**MATHEMATICS STAGE ES1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK:  | STRAND: Measurement and Geometry | **SUB-STRAND:** Mass | **WORKING MATHEMATICALLY:** Mae-3WM Mae-1WM |
| OUTCOMES: Mae-12MG  |  **Describes and compares the masses of objects using everyday language.** |
| **CONTENT:**  | **Use direct and indirect comparisons to decide which is heavier, and explain their reasoning using everyday language.*** Compares two masses directly by hefting. Eg ‘This toy feels heavier than that one’
* Use everyday language to describe objects in terms of their mass, eg heavy and light, hard to push, hard to pull
* Predict which object would be heavier than, lighter than, or have about the same mass as another object and explain reasons for this prediction (Communicating, Reasoning)
* Investigate the use of hefting in practical situations, eg the practice used by Aboriginal people of hefting duck eggs to determine whether ducklings will be male or female (Problem Solving)
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Each child finds an object from around the classroom that they feel will be heavy or light. Objects are placed in the middle of the circle for children to see.
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| WARM UP / DRILL | * Teacher demonstrates hefting with two objects using her/his body to show heavy and light.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  |  |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
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| RESOURCES | Classroom objects recording sheet  |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Children use objects from around the room to place in their hands and decide if they are heavy or light. Objects are separated into groups.* Children place an object in each hand and use their body to demonstrate and decide which item is the heaviest and which is the lightest. This is recorded on a simple recording sheet or children can draw their findings.
 | LEARNING SEQUENCEPre Foundation Sills | * 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 SEQUENCEES1 | * In a small group children are given two objects to heft. Each child keeps the heavy of their two objects. Children then heft all the heaviest objects and order them from heaviest to lightest. Results are recorded on a worksheet or in a workbook. Class discuss how hefting is used eg by Aboriginal people to determine whether ducklings were male or female.
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| LEARNING SEQUENCEExtension Early S1 | * **Heaviest Pencil Case** – Students work in groups of three or four to estimate, and then measure whose pencil case is heaviest by measuring the mass of each pencil case with blocks (teddies, marbles etc.) and recording the results. Students need to ensure that the same informal units are selected for measuring each pencil case. Students then record the order of pencil cases from lightest to heaviest.
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| **EVALUATION & REFLECTION** | Observation by teacher. |

* 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.