Balnarring May 2018

LEVEL: Year 3/4	CONTENT: Measurement and Geometry	FOCUS: Time Problem solving

In the Classroom	
PURPOSE	Different ways of showing time, telling time to the minute
WARM UP	One handed clock number talk (PowerPoint) Discuss different types of clock – analogue/digital (sun dial??) Show the Venice clocks for other types of analogue clocks
INTRODUCTION	Mathematicians often work in groups. We are going to be working in groups today. Too work well in a group need to listen to each other, be polite, agree/convince others, learn from each other and from making mistakes
EXPLICIT TEACHING & LEARNING	**Human clock: how to represent time to the minute – relationship between the hour and minute hands** Depending on the size of the class make one or two human clocks Explain that they will have to make a human clock – need to arrange themselves according to the numbers they are given and that the 'hands' need to lie on the floor in the correct position for the given time Put a time on the board Give out pieces of paper with the numbers 1-12 and a minute and hour on them Students to sit in a circle in the correct order and the 'hands' to lie in the correct position – they will need to agree that the hands are in the correct position ad to be able to justify why Start with easy times – o'clock, half past, quarter to etc. Then move on to more exact times like – 2.23, 4.47 – they will need to think about the position of the hour hand and how to space the numbers so that they can show the times accurately **Pyramid problems (elapsed time and converting minutes to hours)** Explain how these work Do a simple one together Let them work in pairs/small groups or individually As finish one give another so they can push themselves – not a speed activity
DISCUSSION/ KEY QUESTIONS	How can you represent time? Are all clocks the same? Do you need both hands of the clock?
RESOURCES	Online: Practice telling the time and matching analogue and digital time http://www.scootle.edu.au/ec/viewing/L9643/index.html# Explanation of time http://education.abc.net.au/home#!/media/1271057/

Curriculum Connections	
CONTENT	**Year 3:** VC: Tell time to the minute and investigate the relationship between units of time (VCMMG141) Students to recognise that there are 60 minutes in an hour, and 60 seconds in a minute **Year 4:** Convert between units of time (VCMMG167) Use am and pm notation and solve simple time problems (VCMMG168)

	They solve problems involving time duration They convert between units of time.
WHAT CAME BEFORE	VC: Tell time to the quarter-hour, using the language of 'past' and 'to' (VCMMG117) Knowledge of time and clock face
WHAT COMES NEXT	VC: Compare 12- and 24-hour time systems and convert between them (VCMMG197) They convert between 12 and 24-hour time
VOCABULARY	**Hour, minute, second, half, quarter, 'past', 'to', day, week, year, 'am', 'pm', noon, afternoon, morning, night, analogue, digital**
WHAT PROFICIENCIES ARE TO BE UTILISED?	**Year 3:** **Understanding** includes connecting number representations with *number sequences*, *partitioning and combining numbers flexibly*, representing unit fractions, *using appropriate language to communicate times*, and identifying environmental symmetry **Fluency** includes *recalling multiplication facts*, using familiar metric units to order and compare objects, identifying and describing outcomes of chance experiments, interpreting maps and communicating positions **Problem-solving** includes *formulating and modelling authentic situations* involving planning methods of data collection and representation, making models of three-dimensional objects and *using number properties to continue number patterns* **Reasoning** includes *using generalising from number properties* and results of calculations, comparing angles and creating and interpreting variations in the results of data collections and data displays. **Year 4:** **Understanding** includes making connections between representations of numbers, partitioning and combining numbers flexibly, extending place value to decimals, using appropriate language to communicate times and describing properties of symmetrical shapes **Fluency** includes recalling multiplication tables, communicating sequences of simple fractions, *using instruments to measure accurately*, creating patterns with shapes and their transformations and collecting and recording data **Problem-solving** includes formulating, modelling and recording authentic situations involving operations, comparing large numbers with each other, *comparing time durations* and using properties of numbers to continue patterns **Reasoning** includes using generalising from number properties and results of calculations, deriving strategies for unfamiliar multiplication and division tasks, comparing angles, communicating information using graphical displays and *evaluating the appropriateness of different displays*.
ASSESSMENT /SUCCESS CRITERIA	**Students:** • Can estimate a time on a one-handed clock • Understand the relationship between minute and hours • Can convert between minutes and hours