**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 3 | 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
* predict the action of a pan balance before placing objects in each pan (Reasoning)
* sort objects on the basis of their mass
* use a pan balance to find two collections of objects that have the same mass, eg a collection of blocks and a collection of counters.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Children are given a worksheet and look at the different mass drawing of pan scales and circle the correct words heavier than, lighter than or the same as. Children can suggest some items in the classroom or base 10 blocks might equal the same weight as items in the scales. Children can then make up their own drawing for extension differentiation between those average and high students.
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| WARM UP / DRILL |  |
| 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** |
| 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: Compare and Measure Mass**
* Show the flashcards heavier, lighter and the same and children identify with them.
* Put an item from the classroom eg a stapler into one side of the pan balance/scales. Put another item for example a book into the other side.
* Children label each side of the balance with the flashcards. Repeat with other items.
* Children place 20 counters in one of the pans. A child suggests what item in the classroom would be heavier than the counters. Try the suggestion and repeat.

 * A child suggests what item in the classroom would be lighter/the same as the counters. Try the suggestion and repeat.
* **Language**

Mass, heavy, light, hefting, heavier, equal, lighter, equal arm balance, scales | LEARNING SEQUENCERemediationES1  | * Using a pan balance. Children place a large object on one side of the pan balance and use lighter objects to balance the pan balance. Children draw their observations and count how many lighter objects were needed to balance both sides of the pan balance.
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| LEARNING SEQUENCES1 | * **Lesson/Activity** Lighter/heavier than. Play in pairs. Each pair needs a die with lighter or heavier than written on it, an equal arm balance and twenty unifix cubes each. Both put some unifix cubes into one side of the balance. If the pans balance the game starts again. If they are different one child throws the dice. If the dice shows lighter than, the child with the lighter side takes all the unifix cubes and vice versa. The game continues until one child has all the pieces.
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| LEARNING SEQUENCEExtension Early S2 | * Equal Masses:
* Choose an object. Students collect things from around the room that might combine to have the same mass as an object, eg. The duster has the same mass as three pencils and four rubbers. Repeat activity many times, measuring the mass of different objects
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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.