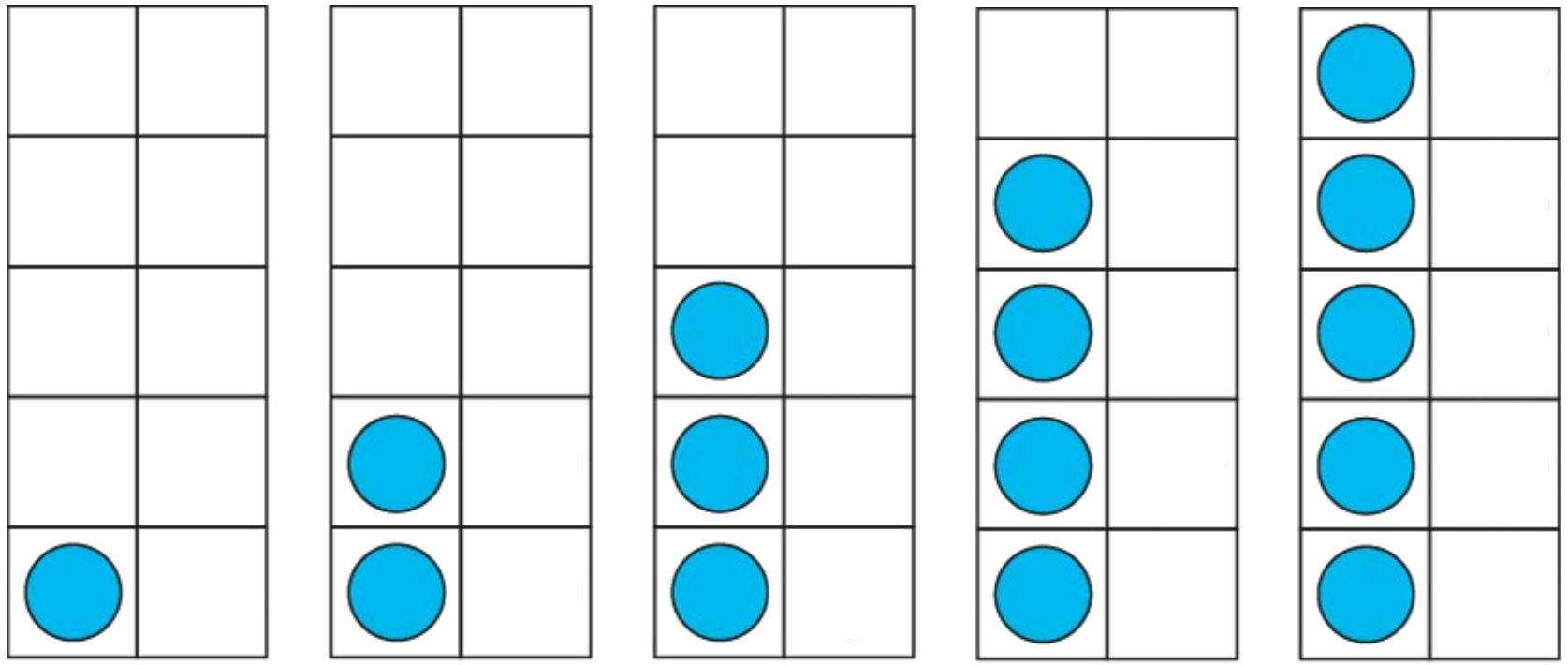




$5 - 1 = 4$



Doubles



1 + 1 = 2

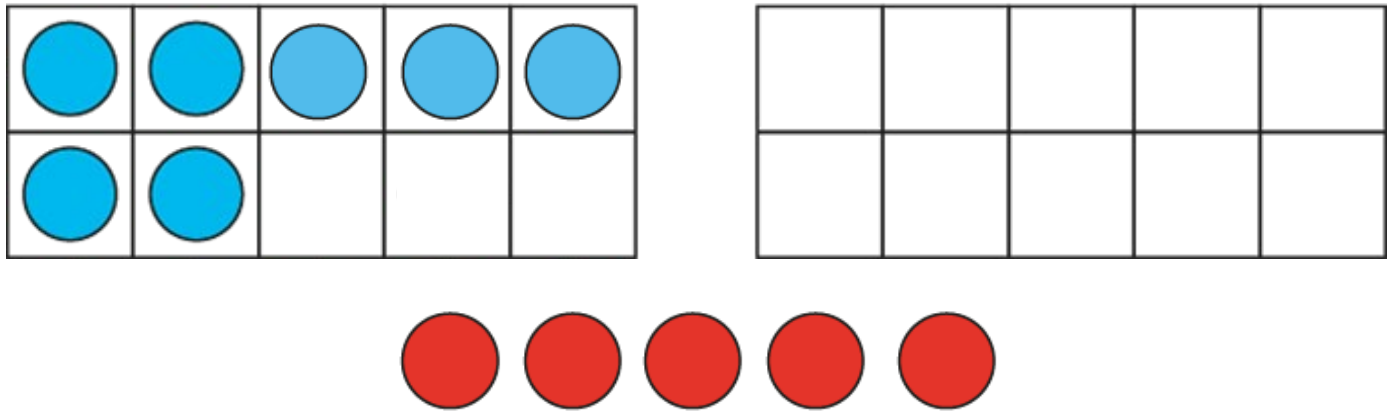
2 + 2 = 4

3 + 3 = 6

4 + 4 = 8

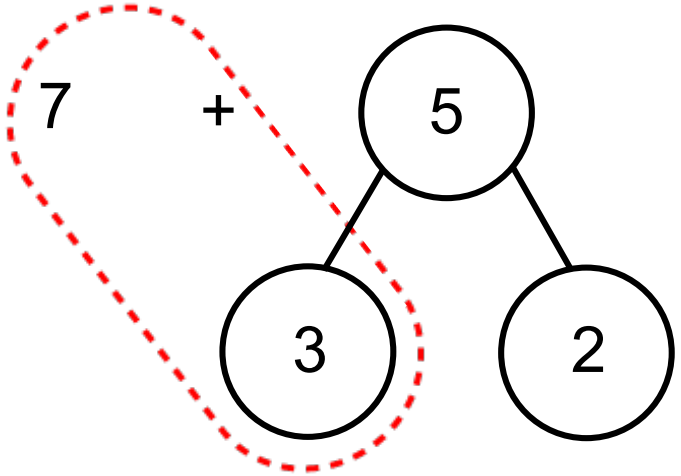
5 + 5 = 10

Bridging 10



$$7 + 5 = 7 + 3 + 2 = 10 + 2$$

Bridging 10

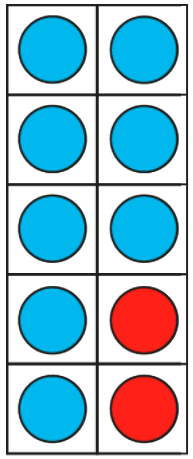


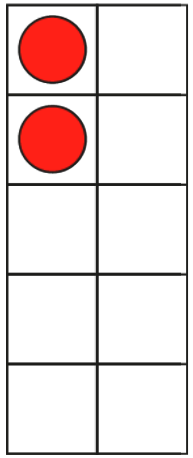
7 + 3 = 10

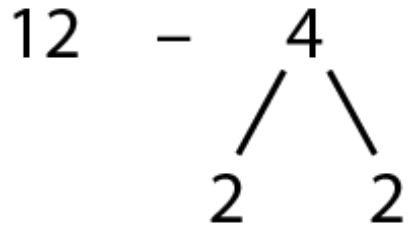
10 + 2 = 12

Bridging 10

$$12 - 4 = 8$$



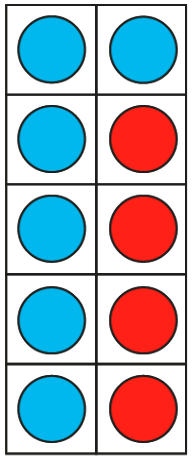


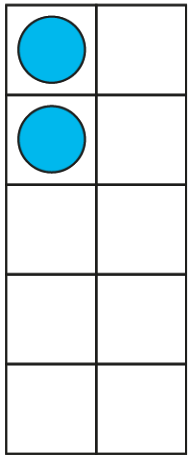


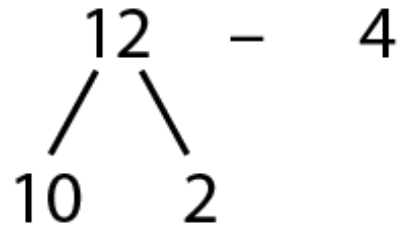
$12 - 2 = 10$

$10 - 2 = 8$

$12 - 4 = 8$







$10 - 4 = 6$

$6 + 2 = 8$

$12 - 4 = 8$

Supporting at home

FoxFederation

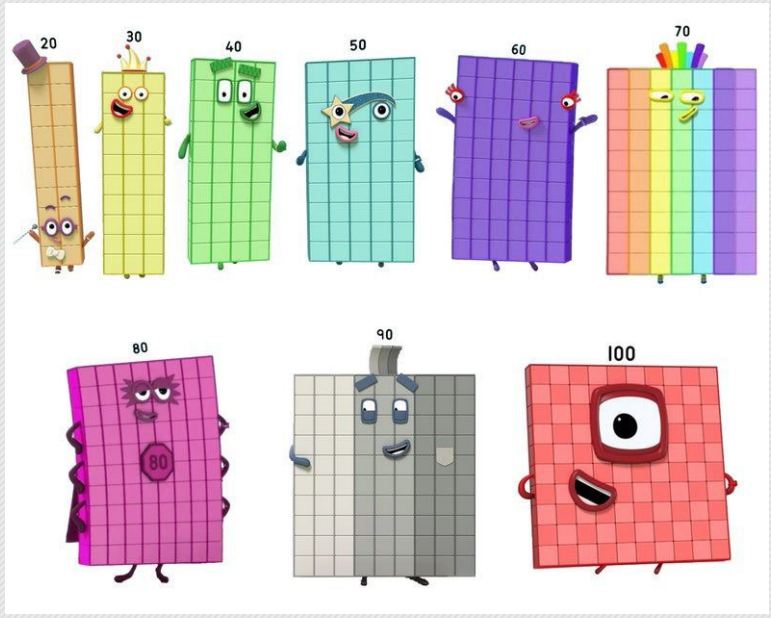
How can you support fluency at home?

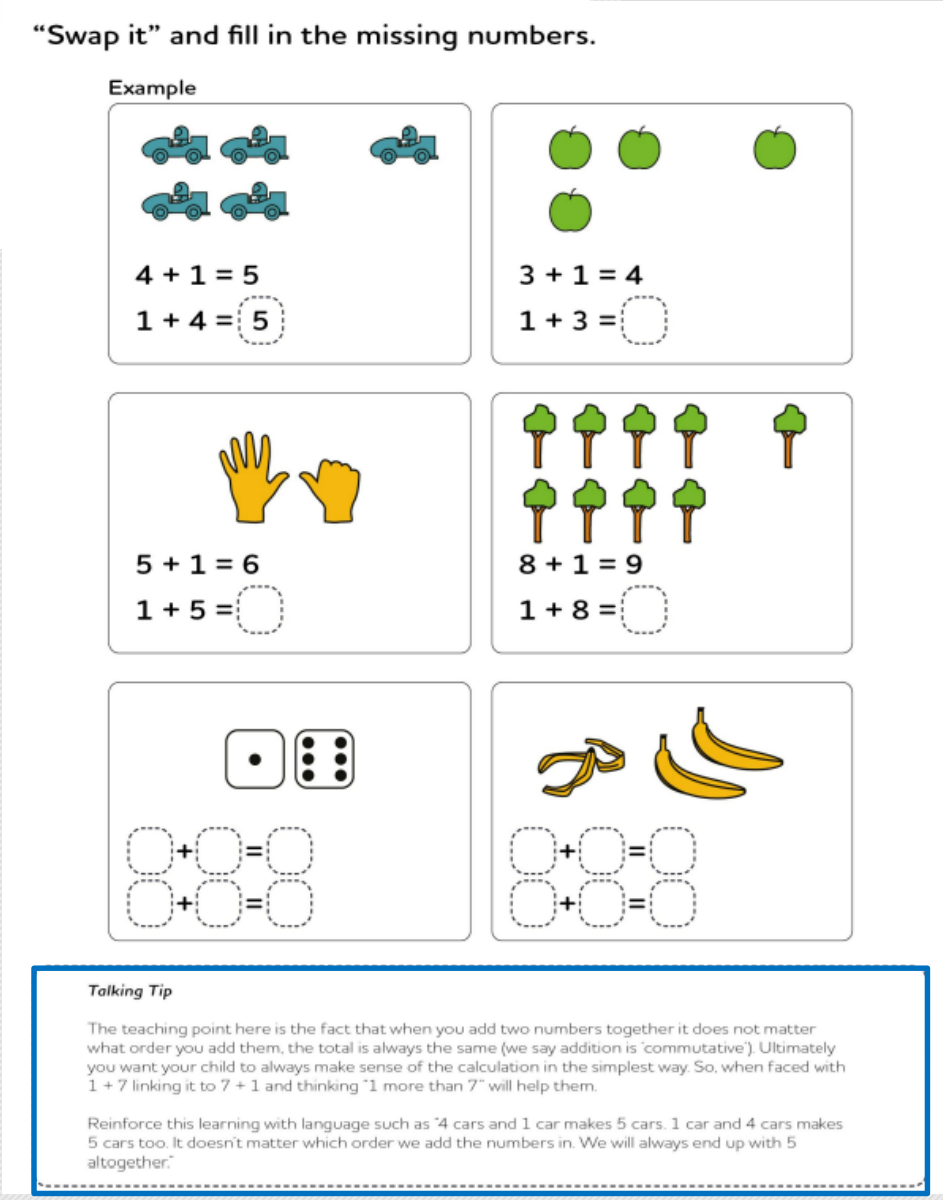
FoxFederation

Lots of practise at home!

Number Sense Maths

Short and regular (5 - 10 minutes per day)




"Swap it" and fill in the missing numbers.

Example

4 + 1 = 5

1 + 4 = 5

3 + 1 = 4

1 + 3 =

5 + 1 = 6

1 + 5 =

8 + 1 = 9

1 + 8 =

Talking Tip

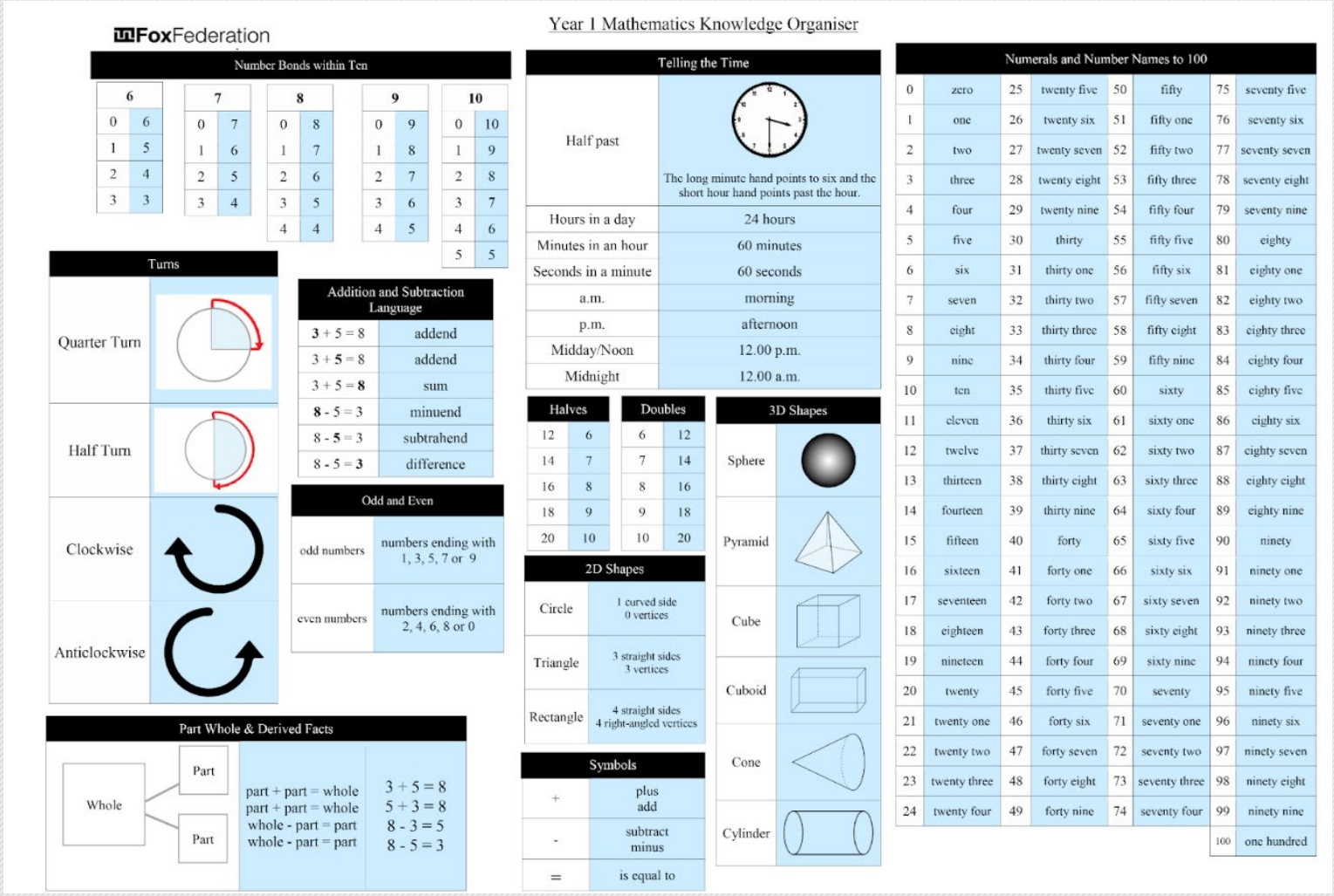
The teaching point here is the fact that when you add two numbers together it does not matter what order you add them, the total is always the same (we say addition is 'commutative'). Ultimately you want your child to always make sense of the calculation in the simplest way. So, when faced with 1 + 7 linking it to 7 + 1 and thinking "1 more than 7" will help them.

Reinforce this learning with language such as "4 cars and 1 car makes 5 cars. 1 car and 4 cars makes 5 cars too. It doesn't matter which order we add the numbers in. We will always end up with 5 altogether."

How can you support at home?

FoxFederation

Curriculum > Knowledge organisers



FoxFederation

Year 1 Mathematics Knowledge Organiser

Number Bonds within Ten

6	
0	6
1	5
2	4
3	3

7	
0	7
1	6
2	5
3	4

8	
0	8
1	7
2	6
3	5
4	4

9	
0	9
1	8
2	7
3	6
4	5

10	
0	10
1	9
2	8
3	7
4	6
5	5

Telling the Time

Half past	The long minute hand points to six and the short hour hand points past the hour.
Hours in a day	24 hours
Minutes in an hour	60 minutes
Seconds in a minute	60 seconds
a.m.	morning
p.m.	afternoon
Midday/Noon	12.00 p.m.
Midnight	12.00 a.m.

Numerals and Number Names to 100

0	zero	25	twenty five	50	fifty	75	seventy five
1	one	26	twenty six	51	fifty one	76	seventy six
2	two	27	twenty seven	52	fifty two	77	seventy seven
3	three	28	twenty eight	53	fifty three	78	seventy eight
4	four	29	twenty nine	54	fifty four	79	seventy nine
5	five	30	thirty	55	fifty five	80	eighty
6	six	31	thirty one	56	fifty six	81	eighty one
7	seven	32	thirty two	57	fifty seven	82	eighty two
8	eight	33	thirty three	58	fifty eight	83	eighty three
9	nine	34	thirty four	59	fifty nine	84	eighty four
10	ten	35	thirty five	60	sixty	85	eighty five
11	eleven	36	thirty six	61	sixty one	86	eighty six
12	twelve	37	thirty seven	62	sixty two	87	eighty seven
13	thirteen	38	thirty eight	63	sixty three	88	eighty eight
14	fourteen	39	thirty nine	64	sixty four	89	eighty nine
15	fifteen	40	forty	65	sixty five	90	ninety
16	sixteen	41	forty one	66	sixty six	91	ninety one
17	seventeen	42	forty two	67	sixty seven	92	ninety two
18	eighteen	43	forty three	68	sixty eight	93	ninety three
19	nineteen	44	forty four	69	sixty nine	94	ninety four
20	twenty	45	forty five	70	seventy	95	ninety five
21	twenty one	46	forty six	71	seventy one	96	ninety six
22	twenty two	47	forty seven	72	seventy two	97	ninety seven
23	twenty three	48	forty eight	73	seventy three	98	ninety eight
24	twenty four	49	forty nine	74	seventy four	99	ninety nine
						100	one hundred

Turns

Quarter Turn	
Half Turn	
Clockwise	
Anticlockwise	

Addition and Subtraction Language

3 + 5 = 8	addend
3 + **5** = 8	addend
3 + 5 = **8**	sum
8 - 5 = 3	minuend
8 - **5** = 3	subtrahend
8 - 5 = **3**	difference

Odd and Even

odd numbers	numbers ending with 1, 3, 5, 7 or 9
even numbers	numbers ending with 2, 4, 6, 8 or 0

Halves

12	6
14	7
16	8
18	9
20	10

Doubles

6	12
7	14
8	16
9	18
10	20

3D Shapes

Sphere	
Pyramid	
Cube	
Cuboid	
Cone	
Cylinder	

2D Shapes

Circle	1 curved side 0 vertices
Triangle	3 straight sides 3 vertices
Rectangle	4 straight sides 4 right-angled vertices

Part Whole & Derived Facts

part + part = whole	3 + 5 = 8
part + part = whole	5 + 3 = 8
whole - part = part	8 - 3 = 5
whole - part = part	8 - 5 = 3

Symbols

+	plus add
-	subtract minus
=	is equal to

How can you support at home?

FoxFederation

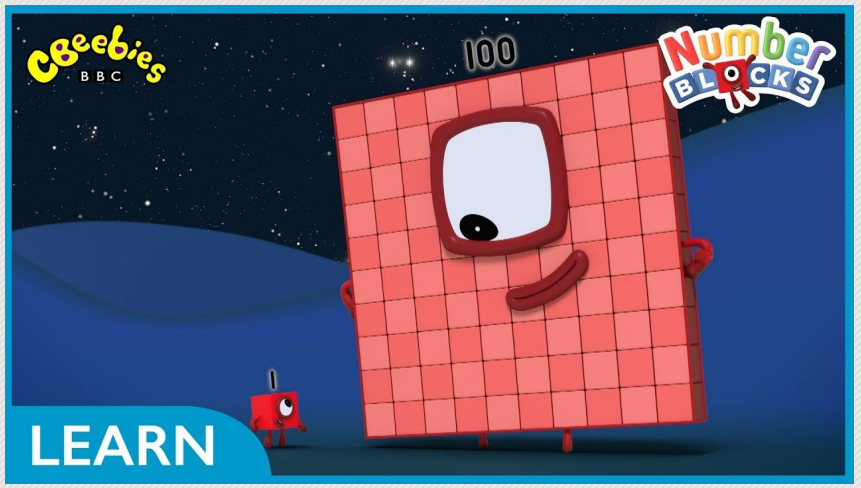
Supporting maths at home

Useful online resources:

- Numberblocks - BBC iPlayer
- Sumdog
- Nrich Maths - Can locate challenges appropriate for 3-7 years https://nrich.maths.org/8937
- Top Marks Maths Games - https://www.topmarks.co.uk/Search.aspx?Subject=16

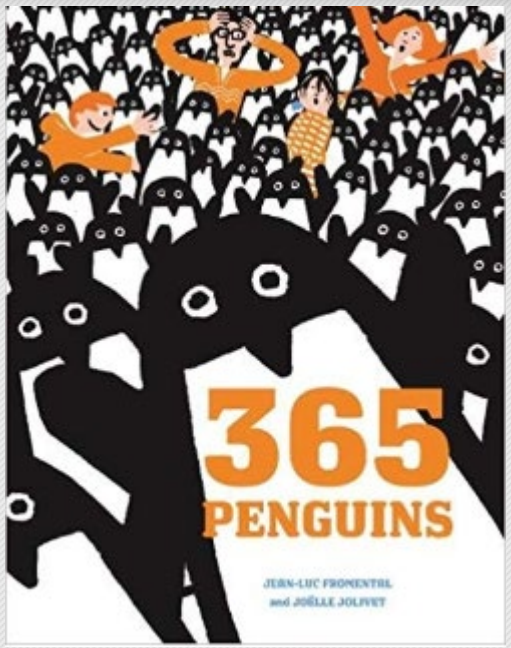
Suggested games and resources:

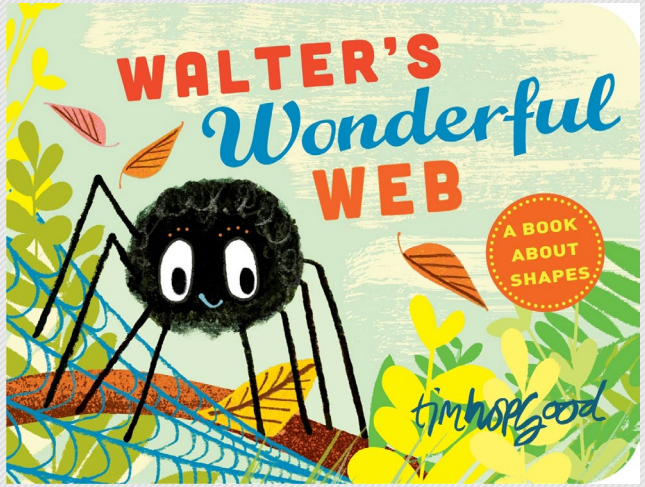
- Orchard learning games
- Numberblocks resources (available from Learning Resources - https://www.learningresources.co.uk/)
- Any boardgame game including numbers or counting - snakes and ladders, hungry hippos, Ravensburger children's board games
- Uno (used for number bonds)

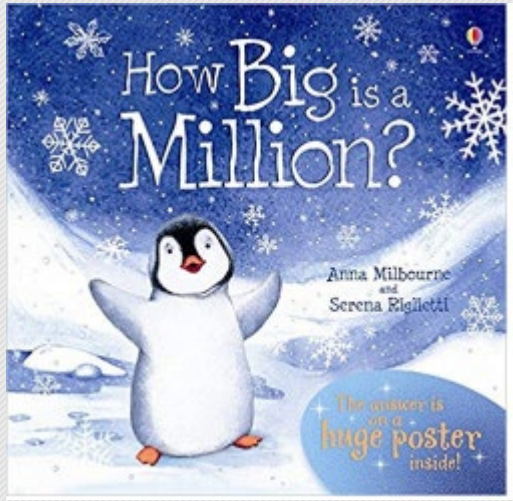


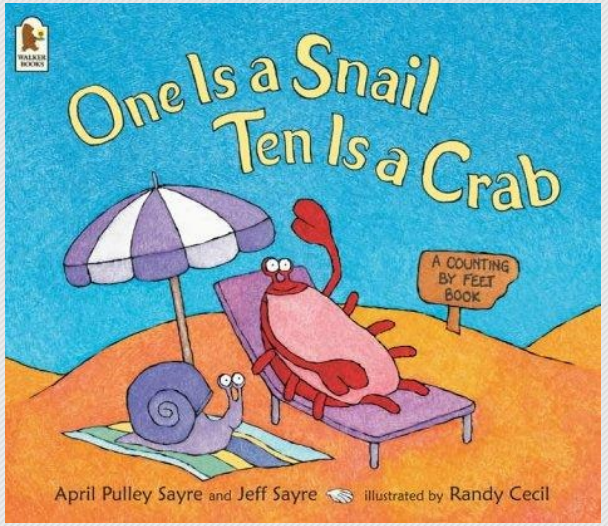
Picture books

FoxFederation









FoxFederation

Maths based books:

https://nrich.maths.org/14112

https://nrich.maths.org/14115

How can you support maths at home?

Number recognition and counting:

- Number recognition on shoes, clothes, clocks, TV remote, oven etc.
- Looking at books and page numbers
- How many knives and forks do we need for everyone?

Calculating:

- Laying the table - 'What if one more person came to dinner? How many chairs would we need?' 'How many knives and forks and glasses do we have altogether?'
- There are 4 biscuits - you and ___ can share them equally/halve them - how many will you get each?
- Play games which include numbers (snap, memory games like pairs, boardgame etc.) - useful for number bonds, doubles, number, subitising using a dice, 1:1 correspondence, quantity matching to numeral etc.
- Shoe sizes - whole family's shoe size adding the numbers together, ordering based on the number etc.
- Monthly calendar - how many days are left in this month? How many days are left until ___'s birthday?

Shape, Space and Measure:

- Talk about the size of objects and compare - big/bigger/biggest, small/smaller/smallest, long/longer/longest, short/shorter/shortest, heavy/heavier/heaviest, light/lighter/lightest etc.
- Create patterns using blocks, construction materials, hanging out clothes, food items, socks etc.
- Introduce to weight through cooking and baking, mainly focusing on heavy and light.
- Talk about positioning of objects - under, over, on top of, below, next to, opposite to, behind, left to, right to etc.
- Discuss daily routines and significant events
- Have a monthly calendar to cross off days, discuss today's date.
- Look for shapes in the home

FoxFederation

How can you support maths in the environment (walking home, in the park and in the shops?

Number recognition and counting:

- Looking for numbers in the environment (house numbers, bus numbers, registration plates, clocks etc.)
- Count anything and everything!
    - How many red cars will we see? How many buses will pass us? How many steps until we get to the end of the road? Etc.
    - How many dogs will we see on our walk?
    - Make it into a competition "I predict we'll see 6 dogs."
    - How many bounces of the ball will you be able to do?
    - Time children running to the swing, up a hill, down the road and show the timer and compare in seconds. Can you do it faster or slower?

Calculating:

- So we saw 2 red cars and 3 blue cars. How many cars did we see altogether? Should we check on our fingers?
- I saw one bus, how many more buses do I need to see to get to 4 buses?
- There are three cars parked there. How many will be left if two drive away?
- "I predicted 6 dogs. We've seen 4 how many more dogs do we need to see?"
- *Choose a context which interests your child* - flowers at the park, vehicles, items in a shop, animals.
- In shops, ensuring we have one object for each member of the family.

Shape space and measure:

- What patterns can you see on the houses, pavements, leaves in the park? Etc.
- Talk about 2D and 3D shapes and identify them in the environment.
- Discuss durations of journeys (our walk to school is 8 minutes, which is a short walk).
- If using money, show your child money and different coins and their value when paying for things.
- Which is the tallest, shortest, thinnest, widest tree?
- Can you describe our journey to the park, shop, museum, school?
- Can you follow my directions in the park? Go to the top of the climbing frame, turn to go under a tunnel etc.

FoxFederation

https://www.fox.rbkc.sch.uk/parent-workshops/