

# YuMi Deadly Maths

## Prep Teacher Resource: **MG – How long does it take?**

Prepared by the YuMi Deadly Centre  
Faculty of Education, QUT



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## **ACKNOWLEDGEMENT**

We acknowledge the traditional owners and custodians of the lands in which the mathematics ideas for this resource were developed, refined and presented in professional development sessions.

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## Prep Measurement and Geometry

### How long does it take?

<b>Learning goal</b>	Students will: <ul style="list-style-type: none"><li>• describe, compare and order the duration of events</li><li>• investigate a day's duration</li><li>• sequence phases of a day.</li></ul>
<b>Content description</b>	Measurement and Geometry – Using units of measurement <ul style="list-style-type: none"><li>• Compare and order the duration of events using the everyday language of time (<a href="#">ACMMG007</a>)</li></ul>
<b>Big idea</b>	Measurement – time – continuous vs discrete
<b>Resources</b>	Students; ball, streamers, scissors, string, paper, pencils; cards with pictures and names for morning, afternoon, evening, night

### Reality

<b>Local knowledge</b>	Explore the life cycle of an animal or plant in the local area. Discuss the time taken in the different stages in the cycle. Examine Indigenous calendars to find the time when various birds, animals or plants are found in the local area: <a href="http://www.csiro.au/Organisation-Structure/Divisions/Ecosystem-Sciences/Indigenous-seasonal-calendars.aspx">http://www.csiro.au/Organisation-Structure/Divisions/Ecosystem-Sciences/Indigenous-seasonal-calendars.aspx</a> Students discuss and list events that take small and large amounts of time, e.g. washing up, getting to school, sleeping, time between breaths, eating morning tea, visiting grandparents, becoming a teenager.
<b>Prior experience</b>	<i>Which is longer/shorter?</i> (Time in school or time for play; supper time or clean-up time at home.) Let students give their own examples of a long/short time.
<b>Kinaesthetic</b>	<ol style="list-style-type: none"><li>1. Races: <i>What takes a shorter time?</i> (Time for a ball to stop bouncing compared with walking across the room; time to do 10 star jumps compared with 10 sit-ups; time to put burnie beans in a jar or shells in a box.)</li><li>2. Line students up in order of size, shortest to tallest. Attribute time durations to students, e.g. <i>If Mary is the shortest in the class, what event takes the shortest time that Mary could represent?</i> Order and compare the events listed by the students, aligning them with students' height. Some events may be so long that they need two or three students to represent that duration or period of time. Reverse: <i>Which student/s would show the time for the lunch break?</i></li><li>3. Display cards for times of the day (morning, afternoon, evening, night) and have the students whose event takes place in the morning form a group. Repeat for other phases of the day. In their groups, students order the events discussing which comes before, after, is a longer or shorter time, what event could come next, other events they remember that have happened in the particular phase of the day. <i>When does a day start and end?</i></li></ol>

### Abstraction

<b>Body</b>	<ol style="list-style-type: none"><li>1. Outside: Students form a horizontal line. Breathe in and out five times. Discuss how many steps they would take to represent the time that took; <i>how big would the step/s be?</i> Walk one very tiny step. Go back to the starting line. <i>How many steps and how big would we need to take to represent the other events in the list?</i> Walk each event from the starting line to develop the understanding that events may be longer or shorter than others.</li></ol>
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- Act it out: Students do the “wave”, going from right side with arms outstretched for sunrise, moving and raising arms for different times of the day; e.g. *Where are our arms for breakfast?* (for the start of school, for lunch time, for going home, for sunset, for dinner time, for bedtime.)
- Use body movements to dramatise the phases of the day/night; e.g. arms outstretched for sunrise, sleeping for night, eating for breakfast, lunch and dinner.

#### Hand

- Fold a landscape paper in half – one side for short yellow streamers that correspond to short events from the Races kinaesthetic activity above and the other half for long green streamers that correspond to the longer events being compared in the Races activity. Draw the events underneath the streamers. Hang the completed papers around the wall (students may be able to compare no more than one or two events on the paper).
- Draw pictures that represent the phases of the day putting them in order of time – morning, afternoon, evening, night.
- Examine some calendars.

#### Mind

- Students visualise an event and tap their arm with fingers of other hand to count and represent each of their events. Think about which is longer or shorter than the others. Reverse: Teacher claps various times and students think of a time event that corresponds.
- With eyes closed, think of what they do in the morning, afternoon, evening, night.

#### Creativity

Students draw and describe short and long times they have experienced. Draw their favourite activities for the different phases of the day/night (looking at the stars).

### Mathematics

#### Language/ symbols

long time, short time, longer, shorter, fast, quick, slow, recently, a long time ago, once upon a time, same, how many, more, less, measure, period of time, order, how long, when, represent, compare, remember, sort, day, night, morning, afternoon, evening, events, order, sequence, before, after, next, then, phases, time

#### Practice

Activities are language based so that students gain fluency with the language of time, its duration and phases.

Students share time stories and drawings with the teacher, class and partner. Act out some time stories and say whether the event was too long, went very quickly, happened a long time ago, whether it could happen in any of the phases or can only happen at a particular phase in the day, and so on.

Give a short/long time or a season and students draw/dramatise a possible event.

#### Connections

Relate to seasons and weekly, monthly, yearly calendar.

### Reflection

#### Validation

Students go back into their world and find/draw time stories, e.g. dinner time, holidays. Talk about duration, long/short.

#### Application/ problems

Provide applications and problems in time, its duration and phase so that students apply these in different contexts independently; e.g. how long, short is it when they play, go shopping? Students give examples of what is a long/short time for them.

#### Extension

**Flexibility.** Think of more than one event that could happen in the same phase of the day and whether it could happen in another phase. *Does the same event always take the same time?*

**Reversing.** Give examples in going from duration to event and event to duration; phase to event, event to phase.

**Generalising.** Some events take a long time, other events take a short time. The phases of the day are always in the same order.

**Changing parameters.** Relate to events that happen in a week, month, year (birthdays, Easter, Christmas), seasons.

### Teacher's notes

- Use language-based consultation with students describing and explaining time events that involve the speed and time that events take.
- Students need to be taught the skill of visualising: closing their eyes and seeing pictures in their minds, making mental images; e.g. show a picture of a bird, students look at it, remove the picture, students then close their eyes and see the picture in their mind; then make a mental picture of a different bird.
- Suggestions in Local Knowledge are only a guide. It is very important that examples in Reality are taken from the local environment that have significance to the local culture and come from the students' experience of their local environment.
- Useful websites for resources: [www.rrr.edu.au](http://www.rrr.edu.au); <https://www.qcaa.qld.edu.au/3035.html>
- Explicit teaching that **aligns with students' understanding** is part of every section of the RAMR cycle and has particular emphasis in the Mathematics section. The RAMR cycle is not always linear but may necessitate revisiting the previous stage/s at any given point.
- Reflection on the concept may happen at any stage of the RAMR cycle to reinforce the concept being taught. Validation, Application, and the last two parts of Extension should not be undertaken until students have mastered the mathematical concept as students need the foundation in order to be able to validate, apply, generalise and change parameters.