**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 1 | STRAND: Measurement and Geometry | **SUB-STRAND:** Mass | **WORKING MATHEMATICALLY:** MA1-1WM |
| OUTCOMES: MA-12MG  | **Measures, records, compares and estimates the masses of objects using uniform informal units**  |
| **CONTENT:**  | **Investigate mass using a pan balance**• identify materials that are light or heavy* sort objects on the basis of their mass
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Children are given a worksheet with a number of heavy and light items on it. They are asked to circle heavy items with a red pencil and light items with a blue pencil. They can then discuss with their partner why they circled the pictures they did for heavy and the same for light. How do they know that they are heavy or light?
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| WARM UP / DRILL | * Discuss what students understand as “heavy” and “light”. Can they name something that they think is very heaving? Can they name something that they think is very light?
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| Deep knowledge Deep understandingProblematic knowledgeHigher-order thinkingMetalanguageSubstantive communication | Explicit quality criteriaEngagementHigh expectationsSocial supportStudents’ self-regulationStudent direction | Background knowledgeCultural knowledgeKnowledge integrationInclusivity ConnectednessNarrative |
| RESOURCES | Internet, computers, Interactive Whiteboard, Rainforest Maths, Targeting Maths Lab. scales, ice cream containers, art paper. Equal arm balance, Base 10 blocks, pencils, crayons, paintbrushes, dice with lighter than, heavier than, magazines, and catalogues, Mr Mistake, glue sticks, sharpeners, scissors, staplers, calculators, paint brushes, pencil cases.  |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * **Lesson**

**Hefting, using arm balance to determine if something feels heavy or light.*** Teacher collects a number of objects from around the classroom (any items will do)
* Students are introduced to the terms **heavier** and **lighter** and **hefting.**
* Students are given the opportunity to guess whether or not they think the items will be heavier or lighter before hefting the items by looking at the size and shape of the item.
* The teacher shows the students how to “heft” the objects to determine if they are heavy or light.
* Teacher and students will lift “heft” the items to determine whether or not the item is “lighter” or “heavier” in comparison to other items chosen.
* Discuss what does a heavy item feel like to hold? What does a light item feel like to hold? Easy/difficult
* **Language**

Mass, heavy, light, hefting, heavier, equal, lighter, equal arm balance, scales | LEARNING SEQUENCERemediationES1  | * Balancing objects in hands. Deciding if they are heavy or light. Each child chooses two objects for hefting. They make a prediction on which is the heavy or lighter. Children record their observations pictorially.
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| LEARNING SEQUENCES1 | * Gather up a collection of classroom objects, whatever you have in your classroom is fine. The students will guess which objects will be heavy and which objects will be light in comparison to each other. The students will heft the items in order to work out which objects were heavier or lighter than the other. They can record this on a worksheet or in their books by writing heavier or lighter.
* They can draw a picture of their “heavy” and “light” items.
* Students can record their findings on the computer, Microsoft word or kid pix programs.
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| LEARNING SEQUENCEExtension Early S2 | * Provide students with lumps of plasticine/ playdough. Have students divide each lump onto two pieces of the same mass. Students check by using a balance. Each student rolls one piece into a sausage and the other into a ball. Ask students which one will be lighter/heavier? Students experiment with changing the shape of the plasticine and weighing.
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| **EVALUATION & REFLECTION** | Did the students enjoy the activity? Were the outcomes achieved? Where to next? |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.