

# *Maths Curriculum Morning*

*Thursday 7<sup>th</sup> February 2019*

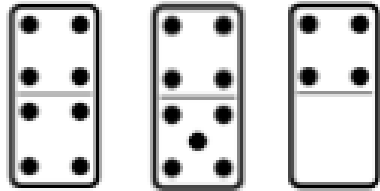
# Overview

- Fluency, Problem Solving and Reasoning  
- What is the difference?
- Importance of learning times table facts
- How to support the teaching of times tables

# Fluency

*Fluency - the fundamentals of mathematics such as: recognition of numbers, calculations, times tables and properties of shapes. This is taught through varied and frequent practice which will increase in its complexity over time.*

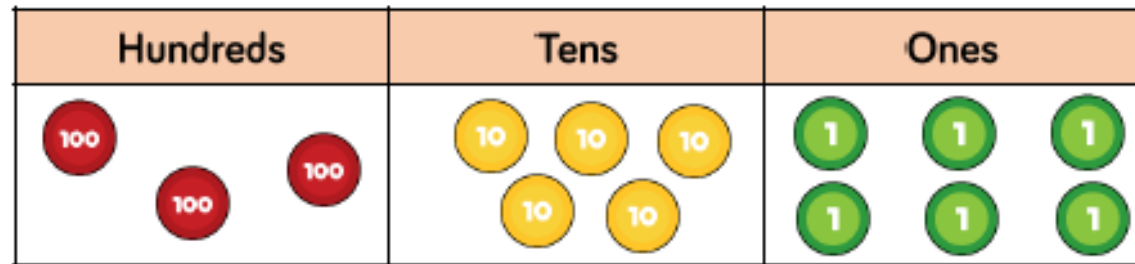
Order the dominos from smallest to greatest.



Complete the sentences:

- The greatest number is \_\_\_\_\_
- \_\_\_\_\_ is the smallest number.

What number is shown on the place value chart?



If one more 10 is added, what number would be shown?

Calculate.

	3	2	4	6	1
+		4	3	5	2

	4	8	2	7	6
+		5	6	1	3

# Problem Solving

*Problem Solving* - application of mathematics which will require some thinking in order to make strategic choices. Problems given may vary between routine and non-routine problems which increase in difficulty.

4 is the whole.

How many **different** part-whole models can you draw to show this?

Use different numbers for the parts each time.

Are any the same? Why?

Which numbers can be divided by 8 without a remainder?

40

64

32

16

800

42

## True or False?

- 1 is a factor of every number.
- 1 is a multiple of every number.
- 0 is a factor of every number.
- 0 is a multiple of every number.

# Reasoning

*Reasoning - following a line of enquiry, developing an argument and justifying answers using proof and mathematical language.*

Whitney says,



When counting forwards, we always count from 0

Do you agree?  
Explain why.

Which part below does not show counting in fours?

$4 + 4 + 4 + 4$				
	<table border="1"><tr><td>4</td><td>4</td><td>4</td></tr></table>	4	4	4
4	4	4		

Explain why.

	100 m sprint (s)	Shot put (m)	50 m Sack Race (s)	Javelin (m)
Stephen	15.5	6.5	18.9	11.2
Julie	16.2	7.5	20.1	13.3
Fred	15.8	6.9	19.3	13.9
Chris	15.6	7.2	18.7	14.1
Dora	17.9	6.3	18.7	13.3

Dora thinks that she won the 100 m sprint because she has the biggest number.

Do you agree?  
Explain your answer.

# Fluency, Problem Solving and Reasoning

- In order to master the maths curriculum in each year group, children will need to be competent in all three areas.
- Reasoning and Problem Solving is taught in all year groups and increases in its complexity.
- Early exposure ensures that we help to create well-rounded mathematicians and that children are well prepared for SATs tests in year 2 and year 6.

# Importance of Times Tables Knowledge

- ▶ Times table knowledge comes into many elements of maths: fractions, multiplication, division, percentages, decimals related facts (if I know  $6 \times 4 = 24$ , then I know that  $60 \times 40 = 2400$ ).
- ▶ If children are able to recall quickly (without the need to count on fingers), it reduces cognitive load.
- ▶ If children are taught strategies and the commutative law ( $7 \times 6 = 42$  and  $6 \times 7 = 42$ ), it reduces the amount of times table fact that they will need to learn.
- ▶ From next academic year, a Multiplication Check will be introduced to all children in year 4 (the current year 3).

# Times Tables to Learn

- 66 facts
- The coloured ones are 42 of them - 36 left
- Nines trick - 29 left
- Elevens - 23 left
- Square numbers - 16 left

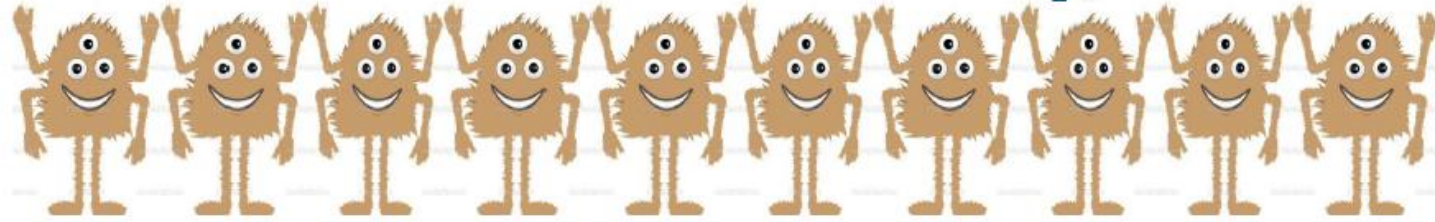
	1	2	3	4	5	6	7	8	9	10	11	12
1	1											
2	2	4										
3	3	6	9									
4	4	8	12	16								
5	5	10	15	20	25							
6	6	12	18	24	30	36						
7	7	14	21	28	35	42	49					
8	8	16	24	32	40	48	56	64				
9	9	18	27	36	45	54	63	72	81			
10	10	20	30	40	50	60	70	80	90	100		
11	11	22	33	44	55	66	77	88	99	110	121	
12	12	24	36	48	60	72	84	96	108	120	132	144



# Times Tables

- ▶  $0 \times 4 = 0$
- ▶  $1 \times 4 =$  the number itself (4)
- ▶  $2 \times 4 =$  double 4
- ▶  $3 \times 4 =$  double 4 plus one lot of 4
- ▶  $4 \times 4 =$  double double
- ▶  $5 \times 4 =$  half of 10 lots OR double double + 1 lot
- ▶  $6 \times 4 =$  double 3 lots OR 5 lots + 1 lot
- ▶  $7 \times 4 =$  5 lots + 2 lots OR 6 lots + 1 lot
- ▶  $8 \times 4 =$  double double double
- ▶  $9 \times 4 =$  10 lots subtract 1 lot
- ▶  $10 \times 4 = 40$
- ▶  $11 \times 4 =$  10 lots + 1 lot
- ▶  $12 \times 4 =$  10 lots + 2 lots OR double 6 lots

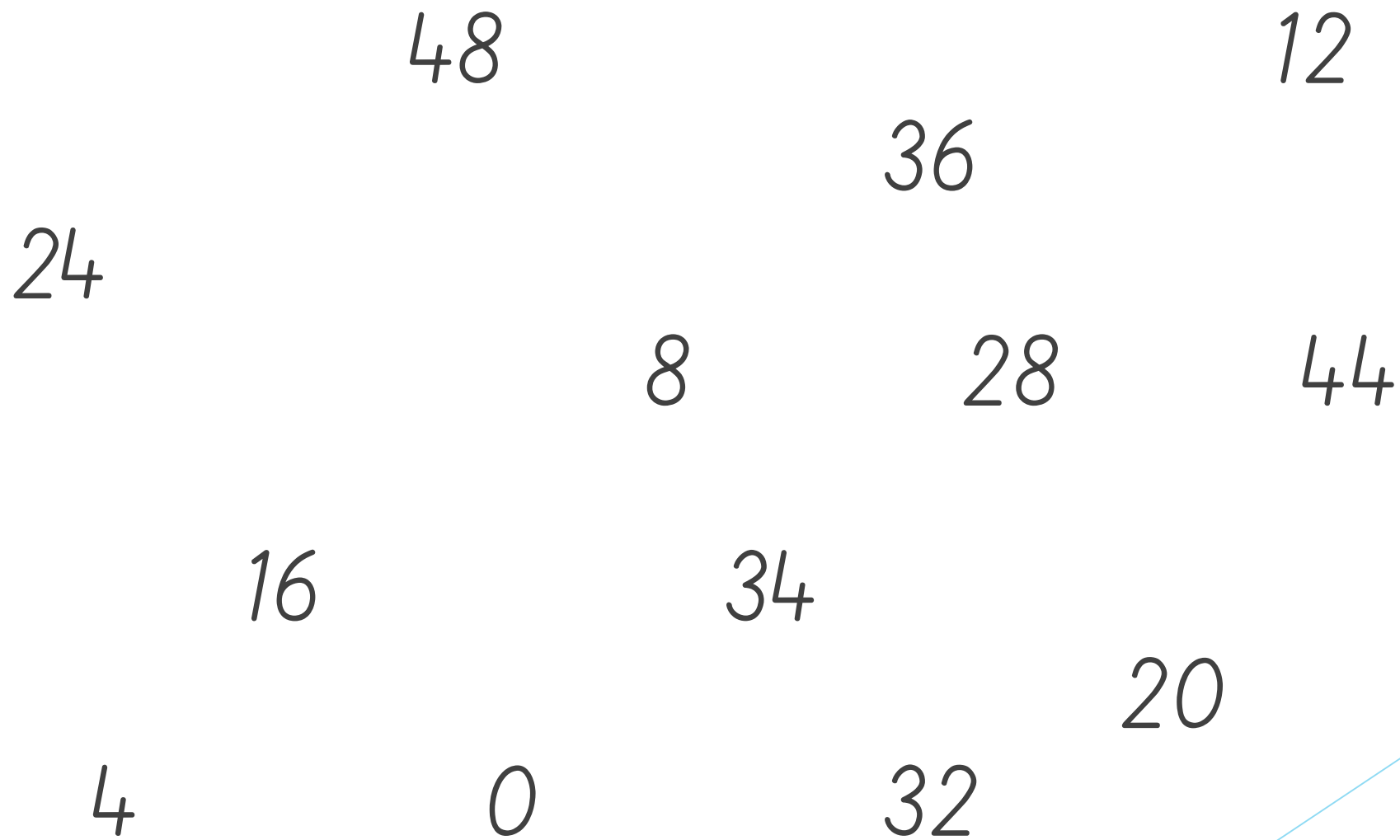
# Recognising Connections



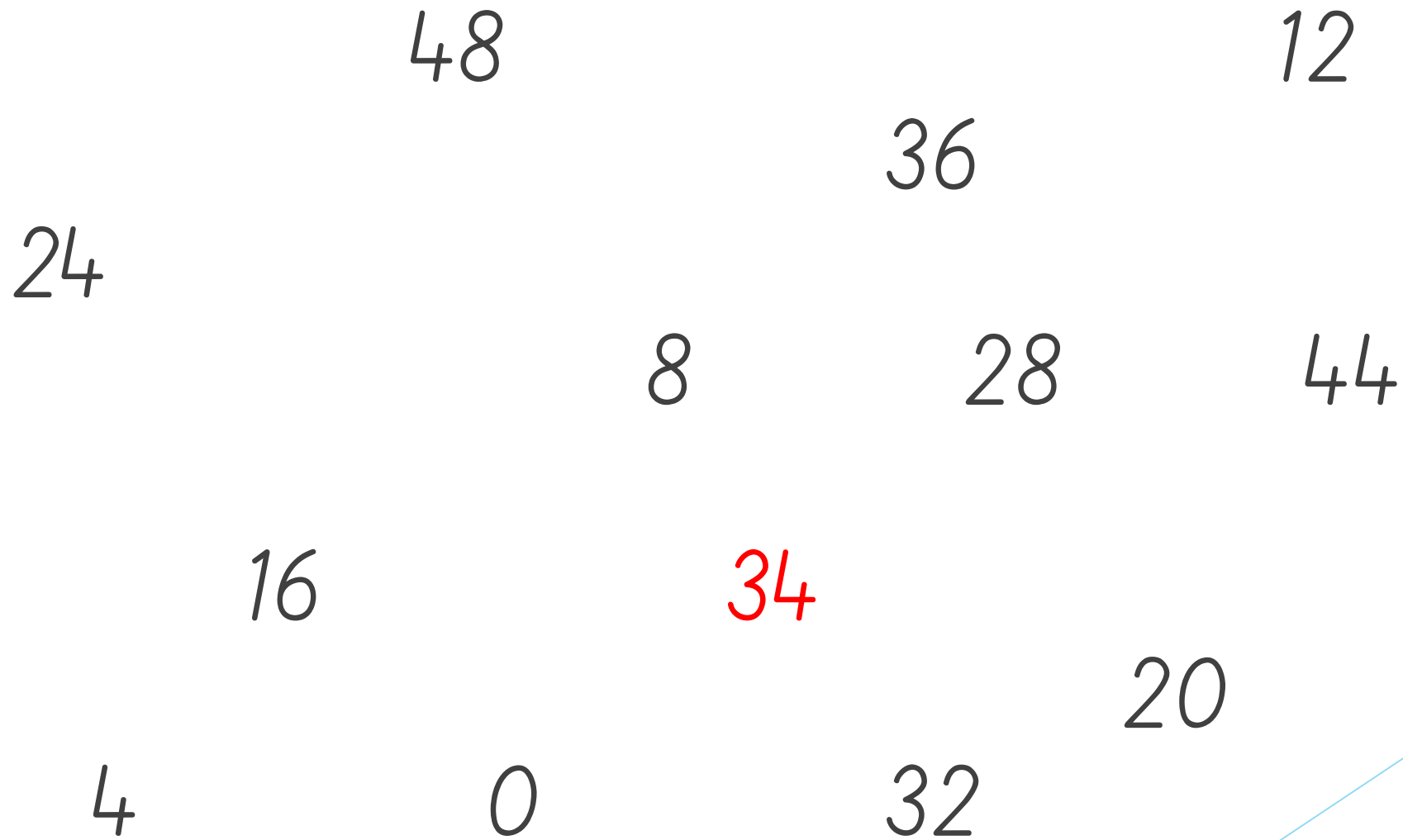
1	alien,	3	eyes.	6	limbs.
2	aliens,	(6)	eyes.	(12)	limbs.
3	aliens,	(9)	eyes.	(18)	limbs.
(4)	aliens,	12	eyes.	(24)	limbs.
5	aliens,	(15)	eyes.	(30)	limbs.
6	aliens,	(18)	eyes.	(36)	limbs.
7	aliens,	(21)	eyes.	(42)	limbs.
(8)	aliens,	24	eyes.	(48)	limbs.
9	aliens,	(27)	eyes.	(54)	limbs.
10	aliens,	(30)	eyes.	60	

Making Connections  
between 3 and 6 times  
table

# Games - Intruder/Odd One Out



# Games - Intruder/Odd One Out



# Games - Missing Multiples

12

0

33

15

3

36

21

24

27

30

6

9

# Games - Missing Multiples

12

0

33

15

3

36

21

18

24

27

30

6

9

# Other Ideas To Help At Home



- All children have access to Times Tables Rock Stars at home. This can be accessed via computers, phones and tablet. The app is free to download.
- Play 'bingo'
- BBC Supermovers website  
<https://www.bbc.co.uk/sport/av/supermovers/42675177>
- Hit the Button <https://www.topmarks.co.uk/maths-games/hit-the-button>
- Oxford Owl website - Top Tips  
<https://www.oxfordowl.co.uk/for-home/advice-for-parents/times-tables-tips>
- Rakegate Primary School Website  
<https://www.rakegateprimary.co.uk/maths-useful-links>

Any Questions?