

What does Maths look like in
year 7 and 8 and the rationale
behind this

Forming & Solving Equations

LO: To be able to form and solve equations from worded problems

DIAGNOSTIC

I think of a number, n .

I subtract 5 from my number and then square the result.

Which expression below gives my result?

A $n - 5$

B $(n - 5)^2$

C $n^2 - 5$

D $5n^2$

A bat and a ball costs £1.10. The bat costs £1.00 more than the ball.
How much does the ball cost?

ANCHOR



There are three baskets, a brown one, a red one and a pink one, holding a total of ten eggs.

The brown basket has one more egg in it than the red basket.

The red basket has three fewer eggs than the pink basket.

How many eggs are in each basket?

ANCHOR - using trial and error

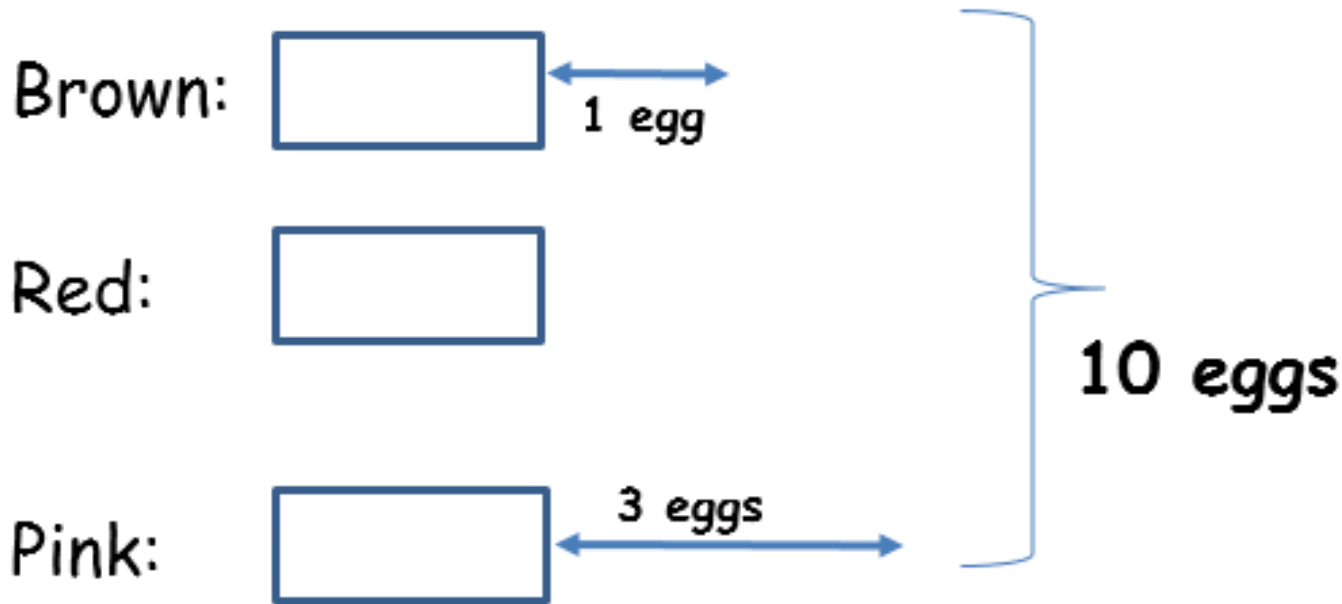
If red has 1 egg, brown has 2 eggs,
pink has 4 eggs.

Total = 7 eggs (this doesn't work!)

If red has 2 eggs, then brown 3 and
pink has 5.

This works!

ANCHOR - using a bar model



So.... must equal 2 and the brown basket has 3 eggs, red basket has 2 and the pink basket has 5 eggs

ANCHOR - using algebra

Red: x
Brown: $x + 1$
Pink: $x + 3$

Red: 2 eggs
Brown: 3 eggs
Pink: 5 eggs


I know...

$$x + (x + 1) + (x + 3) = 10$$

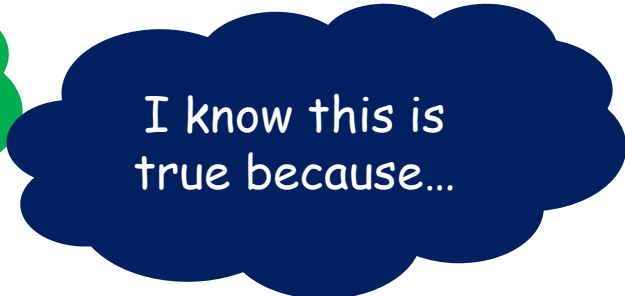
$$3x + 4 = 10$$

$$3x = 6$$

$$x = 2$$



I noticed
that.....



I know this is
true because...



This reminded
me of



I noticed a
connection
between....



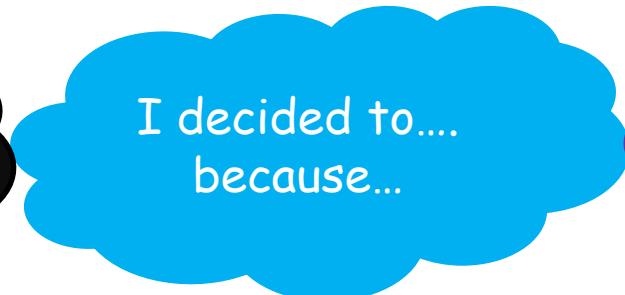
This didn't work
so.....




First I
tried...



When I looked
at..... ,
I noticed
that...



I decided to....
because...



I already know
that..... so....

inequalities (24.09.18)

journal 3

ANCHOR

$\square + 5 < 10$ ←

What is the biggest number you could fit in the box?

$\square + 3 > 12$ →

What is the biggest number you could fit in the box?

What is the smallest number you could fit in the box?

$(?+5) <$
the number
 $<$ symbol
 $4.9 < 10$
basically that

when having to do this question I originally thought it was going to be easy my thinking process... was to know the closest number to 10, which is also smaller than 10, which was '9' so I decided to add '4' and that was my answer

my answer was wrong it was actually '4.9', because if you did '5' it would be wrong because that isn't on the symbol was this $<$ if it was to be five it would be $=$ so the next number before it would be 4.9 ← that is the answer

Is there a number between 4.9 and 5 that you could have?

Wish

there could be... 4.9, 4.99, 4.999, 4.9999

the dot means recurring, so it continues forever.

1/3
Wahed helped me

The Maths Journal...

An opportunity to:

- Explore different methods
- Represent problems in different ways
- Evaluate methods
- Reflect and improve on mathematical vocabulary and communication

GROUP

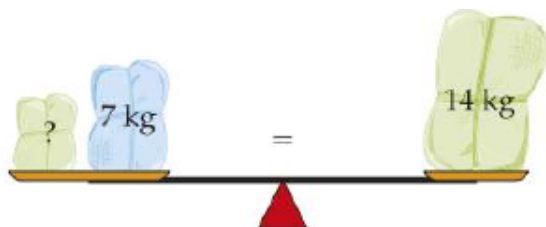
There are x fish in a lagoon.

- a** If you put another 20 fish into the lagoon, how many fish will there be altogether?
- b** Half of the fish are mackerel.
How many fish are not mackerel?
- c** Another lagoon holds twice as many fish.
How many fish will this lagoon hold?



INDEPENDENT

Write an equation for each of following diagrams, use them to solve the equation.



$$50$$

$$13 \quad | \quad x$$

$$28$$

$$y \quad | \quad y \quad | \quad y \quad | \quad y \quad x$$

Find the value that makes each equation balance.

a $5 + x = 10$ **b** $y + 10 = 14$

c $w + 6 = 17$ **d** $6 + m = 12$

e $15 + z = 20$ **f** $t + 23 = 30$

Solve these equations.

Show your method.

a $2x = 12$ **b** $3x = 12$

c $5a = 30$ **d** $4h = 40$

e $4d = 80$ **f** $5t = 25$

Extension

$$y - 9 = 15$$

$$n \div 6 = 3$$

$$m \div 4 = 12$$

What is Mastery?

Embedding Concepts

Developing fluent
mathematicians

Making deep connections

No pupils left behind

Why have we adopted a mastery approach?

- We want students to:
 - Approach problem solving with an open mind and a range of tools
 - Reach the same conclusion in a variety of ways
 - Link what the familiar with the unfamiliar
 - Deepen their understanding rather than push onto new content too quickly

| | 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 | Algebraic Thinking | | | | | | Place Value and Proportion | | | | | |
| | Sequences | | Understand and use algebraic notation | | Equality and equivalence | | Place value and ordering integers and decimals | | | Fraction, decimal and percentage equivalence | | |
| Spring | Applications of Number | | | | | | Directed Number | | Fractional Thinking | | | |
| | Solving problems with addition & subtraction | | Solving problems with multiplication and division | | | Fractions & percentages of amounts | Operations and equations with directed number | | | Addition and subtraction of fractions | | |
| Summer | Lines and Angles | | | | | | Reasoning with Number | | | | | |
| | Constructing, measuring and using geometric notation | | | Developing geometric reasoning | | | Developing number sense | | Sets and probability | | Prime numbers and proof | |

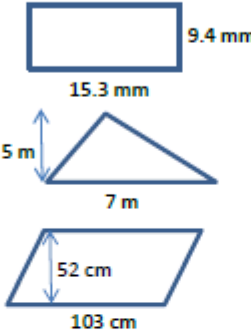
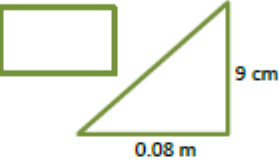
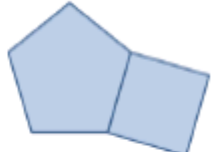

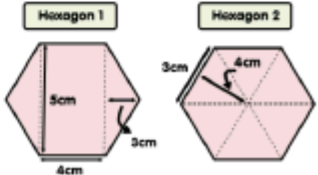
Year 8 Overview

| | 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 | Revise & improve | | | Number – Fractions 2 | | | Number – Percentages | | | | | Revise & Improve |
| Spring | Algebra 2 | | | | | | | Geometry – Circles & Area | | | | Revise & Improve |
| Summer | Ratio, proportion & rates of change | | | | | | Statistics | | Geometry – 3D shapes | | | Revise & Improve |

Multiplication & division

| National Curriculum Statement | All students | | |
|--|--|---|---|
| | Fluency | Reasoning | Problem Solving |
| Use the concepts and properties of multiplication and division | <ul style="list-style-type: none"> Circle all the prime numbers from the list | <ul style="list-style-type: none"> Explain why 1 isn't a prime number. | <ul style="list-style-type: none"> How many cube numbers can you make by either adding two prime |

| National Curriculum Statement | All students | | |
|-------------------------------------|---|---|---|
| | Fluency | Reasoning | Problem Solving |
| Calculate the mean of three numbers | <ul style="list-style-type: none"> Calculate the mean of three numbers | <ul style="list-style-type: none"> Six children have taken a mental maths test. The mean | <ul style="list-style-type: none"> Work out the mean of the five calculation cards |

| National Curriculum Statement | All students | | |
|--|--|---|---|
| | Fluency | Reasoning | Problem Solving |
| Calculate and solve problems involving area of rectangles, triangles and parallelograms. | <ul style="list-style-type: none"> Work out the area of each shape  | <ul style="list-style-type: none"> The rectangle and the triangle have the same area.  <p>Write down all the possible dimensions of the rectangle.</p> <ul style="list-style-type: none"> Anna is calculating the area of a triangle. She says, "I only need two of the side lengths to work out the area." Do you agree with Anna? Explain why. True or false? Two rectangles with the same area can have different perimeters. Explain your answer. | <ul style="list-style-type: none"> The shape is made from a regular pentagon and a square.  <p>The area of the square is 144 cm^2. What is the perimeter of the shape?</p> <ul style="list-style-type: none"> A shape is made up of a square and a rectangle.  <p>The perimeter of the shape is 70 cm. The area of the square is 121 cm^2. What is the area of the rectangle?</p> <ul style="list-style-type: none"> The perpendicular height of a parallelogram is a prime number. The area of the parallelogram is 52 cm^2. What is the length of the parallelogram? Which hexagon has the largest area?  |
| Calculate the area of composite shapes made up of squares, rectangles, triangles and parallelograms. | | | |
| Find the length of a shape given the area. | | | |
| Use different units of measure. | | | |
| Consolidate earlier learning through this topic as much as possible. | | | |

Why are we adopting a mastery approach?

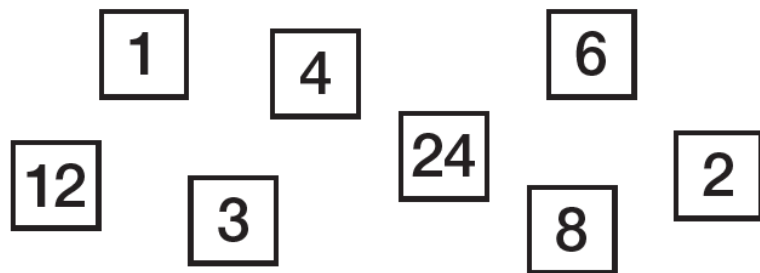
- Feeder Primary schools in the area are using this approach with excellent results
- Proven track record in Singapore and other Asian countries
- GCSEs are becoming more contextual and based on problem solving and reasoning

Assessments in Maths

- Pupils have a small end of topic assessments in class every few weeks
- Homework is provided on Doddle and once a half term on paper
- Progress tests will focus on what has been taught this term.
- Year 7 Thursday 5th March

I 
MATHS

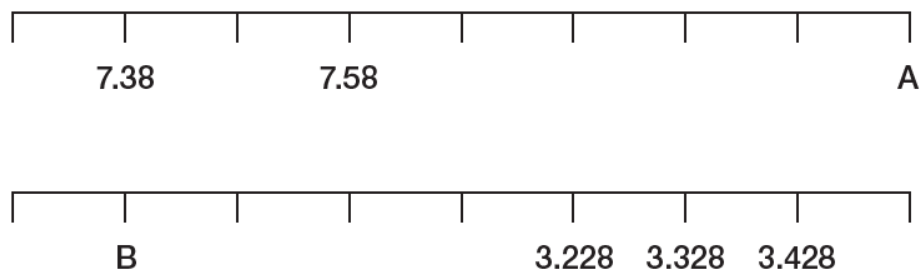
Here are **all** the factors of a number.



What is the number?

1 mark

Here are two number lines.



What is the **difference** between A and B?

Show your working.

Complete the statements using $<$, $>$ or $=$

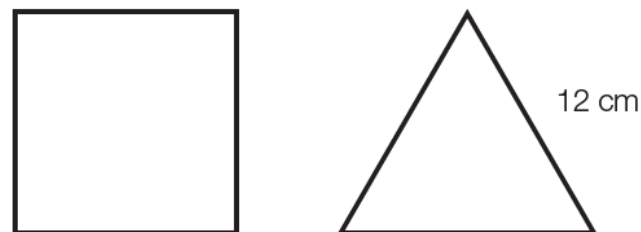
1.5 million 160,000

-12 -2

4 hundredths $\frac{4}{10}$

2 marks

Here is a square and an equilateral triangle.



The perimeter of the triangle is **equal to** the perimeter of the square.

Work out the **area** of the square.

Where to revise?



Creativity



Reflection



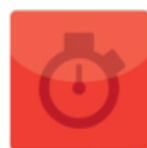
Empathy



Motivation



Optimism



Practice



Curiosity



Resiliency



Responsibility

Maths Revision Tools



Download **Mathswatch** onto your iPhone/iPad or you can access this from any PC- <https://vle.mathswatch.co.uk/vle/>

Login details:

Your username to log in to the computers in school!

This has replaced the Centre ID

USERNAME: 12MW01@chorltonhigh

PASSWORD: factor

Your progress test will be on **Thursday 5th March**. Home study will be dedicated to preparing you for your assessment. This revision list covers topics taught this term in class that are relevant to the progress test and therefore supporting you to do your best.

| Year 7 Spring Progress Test topics | MathsWatch clip number |
|--------------------------------------|------------------------|
| Ordering negative numbers | N2A and N2B |
| Area of 2D shapes | G20 and G24 |
| Mixed numbers and improper fractions | N35 |
| Adding and subtracting fractions | N36 and N41 |
| Solving equations | A12 |
| Percentage of amount | N24 |
| Sequences | A11 |
| BIDMAS | N20 |

Mathswatch

Ken and Steve are in a long jump competition.

Ken jumps $1\frac{1}{5}$ metres.

Steve jumps 1.5 metres.

a) Who jumps further, Ken or Steve?

b) How much further does he jump?
Give your answer in metres.

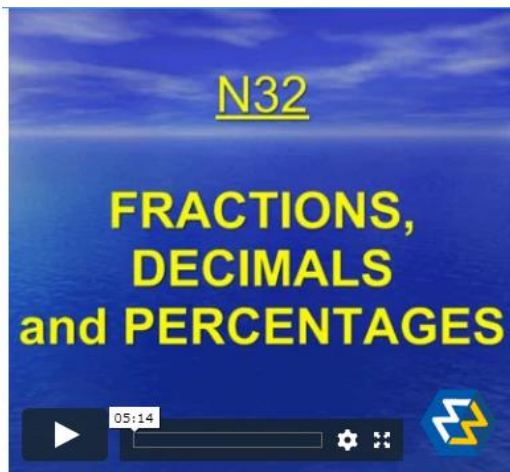


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Login details:

Your username to log in to the computers in school! This has replaced the Centre ID

USERNAME: 12MW00@charltonhigh
PASSWORD: factor



Put these fractions, decimals and percentages in order, lowest to highest.

| | | | |
|---------------|------|---------------|------|
| $\frac{1}{2}$ | 47% | $\frac{3}{5}$ | 0.55 |
| 0.50 | 0.47 | 0.60 | |

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Thank you for joining us this evening. Please ask any questions that you may have.