Maths at St. Patricks KS2

Singapore maths

How has the curriculum changed?

The 2014 changes to the national curriculum in mathematics set out three main aims: to become fluent in the fundamentals of mathematics; to reason mathematically and to solve problems. The rationale for this change is that England is significantly underachieving in terms of developing mathematicians capable of success at GCSE and A-Level. The journey to this success begins at Primary level and recent research suggests that those groups identified as able mathematicians are simply allowed to progress through the curriculum at a faster pace. This promotes procedural learning at the expense of deep understanding.
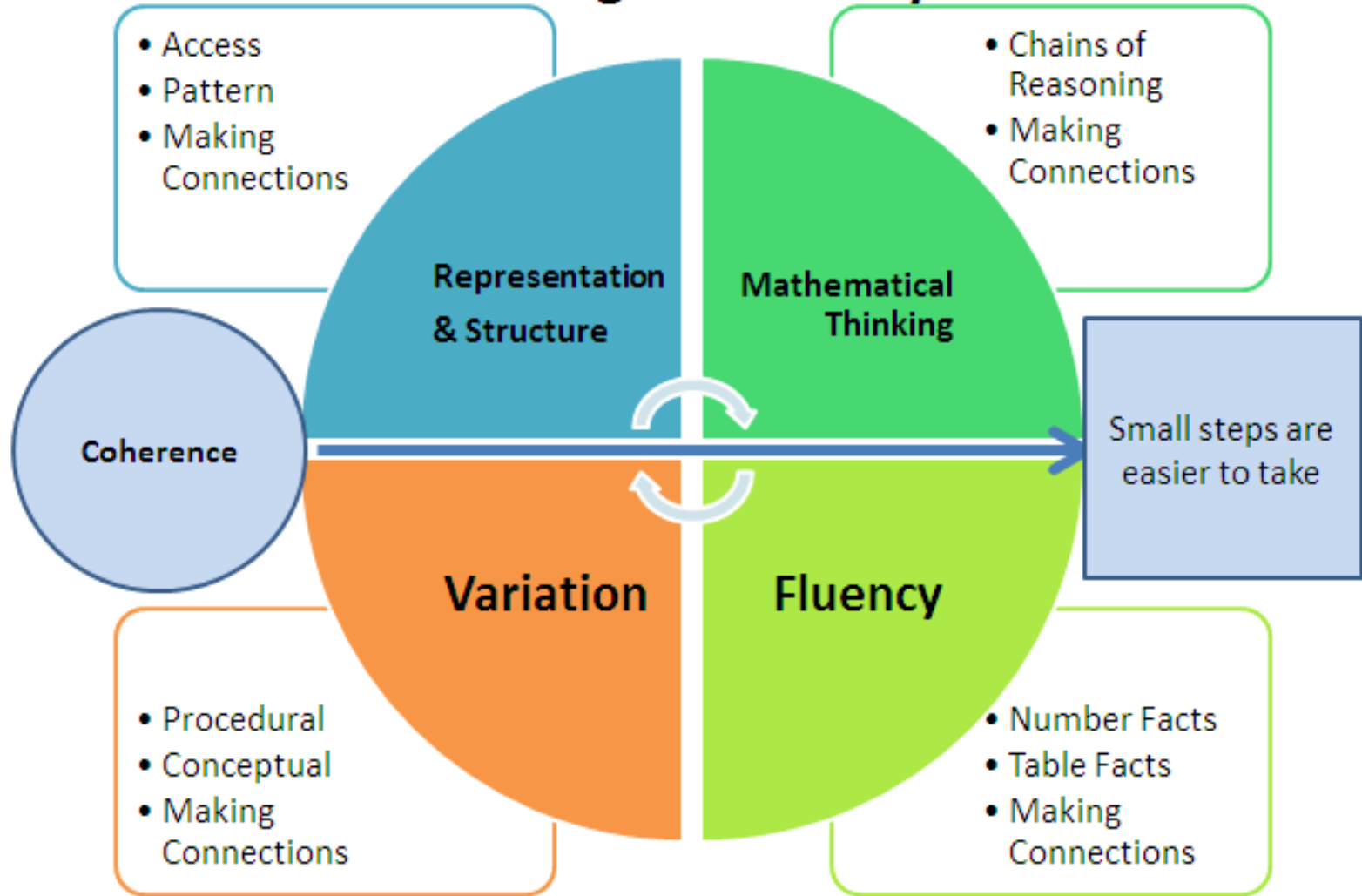
How do we get them there?

- Deep and sustainable learning for all children.

<u>5 key principles:</u>

- Representation and structure
- Variation
- Deep mathematical thinking and reasoning
- Fluency
- Cohesion

We are the start of our journey and so cannot focus on all five however focussing on two over the coming year will help up embed understanding.

St. Patricks moving forward…

- Maths programme – Singapore Maths years 1,3,4,5
  Year 2, 6 (2018)

- Development of maths lead – Bar modelling as a focus

- TA training

- Parent workshops

- Change in structure of lesson to enable ALL children achieve

- Maths pencil cases

Maths No problem

- Teaching maths for mastery is a transformational approach to maths teaching which stems from high performing Asian nations such as Singapore. When taught to master maths, children develop their mathematical fluency without resorting to rote learning and are able to solve non-routine maths problems without having to memorise procedures.

Need To Know

- Evidence-based approach to teaching mathsHelps pupils develop a deep, long-term and adaptable understanding of mathsInclusive approach where all children achieveSlower pace which results in greater progressReflected in the 2014 English national curriculum for mathematicsEndorsed by the Department for Education, NCETM and OFSTED

Structure of lesson

Skill Practice	Challenge 1	Challenge 2

Skill Practice

Find $\frac{1}{4}$ of 44

Find $\frac{1}{3}$ of 72

Find $\frac{1}{6}$ of 84

Find $\frac{4}{5}$ of 50

Find $\frac{3}{4}$ of 96

Find $\frac{2}{3}$ of 51

Challenge 1

What do you notice in the number sentences below?

$\frac{1}{10}$ of 20 = 2

$\frac{2}{10}$ of 20 = 4

$\frac{3}{10}$ of 20 = 6

Can you continue the pattern up to $\frac{10}{10}$?

Fill in the missing numbers.

25 $\xrightarrow{\text{half of}}$ 50

55 $\xrightarrow{\text{half of}}$ ☐

☐ $\xrightarrow{\text{half of}}$ 210

Challenge 2

- Lara has 30 cherries.
On Monday she gives $\frac{1}{10}$ of the cherries to her mum and then eats 7.
On Tuesday she eats $\frac{2}{10}$ of the cherries and gives 6 to her mum.
On Wednesday she eats $\frac{5}{10}$ of the cherries.

How many cherries does she have left?

45 children go on a coach trip.
$\frac{1}{3}$ are girls.
How many are boys?

Marking

- Marking has also changed to help support your child
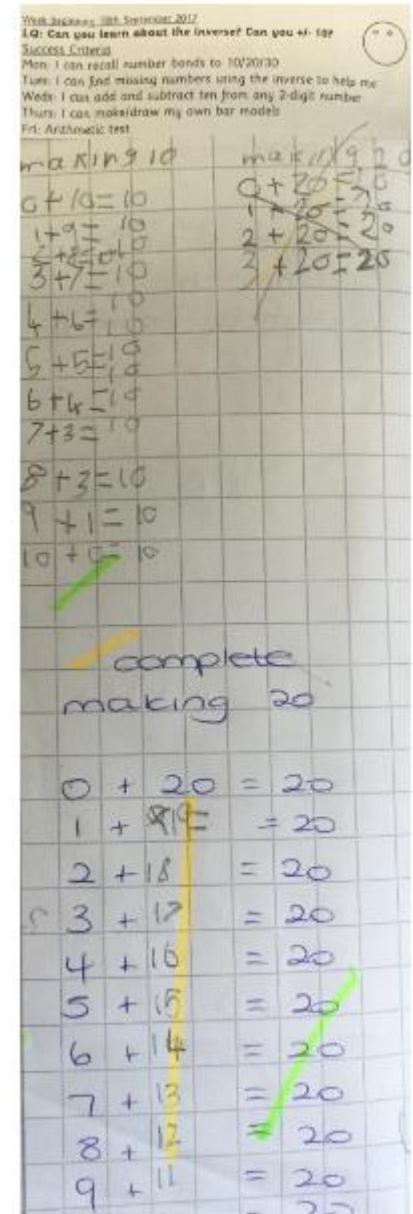- Interactive session with mini feedback sessions
- Self marking
- Mastery links
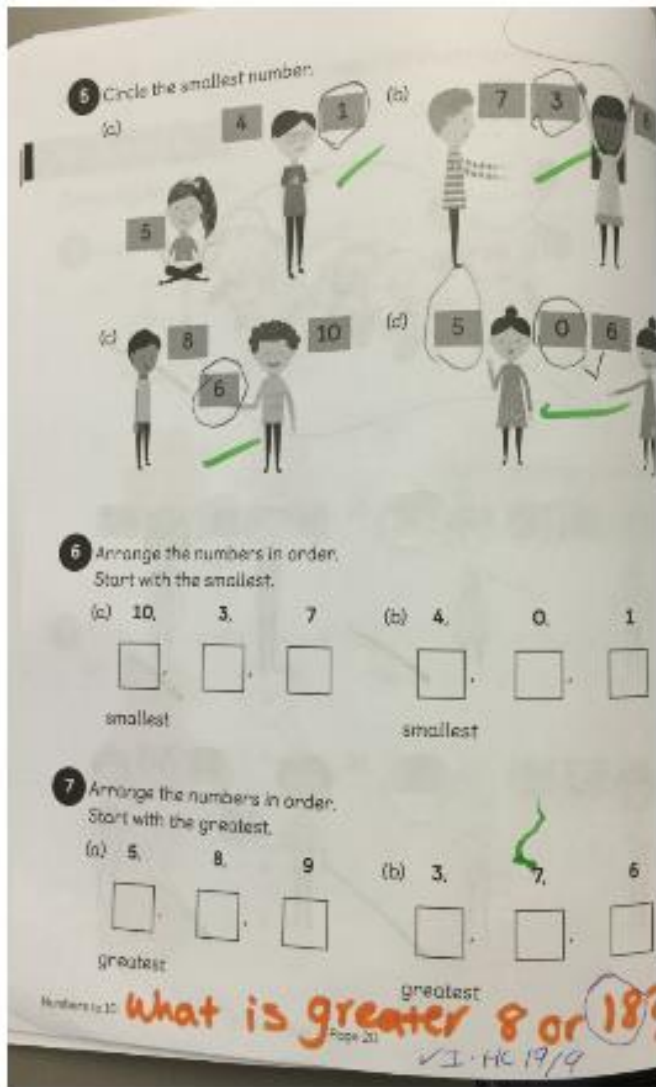
Green shows the children what they have achieved

Orange is next steps- Staff are now focussing on key phrases such as

'explain this'
'show me another way'

'how else can you do this?'

Worksheet 2

Reading and Writing Numbers to 1 000 000

1 Count and then write the numbers in numerals and in words.

(a)

100 000 100 000 100 000 100 000 10 000 10 000 100 100 100 100 100 100

1 1 1

why do you think this one might be wrong?

| 42603 | forty two thousand six hundred and three |

(b)

100 000 100 000 100 000 100 000 100 000 100 000 100 000 100 000 10 000 1000 1000 1000 100

100 100 100 100 10 10 10 10 10 10 10 10

1 1 1 1 1 1

| 713586 | Seven hundre and thirteen thousand five hu and eighty six. |

Fill in the blanks.

The digit **8** is in the hundred thousands p ✓

The digit **6** is in the thousands place.

| 856 321 |

The digit 8 stands for **800 000** ✓

The digit 5 is in the **ten thousands** place. ✓

Numbers to 1 000 000

Contents

Chapter 1	Numbers to 1 000 000	Page

Chapter 2 Whole Numbers:

Mastery- for all children...

- Skills - learning task 1.
- Challenge 1- independent.
- Challenge 2- Mastery books- Please train children- Date and lesson number.
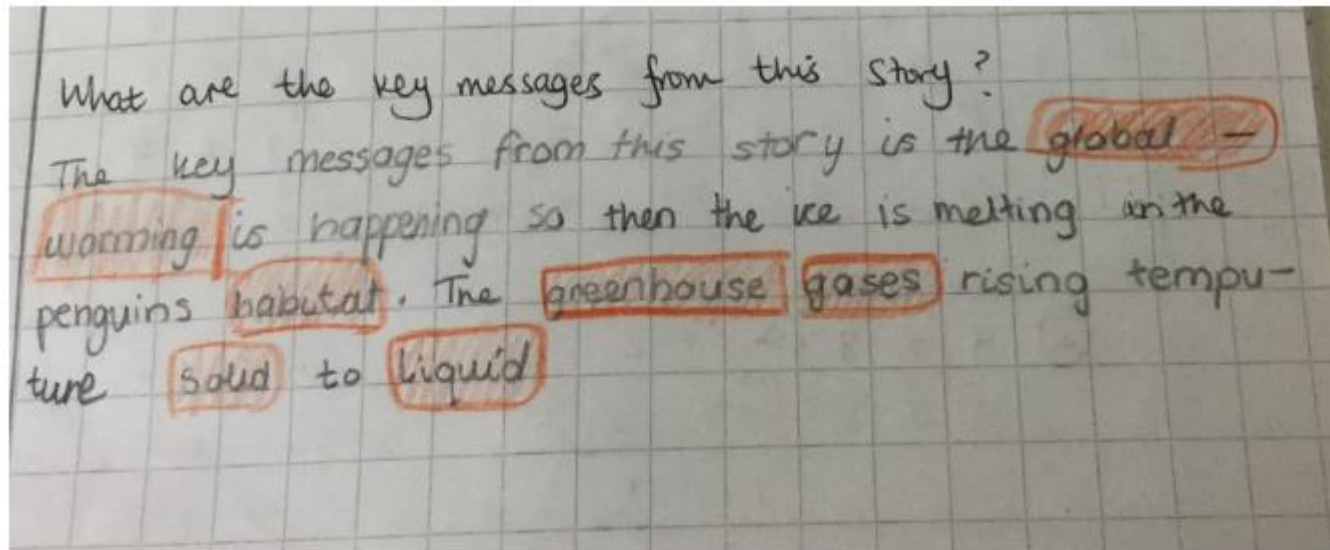
Developing the key skills

- Always ask children how they have worked something out.
- Praise thinking and methods rather than just the answer.
- Avoid saying the answer is right where possible – instead ask children if they all agree.
- Encourage children to find alternative methods of doing things.
- Use talk partners regularly.
- When counting above ten refer to tens and ones, not tens and units.
- Count actual objects or pictures of actual objects. Use of counters etc starts in year 1.
- Practise number bonds for all numbers.
- Encourage children to imagine how things might look before showing them.

Maths Journals 2 year process

- Date

- Lesson Number

- Lesson title

What do you know…

Using what you know

$$7 + 2 = 9$$

If you know this fact, what else do you know?

$$10 + 10 = 20$$
$$(11-1) + 10 = 20$$
$$(11-1) + 10 = 2\times10$$
$$(11-1) + (5+5) = 2\times10$$
$$14+14=28$$
$$(18-4)+14=28$$
$$(18-4)+2\times7=28$$
$$(18-4)+2\times7=\tfrac{1}{2}\times40$$

$$20 + 20 = 40$$
$$(40-20)+20=40$$
$$(40-20)+20=\tfrac{1}{2}\times80$$
$$(40-20+\tfrac{1}{2}\times40=\tfrac{1}{2}\times80$$

$$\tfrac{1}{2}\times32=\tfrac{1}{2}\times8=\tfrac{1}{4}\times4$$
$$\tfrac{1}{2}\times\tfrac{1}{2}\times16=\tfrac{1}{2}\times4$$
$$100+100=200$$
$$(\tfrac{1}{2}\times200)+100=200$$
$$(\tfrac{1}{2}\times200)+100=\tfrac{1}{4}\times800$$
$$\tfrac{1}{2}\times200)+\tfrac{1}{3}\times800=\tfrac{1}{2}\times800$$

Finding time for practice of number facts
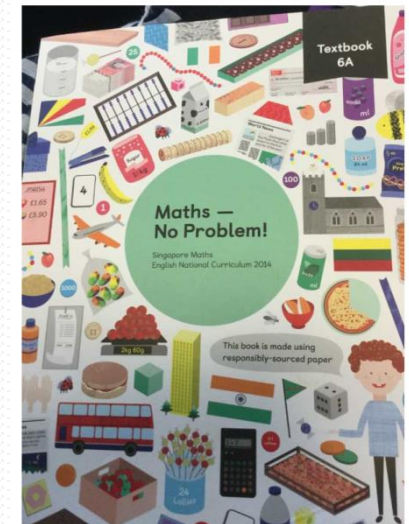
Identify times in the day

- 10 minute maths
- Transition periods
- Start/End lessons

$$28 + 29$$

How many ways can you solve?
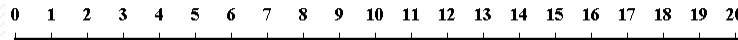Which is the quickest?
Write a similar question.

Textbook 6A
Maths — No Problem!
Singapore Maths
English National Curriculum 2014
This book is made using responsibly-sourced paper

What do we teach in ks1 Maths?

- Number bonds from 10 and 20 (ie 7+3=10, 18+2= 20)
- Basic multiplication (2,5,10)
- Basic division (2)
- Fractions (½ , ¼, 1/3)
- Addition and subtraction to 100
- Place value (units, tens and hundreds)
- Time (o'clock, half past, quarter to, quarter past)
- Measurement (weight, length, capacity)
- Money (everyday money- calculating change)
- Problem solving
- Handling data (graphing, tables, sorting data)
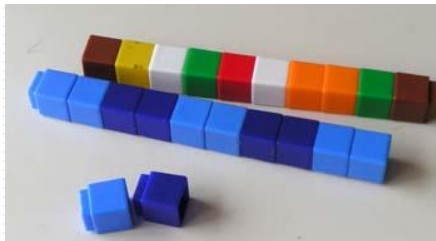- Shape and space

Resources

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

- Number line

Number square

- Counters

- [Online games](#)

Place value cards

- Unifix sticks

Using a Number Line

- Adding 5 + 3 = 8
- Step 1 start on the biggest number and count on in jumps.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
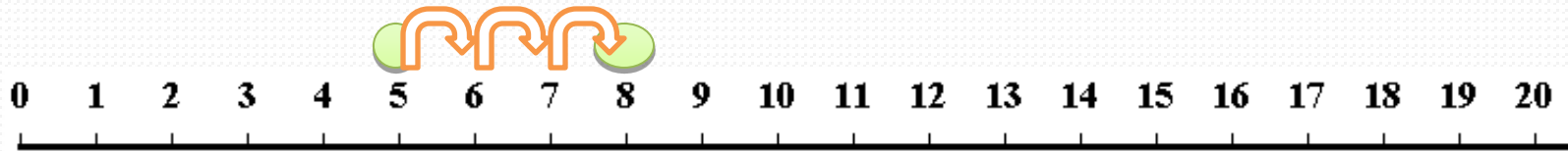
- Subtracting 18- 4=
- Step 1: start on the biggest number and count back in jumps.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
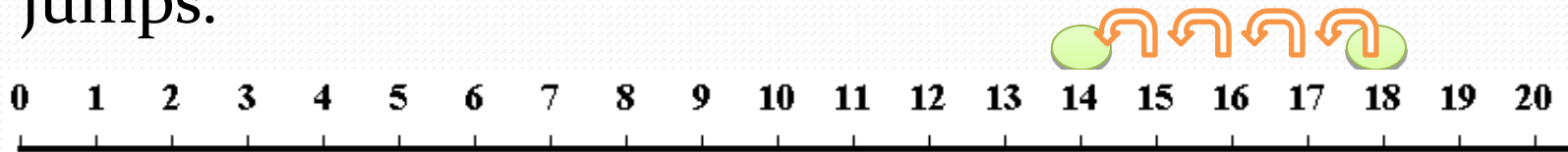
45 − 37 = **8**

Start at 37, add 3, add 5.

Addition and Subtraction a with number square

- Adding 12

- 54 +12= 66

- Step 1 :Partition the number
(one 10, two units) 10 & 2
- Step 2: add on the 10 (down 1)
- Step 3 add on the units (right 2)

- Adding 10 go down 1

- Subtracting 10 up 1

- Adding 1go right 1

- Subtracting 1 go left 1

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

Addition and Subtraction a with number square

Adding 9 :

25 + 9= 34

Step 1: find 25 on number square

Step 2: simplify the equation (add 10 -1).
 To add 10 simple go down one on the number
Grid then then take 1 to make 9 (go left 1 space)

Down 1 left 1

Subtracting 9:

25 -9= 16

Step 1: find 25 on the number grid

Step 2: simplify the equation (take 10 +1)

Step 3: to take ten go up 1 then take 1 by going
Right 1.

Up 1 right 1

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

Using a number grid for patterns and multiplication

- Colour in the

 even numbers to recognize odd and even

- Learn the 2, 5 and 10 x table
- number square
- Variations for the number square
- Hiding numbers on a number square

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

Multiplication in ks1

- First recognize that multiplication is repeated addition
- No of lots   how many per group   total

3   x   5   =   15

- Is the same as 2 lots of 5 or 5 + 5 +5 = 15
- Use pictorial cues to represent a x sum.
- Encourage them to write the sum:
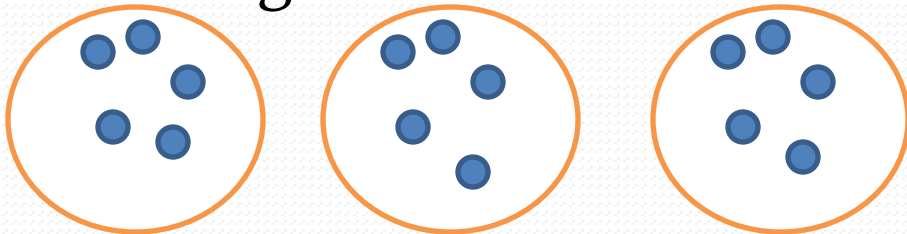
-      5   +   5   +   5   =   15

Practical maths

Making maths practical by using real materials. Try some of these at home with your child.

- Using coins   using food
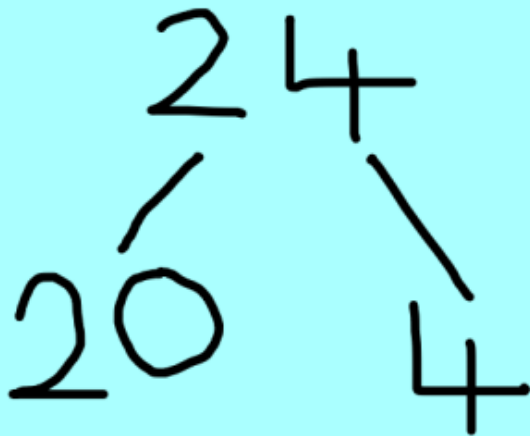
- Using measuring cups

-                               cooking

Partitioning and recombine….

Partitioning in different ways

Did you know that we can partition numbers in different ways?
This way is very straightforward…….

24
20
4

….now look at this way…

$$24 = 10 + 10 + 4$$

$$45 = 10 + 30 + 5$$

Can you see that the tens are split up in different ways?
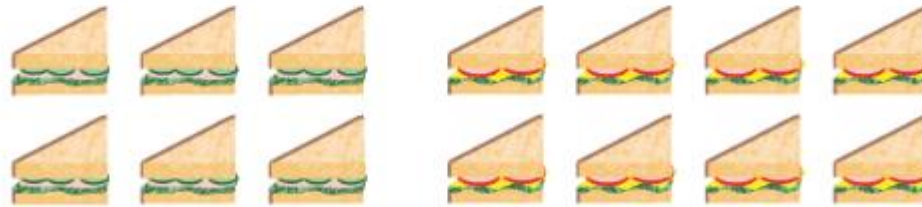Think of a way to partition these numbers.

$$32 =$$

$$67 =$$

Maths no problem…

Add by Making 10

In Focus

How many sandwiches are there?

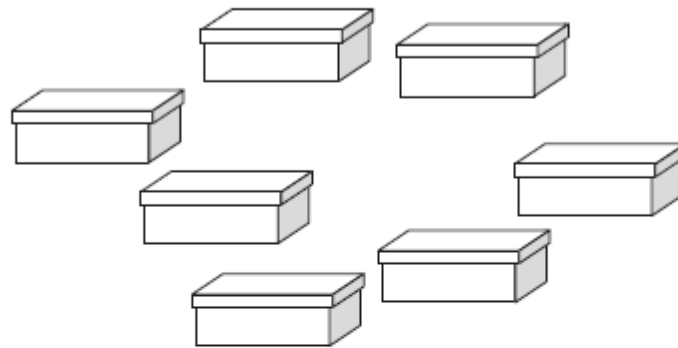# Examples of test questions…

- Arithmetic

$$19 - 9 = \boxed{}$$

$$\boxed{} + 5 = 9$$

$$\frac{3}{4} \text{ of } 40 = \boxed{}$$

$$\frac{1}{4} \text{ of } 20 = \boxed{}$$

Examples of test questions

7

Sita puts **2** shoes in each of these boxes.

How many shoes are there altogether?

shoes

Online games

Children love games to engage their learning. Try some of these site links.

Any questions?

- Moving forward