

It's All About 'Time' – The Early Years

#### Amanda Cassidy acassidy@spwangartta.catholic.edu.au



# What did the second hand say to the hour hand as it passed by?





#### See you again in a minute.



## Session Aims



- Look at each of the proficiencies and how these are woven amongst each of the content strands
- How the proficiencies are embedded into the curriculum with a particular focus on teaching students in the Early Years the concept of time
- Teachers role
- Students role
- Enabling and Extending prompts
- Practical tasks and activities you can use with your own students

## Check The Clues – Warm Up



**Problem Solving** 

- understand the problem
  - devise a plan
- carry out the plan
  - look back









#### The maths proficiencies are an essential element of learning for, learning about and learning through mathematics. It involves more than acquiring a body of knowledge.

#### **Problem Solving**

- Comprehend the problem
- Devise a plan
- Carry out the plan
- Look back

**Proficiency Strands** 

Understanding Fluency Reasoning Problem Solving Experiences at this level will help students to:



- Order daily activities and sequence on a simple timeline (VCMMG119)
- Learn names of days and months, and sequence months and seasons (VCMMG080)
- Relate days and months to events in own life (VCMMG118)
- Count informal units to measure duration or a period of time (VCMMG079)
- Understand that clocks are used to tell the time and that analogue and digital clocks provide the same information (VCMMG117)
- Estimate the time of day (VCMMG097)
- Recognise o'clock and half past times on an analogue clock (VCMMG096)
- Tell time on a digital clock in hours and minutes (VCMMG117)

## Introduction



The proficiency strands are an integral part of mathematics content. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored and developed. They provide the language to build in the developmental aspects of the learning of mathematics.

To be a true mathematician students need to 'engage in' and 'do' mathematics.

What do students need in order to be successful in learning mathematics?



	Number & Algebra	Measurement & Geometry	Statistics & Probability
Understanding		'the what'	
Fluency	کر ۲		
Problem Solving	the h		
Reasoning			

## **The Proficiencies**



	Understanding	Fluency	Problem Solving	Reasoning
Key Ideas				
Foundation				
Year One				
Year Two				

What does this proficiency mean to you? What key ideas would you associate with the proficiencies? What key activities would you find in each of the proficiencies when teaching a unit of time to an Early Years class?



#### Understanding

## Students make connection between related concepts and progressively apply the familiar to develop new ideas. Fluency

Problem Solving Reasoning



## Understanding

#### Fluency

Students become fluent as they develop skills in choosing appropriate procedures; carrying out procedures flexibly and accurately, and recalling factual knowledge and concepts readily.

**Problem Solving** 

Reasoning





#### Understanding Fluency

#### **Problem Solving**

Students solve problems when they use mathematics to represent unfamiliar or meaningful situations and plan their approaches

Reasoning

THE MATHEMATICAL ASSOCIATION OF VICTORIA



Understanding Fluency Problem Solving

#### Reasoning

Students develop an increasingly sophisticated capacity for logical thought and actions, such as evaluating, explaining and generalising.

## **The Proficiencies**



	Understanding	Fluency	Problem Solving	Reasoning
Key Ideas				
Foundation				
Year One				
Year Two				

What does this proficiency mean to you? What key ideas would you associate with the proficiencies? What key activities would you find in each of the proficiencies when teaching a unit of time to an Early Years class?

## Teachers role



- develop investigations framed around problems or issues that reflect the needs and interests of students
- guide and scaffold conversations and provide opportunities to develop the knowledge, procedures and strategies required
- pose questions to stimulate thinking, reasoning and encourage students to pose problems
- provide opportunities for self-monitoring and self-assessment.
- provide tasks which are challenging so that students can go beyond developing fluency.

## Students role



- be active and self-directed
- make meaningful connections with prior knowledge and experiences, and known procedures and strategies
- identify what it is that they need to know to proceed
- evaluate processes and solutions to determine whether they are appropriate and reasonable
- share information about the knowledge, procedures and strategies on which conclusions are based
- pose problems
- create alternative pathways to solutions.



## Should we start easy and wind it up or start challenging and turn it back?

- Where should I pitch my lesson?
- How I am going to enable all students experience learning and success whilst working through this particular problem or activity.
- How will I assess if learning intentions have been met?
- What will I do for those students who are still grappling with the concept?
- How will I move extend those students who are ready to go further?



#### Students benefit when they move from not knowing how to do something to knowing how to do it.

# Tasks that are too easy or way too hard have limited cognitive value and should not be there.

## Prompting & Questionning



#### Enabling prompts – reducing complexity, not reducing thinking

- Change range
- Reduce steps
- Simplify
- Reduce mental demands through the use of concrete materials

#### Extending prompts – extending thinking, not more work

- Change range
- Explain thinking
- Devise a plan to work it out another way
- Create own problem

## 5 on the Clock

#### 5 on the Clock



On a digital clock showing 24-hour time, over a whole day, how many times does a 5 appear?

Is it the same number for a 12-hour clock over a whole day?



• What would you tell the students?

• Enabling and extending prompts for the task

THE MATHEMATICAL

ASSOCIATION OF VICTORIA

• What is the mathematics content we hope students will learn?

Activities to support

 What are the proficiencies prompted by that task?

 In what ways might the "verbs" contribute to the learning of the "nouns"?

 How would you formalise and consolidate the activity?

nrich.maths.org

## **One Minute**





- What would you tell the students?
- Enabling and extending prompts for the task
- What is the mathematics content we hope students will learn?
- Activities to support
- What are the proficiencies prompted by that task?
- In what ways might the "verbs" contribute to the learning of the "nouns"?
- How would you formalise and consolidate the activity?





See if you can estimate how long one minute is. Stand up when you think one minute has elapsed.











#### **Clock Race**

#### 





#### **Clock Race**



THE MATHEMATICAL ASSOCIATION OF VICTORIA



#### **Clock Patience**







#### **Clock Patience**







#### **Picture Story Books**







Jane Godwin Anna Walker







THE MATHEMATICAL ASSOCIATION OF VICTORIA





## **Todays resources**













ASSOCIATION OF VICTORIA





Dr Paul Swan







- What connections have you made?
- What wonderings do you have?
- What is sitting with you at the moment?
- What is something you would like to explore further?
- What squares with your thinking?
- What is something that surprised you?
- What has become clearer for you?
- What has excited you?





#### Amanda Cassidy acassidy@spwangaratta.catholic.edu.au

#### How Many Times?



On a digital 24 hour clock, at certain times, all the digits are consecutive (in counting order). You can count forwards or backwards.

For example, 1:23 or 5:43.

- How many times like this are there between midnight and 7:00?
  - What would you tell the students?
  - Enabling and extending prompts for the task
  - What is the mathematics content we hope students will learn?
  - Activities to support
  - What are the proficiencies prompted by that task?
  - In what ways might the "verbs" contribute to the learning of the "nouns"?
  - How would you formalise and consolidate the activity?

## **Clocks and More Clocks**



#### • What would you tell the students?

- Enabling and extending prompts for the task
- What is the mathematics content we hope students will learn?
- Activities to support
- What are the proficiencies prompted by that task?
- In what ways might the "verbs" contribute to the learning of the "nouns"?
- How would you formalise and consolidate the activity?

# Clocks and More Clocks

In your home and everywhere you will go you will see clocks. We even wear wrist watches and carry phones that accurately tell us the time. Clocks help us to know what the time is so that we can arrive at school on time. They also help teachers to know when it is recess and lunch times and when it is time for you to go home.