

Curricular Area: Mathematics + Technologies Level: First



<p><u>Experience and Outcomes</u> Mathematics: Measurement I can estimate how long or heavy an object is, or what amount it holds, using everyday things as a guide, then measure or weigh it using appropriate instruments and units. MNU 1-11a</p> <p>Technologies: Craft, design, engineering and graphics Design and constructing models/products I can design and construct models and explain my solutions. TCH 1-09a</p> <p><u>Learning Outcome</u> I am learning to estimate and compare the weight of objects</p> <ul style="list-style-type: none"> • I can estimate whether one object weighs more, less or the same as another object using my two hands • I can explain how a pan balance is used to compare and weigh objects • I can demonstrate how to use a pan balance to check my estimate and sort objects according to weight <p>I am learning to design and construct models to meet a problem</p> <ul style="list-style-type: none"> • I can design and construct a pan balance using everyday materials • I can demonstrate how to make holes, cut and join materials safely • I can identify a problem in my model and work out a way to solve it • I can explain how my model works and meets the design task 	<p><u>Resources</u> Pan balances Coat hangers Plastic pots (yogurt pot or similar) String Sellotape Found objects (pebbles, leaves, twigs, feather, etc.)</p>
<p><u>Activity</u></p> <p>The children use everyday materials to design and construct a pan balance. The balance is used to compare the weight of objects found in the natural environment.</p> <p>Introduction</p> <ol style="list-style-type: none"> 1. Working as small group, the children are given a set of found natural objects to sort according to weight (heaviest to lightest). They estimate relative weights using their hands as balances, comparing each other's estimates. They photograph the set of objects ordered according to estimated weight. 	<p><u>Assessment</u> Mathematics</p> <ul style="list-style-type: none"> • Estimating The children use their estimations to order a set of different objects. They photograph the ordered set. They then use the pan balance to check the order and compare this with the photo. They video themselves describing how accurate they were [self-assessment]

<p>2. The teacher introduces a pan balance and asks the children to explain how it works. 3. The children use the pan balance to check their estimates.</p> <p>Development</p> <p>4. The children, working in pairs, are given materials to make their own pan balance that can be hung from a tree branch/suitable object outdoors. 5. The teacher demonstrates some basic model-making skills: 6. Making a hole in a material using an awl 7. Tying knots 8. The children demonstrate their models and identify changes they need to make so that it balances 9. The children go on a scavenger hunt to find a list of natural objects 10. The children use their balance to compare and order their objects according to relative weight 11. Challenge cards ask the children to find, estimate and weigh things that are more/less/the same as given natural objects 12. The children make a short video demonstrating their pan balances at work</p> <p>Conclusion</p> <p>13. The children watch each other's video and peer-assess the effectiveness of the designs</p>	<ul style="list-style-type: none"> Using a pan balance The teacher observes the children using the pan balance to compare objects and notes their proficiency [teacher assessment] <p>Technologies</p> <ul style="list-style-type: none"> Design The children make a video of themselves using their balance to compare objects, and describe how effective they think it is. Children watch the video and give the design a star rating [peer-assessment] Model-making The teacher observes the children using tools and materials to make their design and notes their proficiency [teacher assessment]
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