Willow Dene School Scheme of Work

MATHS: Mass

About this Scheme of Work: This unit explores Mass. The focus on Mass provides opportunities for children to explore the concepts of heavy and light and to weigh objects using their bodies to judge weights. The children should also have opportunities to start measuring with non-standard and standard units.

Measurement, in its simplest form, is about making comparisons. It is a key life skill, as it relates to activities such as comparing sizes, finding clothes that fit, estimating how long something will take, etc. In order to measure, a range of skills are required, including:

- *Using numbers*
- *Estimating or guessing*
- *Choosing the units of measurement needed in a certain situation*
- *Being reasonably accurate in measuring*
- *Understanding numeric processes, such as adding and subtracting*
- *Making decisions on measurements taken*
- *Using measuring tools, such as tapes measure, clock, watch, scales*

Measurement is therefore a very difficult concept to grasp. For children at very early stages of development, measurement is about developing sensory experiences related to measurement concepts (such as light and heavy) and perception skills that give them a better understanding of their world and their own activities.

- Flo Longhorn (paraphrased)

Think carefully before measuring the children themselves children (e.g. weighing them). Be sensitive to their perceptions of themselves. Are you prepared to be measured yourself and share that with the class?

VOCABULARY:
Own names, yes, no, more, finished, like, don't like, stop, go, ready
• Words related to terms for measuring, such as: measure, size, compare, guess, estimate, about, roughly, enough, not enough, too much, too few, too little, too many, nearly, close to, about the same as, just over, just under • Words to describe size and weight, such as: big, little, more, less, weigh, weighs, weight, balance, balances, scales • Words related to comparative terms, such as: heavy / light, heavier / lighter, heaviest / lightest • Words related to units of measurement, such as: kilogram (kg), half-kilogram, gram (g)

RESOURCES:	
• Lots of heavy objects, such as potatoes, chains, oranges, blocks, tins of food, bags filled with sand, etc. • Light objects, e.g. feathers, confetti, rice crispies, tissue paper, etc. • Equipment to explore heavy and light objects in / with: B-active box, A frame, resonance board, fan • Parcels of different weights and sizes • Balance scales • Different types of scales: kitchen, electronic, bathroom, etc.	• Big cardboard boxes and a variety of objects to fill them with • Containers of various sizes and shapes • Sand, water, beads and other materials for filling containers • Shopping bag and packets of foods weighing 1kg or 100g • Pairs of light and heavy objects • Reclaimed materials (boxes, bottles, pots etc. of various sizes) • Role play equipment for weighing (e.g. baby clinic, fruit and vegetable stall, etc.)

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES
• Show awareness of difference in weight between objects • Compare the weight of one object with that of another object where there is a marked difference • Begin to understand and use signs / symbols / words to describe mass • Find the heavy and light object in response to requests • Indicate which object is heavy / light, with sign / symbol / word • Compare the weight of two objects where the difference is not great • Compare directly two weights and indicate 'the heavy one' and 'the light one' and describe it as such by saying, signing or indicating a symbol • Observe changes in a balance scale that indicate differences of weight	• Fill a variety of containers by pouring sand, water, beads, etc. into them. Encourage children to compare which ones are "bigger" or have got "more" in them. Introduce the vocabulary of heavy and light • Use a balance scales with a range of objects (sand, water, building bricks, teddies, pasta etc.). Explore what happens when objects are placed only in one pan. Explore what happens if identical objects are placed in both pans. Explore what happens if different objects are placed in each pan • Cooking activities: measuring out ingredients. Use recipes that call for measurements in weight, use electronic scales and have a card that indicates the number on the display for the children to match. Discuss quantities (more / less) • Fitting items into a container – e.g. apples in a bowl, rice in a pot, etc. Which holds more, is it heavy or light? • Pour sand to balance a parcel on a set of balance scales. What will happen if you add more sand? What will happen if you take some away? • Put a selection of parcels in order of weight. Start with three, with marked differences in weigh. Increase the number of packages and decrease the difference between them. How can you find out which one is heaviest? • Play a dice game with die marked with symbol supported text "light" and "heavy". Have a range of light and heavy parcels to collect. Challenge the children to find one that corresponds to the die • Pile up parcels for the postman with the heaviest at the bottom • Big boxes – challenge the children to fill them up and try to lift them. If it's too heavy, how could you make it lighter? (Taking things out / filling with lighter objects) • Visit the baby clinic (weighing babies) / the shop or market (weighing fruit and veg) / the post office (weighing parcels) etc. Follow up by setting up role play area with appropriate resources. • Heavy / light sort – have pairs of objects (e.g. house brick and polystyrene brick / plastic teaspoon and metal serving spoon / box of lentils and empty cornflake packet etc.) and ask children to sort them into light heavy sets, labelled with symbols. Make sure not all the heavy items are bigger! • What's in the box? Feel weight of box. Show student two or more objects (e.g. feather and a toy bird) and let them feel them. Which one is in the box? Why? Encourage use of vocabulary.

• Find which objects is **heavier** / **lighter** using a balance scale	• Shopping bags – with a variety of packets and boxes, some empty, some full. Can the children put all the heavy packets in one bag, and light ones in the other? How did they decide? Fill containers with different amounts of sand or rice and compare the weight of empty / full containers