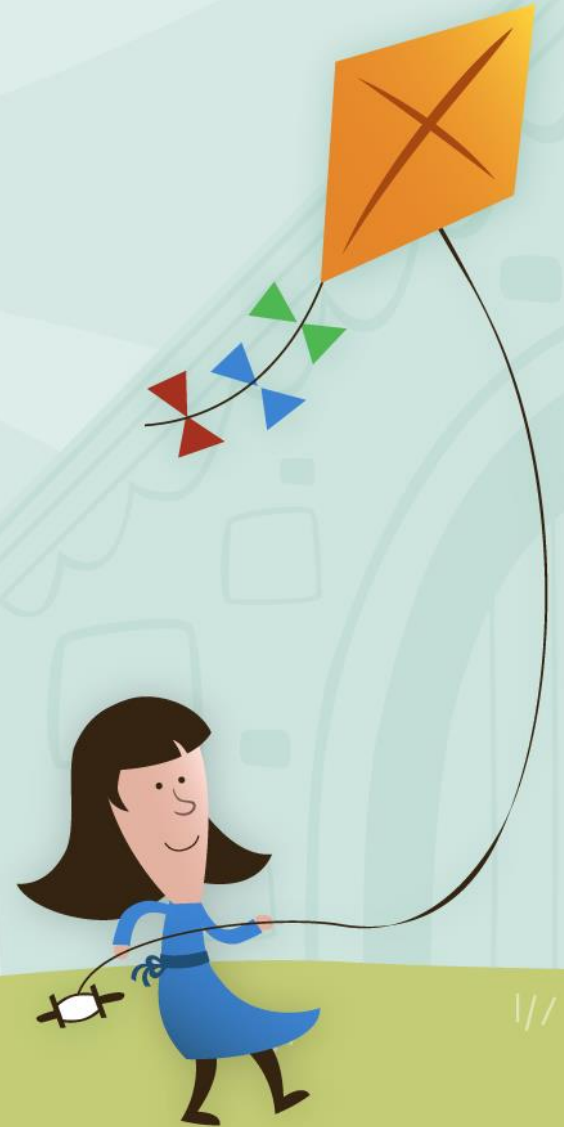


Stay and Learn: Maths in the Early Years

14th November 2023



Today's Agenda...

- Counting Principles - research around Early Number
- What does the curriculum look like at St Vincent's?
- Resources we use in school.
- Ideas of how to support at home.
- Time to Play.



The Counting Principles

Following research from Gelman and Gallistel in 1978, it is vital that teachers understand the five counting principles. (Gelman, R. & Gallistel, C. (1978) *The Child's Understanding of Number*. Cambridge, MA. Harvard University Press.)

1 The one-to-one principle.

This involves children assigning one number name to each object that is being counted. Children need to ensure that they count each object only once, ensuring they have counted every object.

Children will sometimes count objects more than once or miss an object out that needs to be counted. Encourage children to line up objects and touch each one as they count, saying one number name per object. This will also help to avoid children counting more quickly than they touch the objects which again shows they have not grasped one-to-one correspondence.



1



2



3



4



5



The Counting Principles

2 The stable-order principle.

Children understand that, when counting, the numbers have to be said in a certain order.

Children need to know all the number names for the amount in the group they are counting. Teachers can therefore encourage children to count aloud to larger numbers without expecting them to count that number of objects immediately.

3 The cardinal principle.

Children understand that the number name assigned to the final object in a group is the total number of objects in that group.

In order to grasp this principle, children need to understand the one-to-one and stable-order principle. From a larger group, children select a given number and count them out. When asked 'how many?', children should be able to recall the final number they said. Children who have not grasped this principle will recount the whole group again.



The Counting Principles

4 The abstraction principle.

This involves children understanding that anything can be counted, including things that cannot be touched, such as sounds and movements e.g. jumps.

When starting to count, many children rely on touching the objects in order to count accurately. Teachers can encourage abstraction on a daily basis by counting claps or clicks. They can also count imaginary objects in their head to encourage counting on. This involves the children visualising objects.

5 The order-irrelevance principle.

This involves children understanding that the order in which we count a group of objects is irrelevant. There will still be the same number.

Encourage children to count objects, left to right, right to left, top to bottom and bottom to top. Once children have counted a group, move the objects and ask children how many there are. If they count them all again they have not fully grasped this principle.



The Early Years Foundation Stage Curriculum

Early Learning Goal

Development Matters Statements

Mathematics

- Count objects, actions and sounds.
- Subitise.
- Link the number symbol (numeral) with its cardinal number value.
- Count beyond ten.
- Compare numbers.
- Understand the 'one more than/one less than' relationship between consecutive numbers.
- Explore the composition of numbers to 10.
- Automatically recall number bonds for numbers 0-5 and some to 10.
- Select, rotate and manipulate shapes to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes *within* it, just as numbers can.
- Continue, copy and create repeating patterns.
- Compare length, weight and capacity.



Mathematics

Number

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

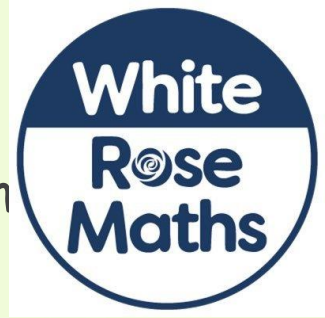
Numerical Patterns

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.



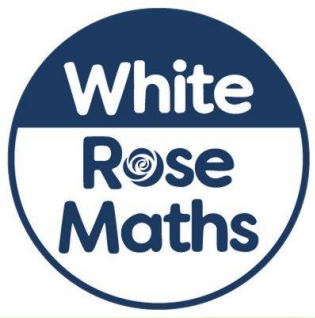
Our Curriculum...

- This year we are using White Rose Maths.
- White Rose Maths covers both Number and Shape, Space and Measure.
- Short daily adult led focused inputs for whole class including number rhymes, songs and games.
- Each half term we introduce new concepts and give opportunities to practise new skills through play within provision.
- Each day all children have an Adult Directed Maths focus activity and lots of independent activities.
- Homework set is linked to learning of new concepts taught to ensure consolidation and continued learning.



• Importance of being as practical as possible!





	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 term	Getting to know you		Match, sort and compare FREE TRIAL VIEW	Talk about measure and patterns VIEW	It's me 1, 2, 3 VIEW			Circles and triangles VIEW	1, 2, 3, 4, 5 VIEW		Shapes with 4 sides VIEW	
Spring term	Alive in 5 VIEW	Mass and capacity VIEW	Growing 6, 7, 8 VIEW	Length, height and time VIEW	Building 9 and 10 VIEW		Explore 3-D shapes VIEW					
Summer term	To 20 and beyond VIEW	How many now? VIEW	Manipulate, compose and decompose VIEW	Sharing and grouping VIEW	Visualise, build and map VIEW		Make connections VIEW	Consolidation				



Small steps

Step 1

Find 4 and 5

Step 2

Subitise 4 and 5

Step 3

Represent 4 and 5

Step 4

1 more

Step 5

1 less

Step 6

Composition of 4 and 5

Step 7

Composition of 1–5



Maths Talk and Learn: Supporting White Rose Maths Circles and Triangles

Circles and Triangles

Triangles have 3 straight sides and 3 corners.



Circles have 1 curved side.



Talk about the shapes you can see in this dragon picture. Can you see any circles? Can you find any small triangles? What shape is the dragon's body? How are the triangles the same? How are they different?



Which of these photos are showing triangles? Which are showing circles? How do you know?



Bernie wants to make some triangle and circle shapes in the modelling using these 3D shapes. Which 3D shape will stamp circles? Which 3D shape will stamp triangles?



Spatial Awareness: Positional Language

Positional language describes where objects are.

Can you talk to me about where the worm is in each of these pictures?



What can you see on the treasure map? Where is the pirate? Where is the mermaid sitting? What is next to the palm trees?

How could the pirate get to the treasure? What might she pass? Is there more than one way to get there? Can you describe a path that will take her past the mermaid and to the treasure?



Challenge Yourself:

- Make a circle and a triangle out of paper or card with your grown-up. Go on a shape hunt around your house or garden. How many circles can you find? How many triangles?
- Ask your grown-up for some coins. Can you arrange the coins to make a circle shape? Can you arrange them to make a triangle?

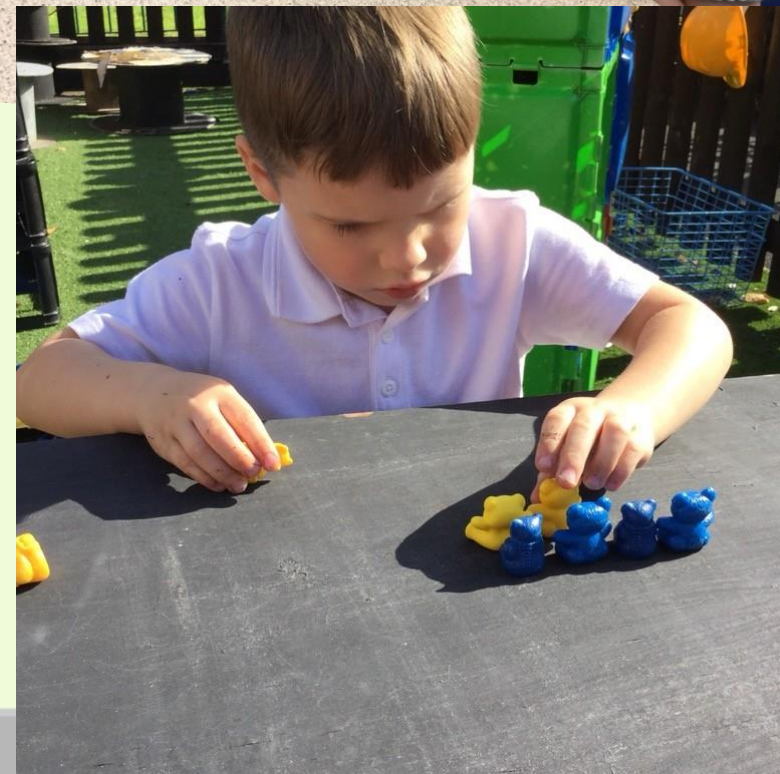
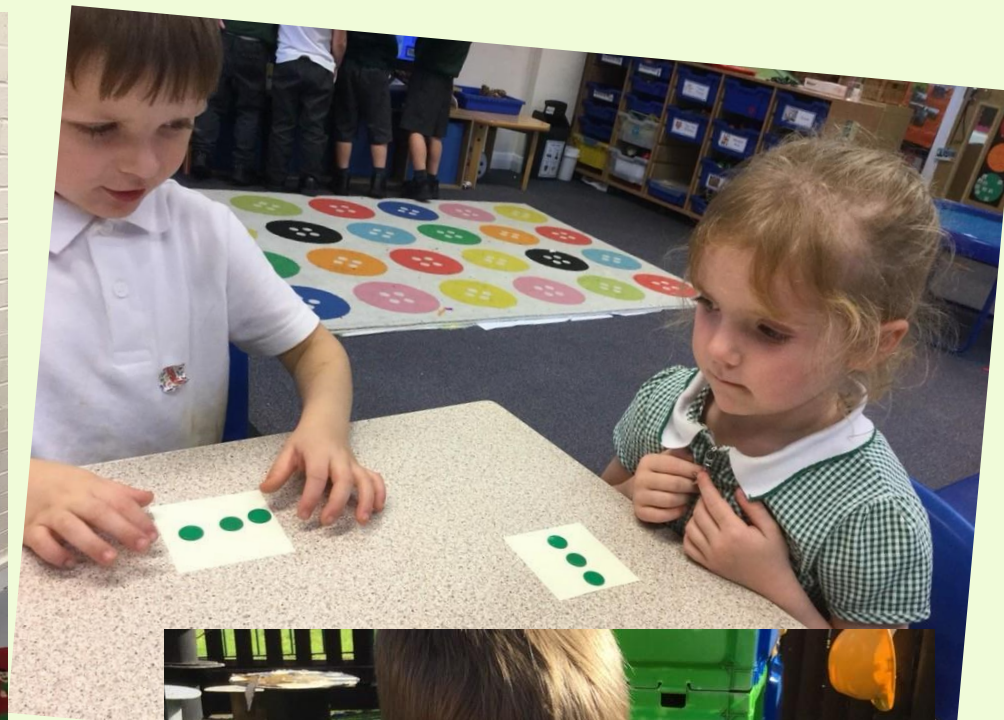
Challenge Yourself:

- Use 3 different-coloured building blocks to build a model. Can you describe your model to a grown-up so they can make one the same as yours?



twinkl





NCTEM - Mastering Number Programme

- Four short sessions each week, aimed at developing children's fluency and flexibility with number.
- Secures firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2.
- The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number.



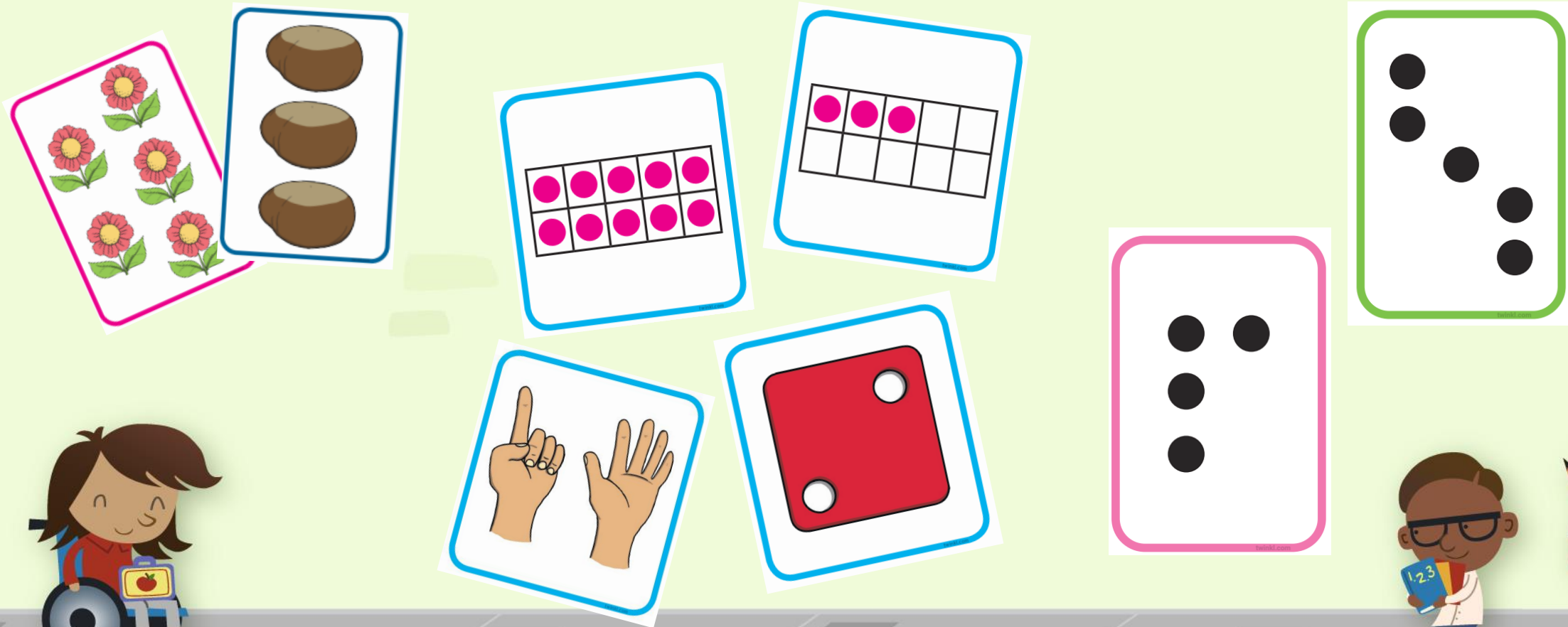
NCTEM - Mastering Number Programme

- Daily Opportunities for the children to develop their subitising and counting skills.
- Composition of numbers to 5 and comparison of numbers.
- Comparison of sets of numbers.
- Connecting quantities to numerals.
- Looking at concepts such as Doubling, Sharing and Halving.
- Odd and Even numbers.
- Exploring the pattern of numbers to 20.
- Exploring different representation of numbers including use of 10 frames.
- Develop sense of magnitude (e.g. knowing that 8 is quite a lot more than 2, but 4 is only a little bit more than 2).
- Use of ReknRek to support number work.



Subitise

Instantly recognise a small quantity, without having to count how many there are.



Numberblocks

- Fantastic BBC Television series aimed at introducing children to Early Number and supporting mathematical understanding.
- Use in school to support learning and the children engage really well with this.



Numberblocks - CBeebies - BBC



Mastery, Reasoning and Problem Solving

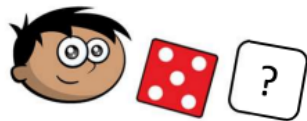
- Use of questioning really important to ensure that children are able to reason. We give children opportunities to explain.
- Giving children specific problem solving activities.

Exploring Possibilities

Jack rolled 2 dice and scored 10



Amir scored less than Jack.
One of Amir's dice showed 5.



What other number could Amir have rolled?
Is there more than one answer?
Are there any numbers Amir could not have rolled?

- What do you know about number ten?
- How many ways can we make ten? How do you know?
- What different ways can you show the number ten?
- Can you write the number ten? How do you form the numerals?
- What number can we add to six to make ten? How can you prove it?
- Can you prove that five and five make ten?
- Can you count to ten? Which number comes before ten?
- Can the same number of things look different?
- How can we make groups that are 'the same'? Can you show me?
- Tell me about your groups. What do you notice?
- I have... I wonder if anyone has more, fewer or the same as me.

Why is there such a big focus on the early numbers?

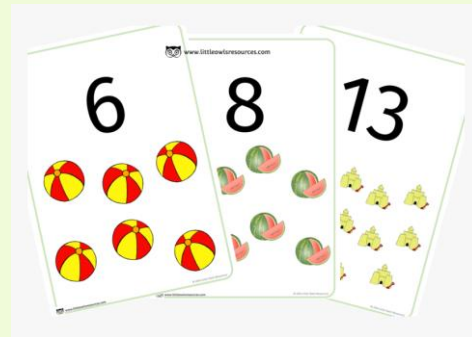
- Importance of children developing a strong sense of numbers to 10, this will stand them in good stead for Maths that follows as they move through school.
- Understanding link between number and quantities (representing numbers in many ways)
- Investigating how quantities are composed of smaller parts (6 can be two 3's or three 2's or 4 and two ones or 5 and 1, etc)
- Knowing how the numbers relate to one another and being able to compare and order them.



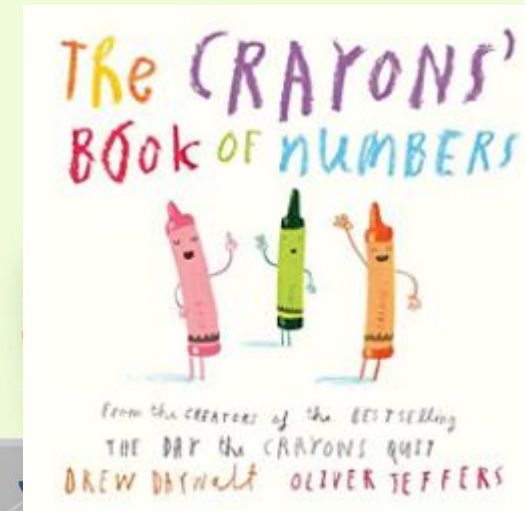
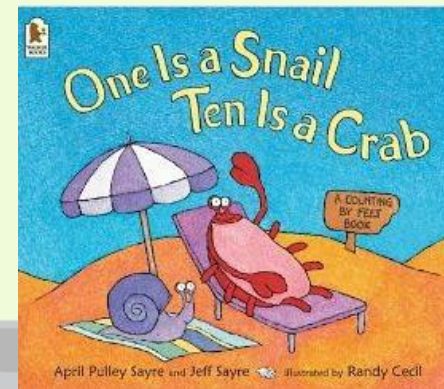
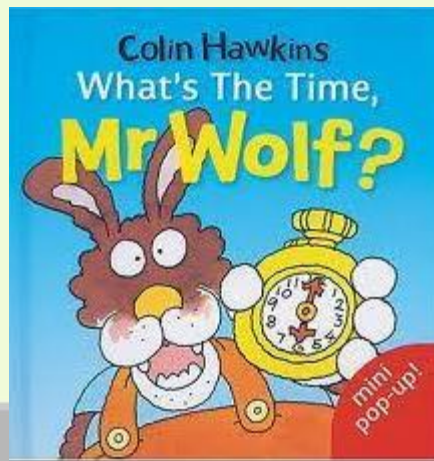
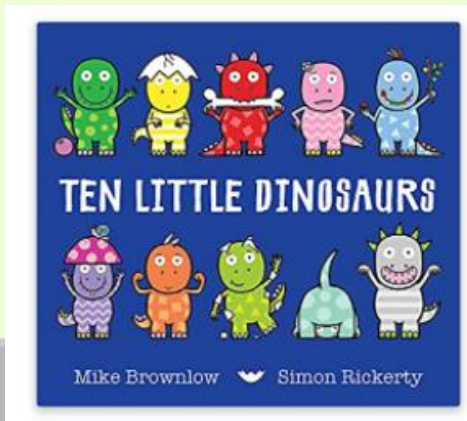
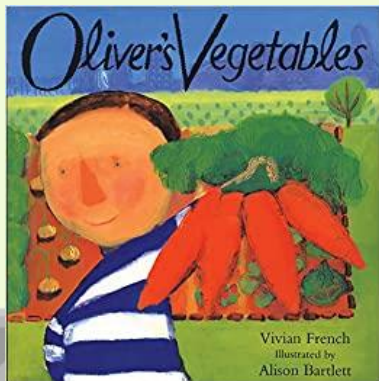
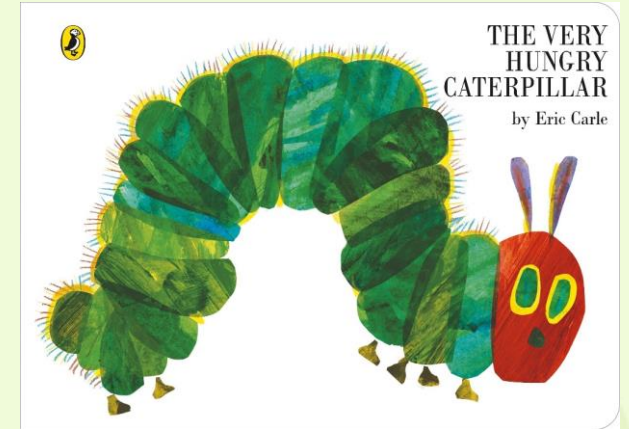
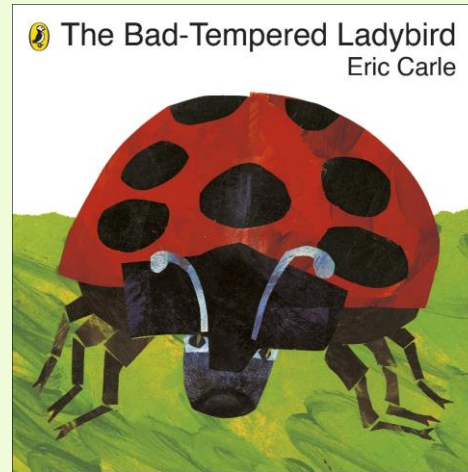
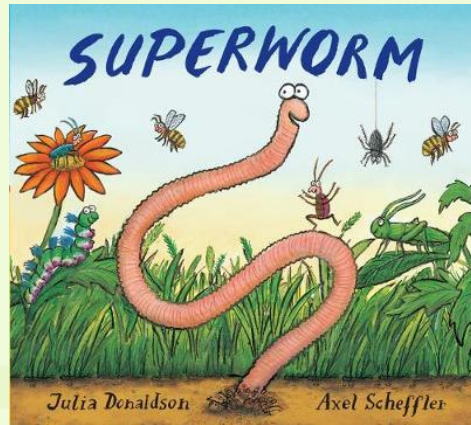
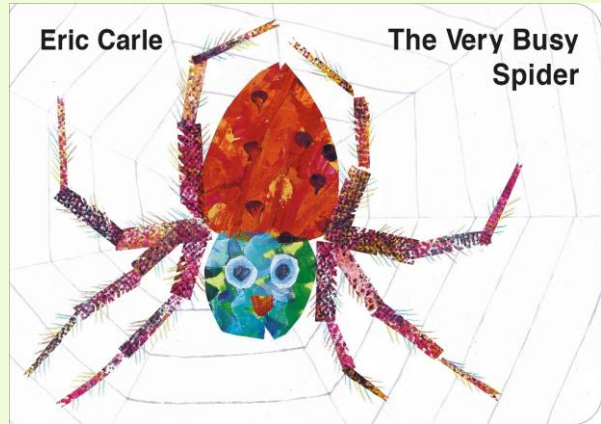
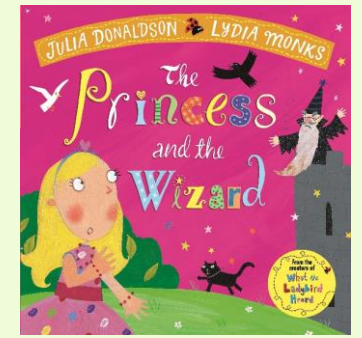
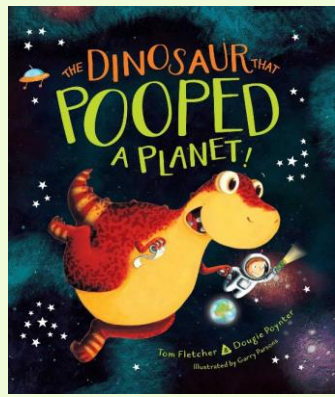
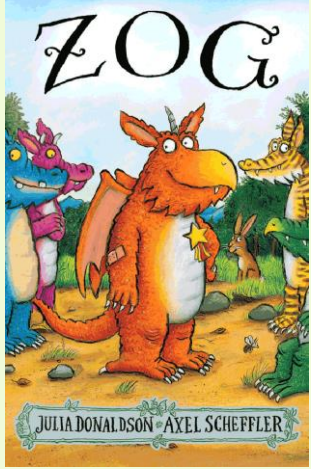
Explore how quantities change when you add more items or take items away.



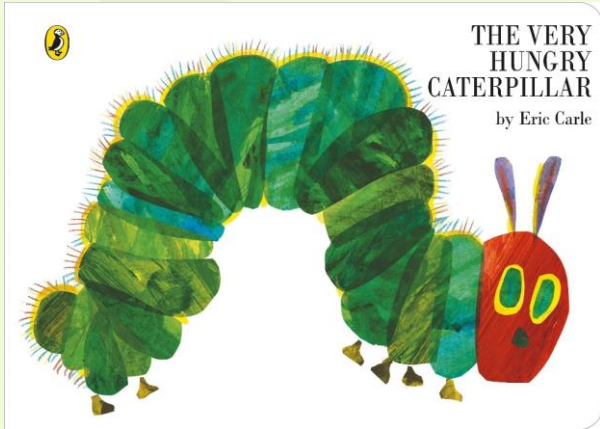
Physical Resources



Number Books



The Very Hungry Caterpillar



- Days of the week (time) On Monday he ate....
- Counting amounts of fruit/food - 1 apple, 2 pears....etc..
- Repeating patterns
- Number ordering - 1, 2,3,4,5 - matching numbers to numerals.
- Symmetry - butterfly



Ideas for activities to support learning at home...



Recognising Numbers all around

- Recognising numbers all around us, e.g. birthday cards, buses, front doors, road signs,
- Going on Number hunts - can you find number 4? Who will be the first person to find number 9?



Number Writing and Formation

- Model number writing different ways: Lists, tracing, birthday cards, recipes, phone numbers.
- Write in sand, with your finger on the carpet, paint, make numbers with play dough, on a whiteboard, on paper, post it notes, on a tablet.
- Focus specifically on correct formations.
- Use of rhymes to support formations (key rings)



Counting Focus



Counting in everyday conversation:

- In play
- Counting steps.
- Brushing teeth
- Toys in the baths
- Tidying up toys

- Subitising - with teddies, spoons, socks

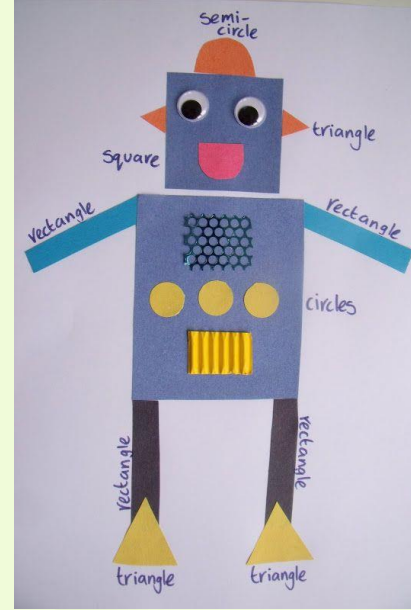


Ordering numbers - flashcards, post it notes, lining up toys



Shape and Measure

- 2D and 3D shapes - in everyday conversation, shape hunts, shape pictures
- Patterns - ordering objects and toys, clapping/body percussion. Starting with simple repeating patterns and extending this.
- Weight, length, capacity, time - language focus whilst cooking in the kitchen, in the bath, talking about routines, timing how long it takes to do things.



Number games ideas...

- Snakes and ladders
- Board games
- Scoring games where they children attempt to record their scores in some way.
- Card games - snap, pairs
- Hide and seek
- Bingo games
- Counting songs



Website/App Recommendations - Maths Focus



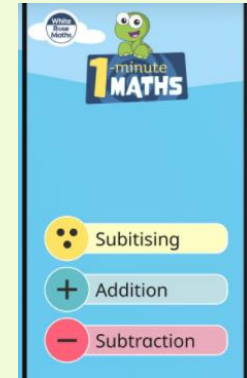
Teach Your Number Skills (App/Website)



Top Marks Maths -
<https://www.topmarks.co.uk/Search.aspx?Subject=16&AgeGroup=1>



Numberblocks (App)



White Rose 1 Minute Maths (App)

Websites:

- Numberblocks episodes - BBC Iplayer - <https://www.bbc.co.uk/iplayer/group/b08bzfhn>
- Go Noodle - Banana Banana Meatball - <https://youtu.be/BQ9q4U2P3iq>
- The games cover the whole curriculum and are tablet friendly. [Games - Free online games for kids 0 - 6 - CBeebies - BBC](#)
- BBC Bitesize - Links to Curriculum Areas - [Early years resources for learning at home - BBC Bitesize](#)



Education City

Log in to EducationCity

Username and Password

Username
Enter Username

Password
Enter Password

Country
England

[Forgotten your login details?](#)

Log In

Single Sign-On

Log in with Wonde

Log in with Google for Education

Log in with Office 365 Education

[In the USA? Log in to your account here.](#)

[Start a FREE TRIAL now](#)

<https://www.educationcity.com/>



Log in details to be sent home in back of Reading Diaries

A collection of tasks that have been set especially for you to complete.

Classwork **Homework**

4 MyCities

- Rec - Homework w/e 9th October**
395StVincentCath
olicAdmin
- REC - Homework w/e 16th October**
395StVincentCath
olicAdmin
- Rec - October Half Term Games**
395StVincentCath
olicAdmin
- Rec Homework w/e Friday 13th Nov**
395StVincentCath
olicAdmin

Rec Homework w/e Friday 13th Nov
395StVincentCatholicAdmin

Homework

- Run, Rabbit, Run**
Letter 'r'
English
Score: 100%
- Bongo Beat**
Initial phonemes of CVC w...
English
Score: 100%
- I See Words**
Read tricky/HF ph2 words
English
Score: 40%
- Bon-Go Go Go!**
Counting to 10
Mathematics
Score: 100%

What else is going on?

- **Communication and Language** - circle time activities, sharing experiences from Tapestry, meeting with our buddies, poetry basket, drawing club adventures.
- **Expressive Arts and Design** - different art skills, medias and materials, DT junk modelling, singing nursery rhymes and learning our Nativity songs.
- **Understanding the World** - looking at changes in seasons, senses, Diwali, materials/houses and homes.
- **Fine/Gross Motor Skill** - PE with Coach Dave, dough disco, cutting, handwriting practice, fine motor activities.
- **Independence** - Continuing to encourage children to think for themselves and to take responsibility, putting coats on, dressing for PE.



Broad and balanced curriculum.





Important Information/Reminders

- Reading Books will be sent home on Wednesday after our final Reading Practice Session. Books to be removed on a Monday. Please make sure you leave a comment in the Reading Diaries.
- Homework to be put in folders on a Friday with a Tapestry Post to confirm.
- This PowerPoint will be shared on the school website.



Thank you for joining us today.

If you have any questions please do
ask.

Time now to play...

