

# CAPACITY

YEAR 1			
LEARNING OUTCOMES Children will be able to:		KEY VOCABULARY	OPPORTUNITIES Children should be given a range of opportunities such as:
F.1.1	understand and use the vocabulary related to capacity.	fill pour full	<ul style="list-style-type: none"> <li>filling a collection of containers with dry filling material (e.g. peas, rice, lentils, sand, etc) to show different capacities, such as full, nearly full, half full, nearly empty and empty.</li> <li>sorting different transparent containers according to capacity and describing how full or empty they are.</li> <li>filling a transparent container with coloured water and then pouring the same water from one container to the next and discussing what they see.</li> <li>estimating the capacity of different containers by responding to questions such as: 'Which containers do you think holds the most or the least?'</li> </ul>
F.1.2.	use language such as more or less to compare two quantities, then more than two, by making direct comparisons and filling and emptying containers.	empty half full half empty nearly full nearly empty holds more / most less / least	

# CAPACITY

YEAR 2		
LEARNING OUTCOMES	KEY VOCABULARY	OPPORTUNITIES
<p><b>Children will be able to:</b></p> <p><b>F.2.1</b> understand and use the vocabulary related to capacity.</p> <p><b>F.2.2</b> compare two capacities by direct comparison; extend to more than two.</p>	<p>fill</p> <p>pour</p> <p>empty /nearly / half empty</p> <p>full / half / nearly full</p> <p>capacity</p> <p>holds</p> <p>more / the most</p> <p>less / the least</p> <p>largest</p> <p>smallest</p>	<p><b>Children should be given a range of opportunities such as:</b></p> <ul style="list-style-type: none"> <li>measuring using uniform non-standard units (e.g. yoghurt pots, jam jar, beaker, eggcup) or standard units (e.g . litre jugs).</li> <li>suggesting suitable standard or uniform non-standard units and measuring equipment to estimate, then measuring a capacity, recording estimates and measurements as 'about 3 beakers full' or 'almost 5 tea cups full', etc.</li> <li>filling containers to given capacities, e.g show half full, then nearly full, then full, etc.</li> <li>estimating the order of capacity of a set of containers and later measuring each container using non-standard units to find the actual capacity in terms of yoghurt pots, cups, eggcups, etc.</li> </ul>



# CAPACITY - DISCUSSION

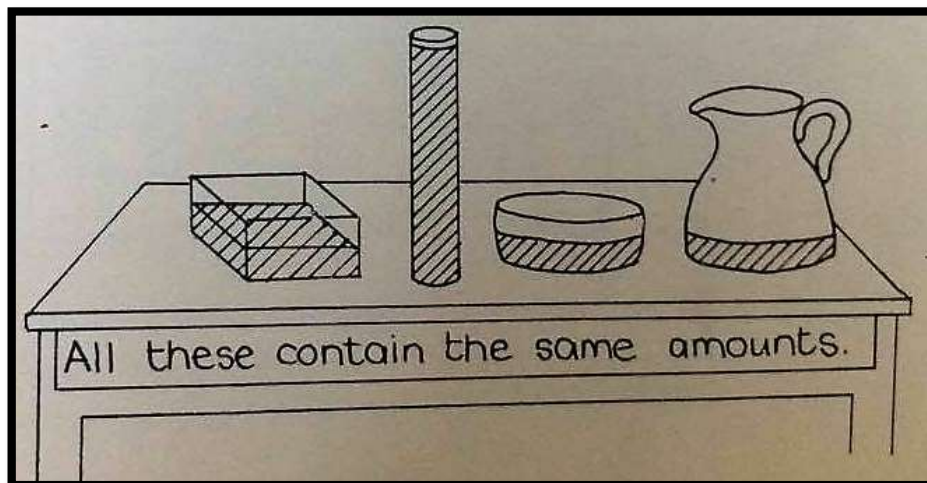
- Which liquids do you have in your home?
- How are they packaged?
- How many **cups of water** did we need to fill the **jug**?
- Imagine we are having a **tea party**. How many guests could have a **full cup of tea** from the **teapot**?
- Which **container** holds the **most** or the **least**?





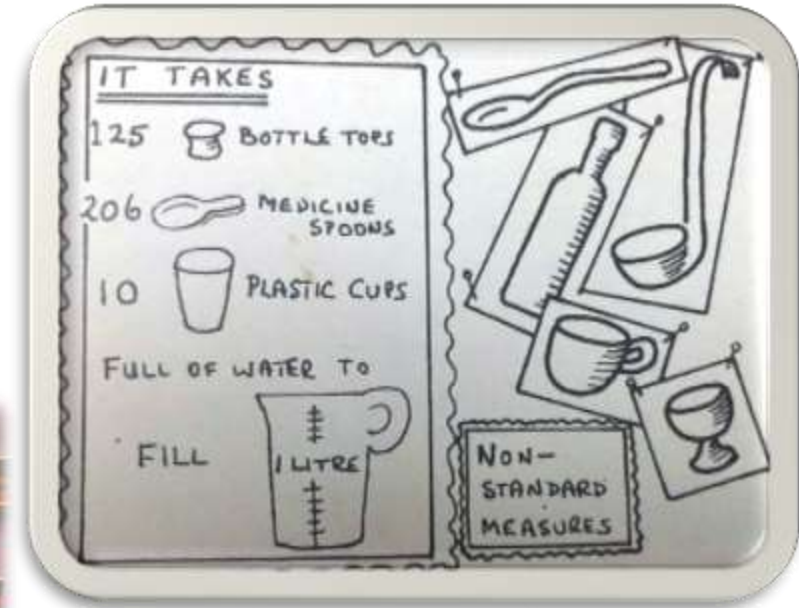
# CAPACITY - DISPLAYS AND ACTIVITIES

- **Capacity display table** - Collect a good supply of varied containers – clear plastic ones are best. Plastic bottles, beakers, spoons, cartons, ladles, yogurt cups, funnels etc.
- Have a set of **different containers** which hold the **same capacity**.
- Make a chart / posters providing **vocabulary** necessary for capacity work.
- Pour **same amount of liquid** into each of four different containers. Display the containers of a table and label 'All these contain the same amounts.'



# CAPACITY - DISPLAYS AND ACTIVITIES

- Make a collection of different objects that can hold liquid: bottle tops, spoons and plastic cups. Use these to fill a litre jug. How many spoonfuls, how many cups and how many bottle tops does it take? Record the results and show the relationship between the capacity of a spoon and a plastic cup etc.
- You can link this activity with the need for measuring accurately for certain tasks such as cooking and medicine dosages.



# CONVERTING RECIPES FOR YOUNG CHILDREN

500g sugar = 2 ½ cups sugar

500g flour = 4 cups flour

## Vanilla Cake / 30 cupcakes

- 2 pkts. butter (500g)
- 2 ½ cups sugar (500g)
- 4 cups flour (500g)
- 1 tbsp. baking powder
- 1 tbsp. vanilla essence
- 6 tbsp. milk
- 8 eggs

## Chocolate Cake / 36 cupcakes

- 4 ½ cups flour
- 3 cups sugar
- 3 tsp. baking soda
- 3 tsp. salt
- 1 cup cocoa powder
- 1 ½ cups oil
- 3 cups water
- 1 tbsp. vanilla
- 3 tbsp. vinegar

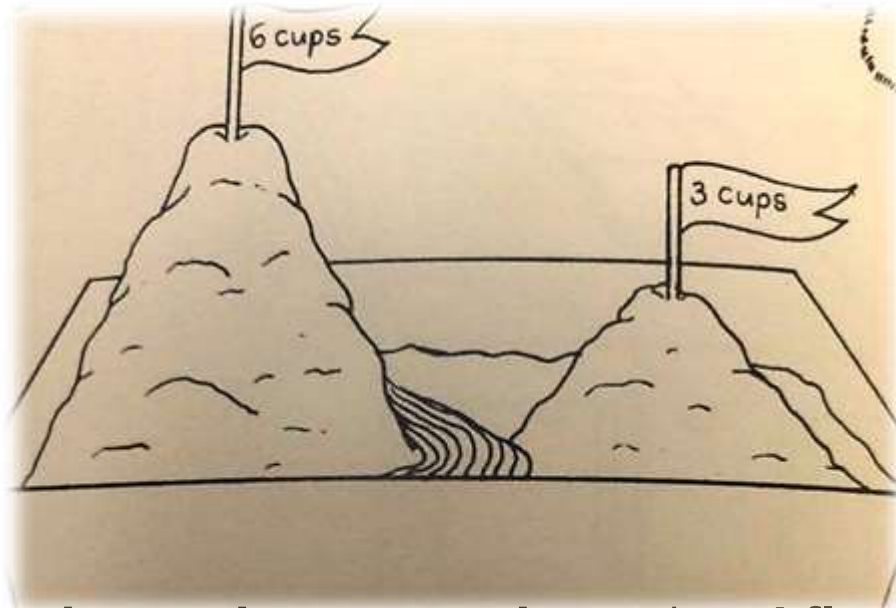




# CAPACITY – DISPLAYS AND ACTIVITIES

- Make **'landscape' cards** for the sand tray. For example:

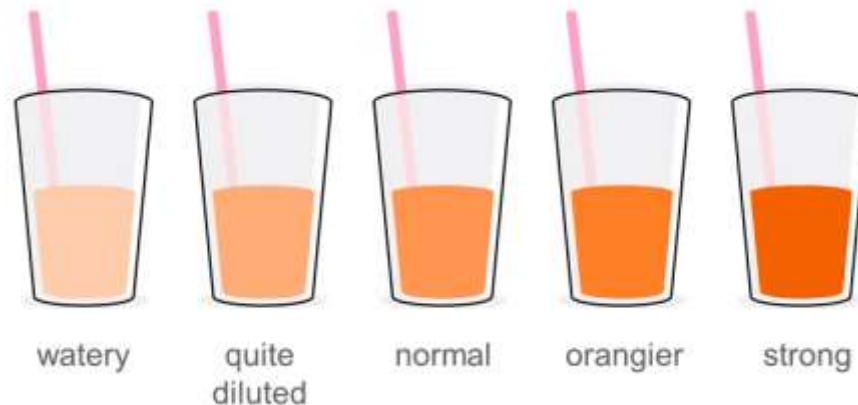
Build a hill with a flat top using **6 cups of sand**. Next to it, build a hill with **3 cups of sand**. Make a river in between them.



- Other children could **estimate how much sand was used**, and **put flags** with their estimates written on. The **'builders'** could check for accuracy.

# CAPACITY – DISPLAYS AND ACTIVITIES

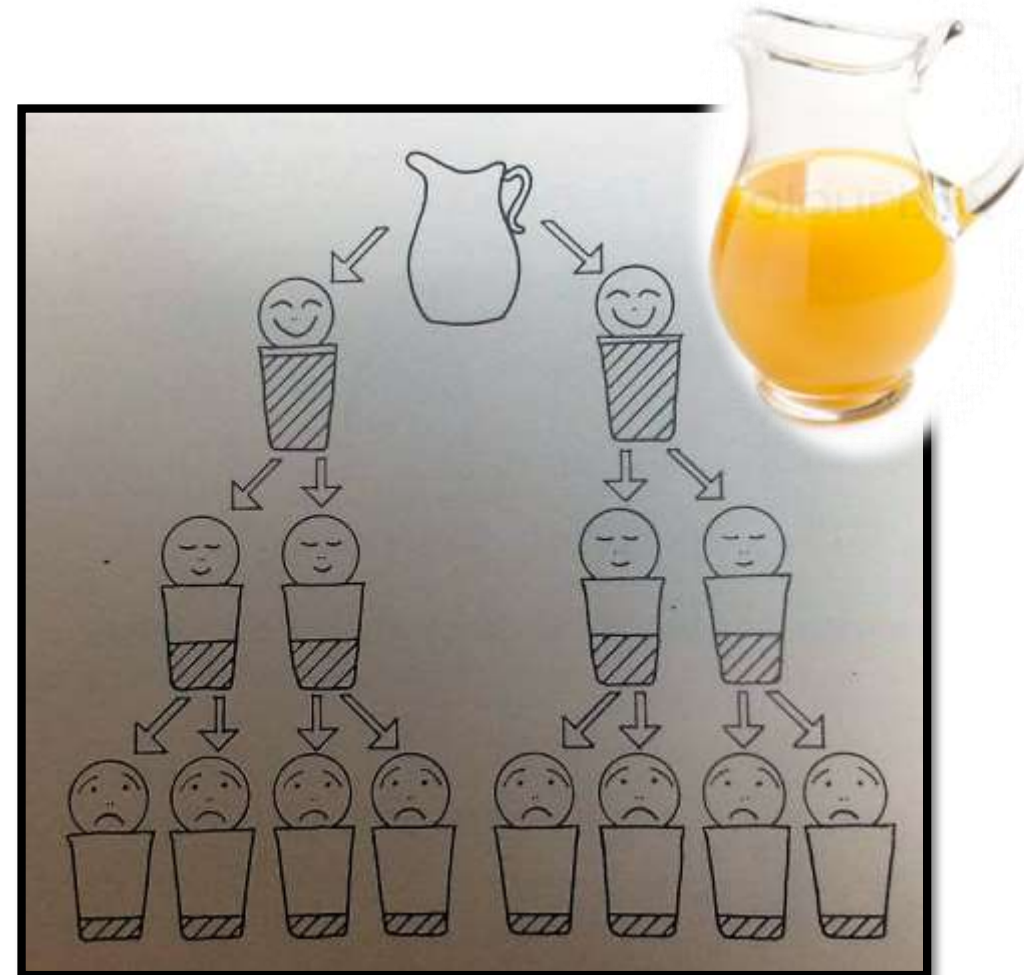
- Diluting orange squash: Allow the children to taste, smell and look at undiluted squash. Ask them to measure an equal amount of liquid into each of five transparent cups, e.g. two spoons.
  - Add water:
    - 1<sup>st</sup> cup – 1 spoon of squash and 6 spoons of water
    - 2<sup>nd</sup> cup – 2 spoons of squash and 5 spoons of water
    - 3<sup>rd</sup> cup – 3 spoons of squash and 3 spoons of water, and so on.
- Discuss the results. Display on a window sill to see colour gradation.





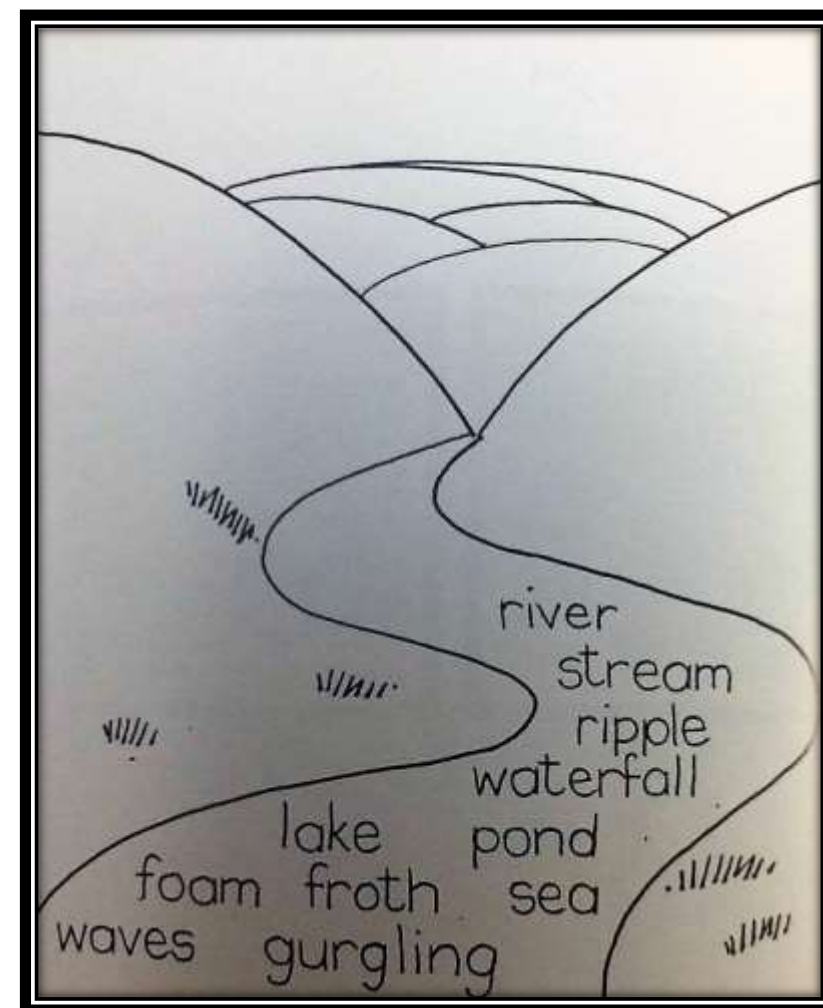
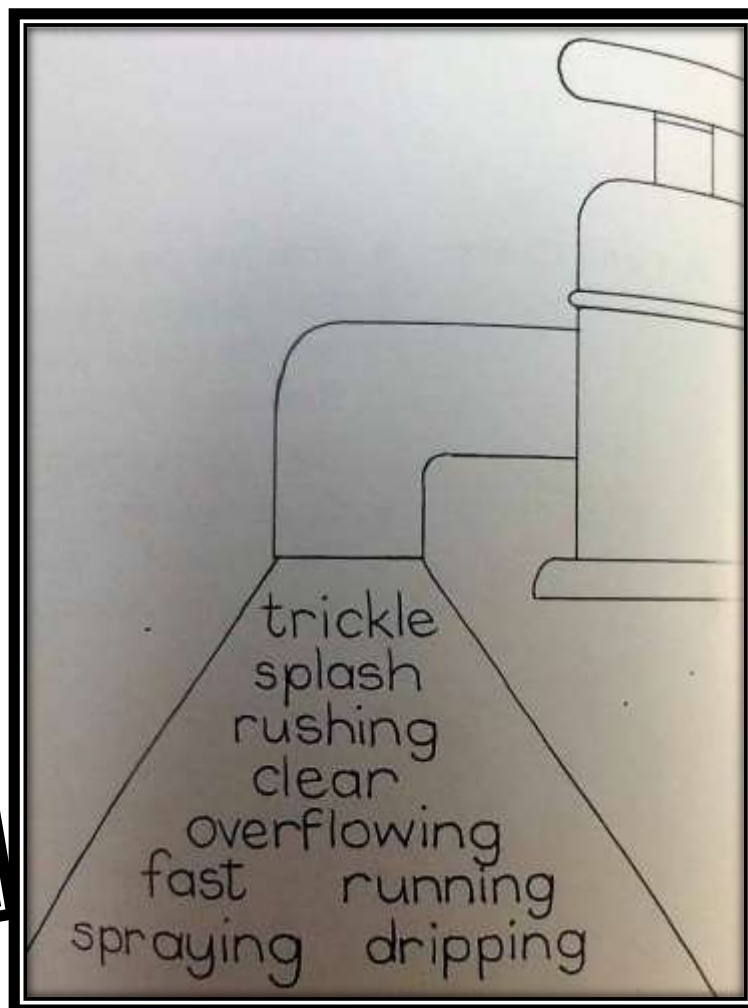
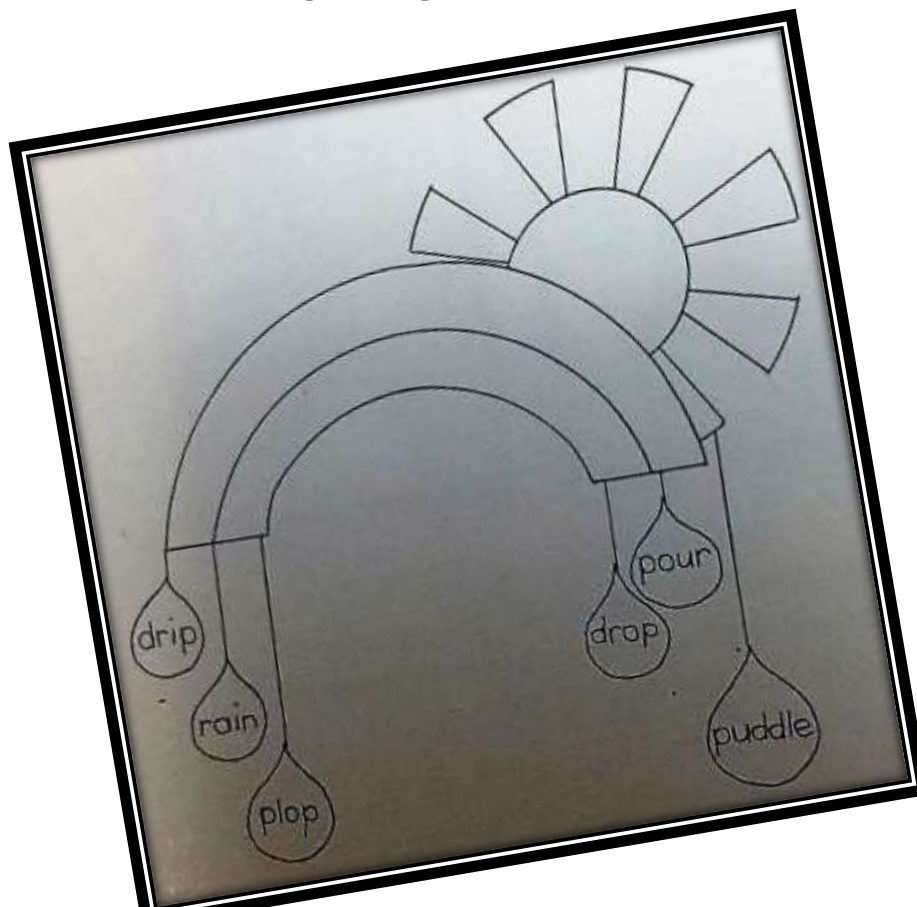
# CAPACITY – DISPLAYS AND ACTIVITIES

- Sharing a jug of orange juice:
  - How much orange juice would **two** children have?
  - **Four** children?
  - **Eight** children?



# CAPACITY – LINK TO OTHER AREAS

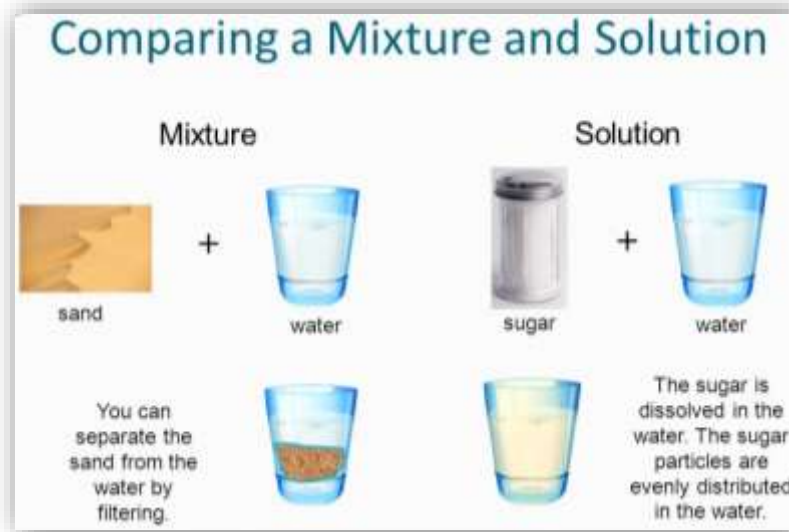
- Language: Word banks



# CAPACITY – LINK TO OTHER AREAS

- Science

- Things that dissolve. Choose a number of common substances to include sugar, flour, salt and sand. Get the children to investigate which of these will dissolve in water. Attention to fair testing is important so use the same weight of substances (mass) and amount of water (capacity).



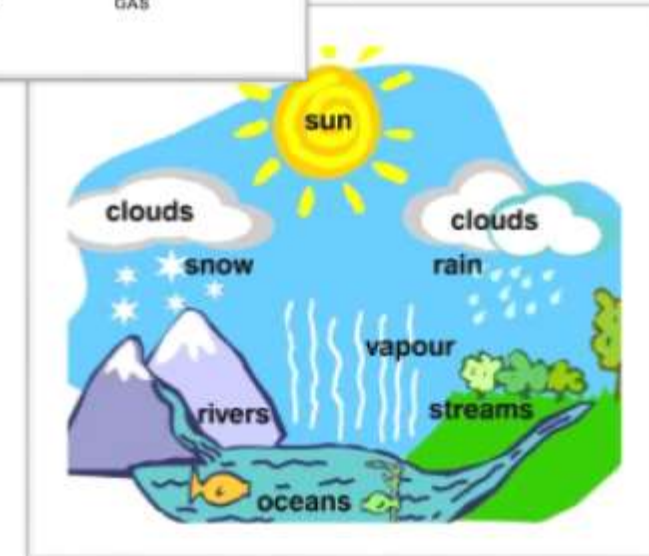
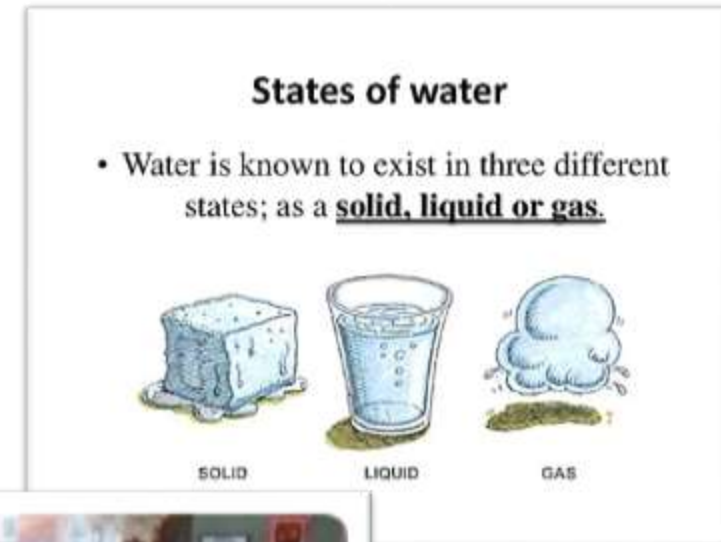


# CAPACITY – LINK TO OTHER AREAS

- Science

- Investigate:

- absorbency
    - washing
    - water in nature
    - solutions and mixtures
    - evaporation
    - freezing
    - floating and sinking.



# MEASURING: LENGTH

## YEAR 1

YEAR 1			
LEARNING OUTCOMES Children will be able to:		KEY VOCABULARY	OPPORTUNITIES Children should be given a range of opportunities such as:
G.1.1	use language such as long/short and longer/shorter... to compare two quantities.	length long/longer short/shorter measure height tall/taller How long/tall... do you think...?	<ul style="list-style-type: none"> <li>recognising that different units can be used to measure length e.g. crayons, straws, and that they must be placed end to end with no gaps.</li> <li>recognising that length is not usually an <b>exact</b> number of units, it is often <b>nearly</b> a number of units</li> <li>using long objects of different lengths such as, metre stick, pole, shelf, drinking straws etc.</li> <li>using tall objects of different heights such as, chair, pole, bin, and drinking straws.</li> <li>recognising that different units of different lengths can be used to measure heights.</li> <li>understanding that to measure the height of an object you can often measure its length when it is lying flat.</li> </ul>
G.1.2	understand the vocabulary associated with length and height.		
G.1.3	estimate (begin to) and measure length using non-standard units.		
G.1.4	estimate (begin to) and measure height using non-standard units.		
G.1.5	record estimates and measurements using non-standard units.		

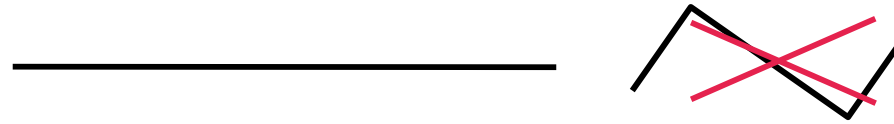
# MEASURING: LENGTH

YEAR 2		
LEARNING OUTCOMES Children will be able to:	KEY VOCABULARY	OPPORTUNITIES Children should be given a range of opportunities such as:
<b>G.2.1</b> understand and use the vocabulary related to length.	long/longer short/shorter tall/taller high/higher length height compare measure correct / correctly closest furthest	<ul style="list-style-type: none"> <li>comparing two lengths and recognising that one is longer, the other is shorter.</li> <li>comparing two heights and recognising that when one is taller and the other is shorter.</li> <li>choosing two objects and predicting which one is longer / taller / shorter using appropriate vocabulary and then putting them side by side and checking.</li> <li>recognising that different units can be used to measure length or height. (e.g. towers of ten interlocking cubes, drinking straws, strips of squared paper, paper clips etc.)</li> <li>recognising that the units must be placed end to end and should be the same length.</li> <li>recognising that the first unit must be lined up with the end of the object to be measured.</li> <li>recognising that the length is not usually an exact number of units.</li> </ul>
<b>G.2.2</b> compare two lengths/heights by direct comparison; extend to more than two.		
<b>G.2.3</b> suggest suitable standard or uniform non-standard units and measuring units to estimate.		
<b>G.2.4</b> measure the length or height of an object using non-standard units.		

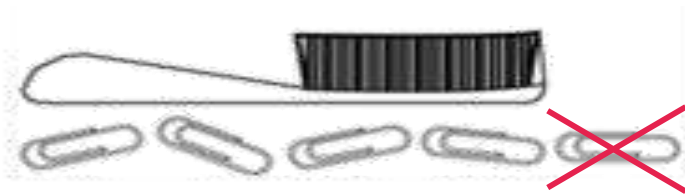


# HOW TO MEASURE LENGTH

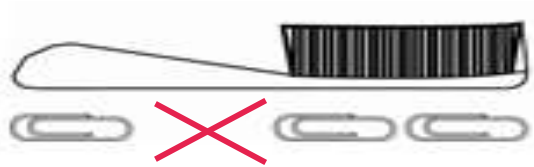
- Measure straight



- Start and end.



- No gaps



- Be precise



- No overlaps



# LENGTH - DISCUSSION

- Can you remember being small? What can you do now that you could not do then. What could you do then? (e.g. fit into small places.) Why do we talk about a baby's length?
- Why do we need to measure things?
- Talk about distances, athletics, making things fit, buying material, clothes and furniture, buildings ...



# LENGTH – DISPLAY AND ACTIVITIES

- Build a collection of ribbons, lengths of braiding, ropes, string, Russian dolls etc. to be sorted according to length.
- Old baby clothes and shoes.
  - Draw around first shoe and present shoe. Cut out and mount on a chart. Make towers of unifix cubes or interlocking cubes and compare lengths.
- Non-standard measuring instruments including blocks, strips of squared paper, marked broom stick, straws, sticky notes etc.







# LENGTH – DISPLAY AND ACTIVITIES

- 'About me' display
  - Draw around children , paint and cut out. Display silhouettes holding hands around classroom or in corridor. (Link to Art). Use sticky notes to measure height of each child's silhouette.
  - Measure around head, waist, wrist, with strips of paper or string. Why do we have to use strips of paper or string and not straws, sticks or unifix cubes? Introduce the word circumference. Glue on charts to measure and compare. You can use these measurements to make headbands, belts and bracelets. (Link to Art and Craft)
  - Thread beads or hollow pasta onto elastic, count number of beads or pasta on your bracelet and compare with that of your friend. (Link to Art and Craft)
  - Measure the length of each finger, make five towers of unifix cubes. Are they the same length?
  - Measure length of hair. Draw sets of long-haired and short-haired children. (Link to Data Handling)

# LENGTH – DISPLAY AND ACTIVITIES

Measure reach. Put large sheets of paper on the wall and record reach (both height and width) by using handprints. Children can work in groups and each child uses a different colour paint. Measure each child's reach.



# LENGTH – DISPLAY AND ACTIVITIES

- Ask children to draw members of their families in order of height or make a 'family of feet' chart. Children are asked to draw around the foot of each family member at home (including grandparents, friends, uncles, aunts). Cut out foot shapes and arrange on chart, ordering according to length. Measure each foot using graduated paper strips. Record measurement underneath each foot.





# LENGTH – DISPLAY AND ACTIVITIES

## ESTIMATING



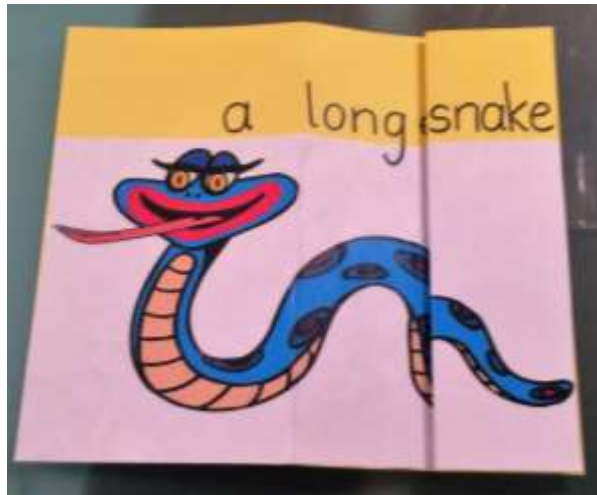
**Learning Outcome: 4) Children who are effective communicators.**

**Related Achievements: Children who engage with digital literacy as a means of retrieving data as well as representing and communicating ideas.**

1] I am comfortable using everyday technology e.g. *Interactive White Board, touch screen, robot*

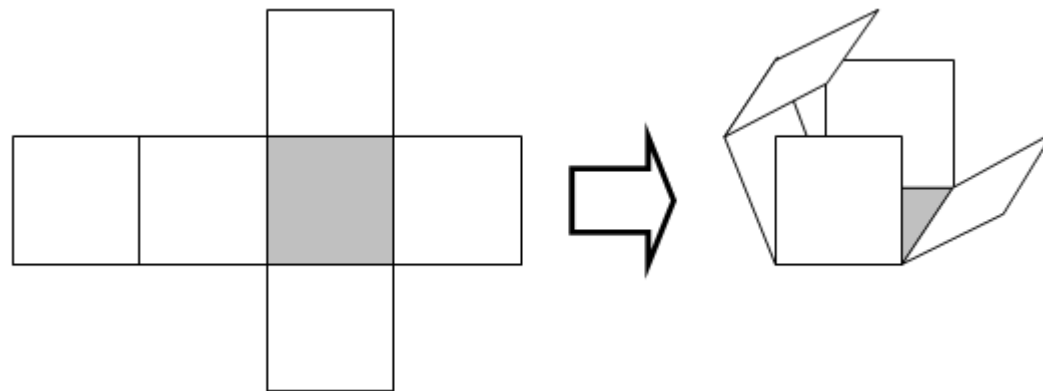
# LENGTH – DISPLAY AND ACTIVITIES

- Make expanding cards, e.g. a snake → a longer snake, or a flower → a taller flower.



# LENGTH – INVESTIGATE

- How much **ribbon** do you need to **tie a bow**?
- Make a **cube** using a **net**. (Link to shapes and symmetry) Now make a playdough person or creature to fit inside your box. Write a sentence/s about your creature. (Link to Language)
- Design a height chart for your class (Link to Art) (giraffe, sunflower, dinosaur, rocket, tower etc.). Draw a graduated measuring strip.





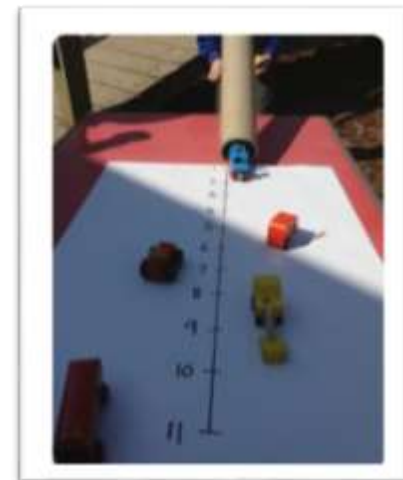
# LENGTH : LINK TO OTHER AREAS

- P.E.
  - How far can you jump? Cut a strip as long as the jump and measure.
  - Measure stride lengths.
  - How far can you throw a beanbag? a Frisbee? Use strides as an instant measure.



# LENGTH : LINK TO OTHER AREAS

- Design and Technology
  - Who can make **the tallest tower** using blocks? Display and measure the tower.
  - Make clothes to fit cardboard dolls.
  - Design and make a label to fit a tin.
  - How far can you make a Lego model car travel? Record distances measured in strides or graduated broomstick and display with models.





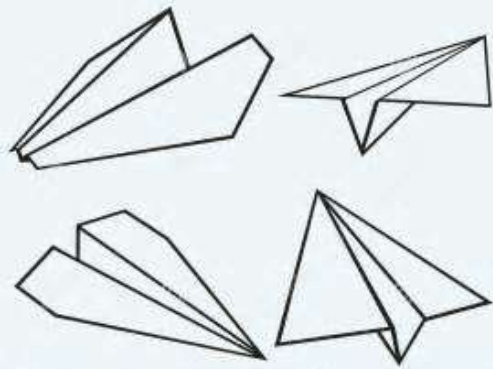
# LENGTH – LINK TO OTHER AREAS

- Science

- Plants and seeds.

Make a growth diary or chart. Choose fast-growing seeds to sow, e.g. beans. Make towers of unifix cubes, measure at regular intervals and keep a record. You can also attach a scale to the pot made of a graduated strip.

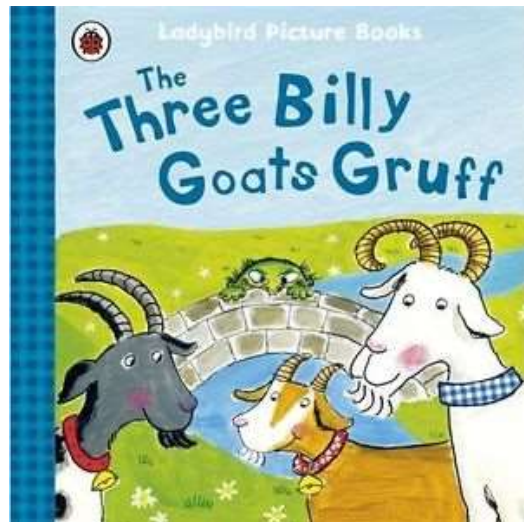
- Measure shadows at different times of the day.
- How far can you make different paper aeroplanes travel?





# LENGTH – LINK TO OTHER AREAS

- Language
  - Tell traditional stories, e.g. 'The Three Bears', 'Jack and the Beanstalk', 'The Three Billy Goats Gruff', using language of comparison: taller than, shorter than, larger, smaller, middle sized.



**The Teacher's Notebook**  
A Resource for English Teaching

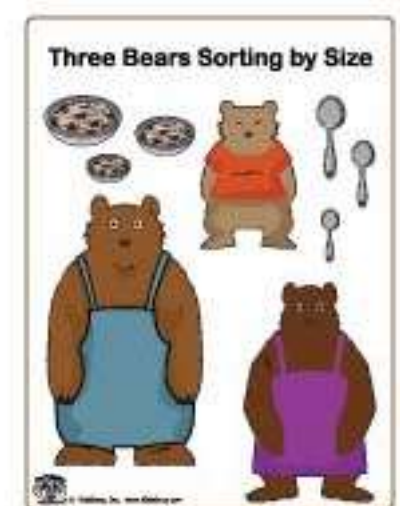
Jack & The Beanstalk - Math Measurement

### The Giant's Foot and Non Standard Measurement

1. I made the giant's shoe print by tracing a foot and blowing it up on the copier (legal size). I made two shoe prints for each student.
2. I had each child cut out two Giant's shoe prints. They explored the Giant's shoe print by comparing it to their own foot size.
3. I modeled measuring the grass like carpet with the Giant's shoe print. I then let the children measure different things in the classroom. They transformed a list of things to measure at home.
4. One student asked if he could measure the Giant's foot with cubes. It was 18 cubes long. We then suggested that we could figure out how many cubes the things we measured were using this information! Pretty cool!



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THANK YOU!