

# Welcome to Emmbrook Infant School's Maths Curriculum Evening

Just to get us warmed up....

Using these cards, how many different three-digit numbers can you make lower than 800?

How do you know that you have them all?

Show me!



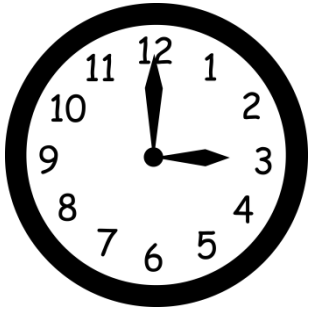
**135, 137, 139, 153, 157, 159, 173, 175, 179, 193, 195,  
197, 315, 317, 319, 351, 357, 359, 371, 375, 379, 391,  
395, 397, 513, 517, 519, 531, 537, 539, 571, 573, 579,  
591, 593, 597, 713, 715, 719, 731, 735, 739, 751, 753,  
759, 791, 793, 795**

# This evening we will consider...

- ... our approach to maths teaching
- .... learning at greater depth
- .... the EYFS and National Curriculum
- ... possible barriers to learning
- ... how you can help at home

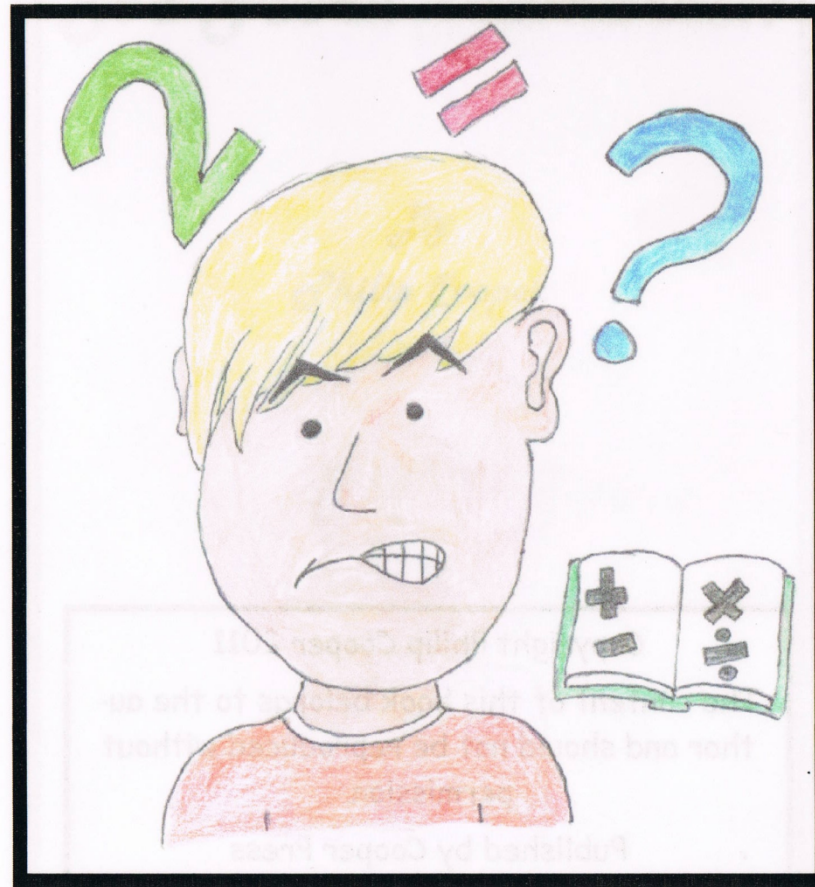


# What maths have you used today?



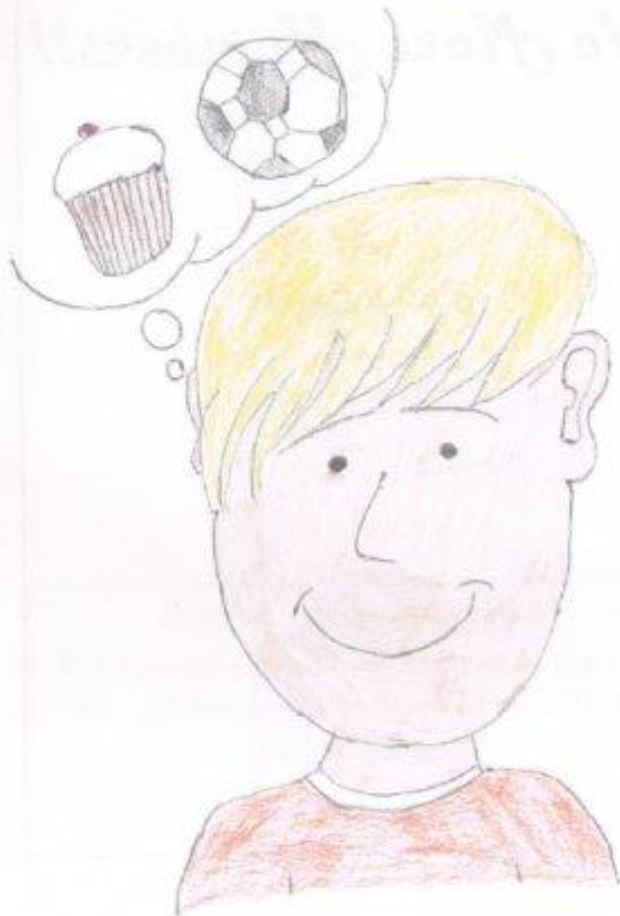


# No More Numbers!!



by Philip Cooper

This is Alvin. Alvin has a mum, a dad and a big sister called Fiona. He likes food, football and most of all... Alvin likes having fun!



But the one thing that Alvin does not like in all the world, the one thing that makes him so very angry he could jump up and down with rage, the one thing he finds so difficult is... **MATHS!** Especially his maths homework!



One day, when Alvin was trying to do a particularly hard sum he had an idea:

"I hate maths so much!" he said, "I wish that there was no such thing as numbers! Then I would never have to do these hard sums."

"But maths is very important," said Fiona, who was listening to Alvin moaning, "It is useful for..."

"I don't care!" Alvin interrupted her "I STILL wish that there was no such thing as numbers! I'm going to bed!"



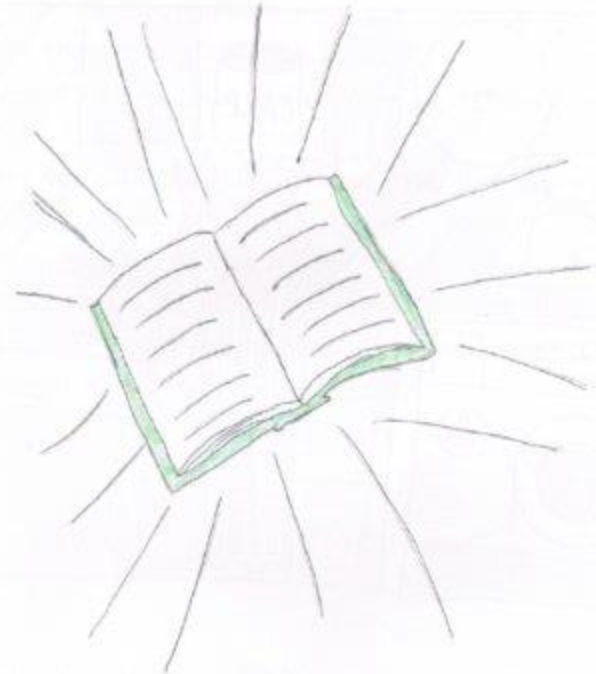
So Alvin left his homework where it was, and got straight into his bed.

"Ah, sleeping is easy," he thought. "You can't get a wrong answer when you're sleeping."

Very soon, Alvin had drifted off to sleep, a deep sleep, a dreaming sleep. And what he dreamed about was very interesting...

Alvin dreamed he was getting out of bed. He looked round his bedroom. Everything seemed the same as when he started sleeping.

"This is a boring dream" he thought "Nothing at all exciting is happening"



Alvin looked down at the homework he had left on the floor.

"Wait a second! There's no numbers in the book! What's going on?" He started to feel excited.

"My wish has come true! No more numbers! No more maths!"





To celebrate this wonderful discovery, Alvin decided he would have a piece of his favourite chocolate cake, the one that his mum made. He went down the stairs, into the kitchen, and looked inside the cake tin.

EMPTY! He shouted to his mum,  
"Mum, where's the chocolate cake?"

"Cake?" his mum replied.

"You know; the cake that you make!"

"Make?" Alvin's mum looked puzzled, "I don't make cakes Alvin, I can't" she said.

"Yes you CAN!" exclaimed Alvin, "You just use those scales over there!"

As he pointed to the scales, he suddenly realised there were no numbers on them. Without the numbers, how could you measure the ingredients? "Oh," thought Alvin, "No numbers, no cake."





Alvin thought for a moment longer, "Oh well, no cake, but I can still go and watch the football."

So off he went, down to the local match. The match had already started. He ran excitedly towards the pitch, desperate to know if his team was winning.

"What's the score? What's the score?" he shouted.

"Score? What's that son?" replied an old man who was watching.

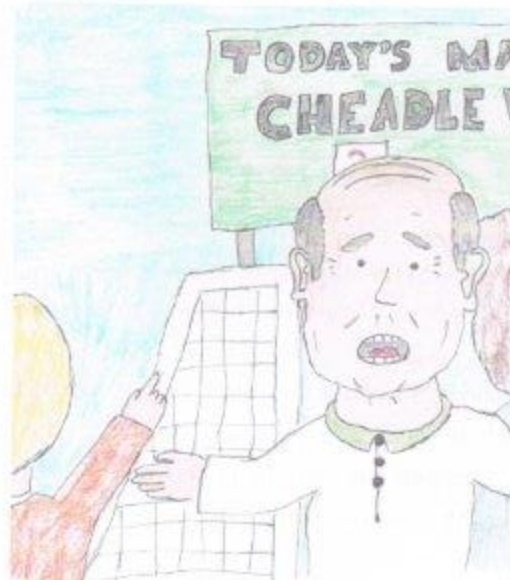
"You know; which team has the most goals?" replied Alvin.

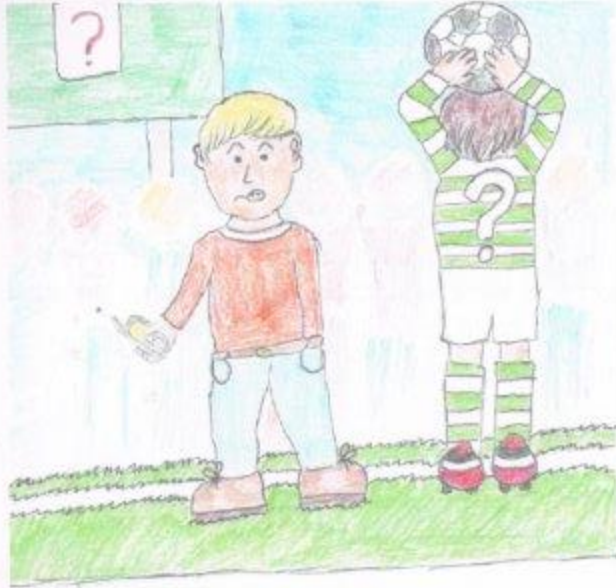
"Most?" said the man "I have no idea what you mean, son"

"Yes you DO!" exclaimed Alvin, "You just look at the scoreboard over there!"

As he pointed to the scoreboard, he suddenly realised there were no numbers on it. Without the numbers, how could you tell who was winning?

"Oh" thought Alvin, "No numbers, no score"





Alvin was more than a little fed up by this news. Football was, after all, one of his favourite things to do, and, "If no-one can win, then why do we play?" he thought.

Alvin decided to phone his best friend, Gary, to tell him all about what was going on. He reached into his pocket, grasped his mobile phone and took it out. But when he looked down at it, he had the shock of his life...

"Argh! How do I call Gary with this?"

Sure enough, the buttons on his mobile phone had no numbers on, how would he be able to make a phone call?

"Oh" thought Alvin "No numbers, no phone calls."





"No matter," Alvin thought, "I'll just go round to Gary's house instead, I know I can STILL have lots of fun without numbers."

So Alvin went round to Gary's house. Gary would think of something to do, he always knew how to have a great time. Alvin ran up the drive, knocked on the door and waited for Gary to answer.

"Hi Alvin," said Gary, munching on a packet of mints, "What's up?"

"Hey Gary, I'm pretty bored to be honest, there's nothing to do," replied Alvin, "I know, how about we share those mints...please?"



"Share?" said Gary, "What do you mean?"

"You know, we split the packet between us so we both get the same amount."

"I don't know how to do that," said a puzzled looking Gary.

"Yes you DO!" exclaimed Alvin, "You just count out the mints for both of us!"

But as soon as Alvin said this, he realised something, "If there are no numbers, then you can't count out the sweets!"

"Oh no!" thought Alvin, "No numbers, no sharing!"



Alvin left Gary's house more fed up than ever.

"What can I do now?" He shouted.

Alvin thought for a moment about what he usually did when he was bored.

"I've got it!" he cried, "I'll spend this week's pocket money"



Alvin ran straight home to find his dad.

"Dad!" "Dad!" "DAD!" he shouted.

"Yes son?" his dad replied.

"Can I have my pocket money for this week?"

"Money? I don't know what money is" his bemused Dad replied.

"YES YOU DO!" exclaimed Alvin, "It's those different coloured coins, each one has a different value!"

Alvin realised his mistake again. Without the numbers, how do you know what money is worth?

"Oh no!" sulked Alvin, "No numbers, no money!"



Alvin thought about all the things he couldn't do without numbers. He had never realised how important they were to the things he enjoyed, as well as the things he didn't.





Alvin sat down outside his house, sulking. By this time he was very, very fed up indeed. In fact, he was so fed up that he had a thought that he had never had before, and never thought he would ever have.

"Perhaps numbers aren't so bad after all. Perhaps maths isn't so bad after all." He thought.

And then Alvin said something that he had never said before, and never thought he would ever say.

"I wish that there WAS such a thing as numbers, I really do!"







BBBBBBBBBBBBBBBBIIIIIIINNNNNNNNNNN-  
NGGGGGGGGG!!

Alvin's alarm clock woke him up!

"Of course!" He shouted, "It was only a dream!"

Alvin looked round his room, and then down at the homework he had been doing the night before.

"Phew! The numbers are still there!"

Alvin ran downstairs.

"The numbers are back! The numbers are back! I love numbers!" he shouted.

"That wasn't what you said last night," laughed Fiona.

"Oh I didn't realise how important they were till I had the weirdest dream! But now I know they're very important indeed!"





One day, not so long after all this happened Gary came round to Alvin's house. He wasn't very happy, and he was carrying his maths book.

"What's up Gary?" asked Alvin.

"This maths homework!" fumed Gary "I hate maths! In fact, I wish there was no such thing as maths, and no such thing as numbers!"

"No you don't Gary," replied Alvin.

"How do you know?"

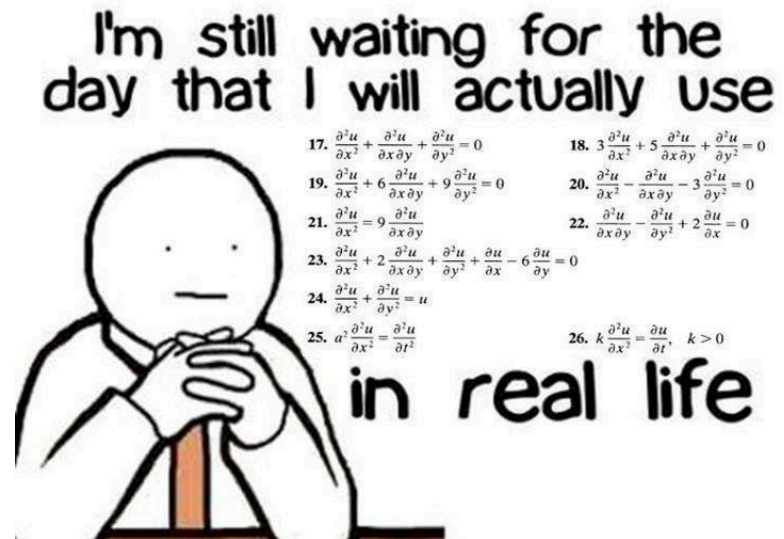


"Trust me," said Alvin, "I know!"

*The End...*

# Bringing it back to school...

- **Relevance and application**
- Children need to see the **purpose** in order to really learn.
- A successful mathematical adult:
  - Time
  - Money
  - Risk
  - Logic
  - Problem solving
  - Estimation and approximation
  - Calculation

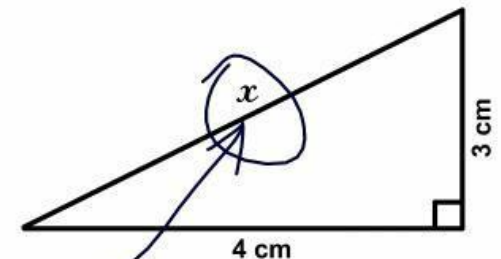


# National Curriculum

## Maths – purpose of study quote

“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, the ability to reason mathematically, an appreciation** of the beauty and power and **a sense of enjoyment and curiosity** about the subject.”

3. Find  $x$ .

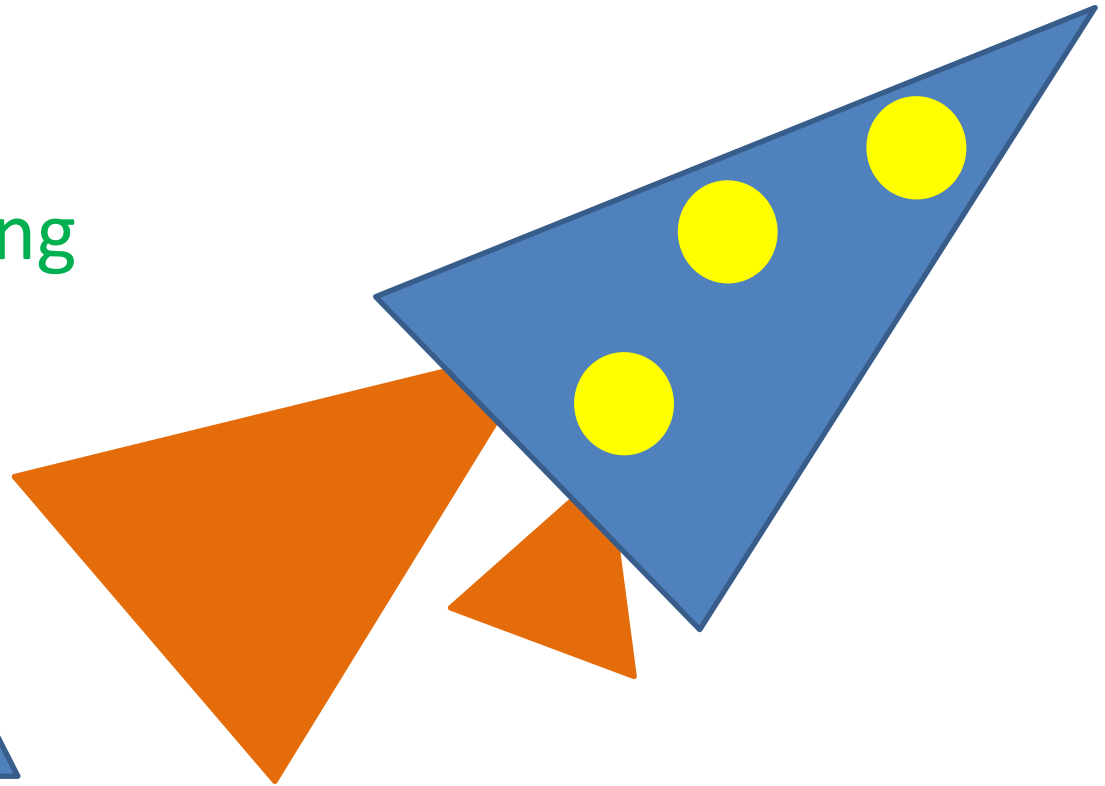
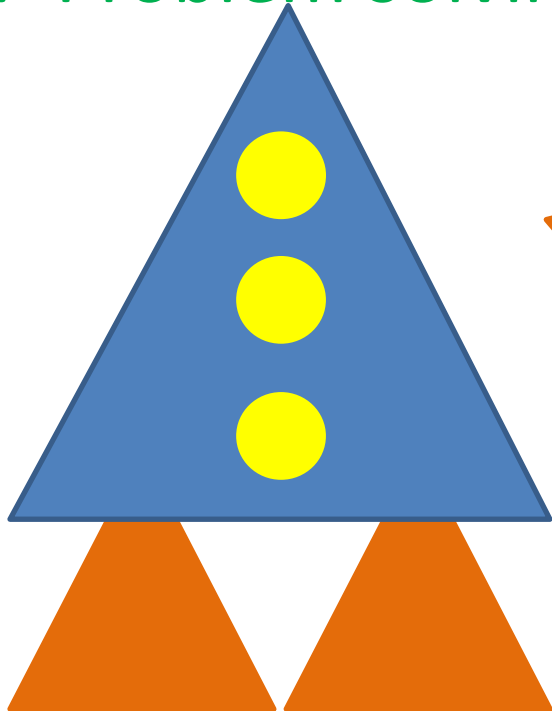


*Here it is*

# National Curriculum

## Maths – aims

1. Fluency
2. Reasoning
3. Problem solving





# Activity #2 Estimate...

... how many rectangles can you see?



# Learning at greater depth

What is mastery?

"I can drive a car!"



heavily guided

proficient / problem  
solver

# Defining depth

Paddling

Snorkelling

Diving



# Defining depth

Paddling

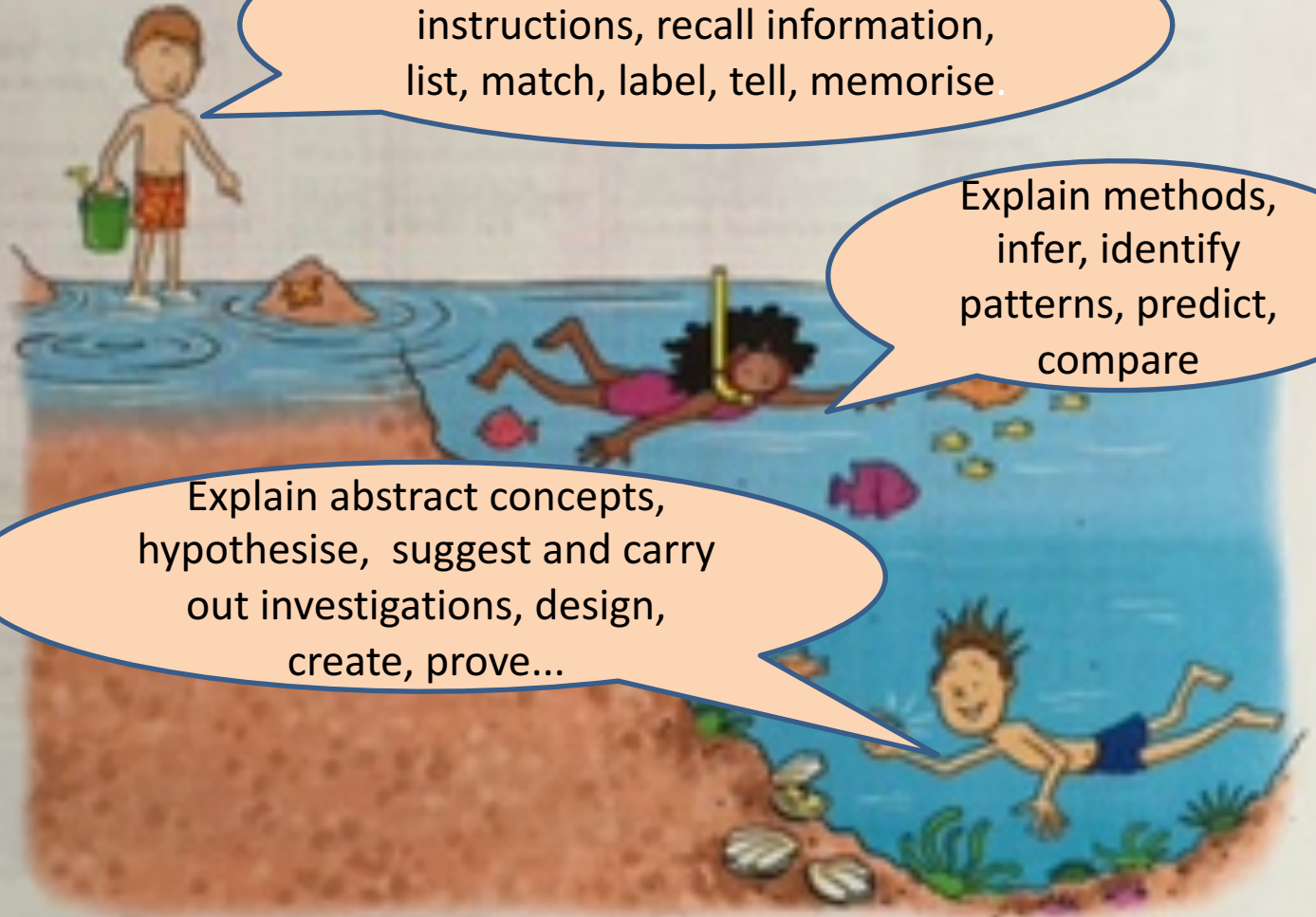
Name, describe, follow instructions, recall information, list, match, label, tell, memorise.

Snorkelling

Explain methods, infer, identify patterns, predict, compare

Diving

Explain abstract concepts, hypothesise, suggest and carry out investigations, design, create, prove...







**Embrace  
mistakes  
and false  
starts**

**A broad  
range of  
skills in  
using and  
applying  
maths**

**An ability to  
make  
connections  
within  
mathematics**

**Wide range  
of  
mathematical  
vocabulary**

**Be  
independent  
thinkers and  
persevere  
when faced  
with  
challenges**

**Show  
initiative in  
solving  
number  
problems**

**Fluent  
knowledge  
and recall of  
number  
facts and  
the number  
system**

**Fluency in  
performing  
written and  
mental  
calculations**

# Fruit Salad Frenzy!

Write down the answers in the circles.



Or...

$$\underline{\quad} + \underline{\quad} = 8$$

$$\underline{\quad} + \underline{\quad} = 5$$

$$\underline{\quad} + \underline{\quad} = 7$$

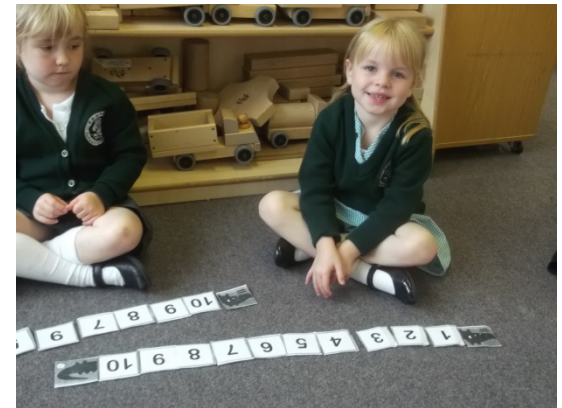
$$\underline{\quad} + \underline{\quad} = 12$$

# Early Years foundation Stage

## Maths – Early Learning Goals

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**.

Children use everyday language to talk about **size, weight, capacity, position, distance, time** and **money** to **compare** quantities and objects and to **solve problems**. They recognise, create and describe **patterns**. They explore characteristics of **everyday objects** and **shapes** and use mathematical language to describe them.





# National Curriculum

## Maths – learning objectives

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurement
- Properties of shapes
- Position and direction
- Statistics (year two only)





# Calculation helps

*See take home pack*

# Activity #3 What number/s do I have?

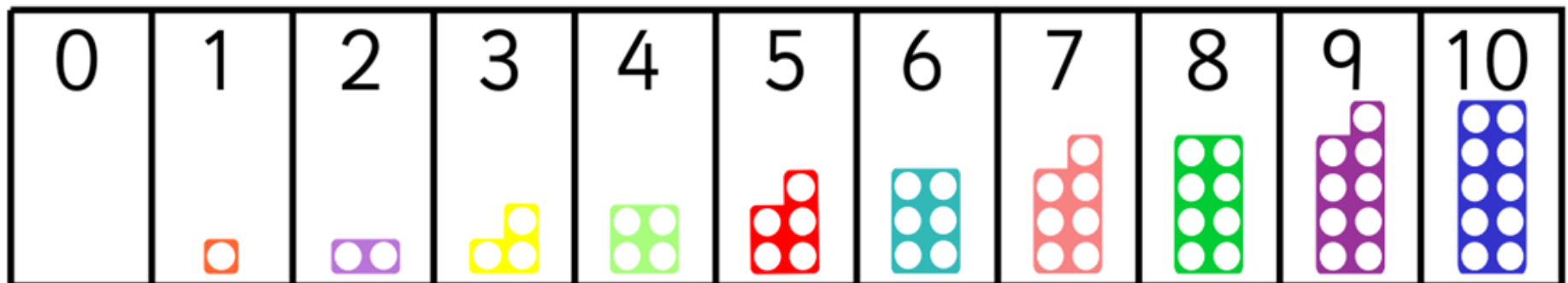
Ask questions to find out which numicon numbers are in the bag, e.g. are any of your numbers odd?

All the numbers are different.

They are between (and including) 1-10.

You may only ask questions which give a 'yes' or 'no' answer.

Limited questions of "is it...?"



# Activity #4 Fruit bowl fractions

- Anna says, “In my fruit bowl I have twice the amount of apples than I do bananas. A third of the fruit are strawberries. There are the same amount of apples and oranges. I have 8 oranges.”



*How many apples do I have?*

*How many bananas?*

*How many strawberries?*

*How many pieces of fruit do I have in the whole fruit bowl?*

*What fraction of the fruit are oranges?*

# Barriers to learning

- “I can’t do it” “It’s too hard for me”
- Fixed mindset vs. Growth mindset
- Parents = a child’s first educator.
- Your opinion and attitudes matter!
- Purpose, motivation, relevancy, application...





# What some of your children say about maths...

*"Maths is brilliant!"*

*"I love Maths,  
especially tricky  
sums."*

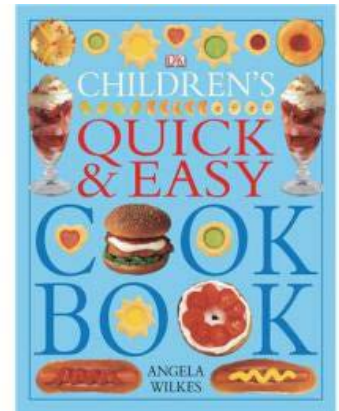
*"Maths is  
fun!"*

*"We learn a lot in  
maths."*

*"Maths is  
sometimes hard but  
we keep trying."*

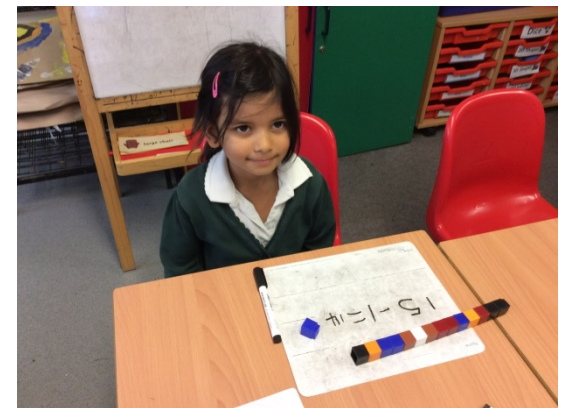
# Helping at home

- Play 'I'm thinking of a number.../ shape...'
- Estimate and addition when shopping
- Set the table for dinner
- Follow a recipe
- Set your child in charge of timings for the day
- Be directed and give directions!



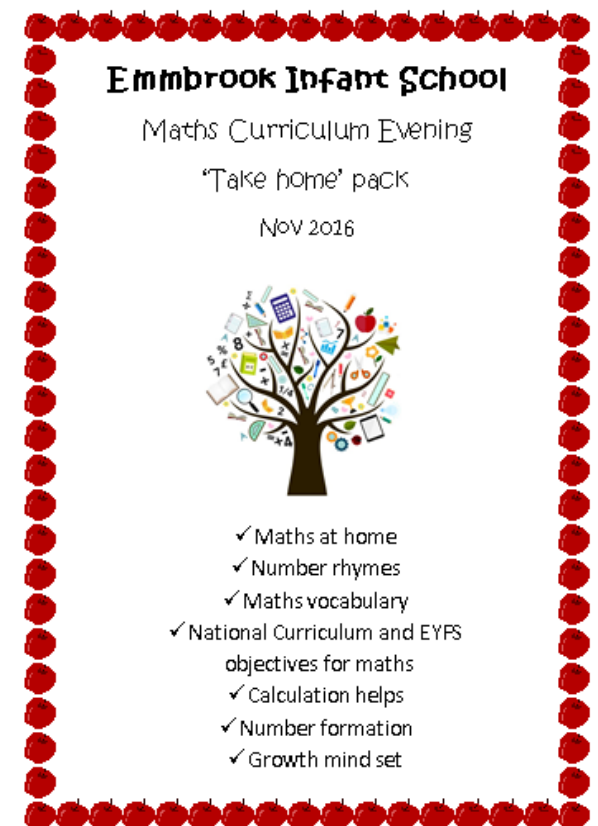
# Back to our aims for the evening...

- ... our approach to maths teaching
- .... learning at greater depth
- .... the EYFS and National Curriculum
- ... possible barriers to learning
- ... how you can help at home



# ‘Take home’ pack

- The above games and some other ideas
- Number rhymes
- Maths vocabulary
- EYFS and National Curriculum objectives for maths
- Calculation helps
- Number formation
- Growth mind set





# Thank you for coming

- Please fill out an evaluation form
- Please take home your PP notes and a 'take home' pack

