

Year 4 - Mathematics - Learn from home timetable

Big Idea Concept: Digital and Analog Time

I can:

- convert between units of time and recall time facts, e.g. 60 seconds = 1 minute, 60 minutes = 1 hour, 24 hours = 1 day
- explain the relationship between the size of a unit and the number of units needed
- read analog and digital time
- convert between analog and digital time
- Understand and explain am and pm

Australian Curriculum Connection: MG4.3 Convert between units of time identifying and using the correct operation for converting units of time

| Monday | Tuesday | Wednesday | Thursday | Friday |
|--|--|--|--|---|
| Launch and Tune In | Launch and Tune In | Launch and Tune In | Launch and Tune In | Launch and Tune In |
| <p>Introductory Activity: If available read How Do I know What Time it is? (Available on YouTube, click on book title – not a wonderful reading but a good overview of time). Discuss – What is time and how and why do we measure it? Where does time come from?</p> | <p>Activity: How long is a second? How long is a minute? Pose the question – How long is a second? What can you do in a second? What do you know about ‘seconds’? Use a timer to demonstrate a second. What other time words do you know? E.g. minute, hour, etc. Discuss the words and their meanings.</p> | <p>Activity: How do we measure ‘clock’ time? Show the student images below and discuss where they have seen time displayed like this. Determine if they are familiar with the terms analog and digital</p> <div style="text-align: center;">   </div> | <p>Discuss different ways that time has been measured this week. ‘Sun time’ and ‘clock time’ Yesterday we looked at a particular type of ‘clock time’ – analog time. Ask the student to make you a couple of different times using the analog clock. Is there another type of ‘clock’ time – digital time. Where do we commonly see this. The most common place is on phones and electronic devices.</p> |  <p>Looking at the world clock above – discuss with the student what they see. What are the things they know about and what are the things they wonder about?</p> |

Vocabulary: seconds, minutes, hours, day, week, month year, after, past, to, elapsed time, less than & more than symbols, analog, digital, a quarter past, half past, a quarter to, ante meridiem, post meridiem, midday, midnight

Conceptual Development

Activity: Shadow Me (Outside Activity)

Aim: To observe the effects of time passing using the sun.

1. Pose a question about how a student roughly knows what the time is. How do you know it's early morning, lunch time, time to go to bed? Do you always use a clock?
2. Sundials tell "sun time". Clocks and watches tell "clock time". Neither kind of time is intrinsically "better" than the other --- they are both useful and interesting for their separate purposes.

Show a picture of a sundial if the student is unfamiliar with sundials.



- Resources:** butchers paper, permanent markers (3 different colours, masking tape, weights to hold paper in place), a timer.
3. With the help of another person, place paper in the sun and secure paper to a surface and make sure paper is not moveable – student stands on the butchers and the other person traces around their shadow and their feet. Take a picture of the shadow trace. Record the finish drawing time on the paper. Set a timer for 15 minutes
 4. After 15 minutes has elapsed, have the student stand back on their feet marks and using a second colour, trace the shadows new position. Take a photo and record the time on the paper.

Conceptual Development

Activity: Units of time?

1. Make a table that shows the common units of time in comparison to one another. 60 seconds make a minute, 60 minutes make an hour. 24 hours make one day, 7 days make a week, 52 weeks make a year and 365 days make a year. Discuss how months are either 28 days (29 in a leap year), 30 days or 31 days. How do we measure minutes, hours and seconds and how do we measure days months and years?

| Unit | In this time unit |
|------|-------------------|
|------|-------------------|

| | |
|---------|-------------|
| seconds | in a minute |
| minutes | in an hour |

Note that time is measured in units that are different than normal counting (base 10) and are different depending on whether they are seconds, minutes, hours, days, weeks, months or years. Use the table to discuss these differences with the student when recording in the table. The focus for this series of lessons is the telling of time in seconds, minutes, hours.

2. Using a timer and from earlier discussion compare the types of activities that can be done in one second, 10 seconds, 30 seconds and a minute. E.g. Ask student to predict and then measure using the stopwatch/timer how many jumps can be done in 1 second, 10 seconds, 30 seconds and a minute? How many claps can you do in those timeframes? Can you think of two more things to time yourself doing? Draw a table in your learning journal. Discuss with the student what they

Conceptual Development

Activity: Reading Analog Time.

1. Revise reading an analog clock. Short hands measure the hours, long hands measure the minutes.

Sometimes clocks have a second, long hand which moves quicker than the minutes hand – what could this be measuring? Use the diagram below to discuss how the hours are counted by the short hand and how the minutes are counted by the long hand.

2. Discuss the different language we use to represent the minutes, a quarter past = 15 minutes past the hour, half past = 30 minutes past the hour, a quarter to = 15 minutes before the next hour. How the language changes from counting the minutes after the hour up to 30 minutes past the hour and then switches to counting the minutes before the next hour after half past.

3. Discuss how to count the minutes between the five minutes e.g. what does 12 minutes past look like? What does 12 minutes to look like. Use the diagram below to assist in the discussion.

4. Use a real analog clock to manipulate showing the time. Ensure you show the student the time to be read as well as the student making the time for you to read.

Learning Journal

Activity: Reading Digital Time

1. Discuss How digital time is read. The first number is the hour, followed by the : symbol and then the minutes. It is read from left to right e.g.



Is read "three, forty-five. (this can also be said as a quarter to three or 15 minutes to three, this comes from reading analog time). Give some more examples of reading digital time e.g. 11:20, 6:16, 7.26 etc.

2. Ask the student to write 2:30 like they would see it on a digital clock. Show the same time on the analogue clock. Provide some more examples of this, e.g. show what time they had breakfast, lunch, dinner, what time they usually go to school, what time they usually go home from school in both digital and analog time.

3. Compare the similarities and differences in the saying and display of digital and analog time. Which do you find easiest and why? Record this in your learning journal.

Conceptual Development

Activity: What is AM & PM?

1. From the student's wonderings choose a starting point that suits the students need. E.g. if they need more practice with digital and analog time. Give some more hands on practical examples to provide support to the student in reading and recording both types of time.

2. If they are unfamiliar with am and pm. Unpack as follows. am refers to time in the morning between 12 midnight and 12 noon. The pm refers to the time from 12 noon until 12 midnight at night. The word meridiem comes from a Latin word which means midday, can you think of what the 'p' means in pm? - a word that means after - Post meridiem (after midday) and what could the 'a' mean in am – a word meaning before – ante so am is ante meridiem or before midday.

3. Discuss with the student when am and pm might be important to use when talking about time.

*4. You could have a discussion with the student about the actual time being different in different places in the world or even in Australia. Get them to come up with ideas why that could be. A lot of detail about the international date line etc isn't necessary at this stage unless your student wishes to pursue it and is able to understand this. The idea is that students to develop an awareness that there are

5. Set the timer for a further 15 minutes and repeat the process of tracing with a third colour, photographing and recording the time.

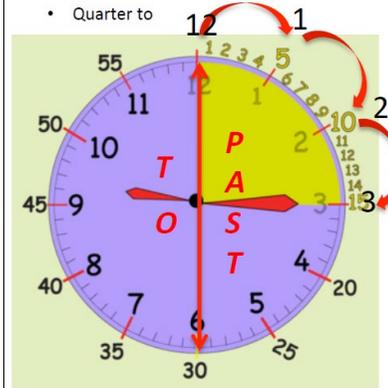
6. Repeat step three tracing with a fourth colour. (You should have a record of the position of the sun at 15-minute intervals recorded in four different colours).

7. Discuss with students what they noticed about the change in position of shadow. Would different increments of time have produced different results?
 Could we create a marker (piece of doweling) and trace its shadow over the course of a day? What increments of time would be the most useful to record? When would this way of telling the time be useful and when wouldn't it be useful?

notice about what it is possible to do in the different lengths of time – how does a second compare with a minute (60 seconds)? What could be possible for 10 minutes? Are some things better measured in particular units of time?

Note: If you don't have an analog clock available at home. You can make one using a paper plate and strips of cardboard or paddle pop sticks

- Quarter past
- Half past
- Minutes to
- Quarter to



for the hands.

different time zones in different parts of the world.
 A simple explanation about the earth rotating around the sun and it being night in the northern hemisphere when it's daylight in the southern hemisphere. Australia has different time zones based on the rising and the setting of the sun due to the earth's rotation around the sun. This is because Australia is a large continent. Also references to daylight saving in some states of Australia which is an agreed practice to alter the time in summer by an hour according to geographic location.

* Challenge or extension

Learning Journal

Ask the student to write or draw in their Learning Journal about what they observed and the conclusions they drew from the discussion. Photos included for evidence or for writing prompts.

Learning Journal

Draw a table and record how many jumps, claps and two other suggestions of your own that you can do in a second, ten seconds, 30 seconds and a minute (60 seconds). What did you notice about the different lengths of time? Are some things better measured in particular units of time? Why?
 E.g.

| Activity | Prediction | | | | Time | | | | Instrument Used to time. |
|---------------------------------------|------------|--------|--------|-------|-------|--------|--------|-------|--------------------------|
| | 1 sec | 10 sec | 30 sec | 1 min | 1 sec | 10 sec | 30 sec | 1 min | |
| Jump on the spot | | | | | | | | | |
| Clap Hands | | | | | | | | | |
| Add your own e.g. stand up & sit down | | | | | | | | | |

Learning Journal

Learning Journal

Compare the similarities and differences in the saying and writing of digital and analog time. Which do you find easiest and why? Record this in your learning journal.

Learning Journal

Why is am and pm important when talking about time? Give examples when this could be useful.



