**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 1 | STRAND: Measurement and Geometry | **SUB-STRAND**: **Time 1** | **WORKING MATHEMATICALLY:** **MA2-1WM** |
| OUTCOMES: MA2-13MG | **Reads and records time in one-minute intervals and converts between hours, minutes and seconds**  |
| **CONTENT:**  | **Tell time to the minute and investigate the relationship between units of time.**Recognise the coordinated movements of the hands on an analog clock, including:-the number of minutes it takes for the minute hand to move from one numeral to the next -the number of minutes it takes for the minute hand to complete one revolution -the number of minutes it takes for the hour hand to move from one numeral to the next -the number of minutes it takes for the minute hand to move from the 12 to any other numeral -the number of seconds it takes for the second hand to complete one revolution |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Students draw their own clock face from memory showing all the markings they know. They describe the features of their clock face to a small group, then compare to a real clock face. Students report to the class and describe the accuracy of their drawing
* Student can discriminate and label the long and short hands. Student can show the direction the hands move.
* Student can count by 5s
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| WARM UP / DRILL | * Count by 5’s around the clock.
* Using class clocks or individual clocks make the o’clock times, half past times as a race.
* Game: Explain that the classroom is going to represent a clock. Front of room is 12, back of room is 6, right of room is 3, left of room is 9. Call out either o'clock, half past, quarter to or quarter past. Students have to face the direction that the minute hand points. If students turn the wrong way they must sit down
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | In 120 seconds I was able to run around the oval once. In 3 minutes, I was able to do 100 star jumps. I was puffed after each activity. Which activity took me the longest? |
| 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 | Teacher clock with second hand, classroom clocks, Individual clocks or clocks for groups either commercially made or child made, timers<http://lgfl.skoool.co.uk/content/primary/maths/analogue_time/index.html><http://primaryhomeworkhelp.co.uk/maths/measures.htm#Time><http://www.bbc.co.uk/skillswise/game/ma25time-game-hours-vs-minutes> |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * Show students a blank analog clock face. Write the minutes around the outside of the clock. Discuss patterns they can see, e.g. counting by 5s, 10s. Count how many minutes around the clock face. Determine that 60 minutes equals one hour.

http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2012/images/nn_meas_time_03_01.jpg* Teach students that the long hand is the **minute** hand. Demonstrate examples of the long hand pointing to each number 12, 1, 2, 3, 4, 5 and 6 in random order and have students count by fives to give the number of minutes past the hour.
* Revise with the students the short hand is the **hour** hand. Combine the short hand and long hand by asking the students to identify the hour and the number of minutes after or past the hour. Include examples of o'clock and examples of the minute hand pointing to a number.
* Introduce the **second** hand and determine how long it takes for the hand to make a full revolution.
* During the day take note of the passing of a minute, hour, 2 hours and record the place of the hands each hour on the whiteboard so children can see the changes.
 | LEARNING SEQUENCERemediationS1 or Early S2 | * In pairs students estimate, then measure the amount of ‘claps’ it takes to complete a given task e.g. write their name 5 times. Record results on a table
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| LEARNING SEQUENCES2 | * Each child takes a turn doing something for one minute (draw a picture, jump, write their name over and over etc.) and the other child times by watching the second hand do a full revolution.
* **Investigation**
* Students time activities in class that might take 60 seconds (1 minute) 2 minutes, 5 minutes, etc. then practise estimating how long a task has taken. During the activity watch the second hand, minute hand and hour hand make revolutions
* Children record : 60 minutes = 1 hour (long hand 1 revolution) 60 seconds = 1 minute (second hand 1 revolution)
* Observe children timing their partners to see if they understand one revolution of second hand is 1 minute.
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| LEARNING SEQUENCEExtension Late S2 or Early S3 | * Students estimate and order the amount of time selected events will take and then check by timing the events with a stop watch e.g.❚ the time for a ball dropped from the top floor of a building to reach the ground ❚ the time for a car seen in the distance to reach a chosen point. Students record the times in a table and order the events.
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| **EVALUATION & REFLECTION** |  |

* 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.