



# Potential parental gains from this workshop

- improved confidence in using their mathematical skills;
- an insight into engaging teaching approaches, current technology and today's mathematics classroom;
- quality time working with their child;
- developing a rapport with the teachers in the school;
- practical ways to support their child's mathematical understanding.

- To provide information about the five-year English curriculum
- To introduce Accelerated Reader and to provide information about accessing this at home
- To suggest a range of strategies to help your child to make rapid progress in English, including vocabulary practice.

# Potential school gains from this workshop

- more positive attitudes towards mathematics from parents and children;
- improved quality of homework through increased parental involvement;
- a shared understanding of what the school is trying to achieve;
- increased parental understanding of the importance of mathematical reasoning;

# National Curriculum Aims

## Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

## ***April 1st***

Explain why the 1st of April is always on the same day of the week as the 1st of July.

.....

.....

.....

# Handouts / notes

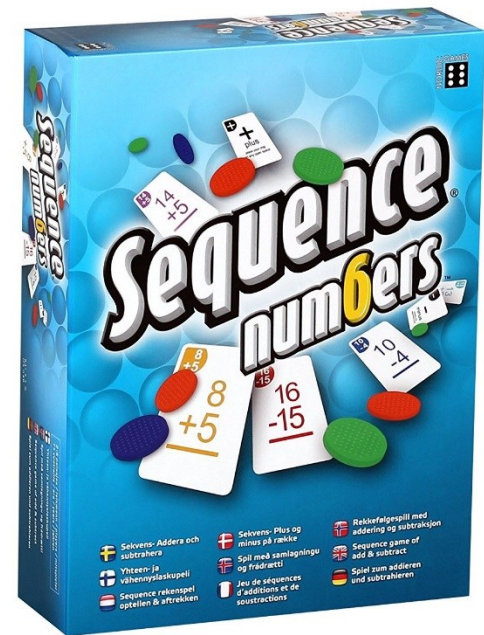
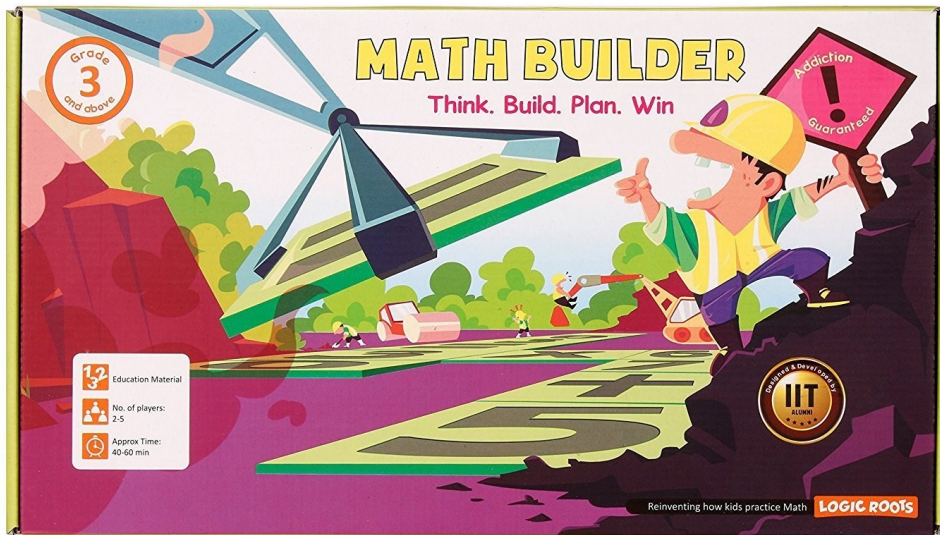
- Slides will be put onto school website
- A Freebie
  - Times Tables Keyring

# Ideas for Maths Gifts

# Family games

## Math Builder

## Sequence Numbers

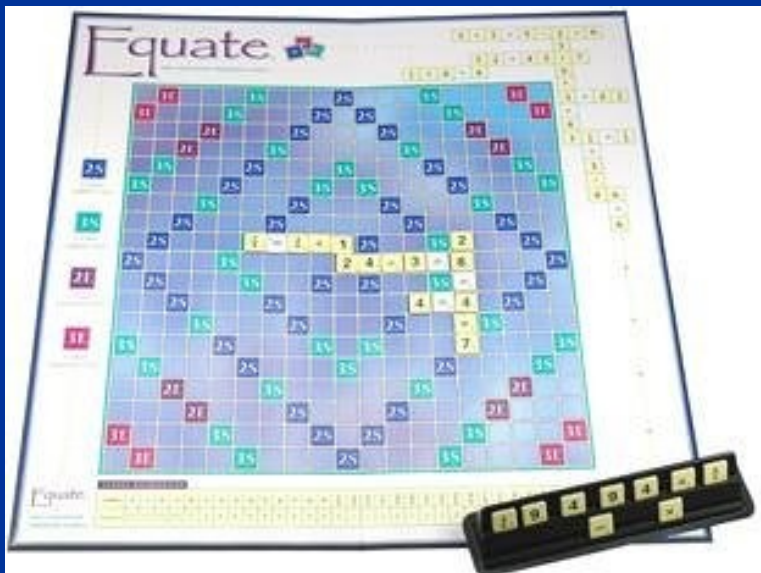




# Family games



## Equate



## Fraction Action Snap



# Play some family games

- **Mathbuilder** Amazon
- **Sequence Numbers Game** Amazon
- **Equate** Amazon
- **Fraction Action Snap** Amazon
- **Mathopoly** Unknown



# Tonight's ideas & suggestions

- Useful Tools and apps
- Helping with homework - avoiding “Method Conflict” with Corbett Maths
- Showbie Parent



# Equations and formulae Topic Test Record

Date		My Score	%	Average Score	%
Question	Skill or Process Tested	😊 😞	Corbett Video Reference	Fixed it?	Teacher agrees
1	substitute into expressions		20		
2	substitute into formulae		20		
3	substitute into formulae		20		
4	rearrange formula		7		
5	solve equations		110		
6	algebra area problem		114		
7	simultaneous equations		295		
8	inequality on a number line		177		
9	linear nth term		288		
10	simultaneous equations		295		

# Useful Websites

[www.nationalnumeracy.org.uk/](http://www.nationalnumeracy.org.uk/)

[www.amathsdictionaryforkids.com/](http://www.amathsdictionaryforkids.com/)

[www.hydesvillemaths.co.uk](http://www.hydesvillemaths.co.uk)

[www.corbettmaths.co.uk](http://www.corbettmaths.co.uk)

[www.multiplication.com/](http://www.multiplication.com/)

[www.ttrockstars.com/](http://www.ttrockstars.com/)

For the Hydesville website

- Username hydesvillepupil
- Password Mathematicsa1

# DEVELOPING A GROWTH MINDSET



## INSTEAD OF...

I'm not good at this.  
I give up.  
It's good enough.  
I can't make this any better.  
This is too hard.  
I made a mistake.  
I just can't do this.  
I'll never be that smart.  
Plan A didn't work.  
My friend can do it.



The Power of the **GROWTH MINDSET** says, "I believe in you, give it a try, you just haven't gotten it, **YET** !!! You will !!!"

## TRY THINKING...

What am I missing ?  
I'll use a different strategy.  
Is this really my best work ?  
I can always improve.  
This may take some time.  
Mistakes help me learn.  
I'm going to train my brain.  
I'll learn how to do this.  
There's always a Plan B.  
I'll learn from them.





# Showbie

- Showbie is an app used by teachers to assign, collect and review student work. This iPad and web based application organizes student work by classes and assignments. Students can easily see assignments, deadlines, teacher feedback and grades any time they have access to wifi. A variety of documents can be shared on Showbie such as text, video, picture, audio and presentation files.



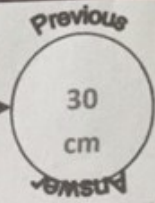
# Showbie Parent Volunteers Required – apply here!

## Why should a parent join Showbie?

- Better able to stay informed about their child's learning activities and progress.
- Able to view any work and feedback that is added to your child's Showbie portfolio.
- Having access to this type of information allows the parent a bigger and more vivid picture of what his or her child is doing in and outside of the classroom.



# Treasure Hunt!

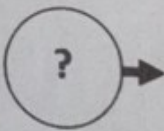
Parent Workshop →  30 cm

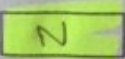
Treasure Hunt

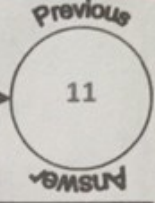
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Solve the following :-

$$3d - 6 = 27$$

 ?

 2

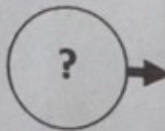
Parent Workshop →  11

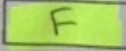
Treasure Hunt

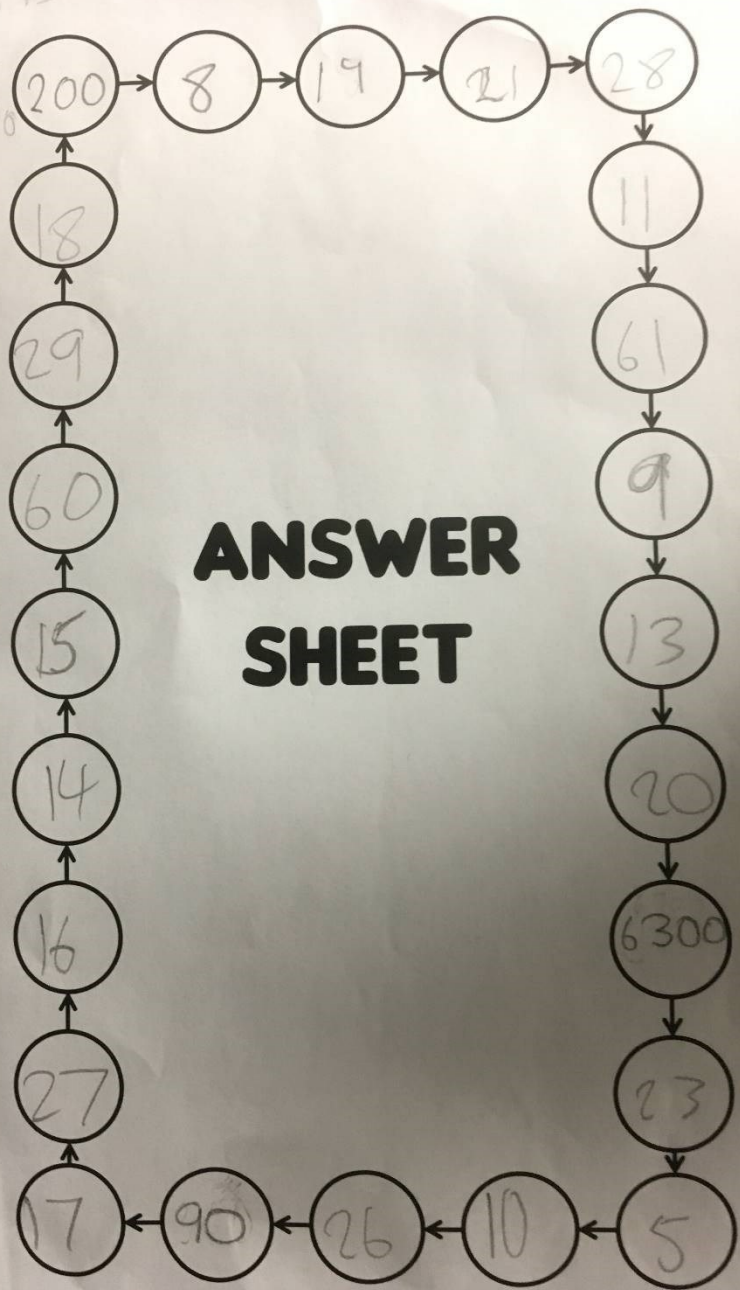
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Calculate

$$-5 - - 8$$

 ?

 F



**ANSWER SHEET**

~~113+~~  
 A T  
 $3+1=20$   
 $5+1=19$   
 34  
 02

3-1

12  
 32  
 24  
 =

7  
 $10^3$   
 $+3$   
 13  
 $+16$   
 $+9$

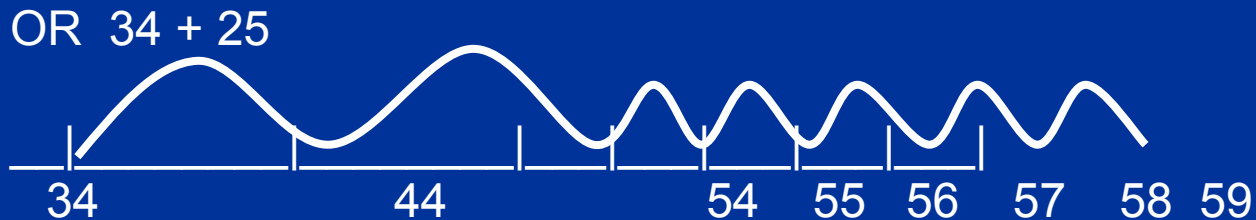
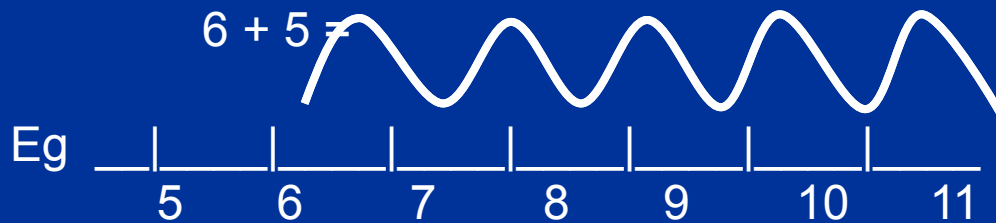
11 22

# 1. Counting On / Back

1. Some children will need to begin at 0.  
eg for  $5 + 3$  they will need to take out or show 5  
then count on  $1, 2, 3, 4, 5 \longrightarrow 6, 7, 8$
2. Encourage them to start at the bigger number then  
'add' or 'count on'  
Eg  $9 + 3 \longrightarrow 10, 11, 12$
3. Counting back, you always start at the bigger  
number!  
Eg.  $16 - 5 \longrightarrow 15, 14, 13, 12, 11$

## 2. Jump Strategy

Number lines are useful, especially with larger numbers. These can be numbered or 'empty'



### 3. Doubling or near doubling

1.  $6 + 7$  is the same as  $6 + 6 + 1$   
 $6 + 6$  or 'double' 6 is a known or 'practised' number fact
2.  $8 + 7$  is the same as  $8 + 8 - 1 = 16 - 1 = 15$
3.  $30 + 28$  is the same as  $30 + 30 - 2 = 60 - 2 = 58$



## 4. Bridging to 10:

1. For an addition like  $9 + 4$   
Add 1 to 9 first, then 3 more  
So  $9 + 1 + 3 = 13$

2. For larger addition facts:

$$27 + 28$$

$$27 + 3 + 25 = 30 + 25 = 55$$

OR split then bridge

$$\begin{aligned} 27 + 28 &= 20 + 20 + (7 + 8) \\ &= 40 + 7 + 3 + 5 \\ &= 40 + 15 \\ &= 55 \end{aligned}$$

OR split, bridge and jump: go to

<http://www.curriculumsupport.education.nsw.gov.au/primary/mathematics/assets/images/>)

## **5. Trading: Addition**

Initially done with concrete materials such as iceblock stick bundles or base 10 material so children can 'see' how they need to trade

*You can see this demonstrated at:*

[http://www.allenandunwin.com/teachingmaths/secure/opense\\_MABadd.htm#with](http://www.allenandunwin.com/teachingmaths/secure/opense_MABadd.htm#with)

a) Decomposition:

$$\begin{array}{r} \text{t u} \\ 5 \\ \cancel{4}3 + \\ \underline{38} \\ \underline{81} \end{array}$$

$$\begin{array}{r} \text{h t u} \\ 5 \quad 6 \\ \cancel{4} \cancel{5} \cancel{6} + \\ \underline{275} \\ \underline{731} \end{array}$$

The expression 'borrow and pay back' should not be used.

'Add ten ones' and 'add ten' is preferable.

## b) 'Equal Addends':

$$\begin{array}{r} \text{h t u} \\ 69+ \\ \underline{\quad 83} \\ 152 \end{array}$$

The expression  
'carry the one' should  
not be used.

'Add ten ones' and  
'add ten' is  
preferable

## 6. Subtraction: a) Decomposition

$$\begin{array}{r} \text{t u} \\ 3 \\ 42- \\ \underline{27} \\ 15 \end{array}$$

$$\begin{array}{r} \text{h t u} \\ 3 \\ 456- \\ \underline{385} \\ \underline{\quad 71} \end{array}$$

## b) Equal Addends

$$\begin{array}{r} \text{h t u} \\ 8 \ 1 \ 2 - \\ \underline{6 \ 9 \ 3} \\ 1 \ 1 \ 9 \end{array}$$

The expression 'borrow and pay back' should not be used.

'Add ten ones' and 'add ten' is preferable

1. Firstly add ten ones to units column. This becomes 12-3 which is 9 (units).

2. I must then take off this ten from the tens column. It can be taken from the bottom number as it will give the same answer as if it were taken from the top ie.  $10-9 = 11-10$ .

This is what the term 'equal addends' means

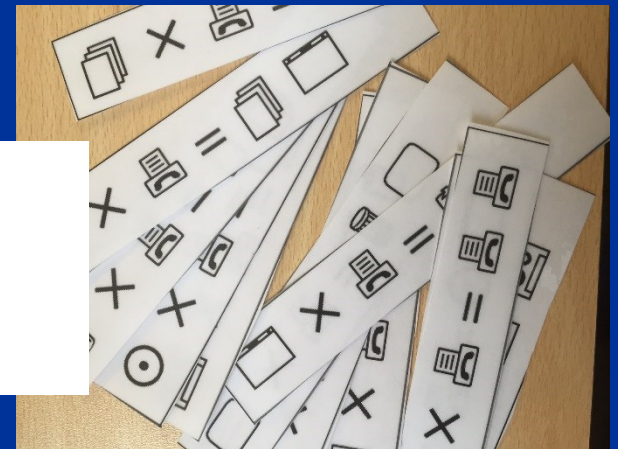
3. You then repeat the process for the hundreds column.



# Changing just one letter at a time, get from the top word to the bottom word in five steps

cold	tame	hair	cup
cord			
card			
ward			
warm	wild	bald	ten

- The cards represent a multiplication table.
- All of the numbers have been replaced by symbols.
- Can you work out which multiplication table this is?



- top tips for parents and families:
- **Be positive** about maths. Don't say things like "I can't do maths" or "I hated maths at school"; your child might start to think like that themselves.
- **Point out the maths in everyday life.** Include your child in activities involving maths such as using money, cooking and travelling.
- **Praise your child for effort rather than talent** - this shows them that by working hard they can always improve.
- **If you struggle with maths yourself** - try our free online tool the [National Numeracy Challenge](#) to improve your maths level.

# DEVELOPING A GROWTH MINDSET





## INSTEAD OF...

I'm not good at this.  
I give up.  
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I can't make this any better.  
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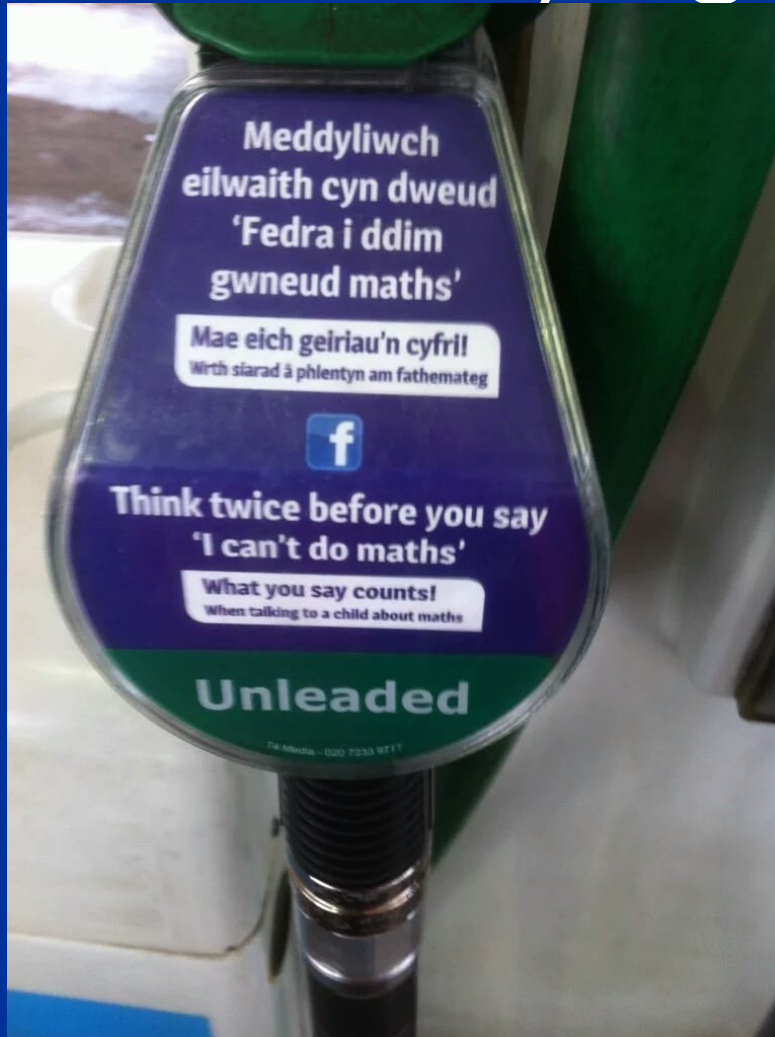
The Power of the **GROWTH MINDSET** says, "I believe in you, give it a try, you just haven't gotten it, YET !!! You will !!!"



# Hydesville Tower School

Maths Workshop

Whether you think you can or  
think you can't – you are  
absolutely right.



<https://ttrockstars.com>

The power of yet



# Workshop Objectives

- To provide parents with a better understanding of maths education in 2016
- To provide you with advice, tools & strategies to impact upon your child's progress



# The Aims of the Curriculum

## Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
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# Examples of 2017 GCSE Problems

## *April 1st*

Explain why the 1st of April is always on the same day of the week as the 1st of July.

.....

.....

.....

# Examples of 2017 GCSE Problems

## ***Half take***

Marcus thinks of a number between 25 and 35

He divides the number by 2 and then subtracts 0.5

He takes this answer, divides it by 2 and then subtracts 0.5

He repeats this process a number of times and gets zero.

What number did he start with?

# Examples of 2017 GCSE Problems

## Seesaw

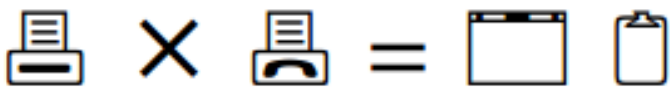
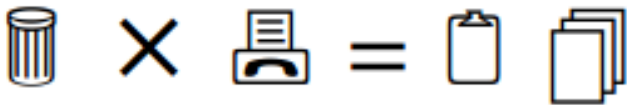
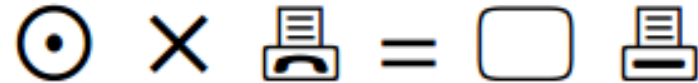
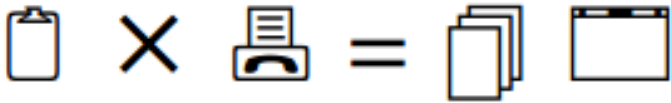
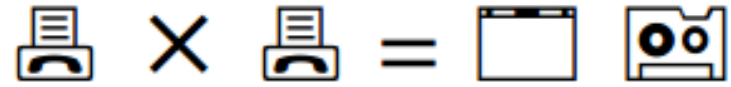
The table below shows the change in the value of Seesaw plc shares over the last three years.

year	2004	2005	2006
change in value	+25%	-40%	+40%

*Note: the percentage change each year is based upon the value at the start of that year and the value at the end of that year.*

Calculate the percentage change in Seesaw plc shares from the start of 2004 to the end of 2006.

# What did you see?



# Mathematics at Hydesville School

## - Fluency

Children need to be fluent in:

- Recall of key number facts;
- Mental calculation strategies;
- Written calculation strategies.

# Key Number facts – bonds to 10

$$4 + 6 = 10$$

Linked facts are:

$$6 + 4 = 10;$$

$$10 - 4 = 6; 10 - 6 = 4$$

$$40 + 60 = 100; 60 + 40 = 100;$$

$$100 - 60 = 40; 100 - 40 = 60$$

# Key Number facts – multiplication tables

$$7 \times 8 = 56$$

Linked facts are:

$$8 \times 7 = 56;$$

$$56 \div 7 = 8 ; 56 \div 8 = 7$$

$$7 \times 80 = 560; 8 \times 70 = 560;$$

$$560 \div 8 = 70; 560 \div 70 = 8$$



# Key Number facts – multiplication tables

$$7 \times 8 = 56$$

Linked facts are:

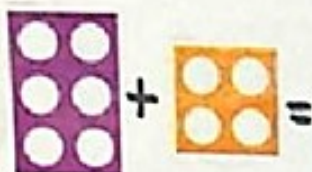
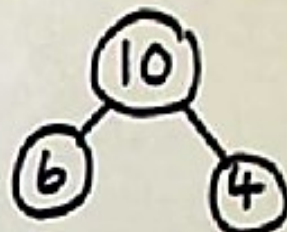
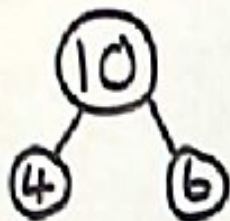
$$8 \times 0.7 = 5.6;$$

$$5.6 \div 7 = 0.8 ; 5.6 \div 0.8 = 7$$

$$70 \times 80 = 5600; 800 \times 70 = 56000;$$

$$5600 \div 80 = 70; 56 \div 0.7 = 80$$

# Thinking about numberbonds



$4 + 6 = \square$

$10 - 6 = \square$

$10 - \square = 4$

$\square = 4 + 6$

$\square - 4 = 6$

$4 + \square = 10$

add  
plus  
addition  
total

subtract  
take away  
minus  
difference

$6 + 4 = \square$

$10 - 4 = \square$

$10 - \square = 6$

$\square = 6 + 4$

$\square - 6 = 4$

$6 + \square = 10$

How many  
More beads  
make 10?


$\square + 6 = 4 + 6$

$4 + 6 = \square + 4$

$\square + 4 = \square + 6$

There are 10 children in a group. 4 are boys. How many girls?

I add my number to 6. It makes 10. What is my number?

 4p  
How much will I have left after buying the sweet?

What is the total of 6 and 4?

What is 6 more than 4?



How many ice creams do I have in total?

What is 4 less than 10?

What is the difference between 10 and 6?

Subtract four from ten.



I have 10 chocolate bars. How many are left?



What is the sum of 6 and 4?

Without fluent recall of addition facts –  
this doesn't work:-

$$\begin{array}{r} 483 \\ +361 \\ \hline 844 \\ 1 \end{array}$$

# Using the Hydesville School Maths Website

[Hydesvillemaths.co.uk](http://Hydesvillemaths.co.uk)

# Encouraging Maths

What does your child hear about maths in your home?

- <http://www.familymathstoolkit.org.uk/>

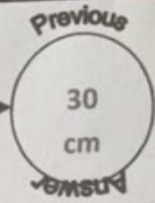
“The expectation is that the majority of pupils will move through the curriculum at broadly the same pace”

Mathematics National Curriculum 2014

So how do we challenge everyone?



# Treasure Hunt!

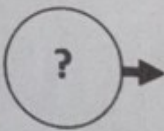
Parent Workshop →  30  
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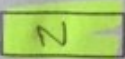
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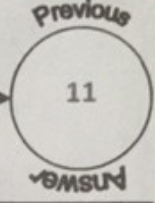
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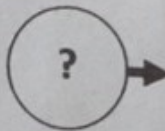
Parent Workshop →  11

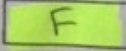
Treasure Hunt

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Calculate

$$-5 - - 8$$

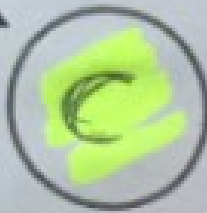
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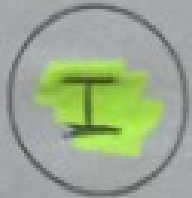
Write your first letter here



# TREASURE HUNT



Team Name: \_\_\_\_\_



# Mathematics at Hydesville

## Reasoning

Confident mathematicians:

- Apply concepts that they know;
- Are 'pattern sniffers';
- Can think abstractly;
- Are flexible and creative in their strategies;
- Can transfer mathematical concepts to unfamiliar situations;
- Are persistent in solving challenging problems.

# Mathematics at Hydesville

## Reasoning

- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language

# Mathematical Reasoning: Another and another...

Write down a fraction that is equivalent  $\frac{1}{4}$   
and another...  
and another...  
and another...

## Mathematical Reasoning:

# Always, sometimes, never.

Halves are the same size.

Halves are the same shape.

When you multiply the product is always larger than the multiplicand.

A square is a rectangle.

Mathematical reasoning:  
Odd One Out?

25

13

50

# Mathematical Reasoning: True or False?

Even + Even = Even

Even + Odd = Even

Odd + Even = Odd

Odd + Odd = Odd

Can you explain why?

Can you prove it?

# Mathematics at Hydesville

## Problem Solving

- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.



# Problem Solving:

## **Visual representation**

Josie had 7 times as many sweets as Abi.

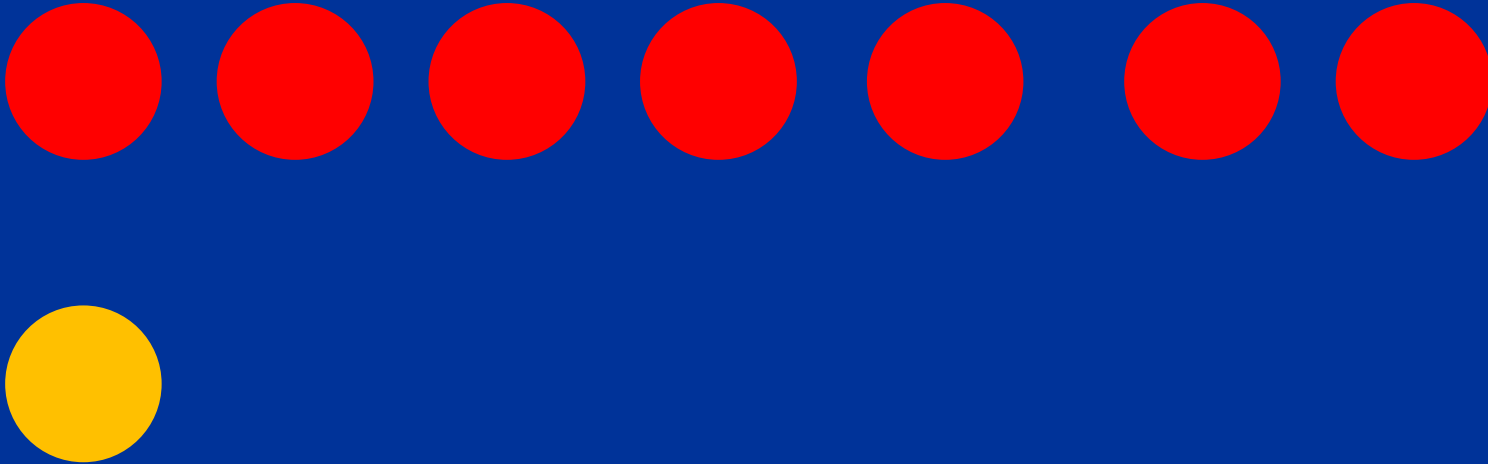
Josie gave Abi some of her sweets.

They now each have 20.

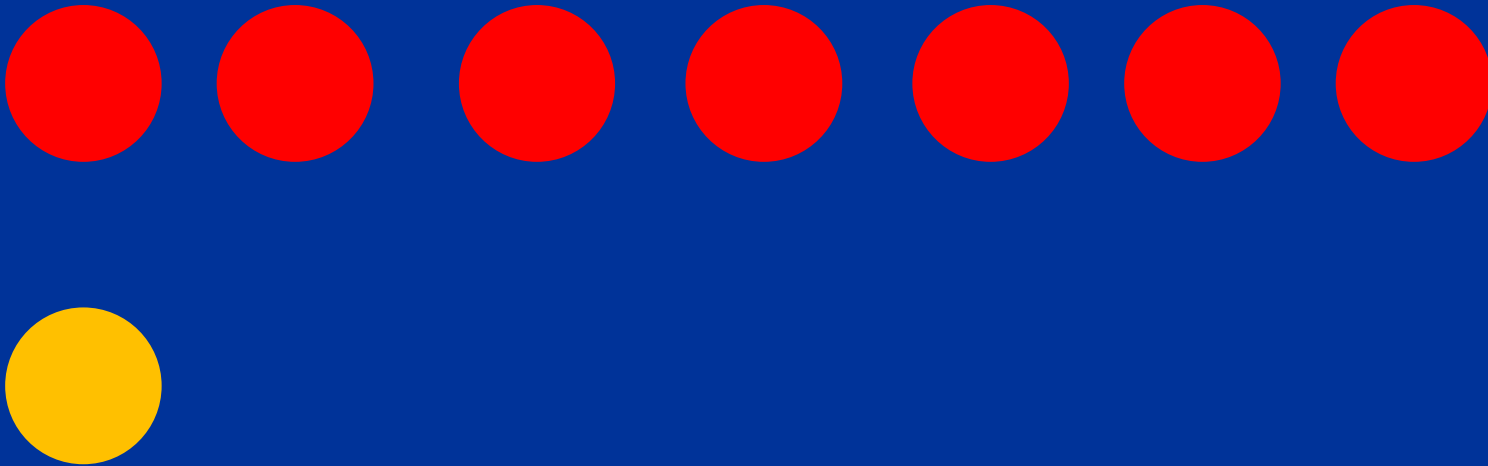
How many sweets did Josie have before sharing them with Abi?

# Problem Solving: Visual representation

Josie had 7 times as many sweets as Abi.



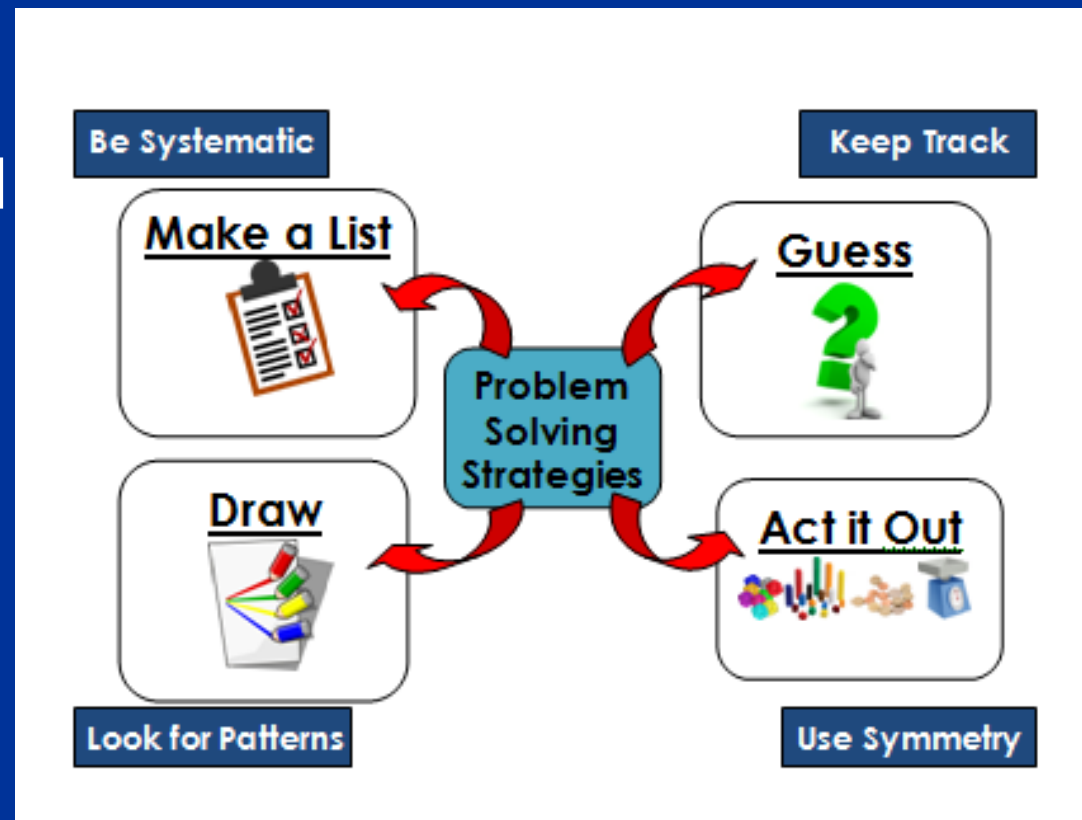
Josie gave some of her sweets to Abi  
They each now have 20.



How many sweets did Josie have before  
sharing them with Abi?

The counters help to reveal the **structure** of the question.

Once children understand how to manipulate the information a simple drawing can be used instead.



Be Systematic

Make a List



Keep Track

Guess



Problem Solving Strategies

Draw



Act it Out



Look for Patterns

Use Symmetry

# “Open” Problems

How much water is drunk  
on one day at Hydesville  
Tower School?

One way to work together

Try

[Corbettmaths.co.uk](http://Corbettmaths.co.uk)

So...

Fluency

Reasoning

Problem Solving