

Helping our children to achieve

Maths Inspire Workshop

Wednesday 15th March 2017

Our aims for this workshop are:

- ✓ To outline some of the changes in the maths curriculum
- ✓ To share some of the activities that we do in school
- ✓ To provide ideas on how you can support your child at home

Fulfilling Potential

Expectations that children will cover the maths objectives for their year. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practise, before moving on.

- ✓ **Using a concrete, pictorial, abstract approach at all ages for all children**
- ✓ **Fluency**
- ✓ **Depth**
- ✓ **Mastery**

Fulfilling Potential

Term by Term Objectives

Year 4

Year 4 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				Measurement- Area	
Spring	Fractions				Time		Decimals			Measurement- Money		
Summer	Measures- Perimeter and Length	Geometry- Angles	Geometry- Shape and symmetry		Geometry – Position and direction		Statistics		Measurement- Area and perimeter			

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MathsHUBS White Rose

Concrete Experiences

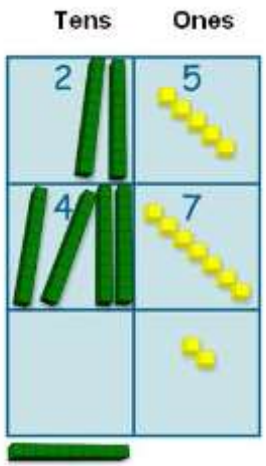
Concrete representation

This is a 'hands on' component using real objects and it is the foundation for conceptual understanding

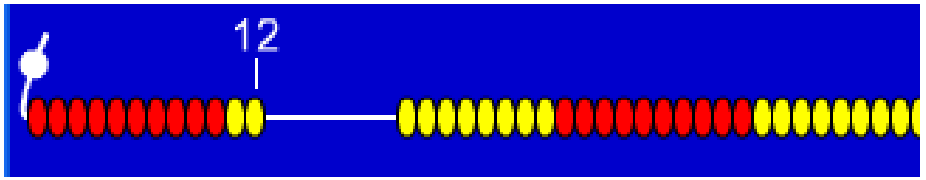
Pictorial Experiences

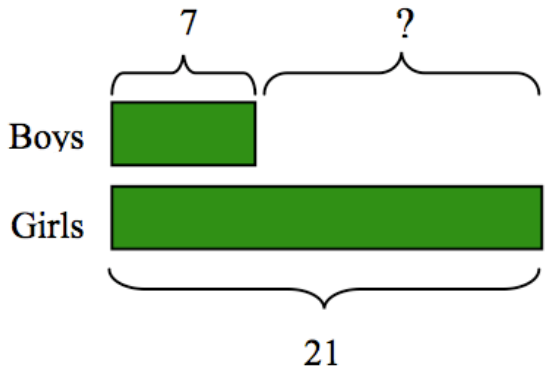
Pictorial representation

Using representations, such as a diagram or picture of the problem.







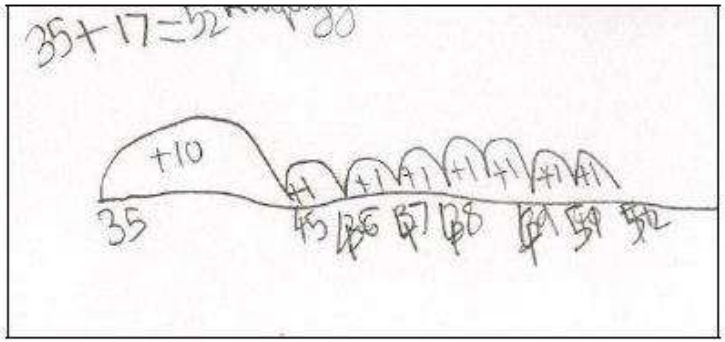


Symbolic/abstract Experiences

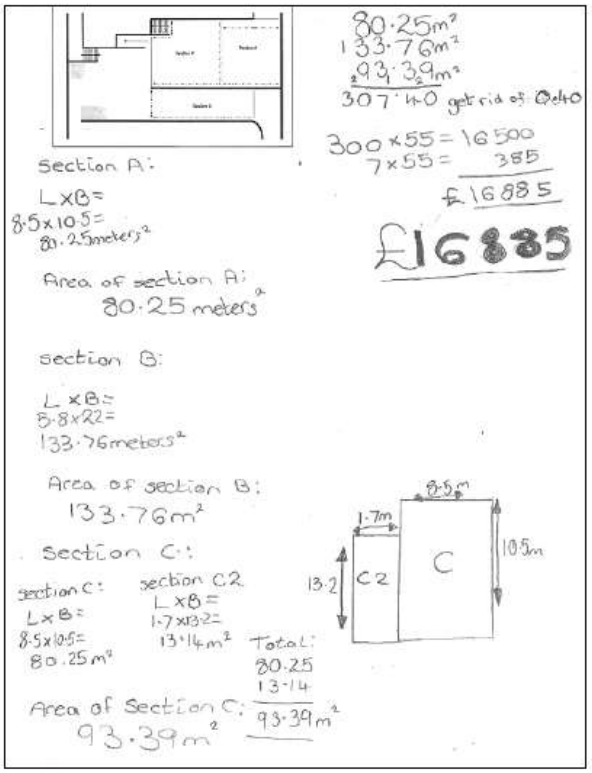
Abstract representation

The symbolic stage - a student is now capable of representing problems by using mathematical notation, for example: 12 ÷ 2 = 6.

3 x 6 = 18, 8 ones and regroup 10 ones for a ten

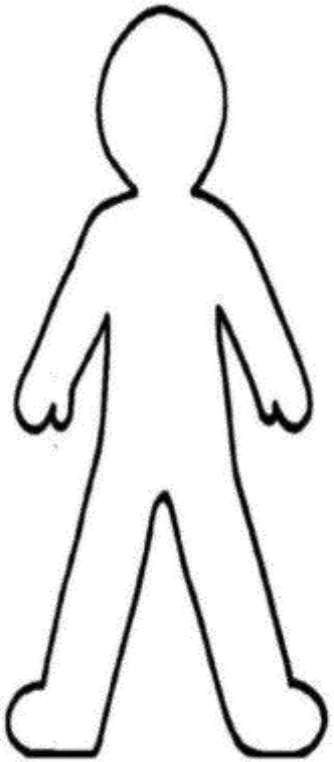


$$\begin{array}{r} 46 \\ \times\ 3 \\ \hline 138 \end{array}$$



What are the characteristics of a child who is successful at maths?

A child who:



- ✓ takes risks
- ✓ asks questions and explores alternative solutions without fear of being wrong
- ✓ enjoys exploring and applying mathematical concepts to understand and solve problems
- ✓ explains their thinking and presenting their solutions to others in a variety of ways
- ✓ reasons logically and creatively through discussion of mathematical ideas and concepts
- ✓ becomes a fluent, flexible thinker able to see and make connections

Fulfilling Potential

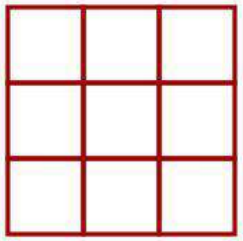
Useful things to practise at home include:

- ✓ Doubles and halves
- ✓ Number Bonds of 10, 20 and 100
- ✓ Adding or subtracting 2 small numbers
- ✓ Multiplication tables and division facts
- ✓ Linking multiplication tables x8 is double x4, x6 and x3 etc.
- ✓ Making links 7x10 is 70 so 7x20 is 140
- ✓ Rounding and estimating

Lets play the **Dotty 6 game!**

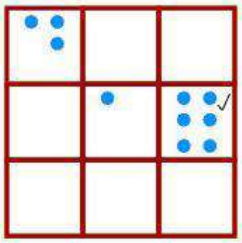
Fulfilling Potential

Dotty 6

You need a partner, a 1 - 6 dice and a grid like this 

- Take turns to throw the dice and draw that number of dots in one of the boxes on the grid. (suggest you each have a different colour of pencil)

- Put *all* of your dots in one of the boxes. You can't split them up and you can't have more than six dots in a box.

- When a box is full, you could put a tick in the corner like this: 

- Keep going until there are three ticks in a row or column or diagonal. The winner is the person who puts the **last tick**.

Consider what maths skills you are using when playing this game.

How could you adapt this game?

- ✓ Play until all the boxes are full.
- ✓ Use a 1-9 dice so each box has 9 dots
- ✓ Start with six counters in each box and take away the number on the dice
- ✓ Use a bigger grid
- ✓ You could make the winner the first to complete a whole row that adds to a certain total (e.g. 15)
- ✓ Use fractions or decimals instead of whole numbers (e.g. use fraction dice with ¼, ½ and ¾ and the boxes need to add up to 2.)

Questions to promote thinking

- ✓ How many more dots do you need to fill that rectangle?
- ✓ I think you need five more dots to fill that rectangle – am I right?
- ✓ How many rectangles have you filled so far?
- ✓ If you threw a three, which rectangle would you put the dots in?
- ✓ I've thrown this ... which rectangle could that go in? I'm wondering what to do with this score. Can you help me?
- ✓ If I throw a six, how many spaces are left for me to put it in?

Ten Nice Things

A game for two players. Each player chooses ten items each. They take it in turns to throw a dice and choose that number of items from their opponent's set. First to get all items wins.





Line Up

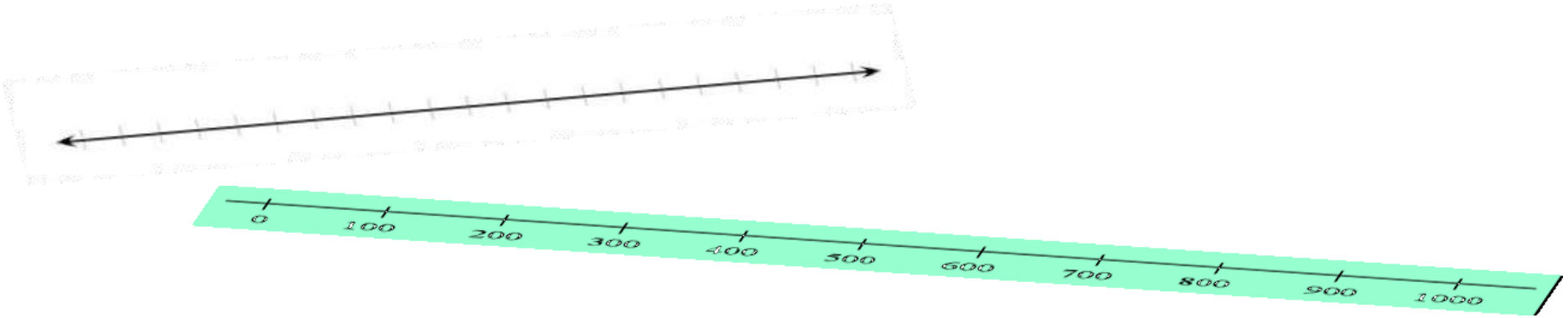
- Players take it in turns to throw the dice. Either throw the dice three times or use three dice.

- First throw represents the H, second throw the T and third throw the Ones.

- Plot the 3-digit number on a blank number line.

- First to get 4 in a line without opponent's numbers in between wins.

- Variation: You can choose which throw (or dice if you are using 3) is the H, the T and the Ones. This can bring in more strategic thinking.



How could you adapt this game?

- ✓ 2 dice for 2-digit numbers
- ✓ 2 dice are used to generate tenths and hundredths. They plot on a blank number line 0 – 1. First to get 4 numbers without opponent's numbers in between wins.
- ✓ Use a different dice e.g. 0-9

Mastery requires fluency

- You will need a hundred square for this activity.
- What is the number?

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

Adding small digits, 9, 10 and 11

Adding multiples of 10, 9 and 11

Fulfilling Potential

Reasoning
Using a pack of cards



- Using one suit only. Remove the picture cards.
- Sort the cards into even numbers and odd numbers.
- What can you tell me about all the odd numbers?
- What can you tell me about all the even numbers?
- Tell me something about your numbers.

Fluency
Using a pack of cards



- Remove the picture cards
- Sort into pairs which equal 10
- Shuffle the pack and place face down. Play like snap, turning over a card each and the first to call the total gets the cards.
- Other versions: first to call the difference, first to multiply the two numbers.
- Set up challenges - only the child calls the answer and he/she tries to beat their personal time.
- Beat the clock – focus on a multiplication table e.g. x7. Use two suits. Against the clock turn over a card and multiply by 7. Try to beat previous times.

Practice to deepen knowledge
Using a pack of cards

Use the digits 7, 5, 3, 4, 1. Choose two digits.

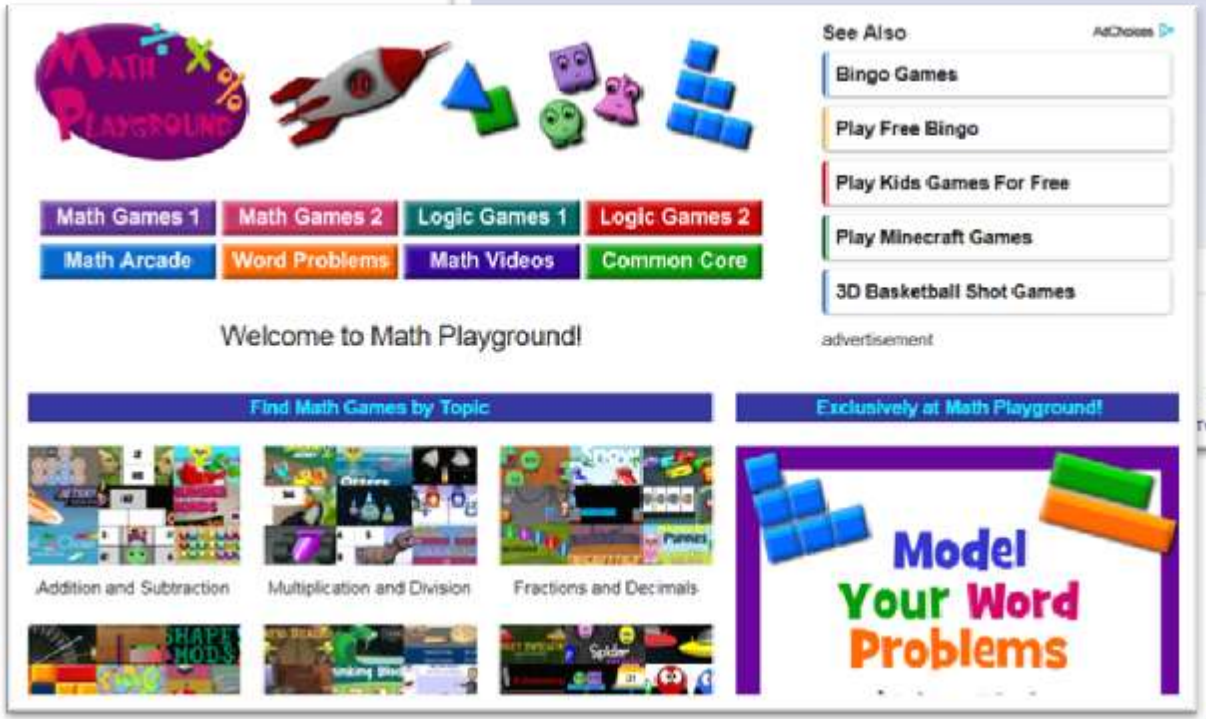
- What's the largest **total** you can make?
- What's the smallest?
- What totals between these can you find. Put the totals in order.
- What's the largest **even** total you can make? What's the smallest?
- What's the largest **odd** total you can make? What's the smallest?

Use the digits 7 5 3 4 1 to **make a 3-digit number** and a **2-digit number**.

- What's the largest total you can make? What's the smallest? What totals between these can you find. Put the totals in order.
- What's the largest **even** total you can make? What's the smallest?
- What's the largest **odd** total you can make? What's the smallest?
- A total nearest to 500? 300? Etc.
- Arrange 5 digits into a 3-digit and 2-digit number which sum to a given total.

BRIDGETOWN SCHOOL
STRATFORD UPON AVON





Fulfilling Potential

Arts Council England
Extended Services Warwickshire
Healthy Schools
ICT Mark Accredited
360 degree safe

Helping at Home

- ✓ Cook – measuring and weighing
- ✓ Look at numbers in the environment e.g. telephone keys, number plates, door numbers, book pages, sleeps until Christmas!
- ✓ Money
- ✓ Comparing heights
- ✓ Birthdays, Months of the year, Days of the week





Nearly half of 50





'My aunt was 24 last year'

24



14 + 10

Christmas Eve

Approximate weight in grams of a slice of bread

Where have you seen....?

What do you know about....?

How many different ways can you make....?

Can you show me....?

Calendar Activities

- ✓ Mark off days
- ✓ What day is it today? Yesterday was…. Tomorrow will be….
- ✓ How many days until the weekend?
- ✓ Who has a birthday this week? How many days until Jack's birthday?
- ✓ How many school days left this month?
- ✓ What fraction of the month is either a Monday or Tuesday?
- ✓ Include rhymes/songs about days of the week, months of the year, seasons, weather….

•**A prominent clock**- digital and analogue is even better. Place it somewhere where you can talk about the time each day.

•**A traditional wall calendar**-Calendars help with counting days, spotting number patterns and

•**Board games that involve dice or spinners**-helps with counting and the idea of chance

•**A pack of playing cards**- Card games can be adapted in many ways to learn about number bonds, chance, adding and subtracting

•**A calculator**- A basic calculator will help with maths homework when required, there are also many calculator games you can play, too.

•**Measuring Jug**-Your child will use them in school, but seeing them used in real life is invaluable. Also useful for discussing converting from metric to imperial

•**Dried beans**, **Macaroni or Smarties**- for counting and estimating

•**A tape measure and a ruler**- Let your child help when measuring up for furniture, curtains etc

•**A large bar of chocolate** (one divided into chunks)- a great motivator for fractions work

•**Fridge magnets with numbers on**- can be used for a little practice of written methods

•**Indoor/outdoor Thermometer**- especially useful in winter for teaching negative numbers when the temperature drops below freezing

•**Unusual dice**- not all dice have faces 1-6, hexagonal dice, coloured dice, dice from board games all make talking about chance a little more interesting

•**A dartboard with velcro darts**- Helps with doubling, trebling, adding and subtracting.

THE META PICTURE

Developing Maths

'The answer is just the beginning'

- Prompting thinking & questioning
- Providing opportunities to manipulate, experience and see (use of resources)
- Develop thinking through investigation
- Reasoning and making connections
- Engaging in talk
- Enabling learning through drawing attention to
- Encouraging children to make links and generalise

Maths is about spotting patterns, making links and understanding how pieces of knowledge fit together. NOT purely memorising facts and procedures by rote.

Finally

Don't tell them you are hopeless at maths

•You may remember maths as being hard, but you were probably not hopeless, and even if you were, that implies to your child, "I was hopeless at maths, and I'm a successful adult, therefore maths is not important."

Do play (maths) with your child

There are opportunities for impromptu learning in games with real people that you can't get from a iPad or Xbox.

Do get excited about maths and your child will get excited too!

