

## Introduction

This book visually displays pictorial representations of arithmetic number sentences. This will allow maths learners in Reception to understand a range of arithmetic methods and strategies.

There are no written methods, encouraging you and your child to discuss how the number sentences have been calculated.

Your child can learn different methods and strategies through frequent practice, ensuring the development of their arithmetic understanding, knowledge and skills.

A variety of maths resources are pictorially represented.

- Cubes
- Counters
- Number Lines
- Number Grids
- Part Whole Models
- Bar Models
- Groups of

**Concrete** - the use of objects that can be handled or manipulated to explain how to accurately calculate the number sentence.

**Pictorial** - the use of mathematical images to show representations of the accurate calculation of the number sentence.

**Abstract** - the use of efficient formal written methods applied to prove the accurate calculation of the number sentence.

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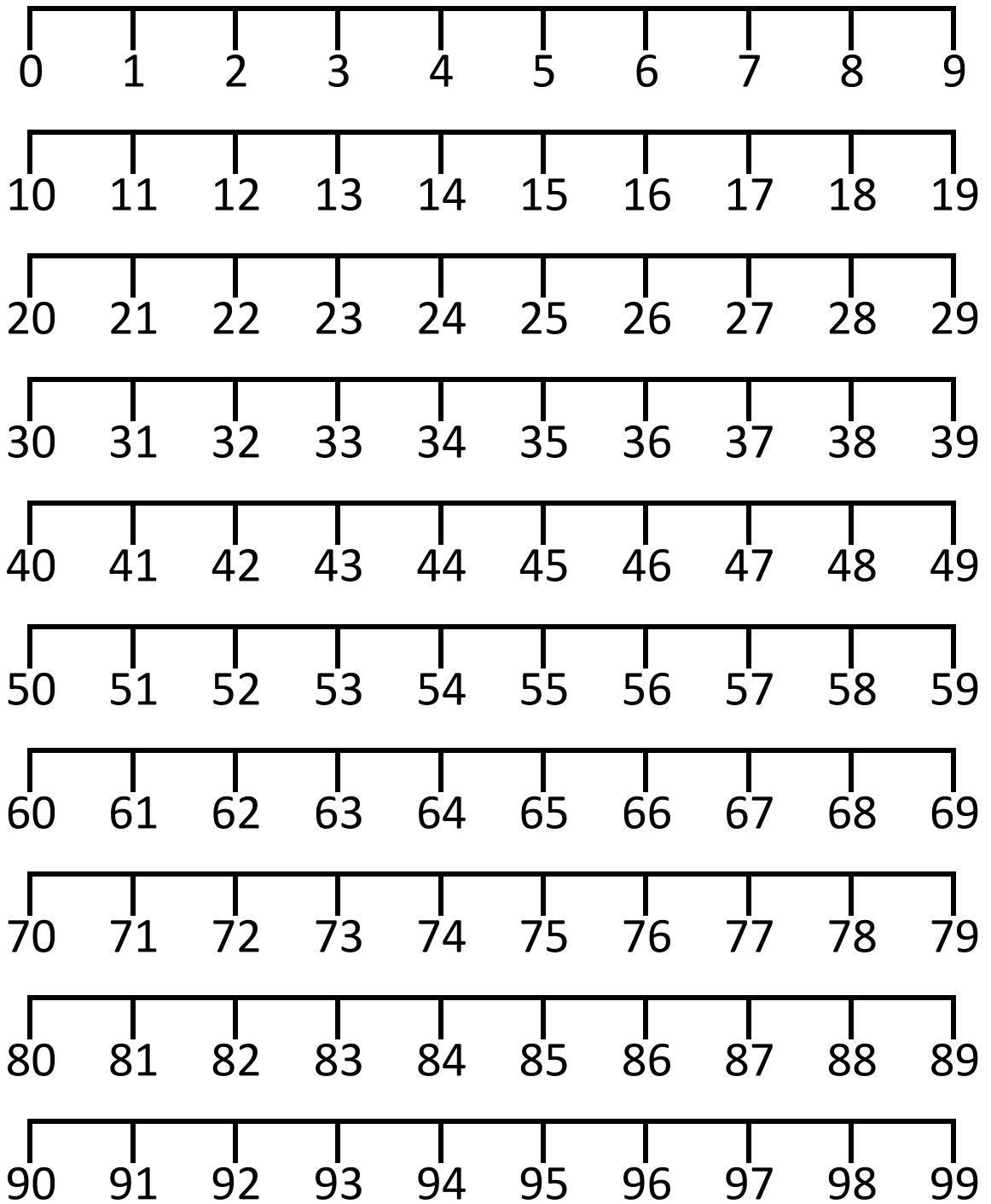
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# Number Line

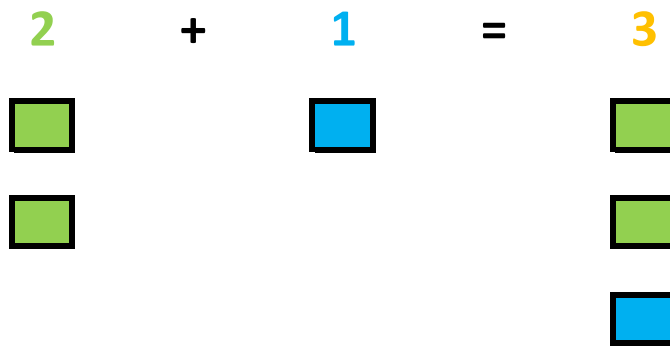


## Number Grid

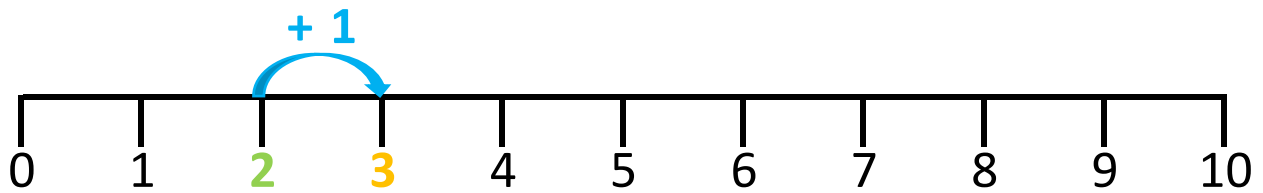
0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99
100	101	102	103	104	105	106	107	108	109
110	111	112	113	114	115	116	117	118	119
120	121	122	123	124	125	126	127	128	129
130	131	132	133	134	135	136	137	138	139
140	141	142	143	144	145	146	147	148	149

# 1 More

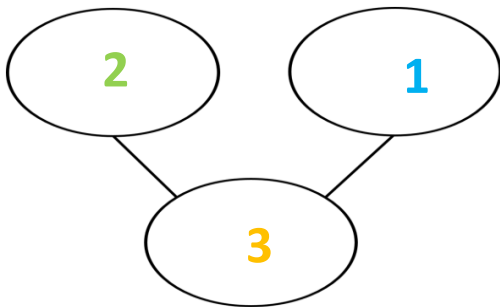
## Multilink Cubes



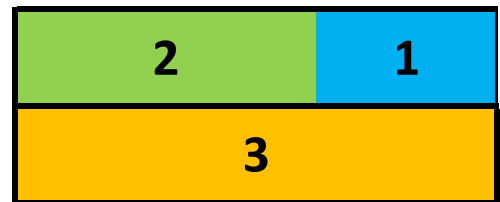
## Number Line



## Part Whole Model



## Bar Model



## Questions

1)  $0 + 1 =$

2)  $3 + 1 =$

3)  $5 + 1 =$

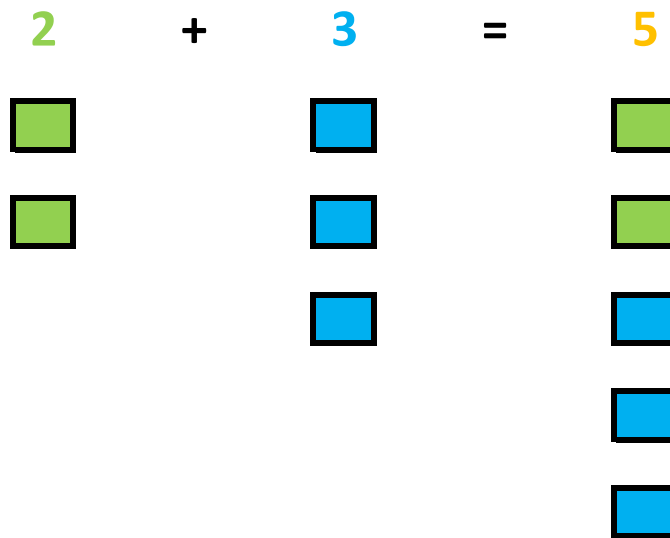
4)  $7 + 1 =$

5)  $9 + 1 =$

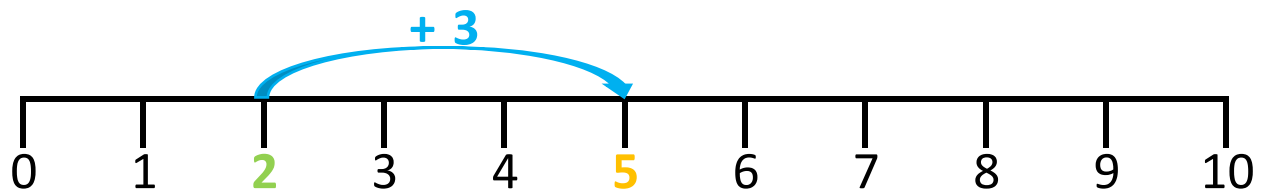
6)  $11 + 1 =$

# Number bonds to 5

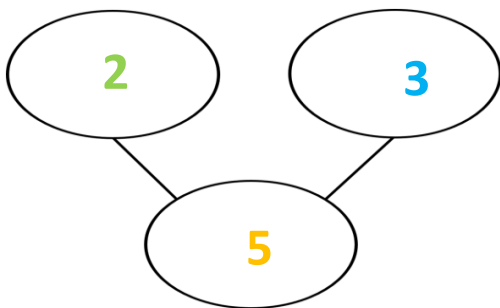
## Multilink Cubes



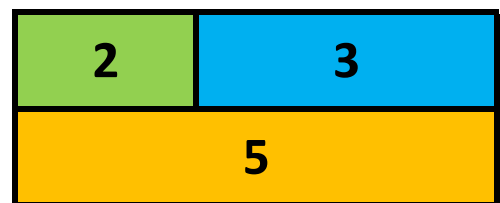
## Number Line



## Part Whole Model



## Bar Model



## Questions

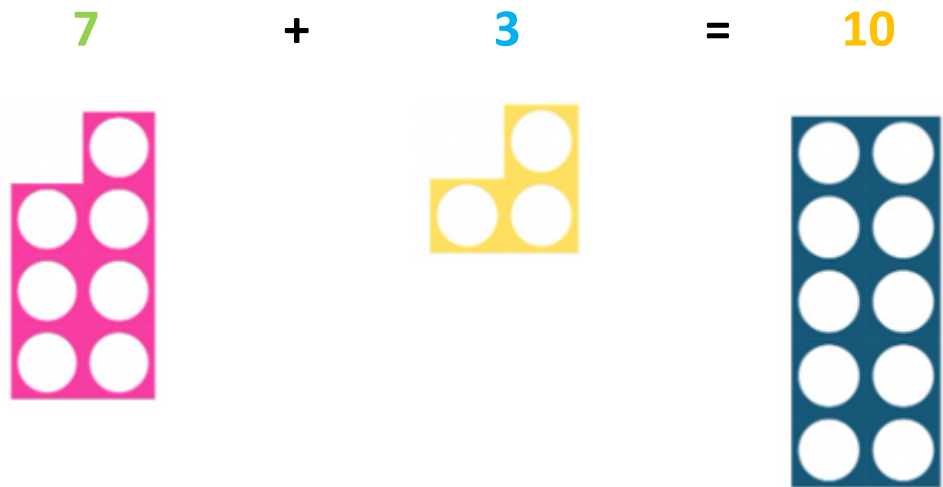
1)  $0 + 5 =$   
2)  $4 + 1 =$

3)  $5 + 0 =$   
4)  $3 + 2 =$

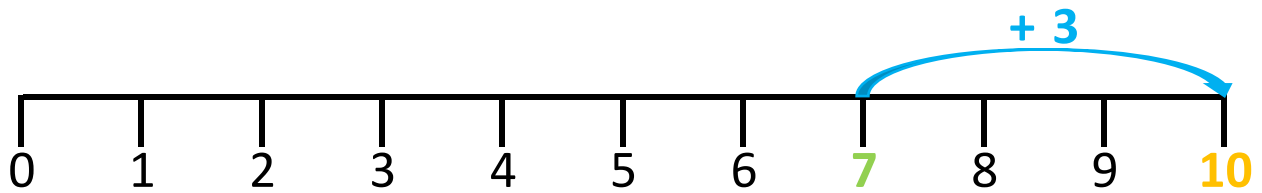
5)  $\underline{\quad} = 2 + 3$   
6)  $\underline{\quad} = 5 + 0$

# Number bonds to 10

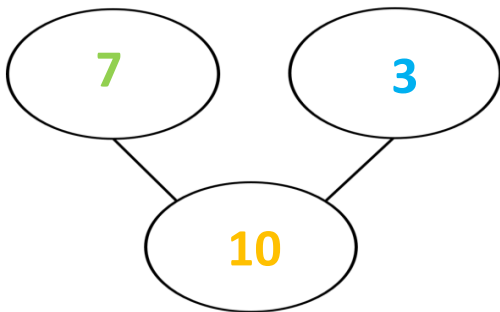
Numicon



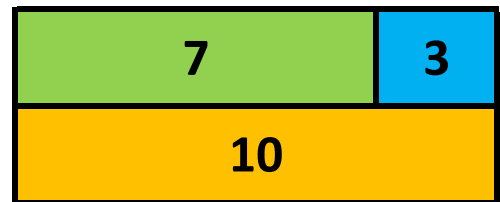
Number Line



Part Whole Model



Bar Model



Questions

1)  $10 + 0 =$

3)  $2 + 8 =$

5)  $\underline{\quad} = 3 + 7$

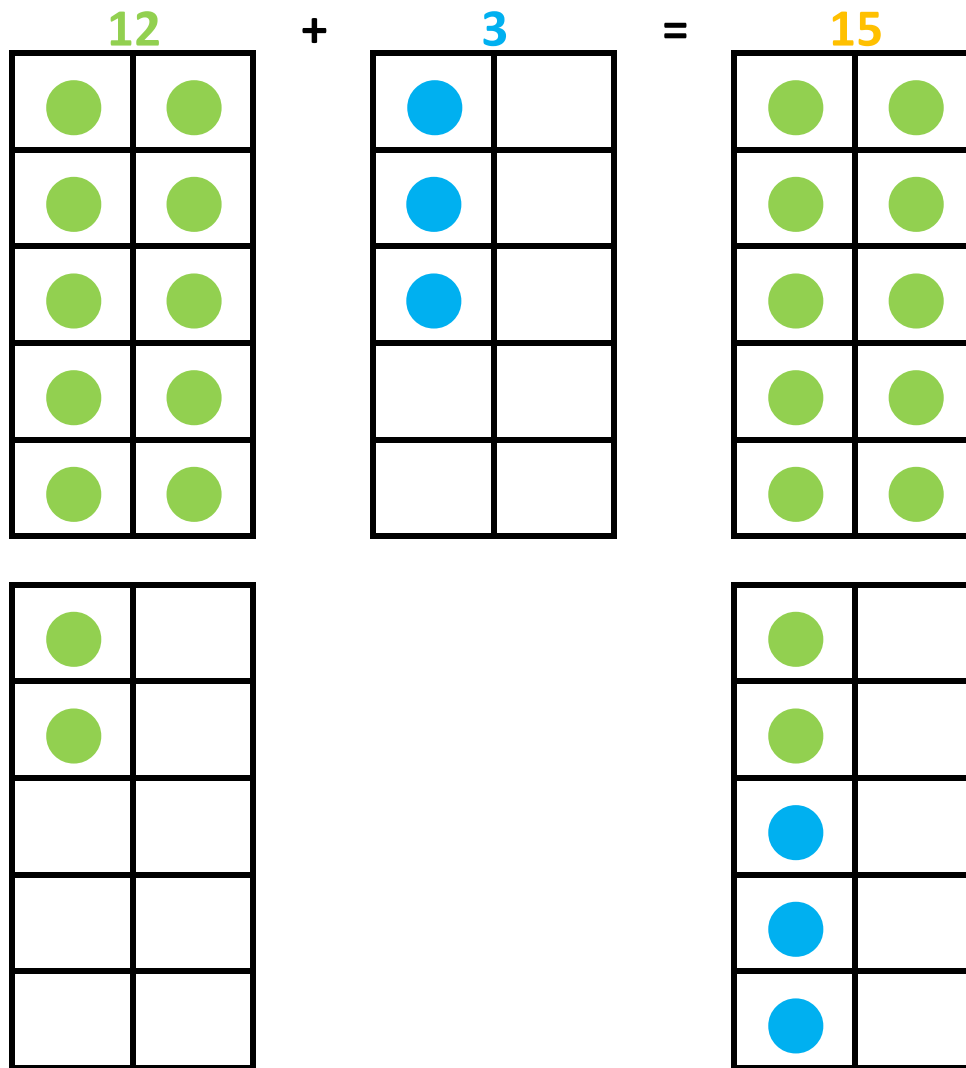
2)  $6 + 4 =$

4)  $5 + 5 =$

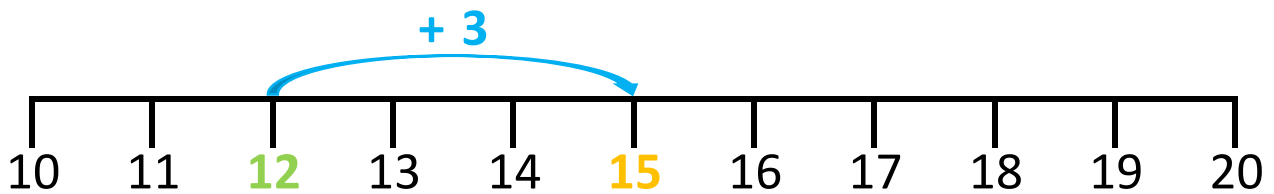
6)  $\underline{\quad} = 1 + 9$

# Number bonds to 15

Tens Frame



Number Line



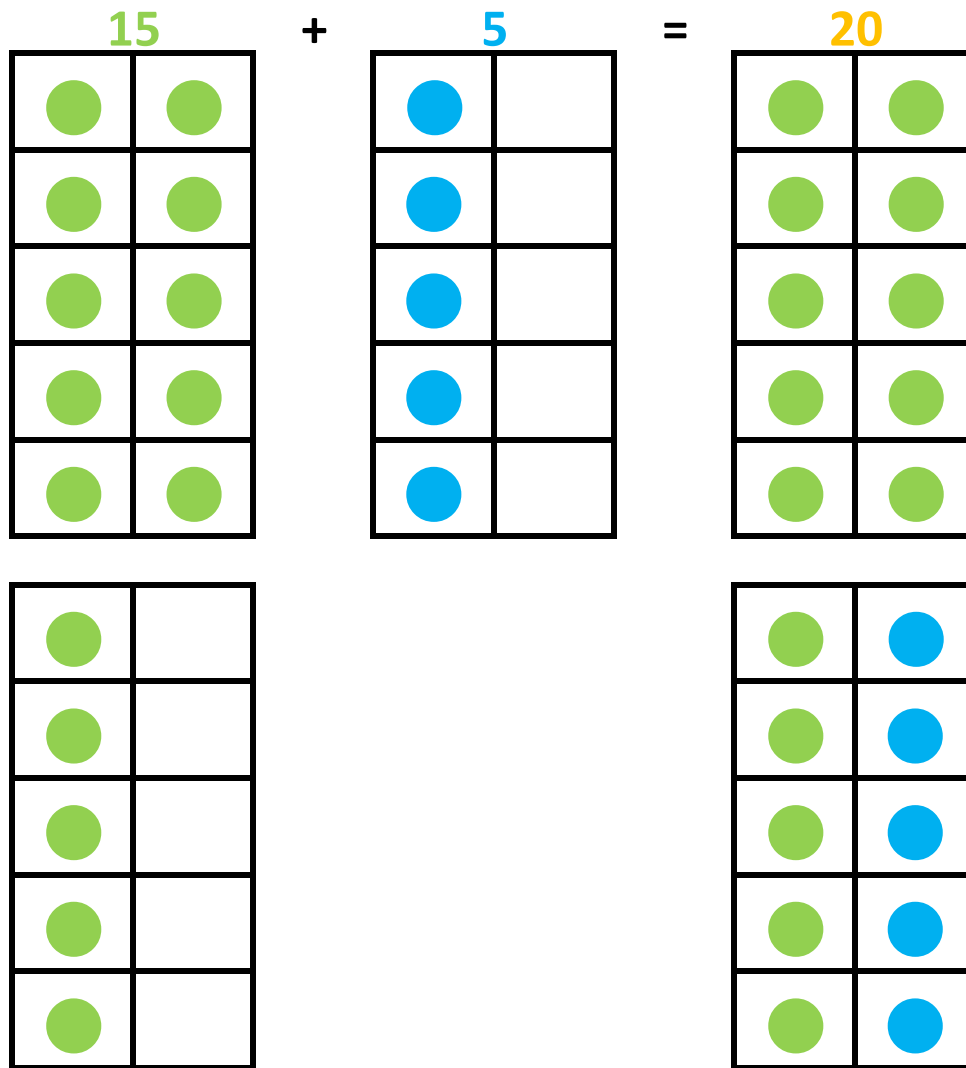
Questions

- 1)  $15 + 0 =$       3)  $9 + 6 =$       5)  $\underline{\quad} = 13 + 2$   
 2)  $10 + 5 =$       4)  $7 + 8 =$       6)  $\underline{\quad} = 11 + 4$

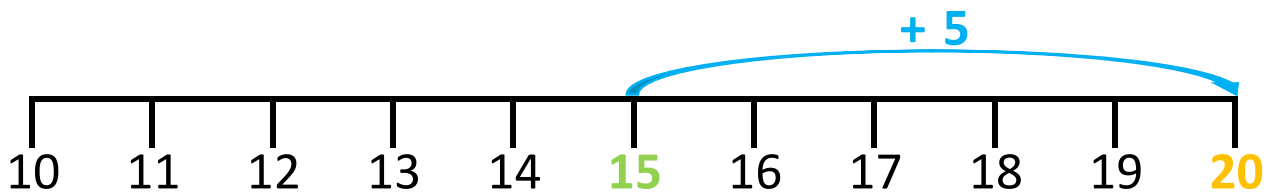


# Number bonds to 20

Tens Frame



Number Line



Questions

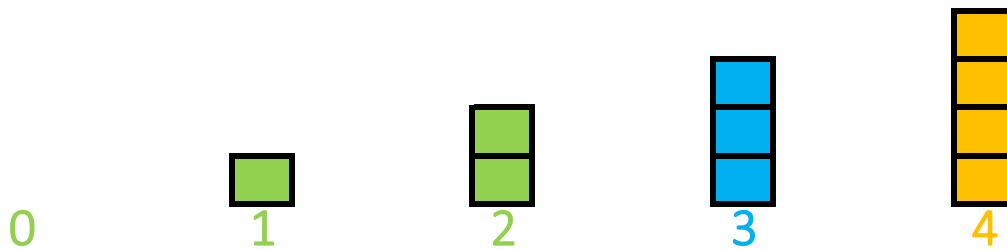
- 1)  $18 + 2 =$       3)  $14 + 6 =$       5)  $\underline{\quad} = 10 + 10$   
 2)  $16 + 4 =$       4)  $12 + 8 =$       6)  $\underline{\quad} = 17 + 3$

# Number patterns of 1s

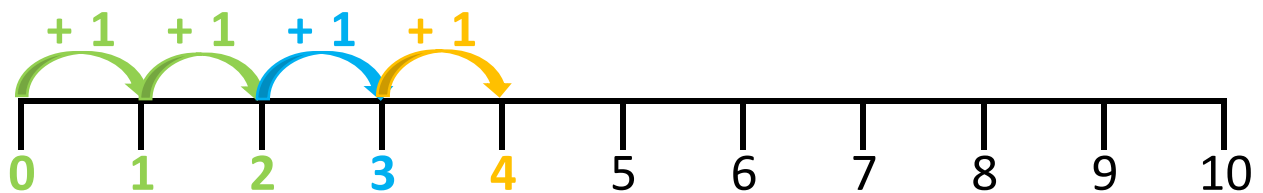
Number Sentence

$$0, 1, 2, ?, ? = 0, 1, 2, 3, 4,$$

Multilink Cubes



Number Line



Number Grid



Questions

- 1) 2, 3, 4,     ,       
2) 3, 4, 5,     ,

- 3) 4, 5, 6,     ,       
4) 5, 6, 7,     ,

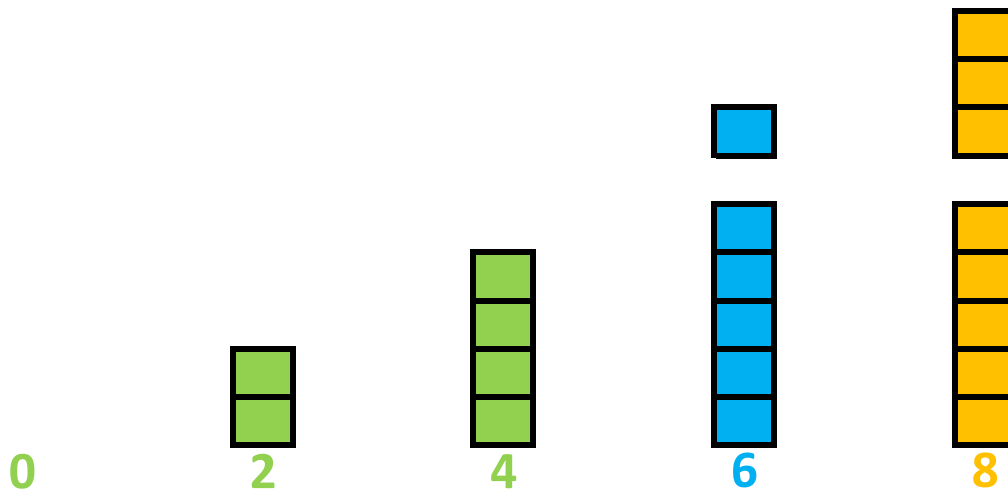
- 5) 6, 7, 8,     ,       
6) 7, 8, 9,     ,

## Number patterns of 2s

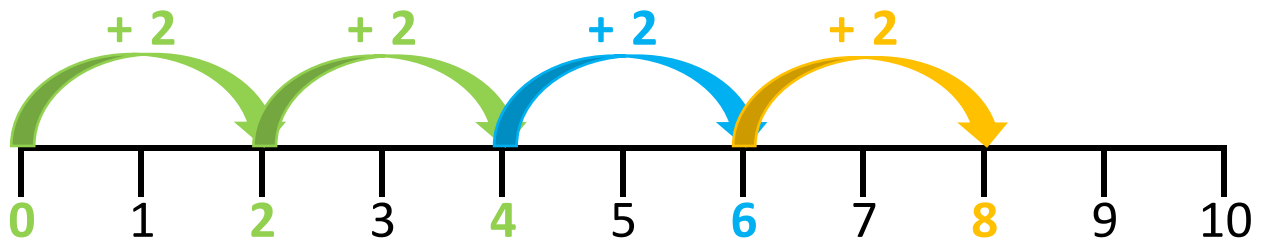
Number Sentence

$$0, 2, 4, ?, ? = 0, 2, 4, 6, 8$$

Multilink Cubes



Number Line



Questions

1) 2, 4, 6,       ,         
2) 4, 6, 8,       ,       

3) 6, 8, 10,       ,         
4) 8, 10, 12,       ,       

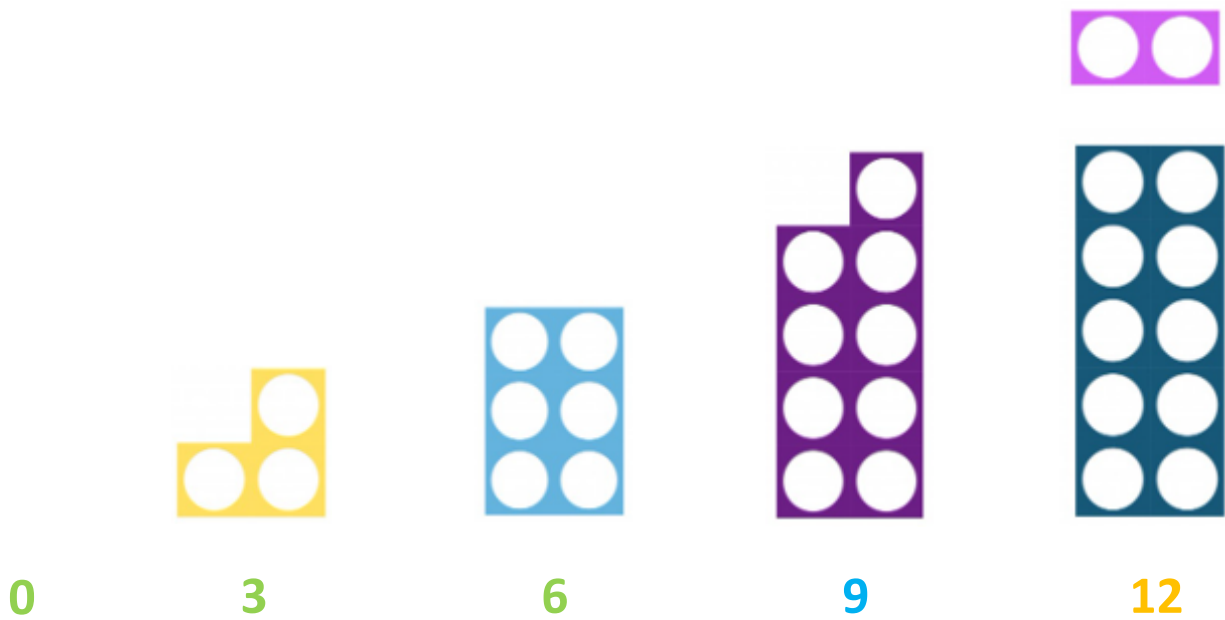
5) 10, 12, 14,       ,         
6) 12, 14, 16,       ,

## Number patterns of 3s

Number Sentence

$$0, 3, 6, ?, ? = 0, 3, 6, 9, 12$$

Numicon



Number Grid

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

Questions

1) 3, 6, 9,         ,           
2) 6, 9, 12,         ,         

3) 9, 12, 15,         ,           
4) 1, 4, 7,         ,         

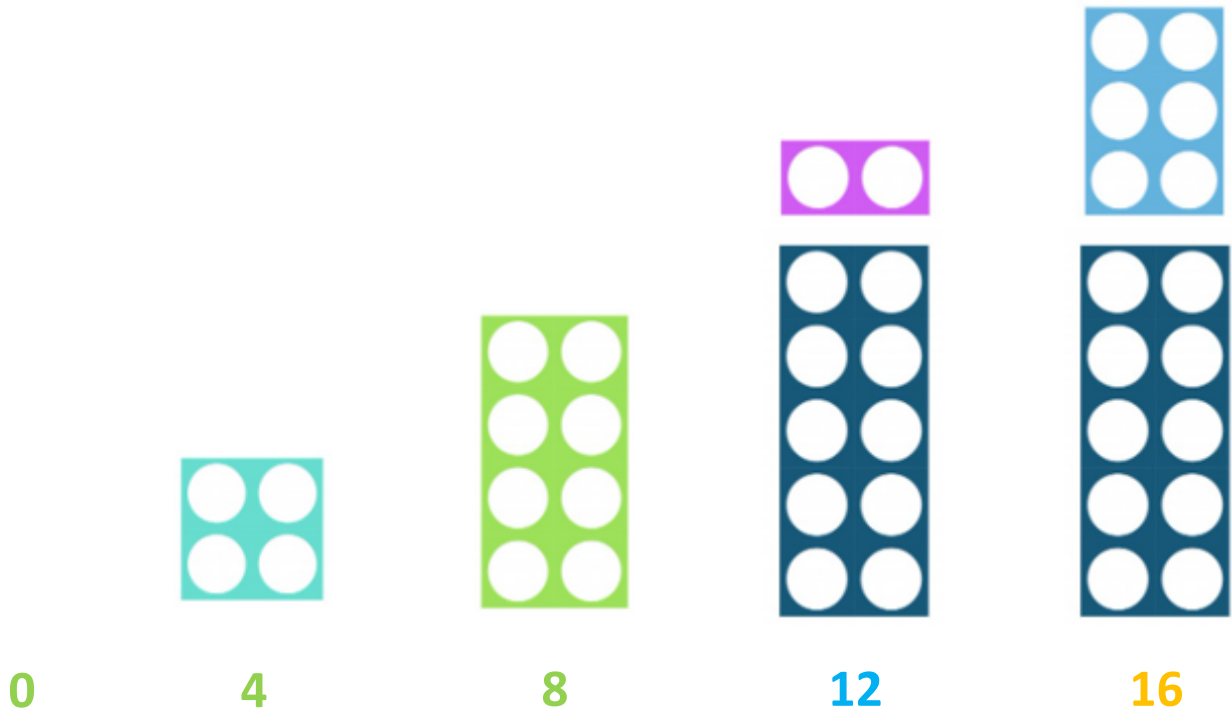
5) 2, 5, 8,         ,           
6) 4, 7, 10,         ,

## Number patterns of 4s

Number Sentence

$$0, 4, 8, ?, ? = 0, 4, 8, 12, 16$$

Numicon



Number Grid

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

Questions

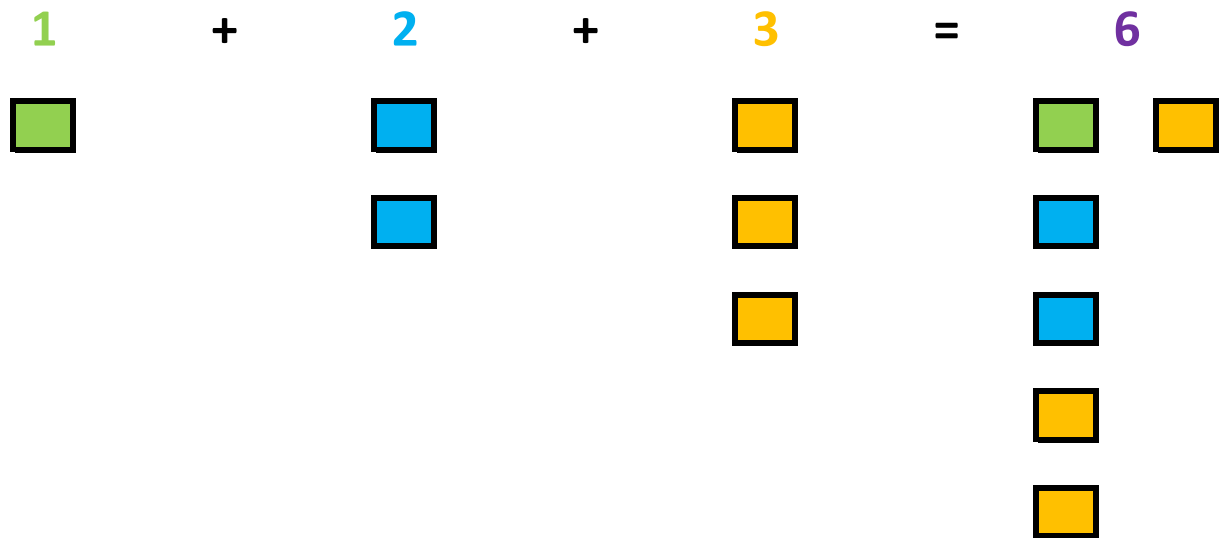
1) 4, 8, 12,         ,           
2) 8, 12, 16,         ,         

3) 1, 5, 9,         ,           
4) 2, 6, 10,         ,         

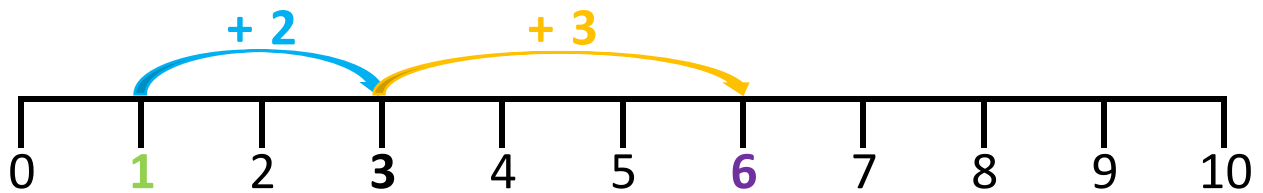
5) 3, 7, 11,         ,           
6) 5, 9, 13,         ,

# Three numbers

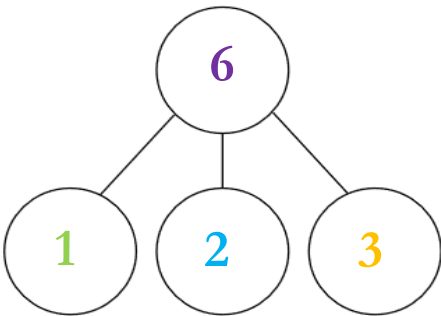
## Multilink Cubes



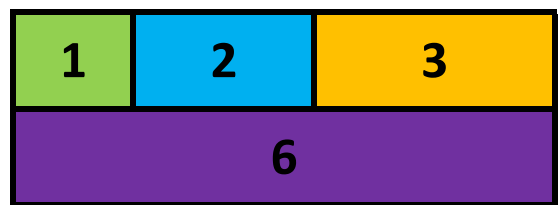
## Number Line



## Part Whole Model



## Bar Model

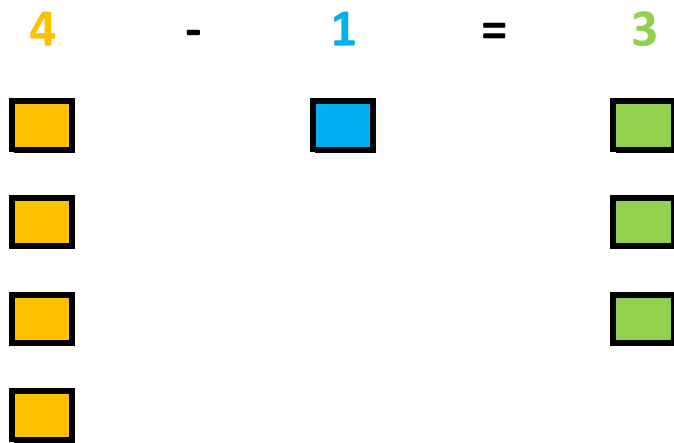


## Questions

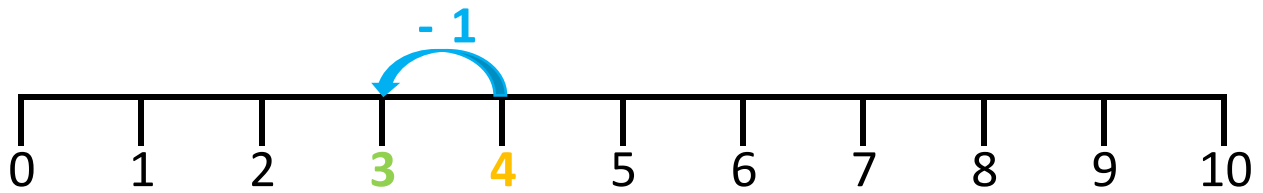
- 1)  $2 + 1 + 4 =$       3)  $4 + 1 + 0 =$       5)  $6 + 3 + 2$   
2)  $3 + 4 + 2 =$       4)  $5 + 2 + 1 =$       6)  $7 + 5 + 3$

# 1 Less

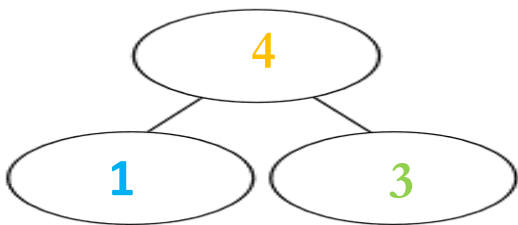
## Multilink Cubes



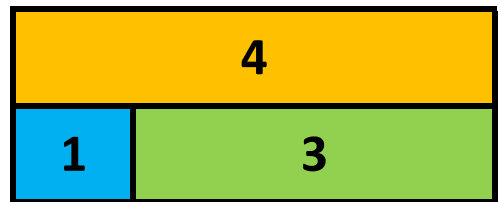
## Number Line



## Part Whole Model



## Bar Model



## Questions

1)  $2 - 1 =$

3)  $8 - 1 =$

5)  $12 - 1 =$

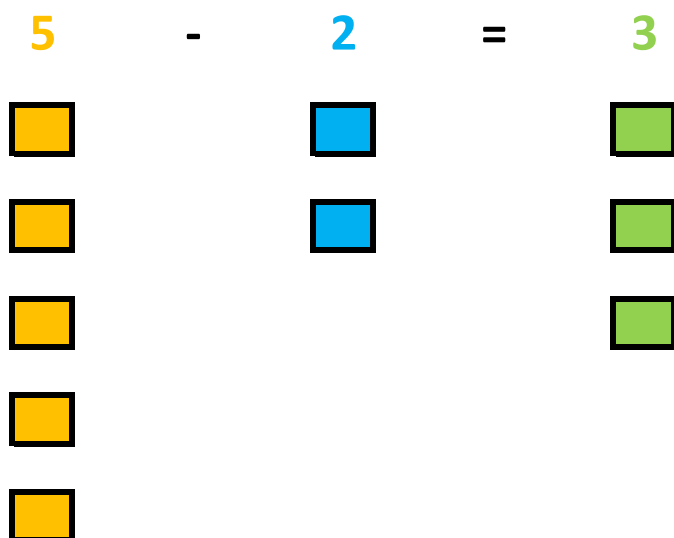
2)  $6 - 2 =$

4)  $10 - 1 =$

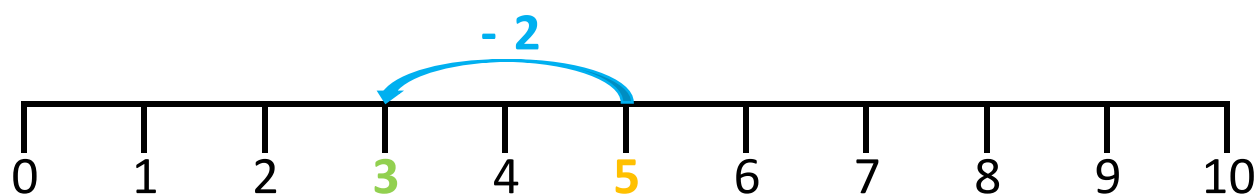
6)  $14 - 1 =$

# Number bonds to 5

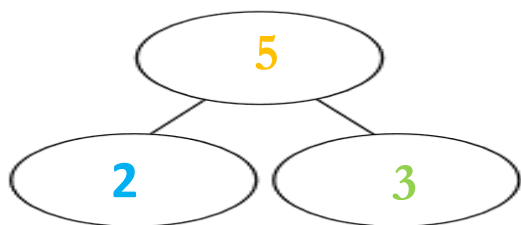
Multilink Cubes



Number Line



Part Whole Model



Bar Model



Questions

1)  $5 - 1 =$

3)  $5 - 4 =$

5)  $5 - 0 =$

2)  $5 - 2 =$

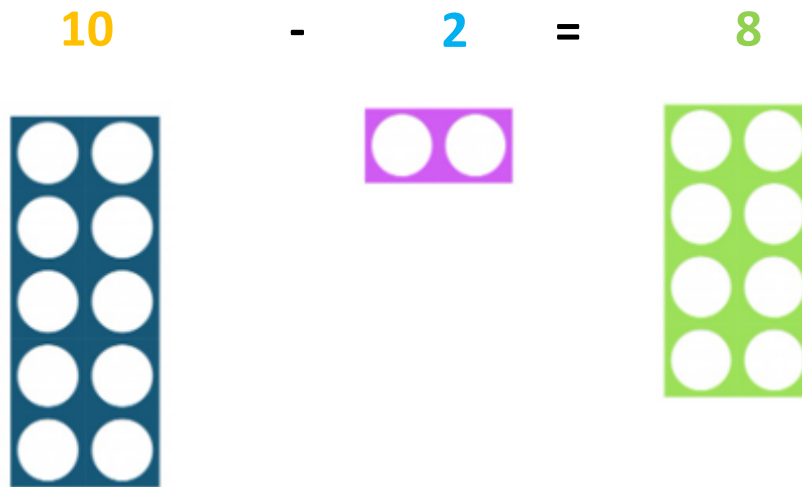
4)  $5 - 5 =$

6)  $5 - 3 =$

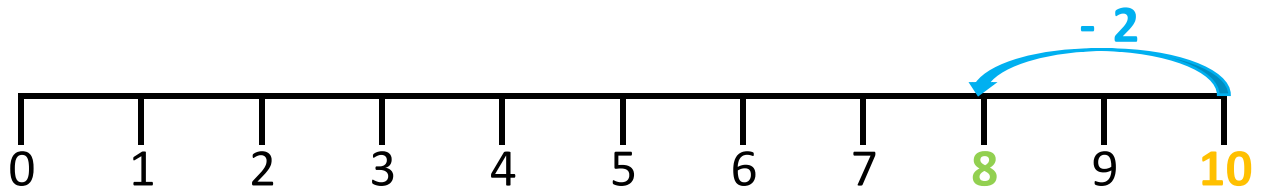


# Number bonds to 10

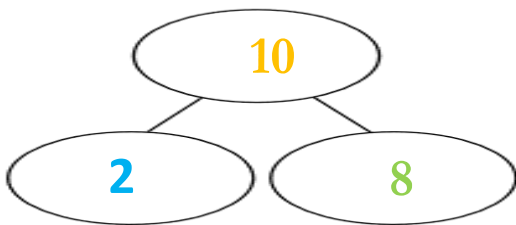
Numicon



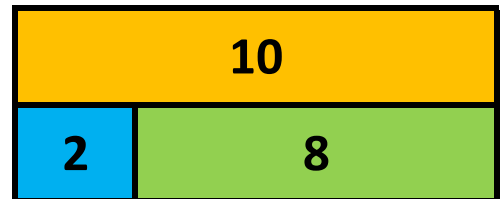
Number Line



Part Whole Model



Bar Model



Questions

1)  $10 - 1 =$

3)  $10 - 5 =$

5)  $10 - 6 =$

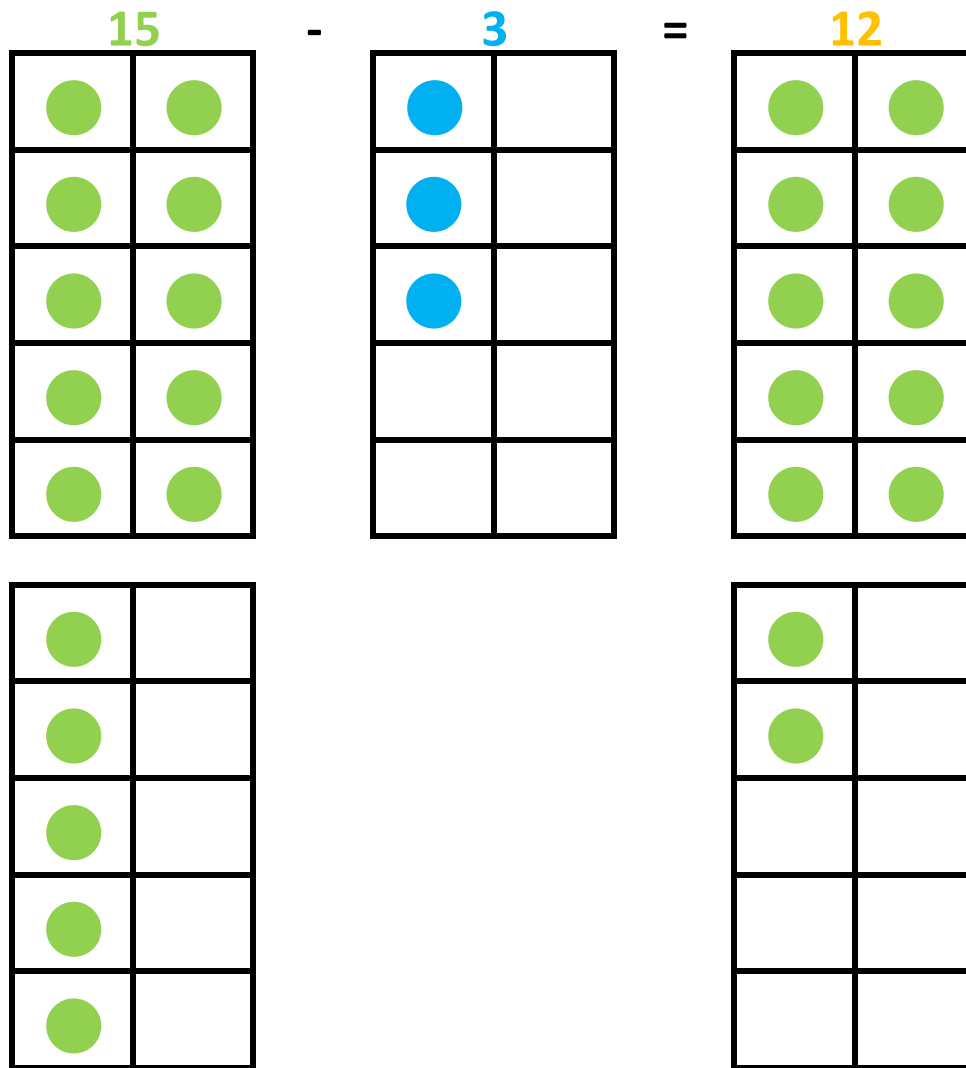
2)  $10 - 3 =$

4)  $10 - 4 =$

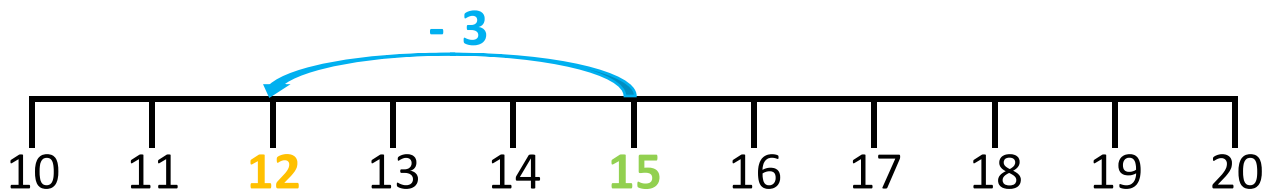
6)  $10 - 10 =$

# Number bonds to 15

Tens Frame



Number Line

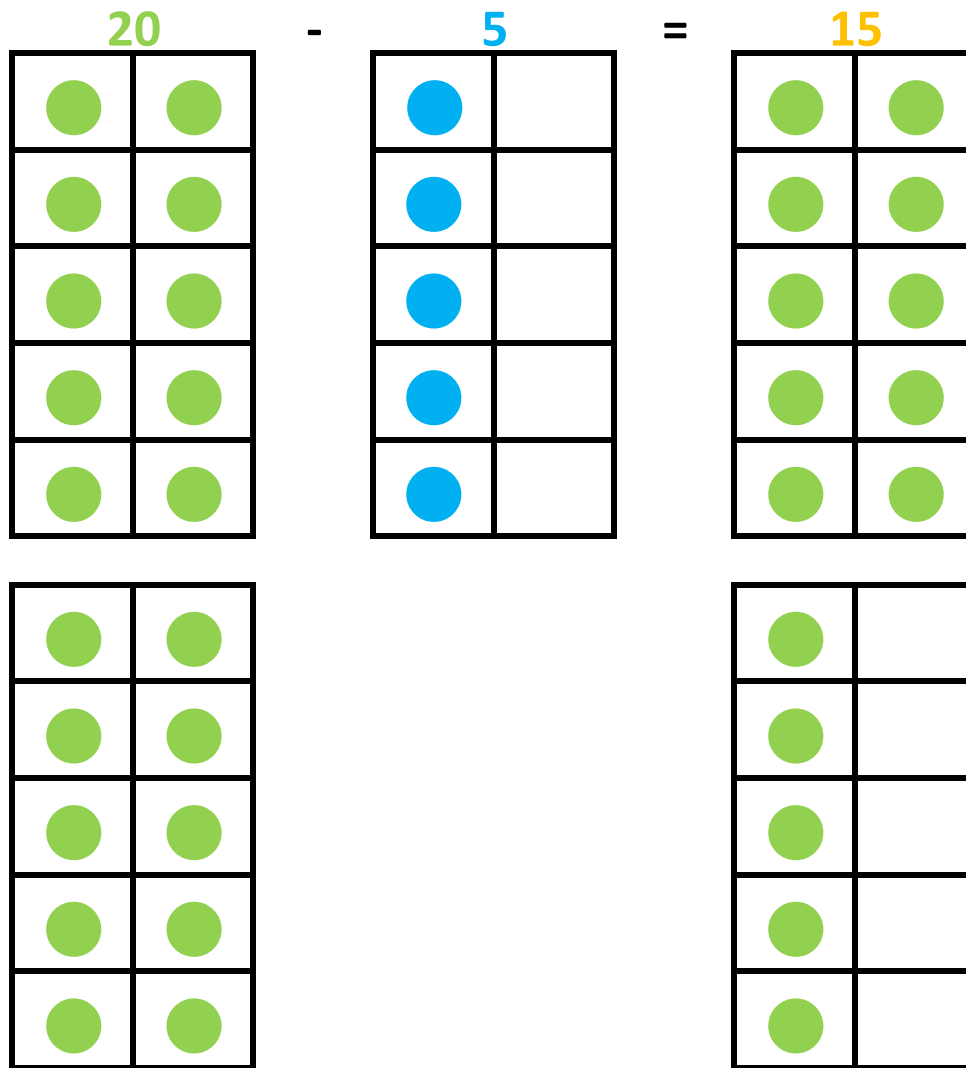


Questions

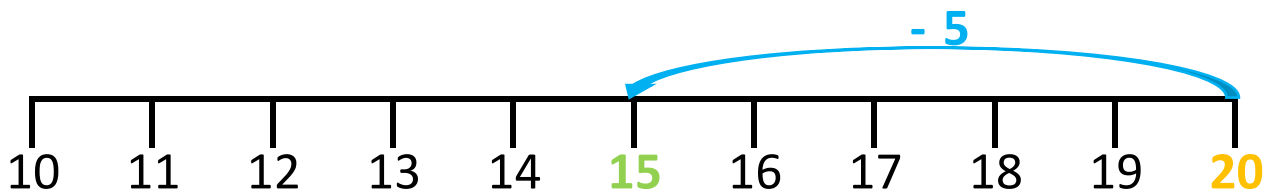
- 1)  $15 - 1 =$       3)  $15 - 7 =$       5)  $15 - 4 =$   
2)  $15 - 5 =$       4)  $15 - 2 =$       6)  $15 - 6 =$

# Number bonds to 20

Tens Frame



Number Line



Questions

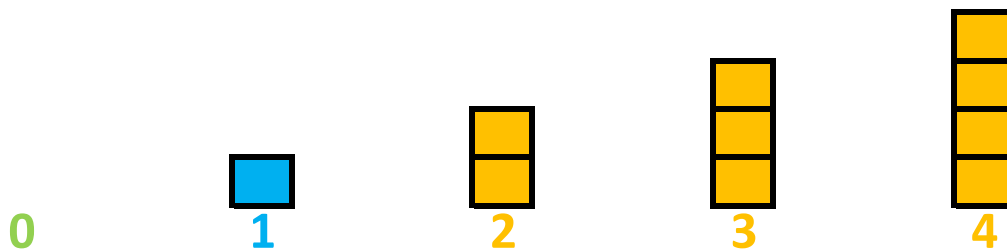
- 1)  $20 - 2 =$       3)  $20 - 6 =$       5)  $20 - 10 =$   
2)  $20 - 4 =$       4)  $20 - 8 =$       6)  $20 - 12 =$

## Number patterns of 1s

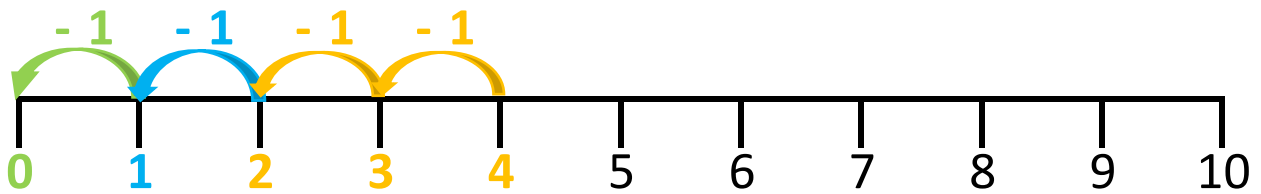
Number Sentence

$$4, 3, 2, ?, ? = 4, 3, 2, 1, 0$$

Multilink Cubes



Number Line



Number Grid



Questions

1) 8, 7, 6,       ,         
2) 9, 8, 7,       ,       

3) 10, 9, 8,       ,         
4) 11, 10, 9,       ,       

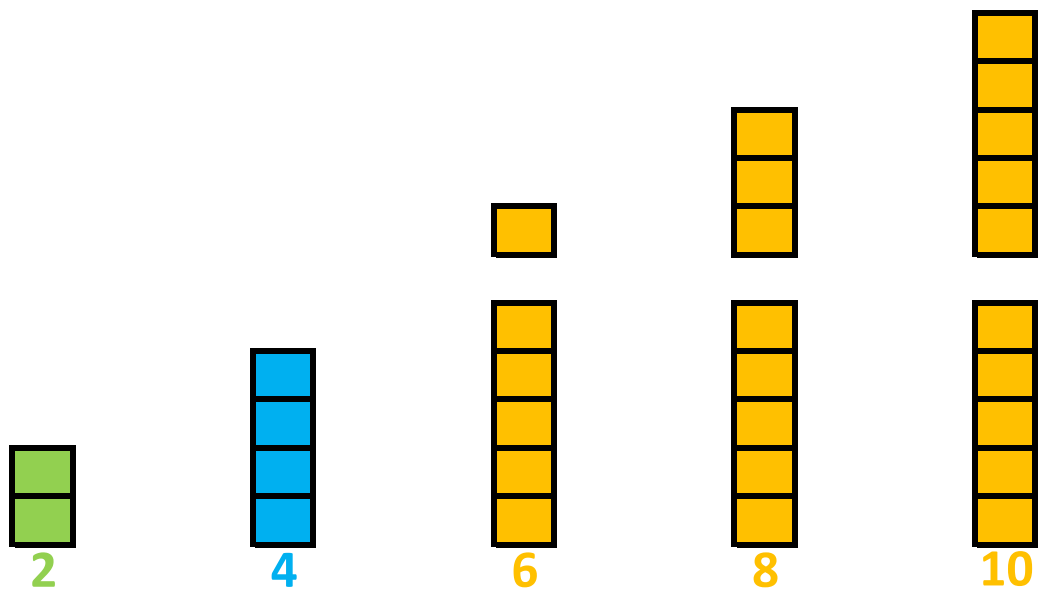
5) 12, 11, 10,       ,         
6) 13, 12, 11,       ,

## Number patterns of 2s

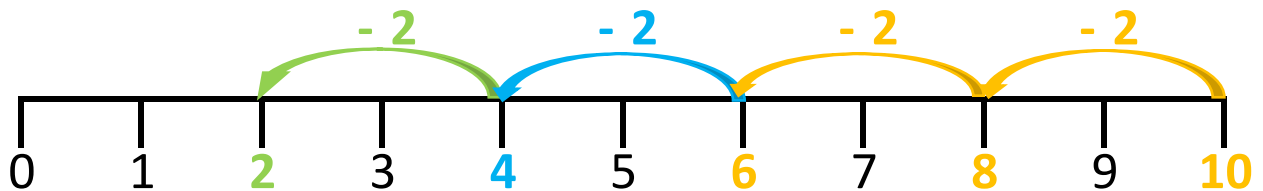
Number Sentence

$$10, 8, 6, ?, ? = 10, 8, 6, 4, 2$$

Multilink Cubes



Number Line



Questions

1) 8, 6, 4,         ,           
2) 12, 10, 8,         ,         

3) 14, 12, 10,         ,           
4) 16, 14, 12,         ,         

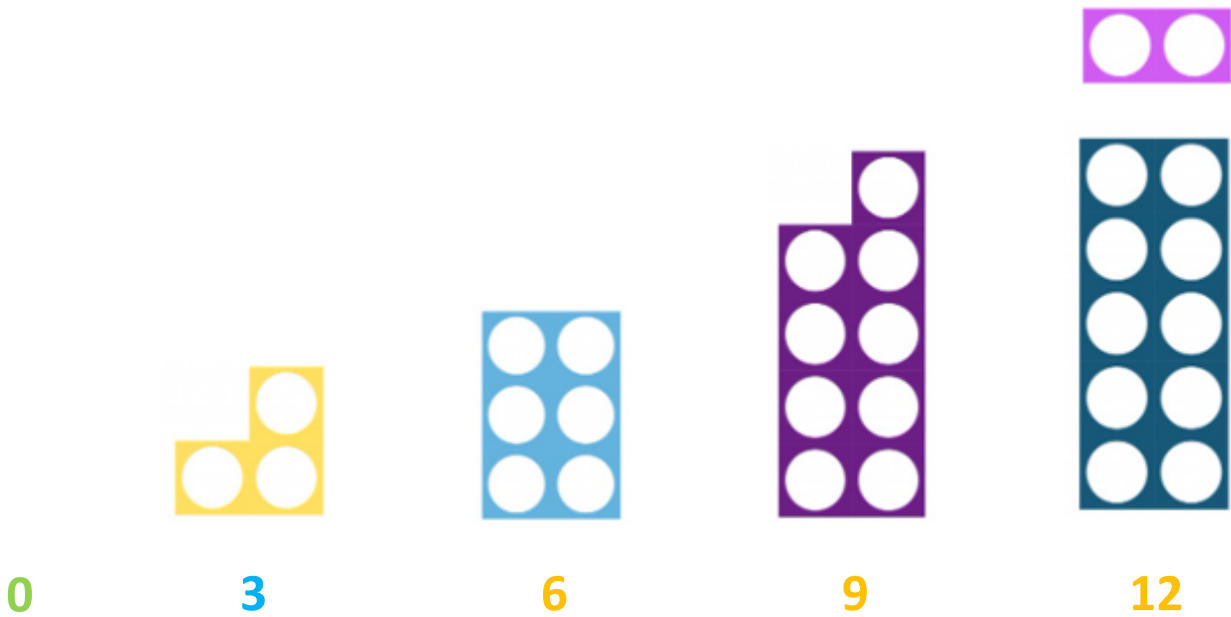
5) 18, 16, 14,         ,           
6) 20, 18, 16,         ,

## Number patterns of 3s

Number Sentence

$$12, 9, 6, ?, ? = 12, 9, 6, 3, 0$$

Numicon



Number Grid

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

Questions

1) 8, 6, 4,         ,           
 2) 12, 10, 8,         ,         

3) 14, 12, 10,         ,           
 4) 16, 14, 12,         ,         

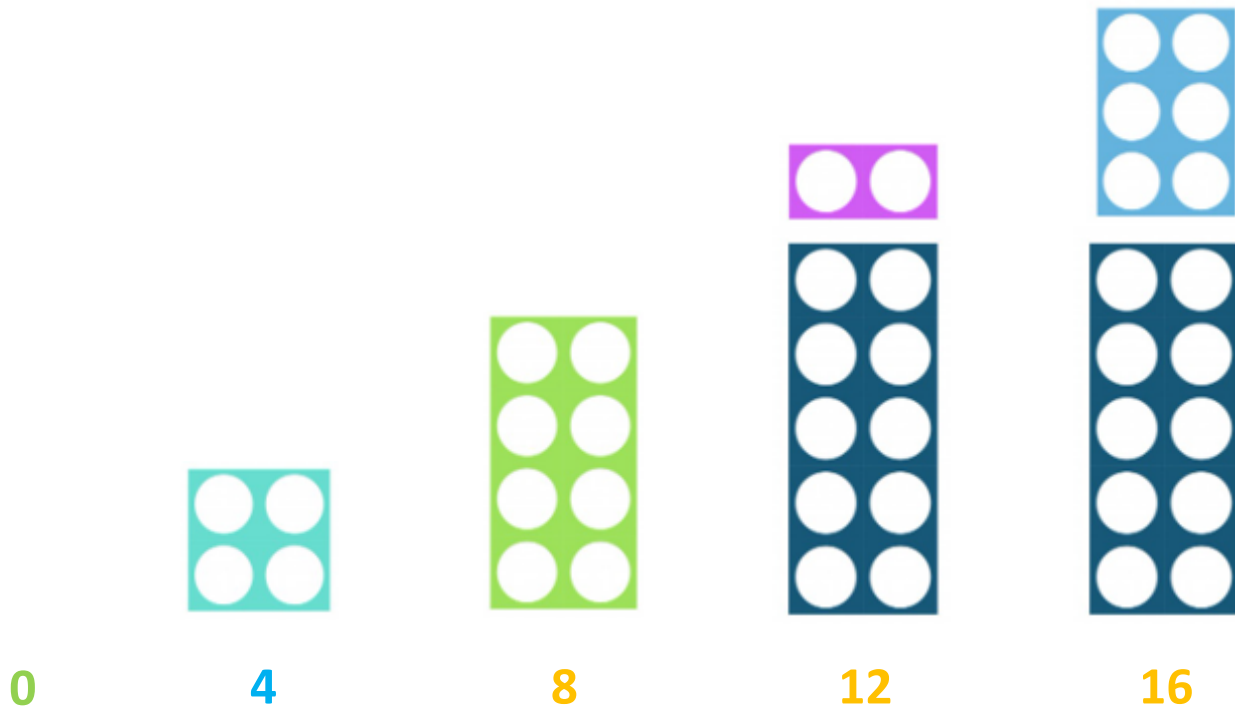
5) 18, 16, 14,         ,           
 6) 20, 18, 16,         ,

## Number patterns of 4s

Number Sentence

$$16, 12, 8, ?, ? = 16, 12, 8, 4, 0$$

Numicon



Number Grid

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

Questions

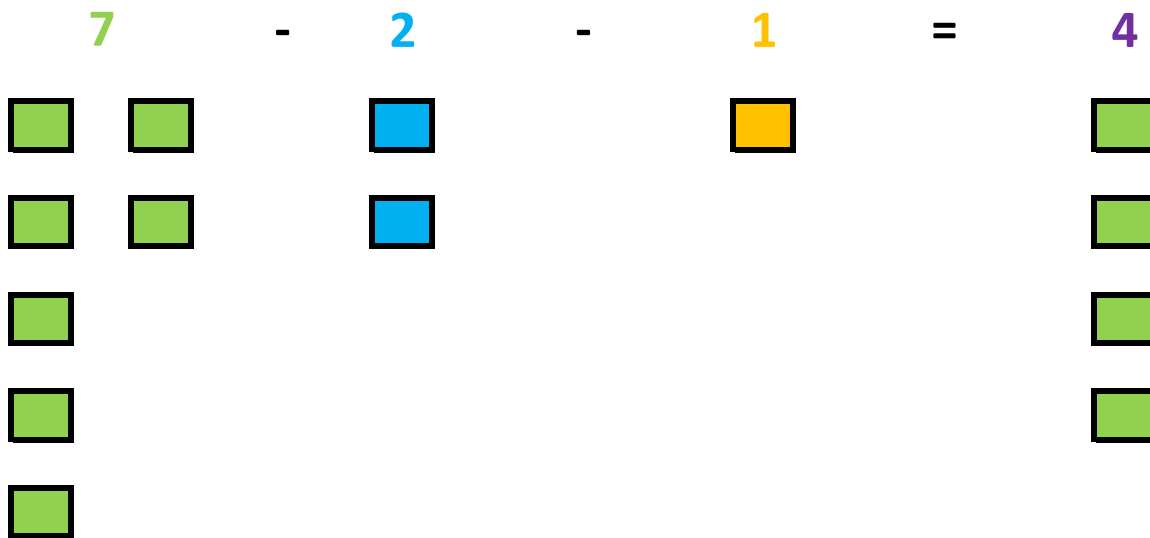
1) 20, 16, 12,           ,             
2) 24, 20, 16,           ,           

3) 23, 19, 15,           ,             
4) 22, 18, 14,           ,           

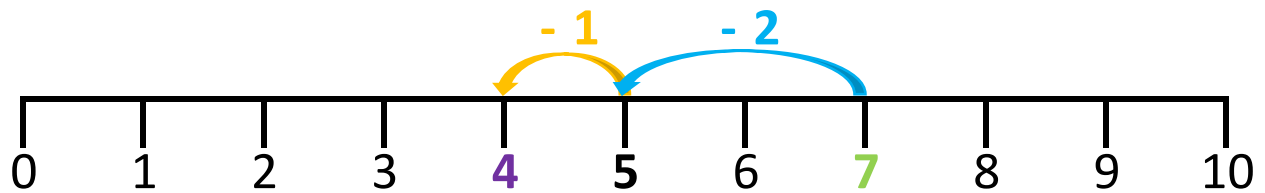
5) 21, 17, 13,           ,             
6) 19, 15, 11,           ,

# Three numbers

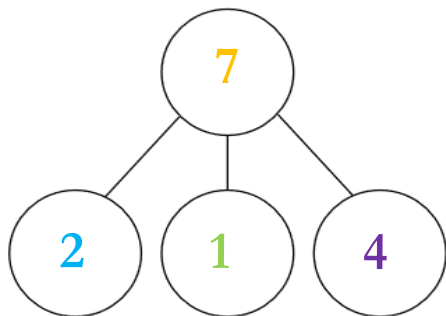
Multilink Cubes



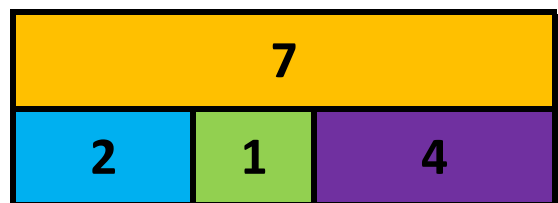
Number Line



Part Whole Model



Bar Model



Questions

- 1)  $8 - 2 - 3 =$       3)  $10 - 4 - 0 =$       5)  $12 - 0 - 2$   
2)  $9 - 3 - 4 =$       4)  $11 - 5 - 1 =$       6)  $13 - 1 - 3$

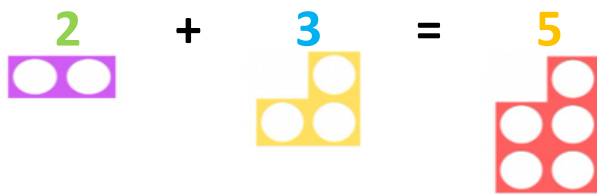


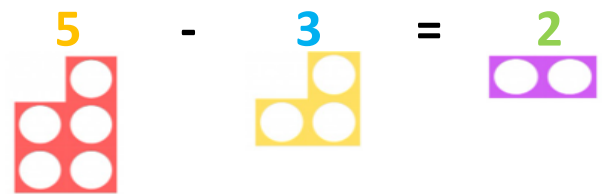
## Addition Fact Family

Addition Sentence

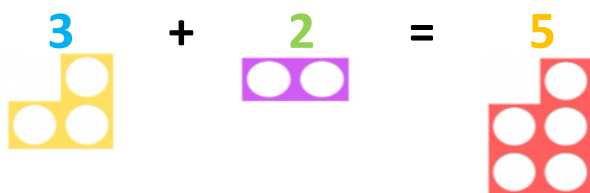


Inverse Sentence

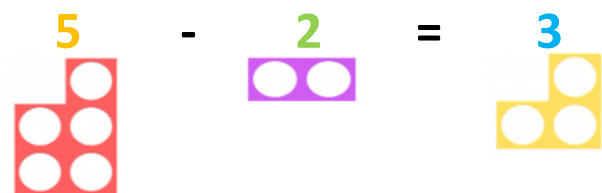
$$2 + 3 = 5$$


$$5 - 3 = 2$$


Commutative Sentence

$$3 + 2 = 5$$


Related Sentence

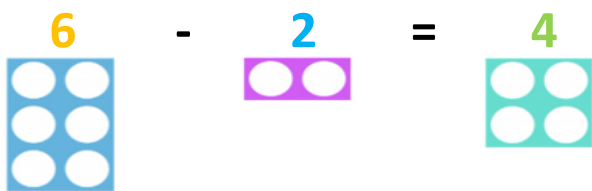
$$5 - 2 = 3$$


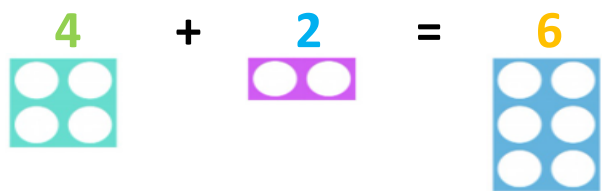
## Subtraction Fact Family

Subtraction Sentence



Inverse Sentence

$$6 - 2 = 4$$


$$4 + 2 = 6$$


Related Sentence

$$6 - 4 = 2$$


Commutative Sentence

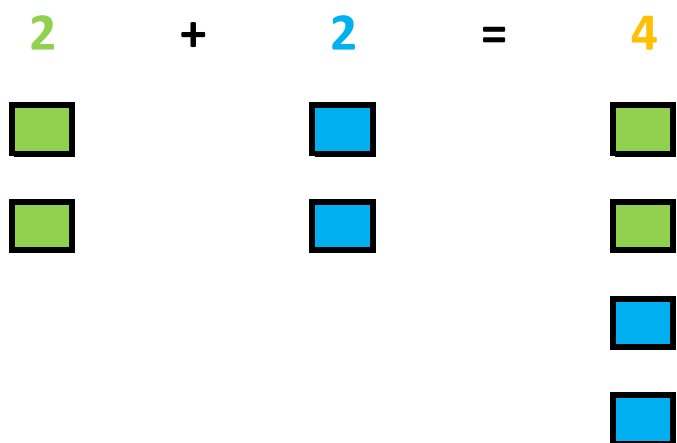
$$2 + 4 = 6$$


### Questions

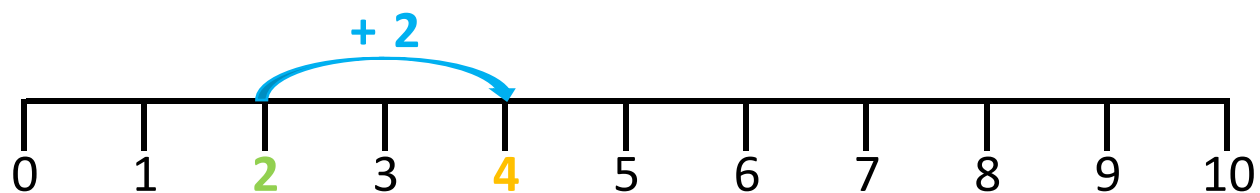
- 1)  $1 + 3 = 4$       3)  $4 + 6 = 10$       5)  $8 - 4 = 4$   
2)  $2 + 5 = 7$       4)  $5 - 1 = 4$       6)  $10 - 7 = 3$

# Doubling

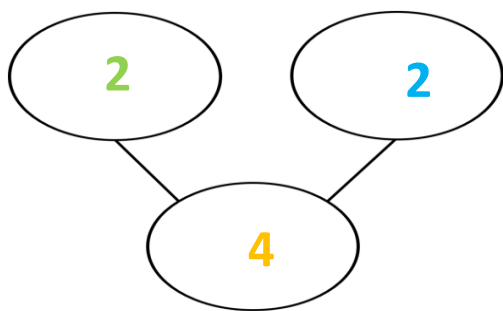
## Multilink Cubes



## Number Line



## Part Whole Model



## Bar Model



## Questions

1)  $1 + 1 =$

2)  $3 + 3 =$

3)  $4 + 4 =$

4)  $5 + 5 =$

5)  $6 + 6 =$

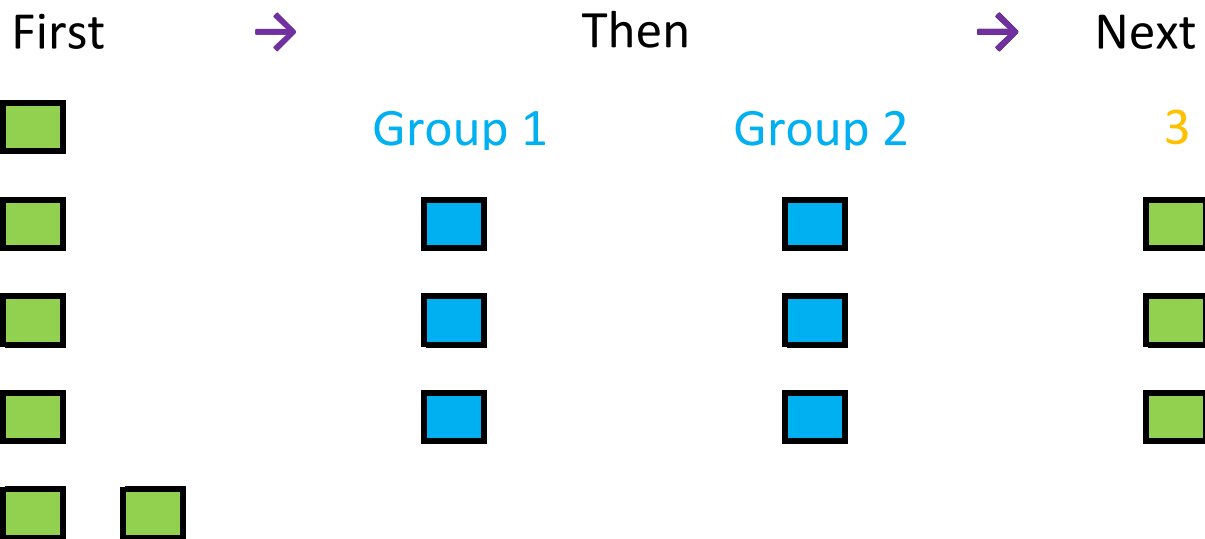
6)  $7 + 7 =$

# Sharing

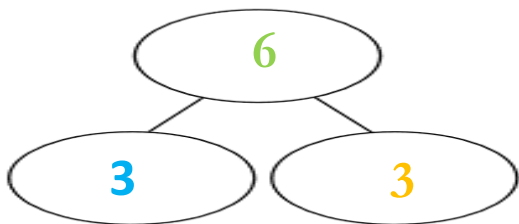
Number Sentence

$$6 \div 2 = 3$$

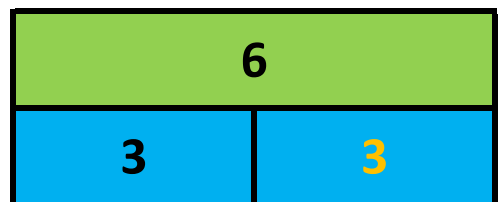
Multilink Cubes



Part Whole Model



Bar Model



Questions

1)  $2 \div 2 =$

2)  $4 \div 2 =$

3)  $8 \div 2 =$

4)  $10 \div 2 =$

5)  $12 \div 2 =$

6)  $14 \div 2 =$

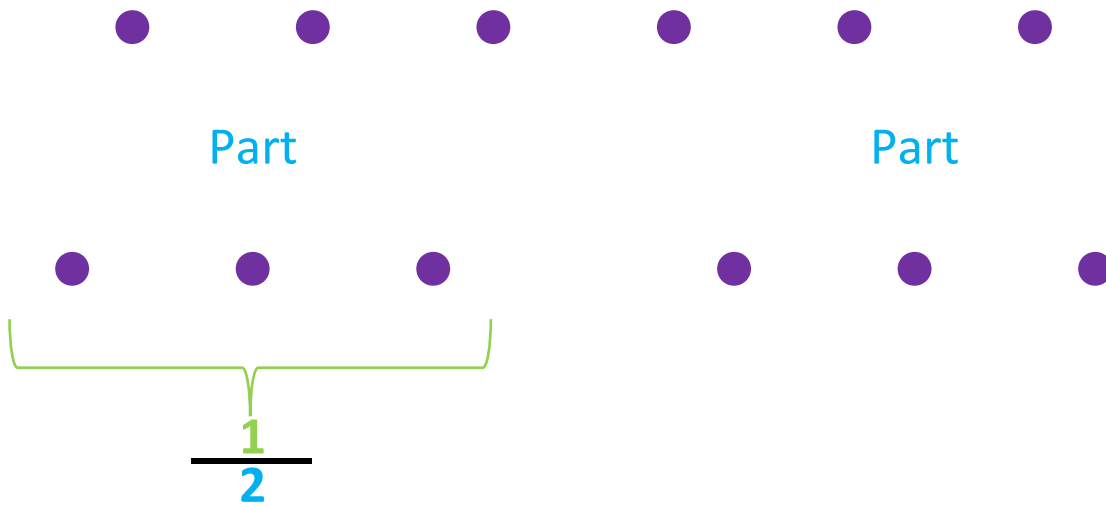
# Halving

Number Sentence

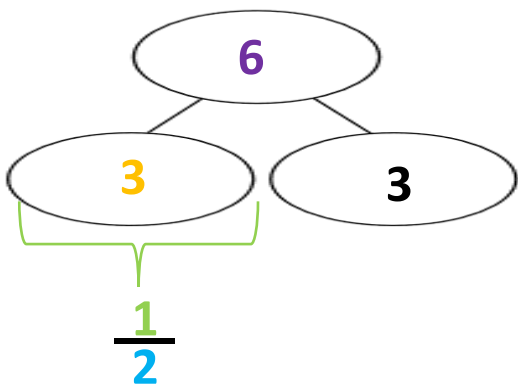
$$\frac{1}{2} \text{ of } 6 = 3$$

Counters

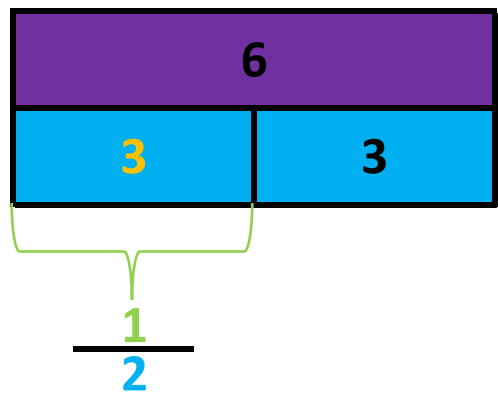
Whole



Part Whole Model



Bar Model



Questions

- 1)  $\frac{1}{2}$  of 4 =      2)  $\frac{1}{2}$  of 8 =      3)  $\frac{1}{2}$  of 10 =      4)  $\frac{1}{2}$  of 12