**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 5 | STRAND: Measurement and Geometry | **SUB-STRAND:** Mass 2 | **WORKING MATHEMATICALLY:** MA3-1WM & MA3-2WM  |
| OUTCOMES: MA3-12MG | **Selects and uses the appropriate unit and device to measure the masses of objects, and converts** **between units of mass**. |
| **CONTENT:**  | **Connect decimal representations to the metric system:*** Measure mass using scales and record using decimal notation of up to three places, e.g 0.875kg
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * **Matching equivalent mass** – Students must match the amount shown in grams with its kilogram equivalent: <http://www.teachingmeasures.co.uk/mass/massequiv/equivKG.html>
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| WARM UP / DRILL | **Stop the clock** - <http://www.teachingmeasures.co.uk/mass/stopgame/dMASSy6.html> Students match amounts to scales, as quickly as they can.**IWB –** *Scales Reader* <http://www.ictgames.com/weight.html>Students read scales up to 6kg and need to identify decimal values. See how many correct answers students can get in one minute. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | A chimpanzee weighs 52.742kg. A zebra weighs 408.195kg. What is the combined weight of the two animals? |
| 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 | IWB and internet access interactive activities, student tools (maths book, pencils etc.), scales (including bathroom scales), student lunches,  |

**TEACHING AND LEARNING EXPERIENCES**

|  |  |
| --- | --- |
| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * Explicitly communicate lesson outcomes and work quality.
* Teach and review decimal notation in relation to mass e.g. 0.5kg=500g, 0.52kg=520g, 0.527kg=527g
* A chart such as the following, may assist in teaching this concept:

|  |  |  |  |
| --- | --- | --- | --- |
| Kilograms |  |  | Grams |
| 1 | 0 | 0 | 0 |
| 1 | 4 | 2 | 6 |

* Define and reinforce metalanguage used in the unit e.g. grams, kilograms, mass, measure, scales, tonne, weigh
* Scales – Weigh a classroom object (e.g. schoolbag) using bathroom scales. Ensure that students understand how to read bathroom scales. Measure a variety of objects and choose different students to read the amounts. Write the amounts as a decimal e.g. Emma’s schoolbag weighed 3.2kg
* Reading scales interactive activity - http://www.ictgames.com/mostlyPostie.html
 | LEARNING SEQUENCERemediationS2 or Early S3 | * **The Post Office** - Look at sending letters by Australia Post around Australia. Using the guide, make up 2 envelopes. One that will need 5 stamps to send the other 2 stamps.
* **As light as a feather** -In this station we use kitchen

scales and 10 gram weights to figure out the mass ofvery light objects. Ask the students to find objects in the class they think will weigh about 10 grams and compare these to the weights. They then weigh the object on the kitchen scales. |
| LEARNING SEQUENCES3 | * **Weigh In –** Students work in groups to weigh and record each group member’s mass. Their mass should be recorded in decimal notation. Students could then arrange the amounts in ascending or descending order and calculate the average mass of their group.
* **Conversion Table –** Students complete a table, similar to the example.

Investigation: The Average Lunch –Using the results from the previous average lunch activity, compare the average lunch mass and total mass from each group. Calculate the total mass of all lunches for the whole class. Calculate the average lunch mass for the class. Express each total in kilograms, grams and as a decimal. Students could then investigate how many 2kg/3kg/4kg crates would be needed to carry the lunches for the whole class. |
| LEARNING SEQUENCEExtension Early S4 | * **Extension** – Students could find the mass of each class member and calculate the total. Find the average mass for their class and arrange the amounts in ascending/descending order.
* Students to use kitchen scales at home to find the mass of their breakfast and dinner, then calculate the total mass of food eaten in a day.
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| **EVALUATION & REFLECTION** | **Student engagement:** **Achievement of Outcomes:****Resources:** **Follow up:** |