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**HOW OUR 'VISION FOR MATHEMATICS' DRIVES LEADERSHIP,  
PROVISION AND PUPIL OUTCOMES**

Touching on:  
Learning Fractions Shouldn't Be Difficult (NCETM article)

# DITLOIDS:

- 366 D in a LY
- 10 C given to M
- 270 D in TQ of a T
- 1800 S in H an H
- SW and the 7 D
- The 5 P of I
- 36 I in a Y
- 7 S on a 50 PP
- 32 P on a CB
- 2 G on a R
- 5 S of S for E this Y

Learning Fractions Shouldn't Be Difficult ... (NCETM, January 2022)

... but it often is.

The article talks about pupils leaving primary school with a 'shaky understanding' of fractions.

Fractions teaching is often unrelated to other objectives.

Yet fractions links explicitly with the number system.

Teachers often see fractions as a series of objectives rather than related concepts.

The NCETM article outlines the four different ways to understand fractions:

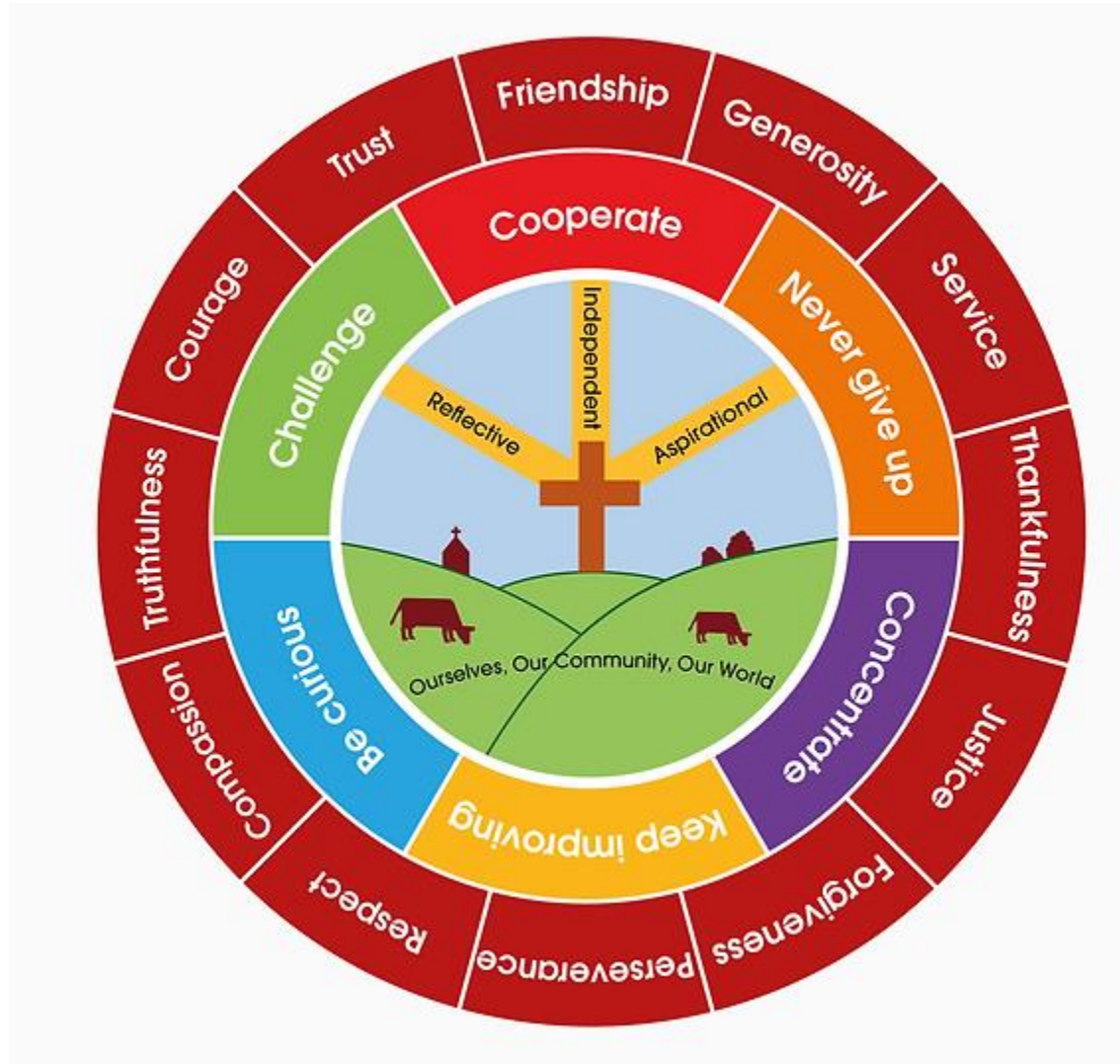
- to describe the size of parts relative to the whole
- as operators (a symbol indicating an operation to be performed)
- as numbers, each of which has a place in the linear number system
- to describe a proportional relationship

Do all representations lend themselves to these?

Try string!

# The Amberley Way ...

- We see the value in successful things.
- We see the value in what makes children think.
- We reflect and adapt: we don't react, but we evolve.
- Old fashioned / brave / innovative?



We believe that we provide the rich soil that enables our children to develop deep roots and flourish.

Our children are at the heart of our unique community and our aim is to create confident, well-rounded and motivated children, who are guided by strong Christian values.

# Mathematics at Amberley - The Headlines:

- In 2022, 100% of children achieved, at least, the ‘expected standard’ at KS2, with 53% achieving a ‘high standard’.
- Over 50% of children at KS1 achieved GDS.
- The average *Arithmetic* score for our children in the KS2 tests was just over 37, or 94%, following two of the most educationally disruptive years of that cohort’s life.
- Staff training on *Reasoning* and *Problem Solving* has led to a closure in the average gap between scores in Arithmetic and Reasoning in both external and internal tests from well over 10% to under 5%.
- Maths is the most popular subject amongst our children. The reasons children gave ranged from *GECKO*, *Club Maths*, *Maths Games* and the opportunity to work together to being challenged and being made to think.

# Mathematically, we believe:

- in talking a lot and arguing a little;
- in ‘reasoning’ for all;
- that ‘rapid recall’ is empowering;
- that ‘problem solving’ is fun;
- in rigour, consistency and progression;
- in empowering children and staff; and
- that transition can be hard and needs supporting.



# What does this look like?

*Practice - Apply - Deepen*: three tiered approach

- Time to journey (overarching objectives)
- Acceptance of pupil's limitations
- Not exclusive: flexibility is key
- Progressive
- More than written mathematics: it's about all mathematics

# What does this look like?

Contentious opinion:

Children don't talk enough in maths lessons.

# What does this look like?

Reasoning for all: self-talk that comes from peer-talk, and leads to 'negotiated meaning'.

*Sum Difference Product*: self-talk.

Discussion example:

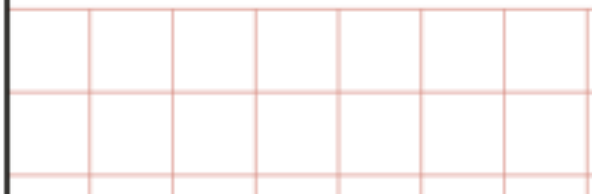
The concept of a whole (focusing on the concept rather than the rule, led by talk).

How would you find one quarter of:

- A potato
- A piece of string
- A lump of clay
- An equilateral triangle
- £10
- A beaker of juice
- A group of children
- Your journey to school

**31**

$$\frac{2}{3} \div 3 =$$

**23**

$$0.5 \times 28 =$$

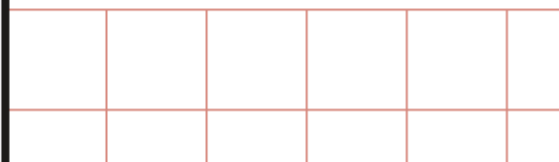


What can you say to yourself to make sense of it?

$$2 \div \frac{1}{3}$$

**34**

$$1\frac{3}{4} \times 10 =$$



Only a fraction of each rod is shown.



Using the information given, identify which whole rod is longer.

Is  $0.999^{\circ}$  ...

- a. Bigger than 1?
- b. The same size as 1?
- c. Smaller than 1?

# ‘Dice Bucket Challenges’

- Regular arithmetical practice
- Maths talk opportunity
- Reasoning focus
- Estimation focus
- Accuracy-checking
- Fun

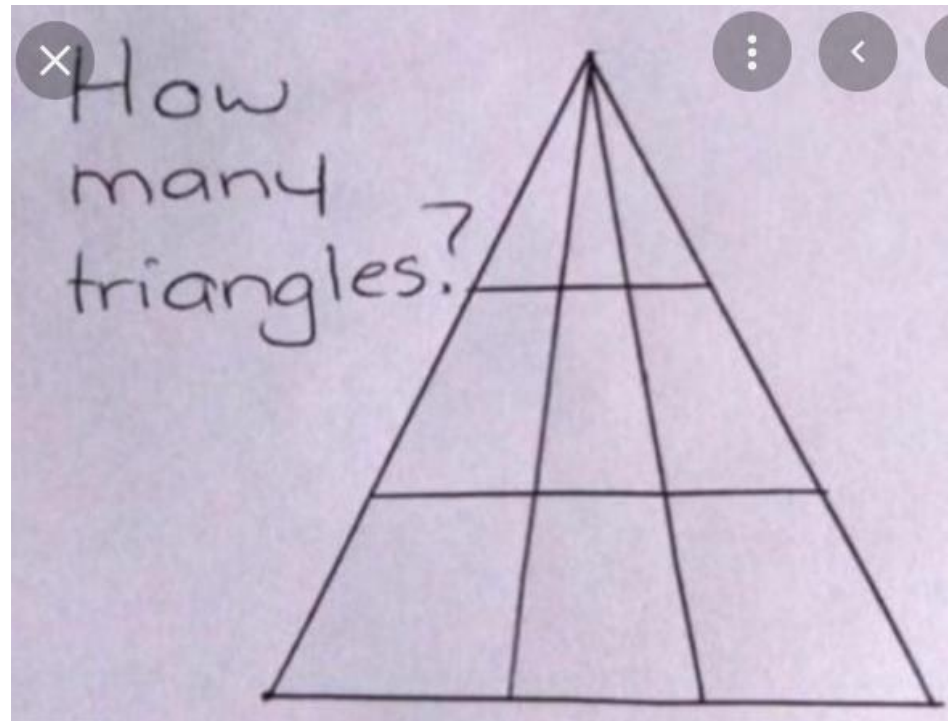


# What does this look like?

- Daily and weekly time to practice
- Mental rehearsal and rapid recall work: we value mental and oral starters
- ‘Club Maths’
- Reaction and response to pupil voice (rapid recall games)
- Governors playing their part in monitoring this

# What does this look like?

- Functional fun (GECKO, 24)
- Systematic problem solving
- Systematic approach



# What does this look like?

- Transition: the school journey
- Transition: beyond the school journey
- Professional Development: a learning community
- We are so open to change, but we are also so open to keeping things the same!

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