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| <p>Aim: Measure and begin to record weight and mass. To measure mass.</p> | <p>Preparation: Measuring Mass Activity Sheet - one per child Diving into Mastery Activity Cards - as required</p> | <p>Resources: Balance scales – one per pair Classroom objects: glue sticks, rulers, scissors, cups, spoons, books, plimsolls, tape, pebbles, beanbags. Measuring Units Blocks e.g. wooden blocks or interlocking cubes</p> |
| <p>Success Criteria: I can use non-standard units to measure mass. I can describe measurements of mass. I can reason about mass.</p> | <p>Key/New Words: Heavy, heavier, heaviest, light, lighter, lightest, the same mass, equal to, balanced, balance, estimate, measure, weight, mass, compare, describe, explain, unit.</p> | <p>Beads (blocks and beads are essential) Other small manipulatives that are plentiful and have an equal mass: cotton reels, lolly sticks, dominoes. Avoid using manipulatives that are too light such as counters or paper clips, as the recommended number of units to work with is around ten.</p> |

Prior Learning: It will be helpful if children are familiar with the language of comparing and describing weight. The lesson pack [Understanding Weight and Mass](#) will support this learning.

Learning Sequence

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|  | <p>Remember It: The Lesson Presentation shows images of items on balance scales. Invite the children to explain what the balance scales tell us about their mass. Encourage the children to use the terms 'heavier than', 'lighter than' and 'equal to'.</p> |  |
|  | <p>Measuring Mass: The Lesson Presentation demonstrates how to use non-standard units to find the mass of toys. Each slide shows a toy on one side of the balance scale and blocks added to the other until the balance scale shows that they have an equal mass. Help the children grow familiar with mathematical vocabulary relating to mass by asking them to complete and say the sentences together: 'The _ has the same mass as _ blocks.'</p> |  |
|  | <p>Try It: Demonstrate using a balance scale and non-standard units to measure mass. Choose a unit (for example, blocks) and an object, then measure the mass by counting the number of units used to balance the scale. Ask the children what is happening to the balance as the blocks are added. Invite the children to tell you when to stop and to explain why. Rehearse mathematical language by completing and saying the sentences together: 'The _ has the same mass as _.' Can the children describe mass?</p> |  |
|  | <p>Measuring Mass with Different Units: The Lesson Presentation shows how different units can be used to measure mass. Children complete and say these sentences to rehearse the use of mathematical vocabulary: 'The _ has a mass of _ blocks.' Invite the children to consider criteria for selecting units to measure mass. Look at a selection of ideas and explain why some would be suitable and why some would not. Can the children reason about mass?</p> |  |
|  | <p>Try It: Demonstrate using different non-standard units to measure mass. Choose a unit and count the number used to balance the scale. Complete and say the sentences together: 'The _ has the same mass as _.' Ask the children which units worked well and which were less successful. Invite them to explain why. Ask the children to suggest ideas for units that could be used to measure the mass of lighter objects and units that would be more suitable to measure the mass of heavier objects. Ask them to explain their reasoning. Use the balance scales to demonstrate this practically.</p> |  |

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|  | <p>Measuring Mass: Children complete the differentiated Measuring Mass Activity Sheets, measuring the mass of different items. Provide balance scales and units such as cotton reels, blocks, beads for children to use. Can the children use non-standard measures to measure mass? Can the children describe mass? Can the children reason about mass?</p> <div style="display: flex; justify-content: space-between;"> <div>  <p>Children use balance scales and blocks to measure the mass of classroom objects. They record the number of blocks used on the table. Children then find more classroom items to investigate. (Try to keep within a margin of ten units to measure the mass). They then explain which is the heaviest object and which is the lightest, using the information on the table to prove it.</p> </div> <div>  <p>Children use balance scales and blocks to measure the mass of classroom objects. They then use beads to measure the mass. Children record the number of units used on the table. Children then find more classroom items to investigate. (Try to keep within a margin of ten units to measure the mass). The children are asked whether they used more blocks or beads and to explain why.</p> </div> <div>  <p>Children select one lighter and one heavier object to investigate. They choose different units to measure the mass. Children record the number of units used on the table. (Try to keep within a margin of ten units to measure the mass). The children are asked which unit was the most suitable to measure the mass of lighter objects and which worked well with the heavier objects and to explain why.</p> </div> </div> |  |
|  | <p>Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.</p> <div style="display: flex; flex-direction: column; gap: 10px;"> <div>  <p>Children develop fluency using non-standard units to measure mass. They begin by using blocks in balance scales to measure the mass of an object. They then measure its mass with different units and compare the number used. Children consider why there is a difference and use this experience to help them choose suitable units to measure the mass of an object.</p> </div> <div>  <p>Children apply their experience of measuring mass with non-standard units to solve reasoning challenges. They compare two sets of balance scales and explain why they agree or disagree with the accompanying statements.</p> </div> <div>  <p>Children demonstrate their problem-solving skills as they investigate mass measuring challenges. Non-standard units are mixed with objects in the balance scales. Children deduce the mass of the object and compare them.</p> </div> </div> |  |
|  | <p>Check It: The Lesson Presentation shares different scenarios for children to discuss. Ask the children if the mass has been measured correctly. Invite them to explain how they know and what should the characters remember next time? Encourage children to use mathematical vocabulary to explain their reasoning. Can the children reason about mass?</p> |  |

Exploreit

Snackit: Ask children to place different types of fruit in order from the lightest to the heaviest. Invite the children to estimate the mass in non-standard units, then use a balance scale to measure. The apple has a mass of _ cotton reels.

Imagineit: 'I think that a penguin will weigh the same as 97 tomatoes.' Create and illustrate silly mass estimations, the funnier the better!