Maths - How to support children at home.

Monday March 4th 2019

6:30pm – 7:30pm

Aims of this session

- Look at how we teach maths in school
- Think about the application of maths
- Consider how you can help at home
- Any questions?

Why is maths so important?

The National Curriculum states that

- 'Mathematics is a creative and highly **inter-connected discipline** that has been developed over centuries, providing the solution to some of history's most intriguing problems. **It is essential to everyday life**, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides **a foundation for understanding the world**'

WHY MATHEMATICS IS IMPORTANT FOR ADULTS.

COOKING.

TIMES.

HEAT.

MEASURING.

SPORT.

WEIGHT.

TIME.

DISTANCE.

POINTS SCORED.

EATING OUT.

MENU.

CHANCE.

WHAT TO PAY!

10% FOR A TIP.

SHOPPING.

BEST DEALS.

TOTAL.

GOOD VALUE!

TRANSPORT.

SPEED.

DISTANCE.

TIMETABLE.

COST.

HOME.

HELPING WITH HOMEWORK.

BUDGET.

DECORATING.

EMPLOYMENT.

THERE ARE VERY FEW JOBS THAT DO NOT REQUIRE MATHS.

But ……

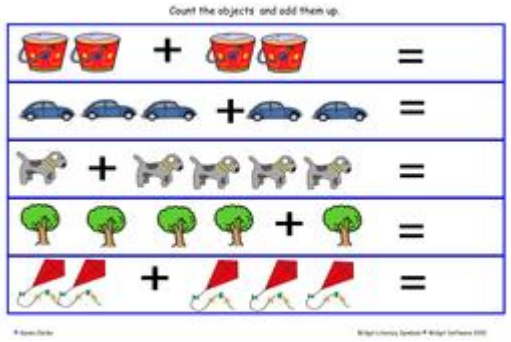
Some facts

- Children's understanding of and attainment in maths in primary school can have an impact on their success at GCSE
- If children are not confident and ‘fluent’ with number by the end of Year 3, it will be more challenging to catch up
- Linking and noticing patterns is key to understanding maths
- The current maths curriculum focusses on fluency, reasoning and problem solving

How we teach maths in school

Concrete

Pictorial



Abstract

1 + 0	2 + 3	2 + 1	4 + 1
3 + 1	2 + 2	1 + 1	0 + 0

It is important to remember

- Children do not learn maths in a straight line, but move up and down a continuum
- Learning a new method of calculating does not mean other ways are no longer relevant
- Children should always be looking for calculations they can do mentally (at least in part)
- Based on what we know, as children get older, they can often be less willing to take risks and more reluctant to ask for help

Maths is like a web

EYFS (Early Years and Foundation Stage)

- As practical as possible
- Develop the basics
- Count reliably
- Recognise numbers
- Perform simple calculations

Early learning goal – numbers

Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

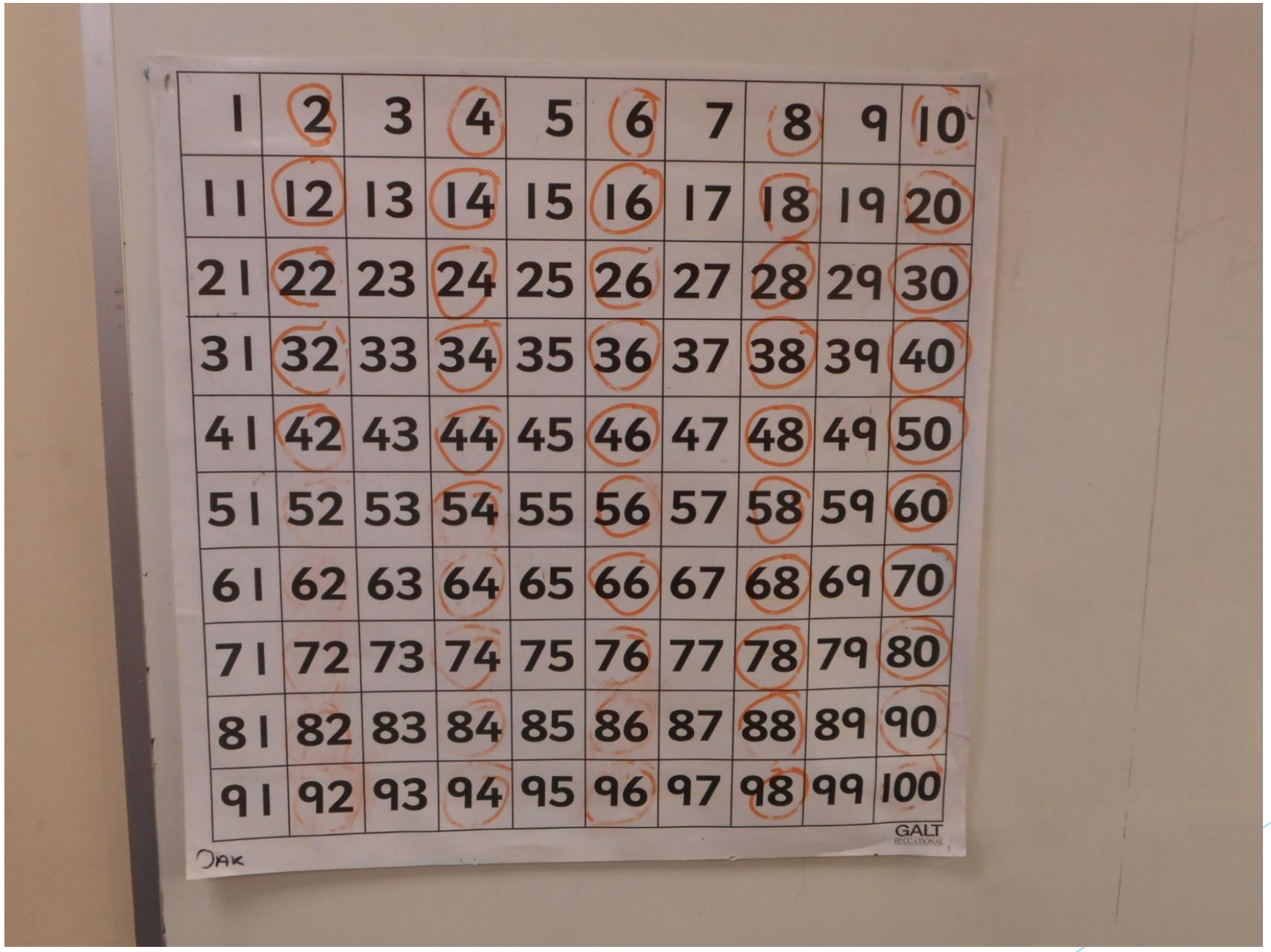

January
February
March
April
May
June
July
August
September
October
November
Today
Thursday
28th
February
Season
Weather
Winter
Maths Challenges
Phonics
Independent Challenges!

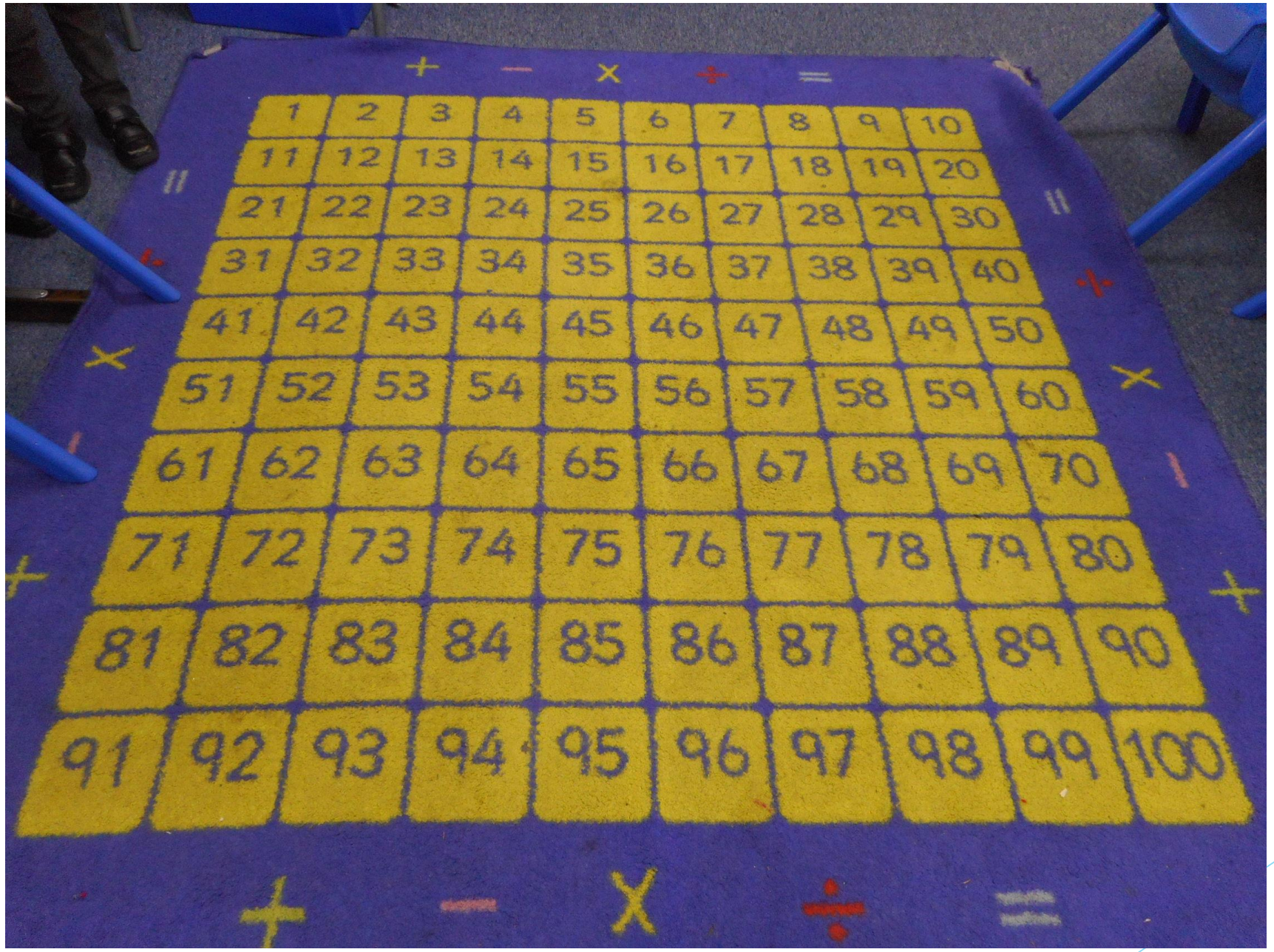

20
six
eight


Mad Maths Minutes
Addition (within 20) Crossing 10 Set C
Next step work 25/2/17
Adding 3 single digit
www.snappymaths.com

KS1 (Years 1 and 2)

- Still practical whenever possible
- Focus on building a solid maths foundation – the basics
- When ready, more reasoning skills are introduced
- Challenge learning is encouraged

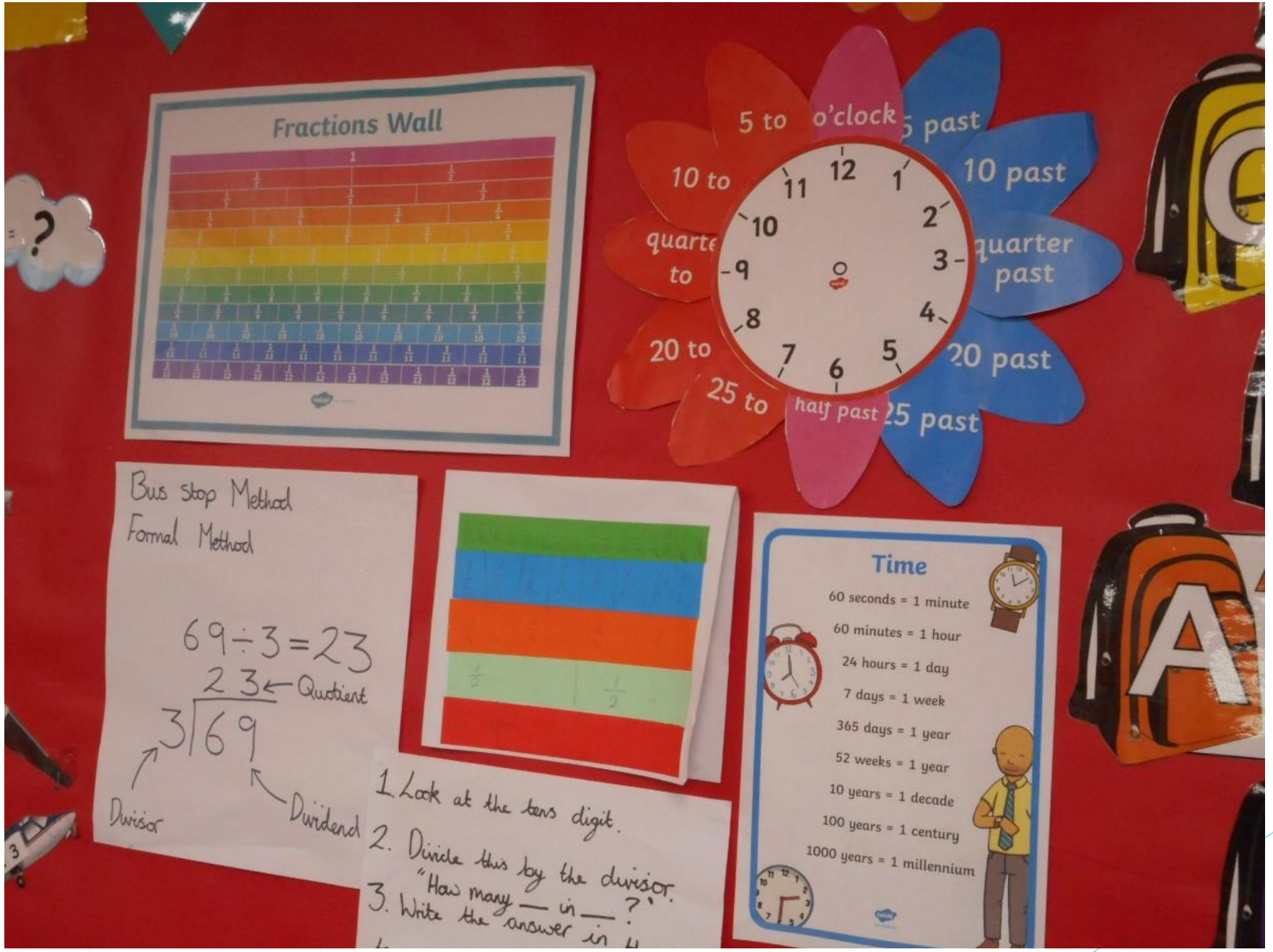

1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70
71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90
91 92 93 94 95 96 97 98 99 100
GALT
EDUCATIONAL
OAK

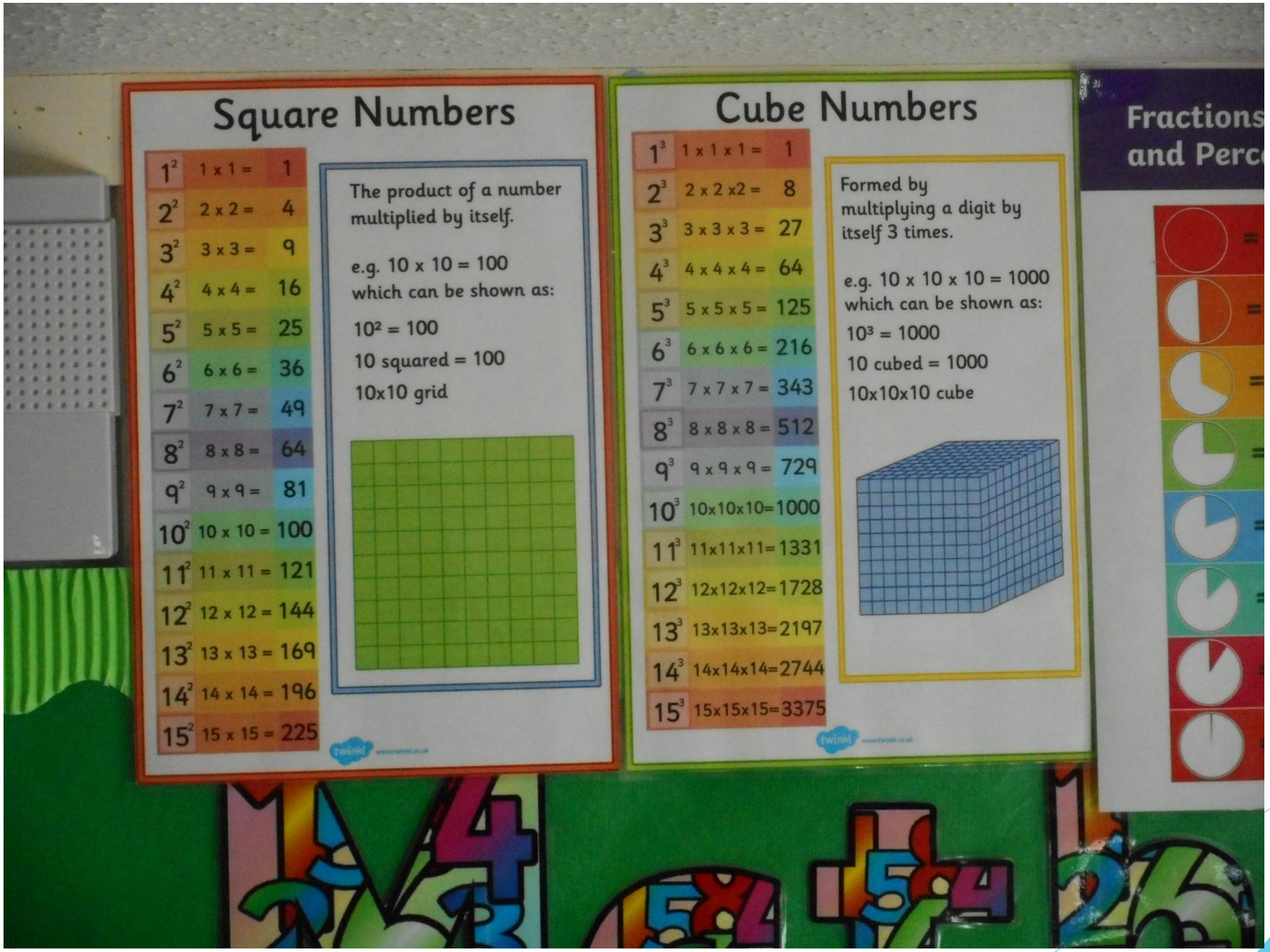

+ − × ÷ =
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50
51 52 53 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70
71 72 73 74 75 76 77 78 79 80
81 82 83 84 85 86 87 88 89 90
91 92 93 94 95 96 97 98 99 100
+ − X ÷ =

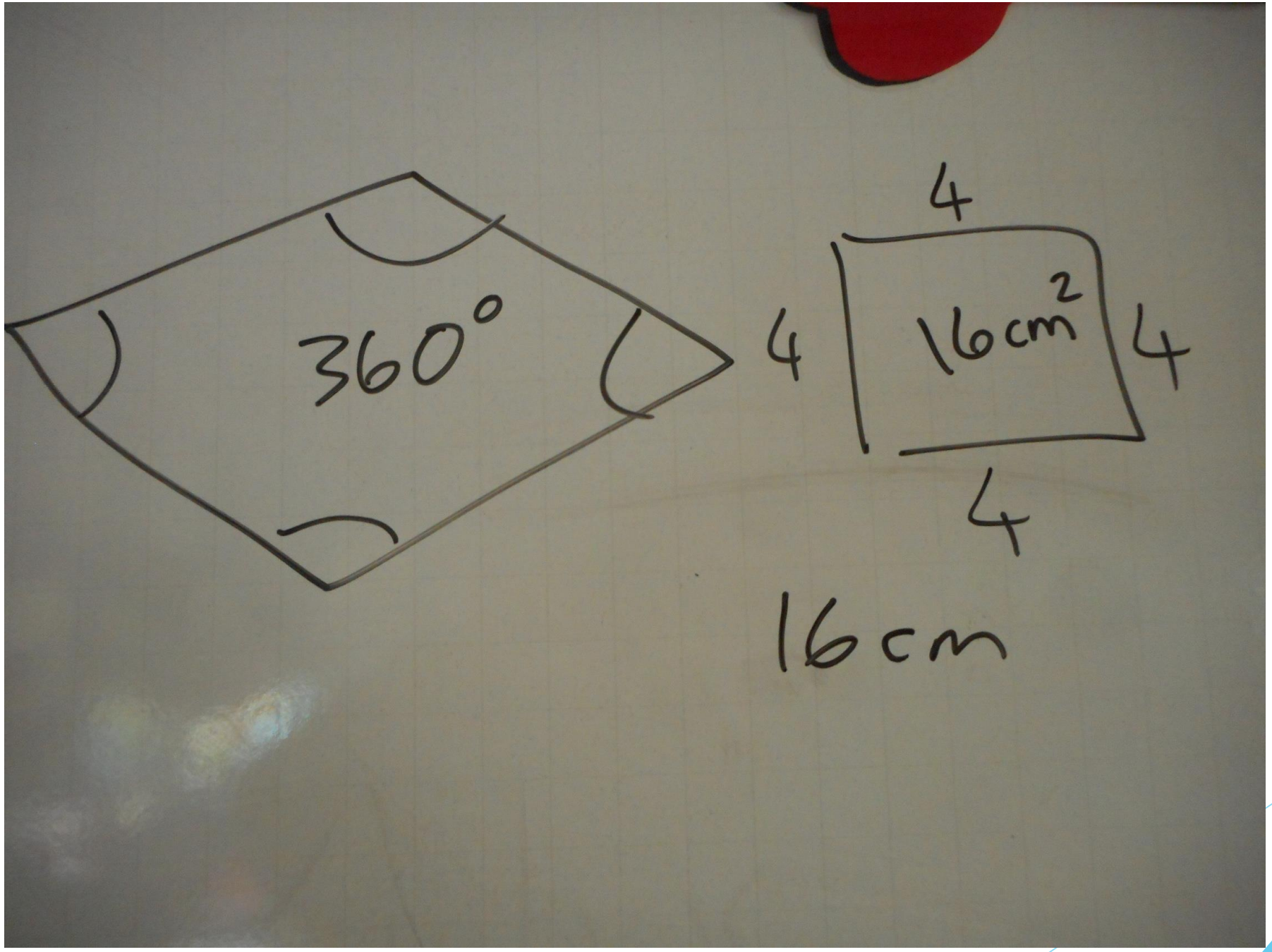

January
:00
5 past
10 past
quarter past
20 past
25 past
:30
25 to
20 to
quarter to
10 to
5 to
1/2
half
quarter
1/4
1/4
1/4
1/2
half
CLASSROOM THERMOMETER

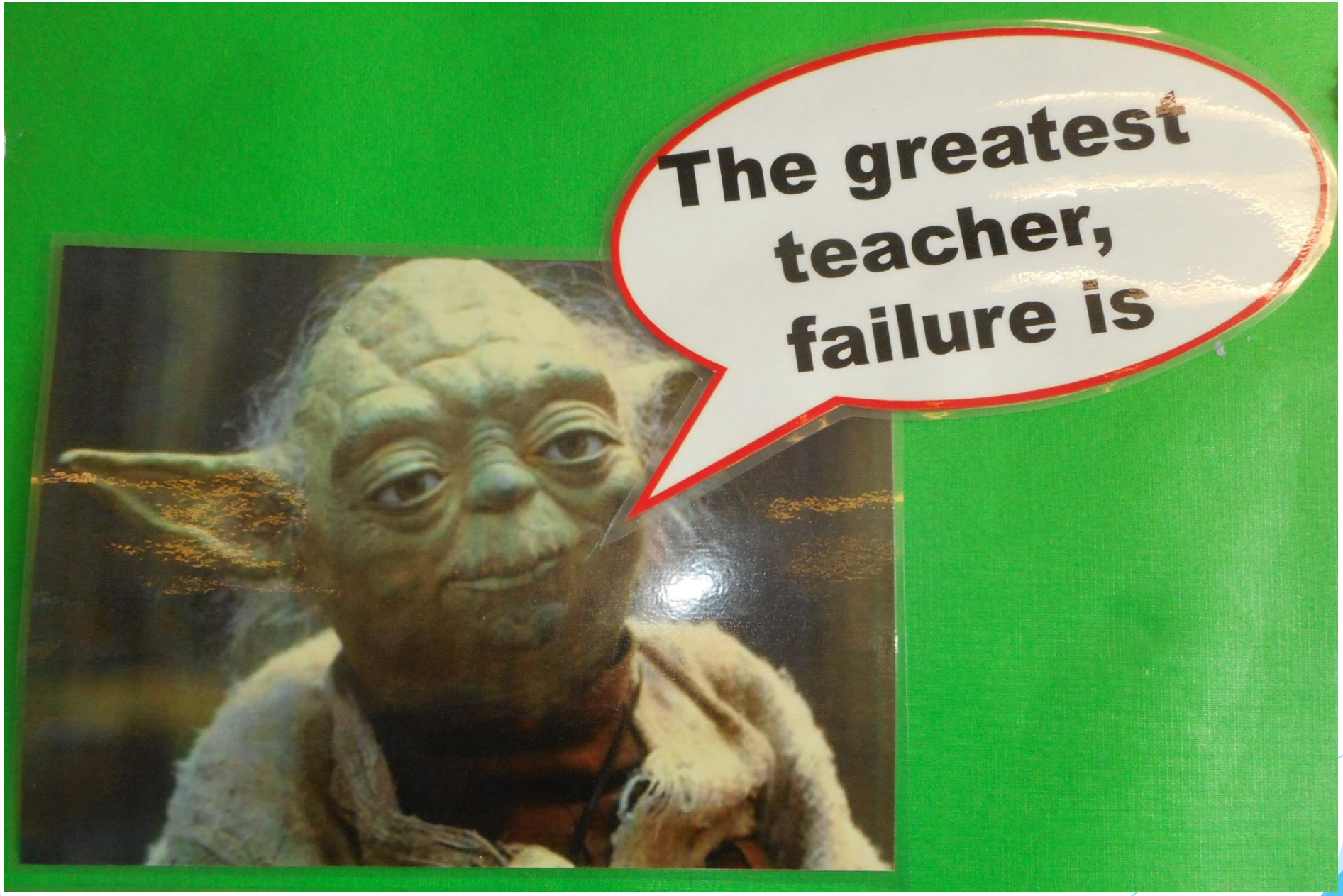
KS2 (Years 3,4,5 and 6)

- Develop more formal written methods of calculation (abstract)
- Make independent use of equipment
- Improve and consolidate reasoning and problem solving skills
- Expand understanding of mathematical concepts
- Recording thoughts and calculations on paper is encouraged


Fractions Wall
5 to
o'clock
5 past
10 to
10 past
quarter to
quarter past
20 to
20 past
25 to
half past
25 past
Bus stop Method
Formal Method
69÷3=23
23 ← Quotient
3|69
Divisor
Dividend
1. Look at the tens digit.
2. Divide this by the divisor.
"How many — in — ?"
3. Write the answer in
Time
60 seconds = 1 minute
60 minutes = 1 hour
24 hours = 1 day
7 days = 1 week
365 days = 1 year
52 weeks = 1 year
10 years = 1 decade
100 years = 1 century
1000 years = 1 millennium


Square Numbers
1^2 1 x 1 = 1
2^2 2 x 2 = 4
3^2 3 x 3 = 9
4^2 4 x 4 = 16
5^2 5 x 5 = 25
6^2 6 x 6 = 36
7^2 7 x 7 = 49
8^2 8 x 8 = 64
9^2 9 x 9 = 81
10^2 10 x 10 = 100
11^2 11 x 11 = 121
12^2 12 x 12 = 144
13^2 13 x 13 = 169
14^2 14 x 14 = 196
15^2 15 x 15 = 225
The product of a number multiplied by itself.
e.g. 10 x 10 = 100 which can be shown as:
10^2 = 100
10 squared = 100
10x10 grid
Cube Numbers
1^3 1 x 1 x 1 = 1
2^3 2 x 2 x2 = 8
3^3 3 x 3 x 3 = 27
4^3 4 x 4 x 4 = 64
5^3 5 x 5 x 5 = 125
6^3 6 x 6 x 6 = 216
7^3 7 x 7 x 7 = 343
8^3 8 x 8 x 8 = 512
9^3 9 x 9 x 9 = 729
10^3 10x10x10=1000
11^3 11x11x11=1331
12^3 12x12x12=1728
13^3 13x13x13=2197
14^3 14x14x14=2744
15^3 15x15x15=3375
Formed by multiplying a digit by itself 3 times.
e.g. 10 x 10 x 10 = 1000 which can be shown as:
10^3 = 1000
10 cubed = 1000
10x10x10 cube
Fractions and Perc


360°
4
4
16cm²
4
4
16cm


The greatest
teacher,
failure is

Medium term plans

- Flexible, depending on the needs of the children
- Generally start with Place Value
- 4 operations (+ - x ÷)
- Other areas as appropriate, e.g organised to fit in with topic
- Revisit during the year as necessary

Year 1 /2- Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value				Number: Addition and Subtraction				Geometry: Shape		Measurement: Money	
Spring	Number: Multiplication and Division (Y1: Place Value to 50 included)				Number: Fractions			Measurement: Length and Height		Measurement: Mass, Capacity and Temperature		Consolidation
Summer	Year 1: Place Value within 100 Year 2: Statistics		Geometry: Position and Direction		Problem solving and efficient methods		Measurement: Time			Investigations		Consolidation

Year 3/4 – Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value				Number: Addition and Subtraction				Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division		Measurement: Length, Perimeter and Area		Number: Fractions				Year 3: Fractions Year 4: Decimals			Consolidation
Summer	Measurement: Money		Statistics		Measurement: Time			Geometry – Properties of Shapes		Year 3: Mass and Capacity Year 4: Position and Direction		Consolidation

Year 5/6 – Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number – Place Value			Number – Addition and Subtraction		Number – Multiplication and Division			Statistics		Measurement: Perimeter, Area and Volume	
Spring	Number – Fractions					Number- Decimals and Percentages				Year 5: Multiplication and Division Year 6: Algebra and Ratio		
Summer	Measurement: Converting Units		Geometry: Position and Direction	Geometry: Properties of Shape		Investigations						Consolidation

Dates:	Literacy	Maths	ICT	Art/DT	PSHE/RE/P4C	Geography/History	PE
Week 1: **25/2/19** **Week 2:** **4/3/19** **Week 3:** **11/3/19** **Week 4:** **18/3/19** **Week 5:** **25/3/19**	Week 1: Mock SATS Week 2: Writing a letter to the queen Questions Hot seating Writing questions for the queen. Good/bad letters - features Week 3: Addresses and proper nouns Paragraphs Draft Neat	Week 1: Y1: To recognise and know the value of different denominations of coins and notes. Solve one-step problems involving multiplication and division by calc the answer using objects and pictorial reps. Y2: Recognise and use symbols for £ and p. Combine amounts to make a particular value. Find different combinations of coins that equal the same amount of money. Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. Week 2: Y1: LA Count in 2s LA Count in 10s. Tens and units. Y2: Recognise odd and even numbers Count in steps of 3 from 0	LO: Y1 To use a device to take a picture to record their work. To talk about images they have taken and tools used. Yr2: To develop a variety of skills using a range of tools and techniques to communicate a specific idea or effect. Y1: Use a paint package to create a picture using a variety of tools to communicate their ideas. Y2: Develop their skills using tools to communicate ideas. Yr 1: To animate an image. To explore shape, line and	LO: To use ideas of famous artists to create pieces. Skills: To colour own work neatly following the lines. To show different tones by using coloured pencils. To show pattern and texture by adding dots and lines. LO: To use a combination of shapes. To use repeating or overlapping shapes.	To give reasons for their beliefs and opinions. To explore the concept of democracy and fairness. To discuss peaceful ways to solve problems. RE Why was Jesus welcomed like a King or celebrity by he crowds on Palm Sunday? Should people follow	-To show an understanding of monarchy. -Show an understanding of the concept of nation and a nation's history. -Label time lines with words or phrases such as: past, present, older and newer -Describe significant people from the past. -Recognise that there are reasons why people in the past acted as they did	Dance: Tudor/country dance

Place Value and base 10 number system

Understanding Place Value is key to understanding maths

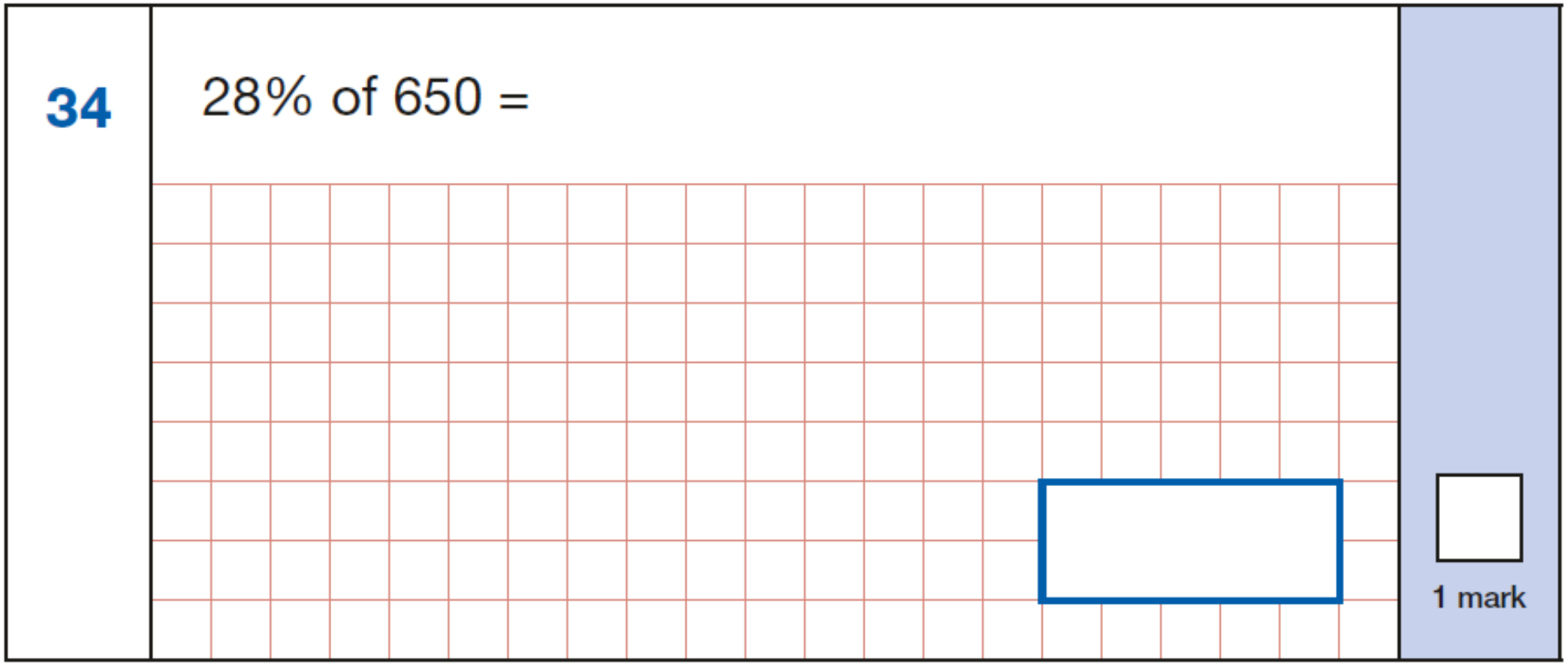
On your white boards ……

How would you do?

- 25x19
- 5% of 860
- 248-99
- 103-98
- ½ of 378
- 1+2+3+4+5+6+7+8+9+10+11=

How about

34 28% of 650 =

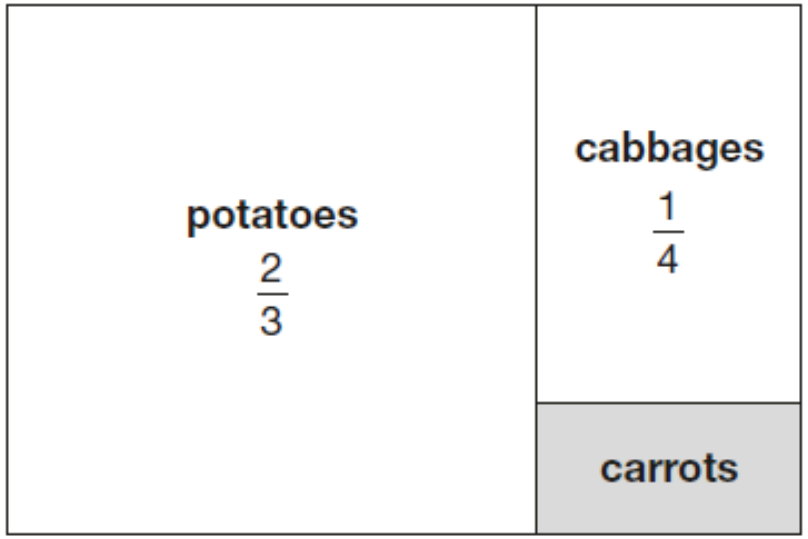


1 mark

or

18 This is a diagram of a vegetable garden.

It shows the fractions of the garden planted with potatoes and cabbages.



Not to scale

The remaining area is planted with carrots.

What **fraction** of the garden is planted with carrots?

Our calculation methods

- Are developed on a step by step basis
- Are taught when the children are ready to understand them
- Refer to the inverse operation as appropriate
- Can be adapted to cater for different circumstances
- School Website Link to Calculation Methods

Vocabulary

- Use the correct terms as appropriate
- Try and avoid vocabulary misconceptions, e.g. ‘sums’
- Use as many different terms for things as possible
- Use a maths dictionary (online or paper)

Classic misconceptions

Four hundred and eight is written as 4008

There are no numbers between 2.2 and 2.3

0.625 > 0.9

0.4 is smaller than 0.400

2.1 hours = 2 hours 10 minutes

Shapes with bigger areas have bigger perimeters

Using technology

MyMaths.co.uk

conquermaths.com

TIMES TABLES ROCK STARS

Maths Apps Link

SATs! (Statutory Assessment Tests)

- Children sit national tests at the end of Year 2 and Year 6
- KS1 - The tests are a tool for teachers to help them measure your child's performance and identify their needs as they move into key stage 2. They also allow teachers to see how your child is performing against national expected standards. Take place during May.
- KS2 - The tests help measure the progress pupils have made and identify if they need additional support in a certain area. The tests are also used to assess schools' performance and to produce national performance data. The tests help measure the progress pupils have made and identify if they need additional support in a certain area. The tests are also used to assess schools' performance and to produce national performance data. Take place on set dates across the country
- https://www.gov.uk/government/publications/key-stage-1-and-2-national-curriculum-tests-information-for-parents

Things to do at home

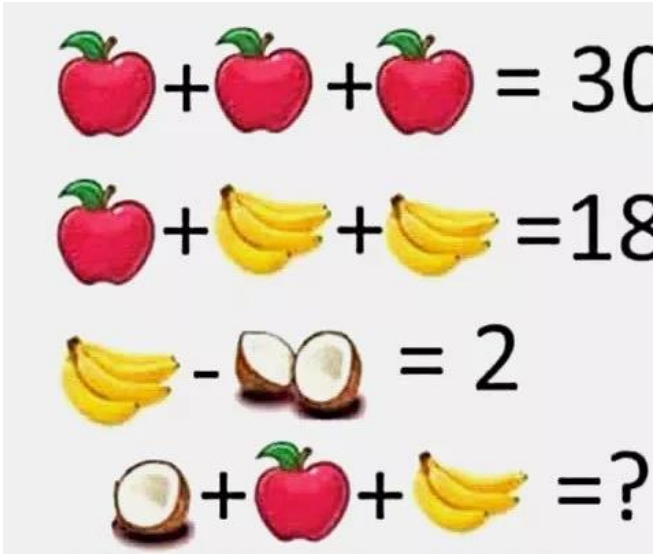
- Have a positive attitude to maths yourself – don't panic!
- Have a growth mindset – getting things wrong is a learning opportunity!
- Get to know the way maths is taught in school - if you are not sure about something, please ask us
- Build maths into everyday activities which are fun!
- Provide encouragement and support

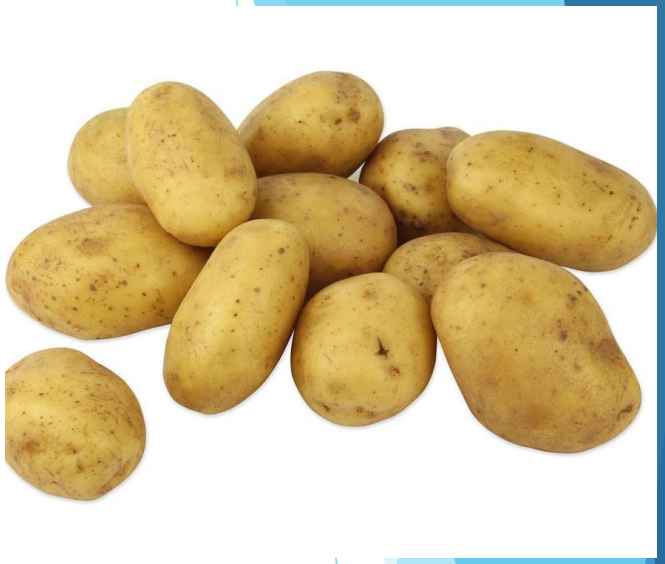
- Play games (board games, card games)
- Do some cooking (weigh ingredients, calculate cooking time, what if? scenarios)
- Go shopping (with real money!)
- Teach your child to tell the time using an analogue clock as this is still in the curriculum
- Help your child to memorise key facts e.g. Times Tables, measurements, days of the week, number bonds etc.
- Talk to your children about maths in everyday situations


COUNTING
MAGNETIC LEARNING SET


1 2 3 4 5
6 7 8 9 0


Addition
Subtraction
Multiplication
Greater than
Less than
Equal to
3>2
Numbers & Tallies
Numbers 1-100


+ + = 30
+ + =18
- = 2
+ + =?



More complex challenges

- Work out real life problems together, e.g. how much carpet is needed for a room in your house.
- Use an atlas to plan a round-the-World trip; cost, distance, time etc.
- Work out % discounts and assess discount offers – which deal is best?
- Ask them to write maths problems for you!

Thank you for listening

Any questions?

- Contact us at admin@woodley-pri.wokingham.sch.uk

A final thought

MATHEMATICS
is not about
numbers, equations,
computations, or
algorithms:
it is about
UNDERSTANDING.

William Paul Thurston