

Maths and Me: 2nd class – Short-Term Plan, Unit 14: Time 2 (April: Week 1)

Strand(s)> Strand Unit(s) Measures > Time.




Learning Outcome(s)

Through appropriately playful and engaging learning experiences children should be able to understand how time is measured, expressed and represented; explore equivalent expressions of time.

Lesson	Focus of Learning (with Elements)	CM	Learning Experiences	Assessment
1	a.m. and p.m.: Demonstrates understanding of a.m. and p.m. (U&C)		<p>D Quick Images L1–3</p> <p>D Write-Hide-Show L1–3</p> <p>D Think-Pair-Share L1, 3</p> <p>D Notice & Wonder L1, 3</p> <p>D Reason & Respond L1, 3</p> <p>D C Would This Work? L2</p> <p>C Build it; Sketch it; Write it L2</p> <p>C I Do, We Do, You Do L2</p> <p>C Analysing and Creating Timetables L3</p> <p>Print resources</p> <p>Pupil's Book pages 88–91</p> <p>Home/School Links Book page 32</p> <p>PCM 41</p>	<p>Intuitive Assessment:</p> <p>responding to emerging misconceptions</p> <p>Planned Interactions:</p> <p>responding to insights gleaned from children's responses to learning experiences</p> <p>Assessment Events:</p> <p>information gathered from completion of the unit assessment in the Progress Assessment Booklet pages 24–25</p>
2	Duration: Estimates and compares lengths of elapsed time (R); Explores different ways of presenting time, using a variety of strategies (e.g. using open number lines and empty clock faces, etc.) (C)			
3	Timetables: Analyses and creates timetables (A&PS)			
4	Review and Reflect: Reviews and reflects on learning (U&C)			

Key: Elements: (U&C) Understanding and Connecting; (C) Communicating; (R) Reasoning; (A&PS) Applying and Problem-Solving. **CM: Cuntas Míosúil:** please tick when you have completed the focus of learning. **Learning Experiences:** **C** concrete activity; **D** digital activity; **P** activity based on printed materials, followed by lesson numbers.

Additional information for planning

 Progression Continua	See '2nd Class <i>Maths and Me</i> Progression Continua Overview' for a detailed breakdown of how all progression continua are covered.
 Maths Language	See '2nd Class <i>Maths and Me</i> Language Overview', individual lesson plans and Unit 14 Maths Language Cards.
 Equipment	See '2nd Class <i>Maths and Me</i> Equipment Overview' and individual lesson plans.
Inclusive Practices	<ul style="list-style-type: none"> See Let's Strengthen and Let's Deepen suggestions throughout lesson plans. See Let's Strengthen Suggestions for Teachers. (These address the Common Misconceptions and Difficulties listed below.) See Unit 14 Let's Strengthen PCM. See Unit 14 Let's Deepen PCM.
Integration	See individual lesson plans.

Background and rationale

- This unit builds on Unit 5: Time 1, revising the children's understanding of time in quarter-hour intervals and applying this to a.m. and p.m., calculating duration (elapsed time) and exploring timetables.
- The idea of time passing can be hard for young children to understand as it is an abstract concept. Make it concrete for them by referring to a variety of schedules and different types of clocks at key points during the day, and use timers as part of regular classroom management.

The theme of this unit is **Timetables**.

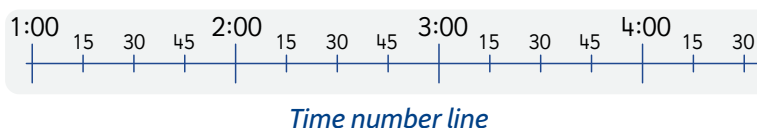
Common misconceptions and difficulties

- The children may incorrectly interpret a.m. as 'after midday' and p.m. as 'before midday'.
- They may incorrectly assume that a.m. refers to daylight hours and p.m. refers to hours of darkness (see Pupil's Book p.88.)
- They may struggle to write out times in analogue/word form. (Allow the children to write the time in digital form, while encouraging them to verbalise this time in analogue word form also.)

The Unit 14 Let's Strengthen Suggestions for Teachers address the common misconceptions and difficulties listed above.

Mathematical models and representations

- Representations of analogue and digital watches/clocks, timers and time apps on devices (tablets, mobile phones, etc.)
- An open number line on the MWB can be used to create 'time number lines' to represent duration (elapsed time)
- Variety of timetable types



Teaching tip

The following manipulative printables are available to support the unit: Analogue Clock Face and Hands, Digital Clock (Blank), Time Number Line, Timetable. Click on the resources icon on the *Maths and Me* book cover on [edcolearning.ie](https://www.edcolearning.ie)

Day 1, Lesson 1

a.m. and p.m.

Focus of learning (with Elements)

- Demonstrates understanding of a.m. and p.m. (U&C)

Learning experiences

- D** Digital activity: Time – Quick Images (1)
MAM Routines: Quick Images, with Write-Hide-Show
- D** Digital activities: Programmes **MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Write-Hide-Show**
- D** Video: a.m. and p.m. **MAM Routine: Reason & Respond**
- P** Pupil's Book page 88: a.m. and p.m.

Equipment

- There is no equipment for this lesson.

Maths language

- a.m. and p.m., day, night, midnight, midday, noon, morning, afternoon, evening, o'clock, half past, quarter past, quarter to

Warm-up

- D** Digital activity: Time – Quick Images (1) **MAM Routines: Quick Images, with Write-Hide-Show**

Display the slideshow. Click to briefly reveal and then hide the image. Tell the children to record the time in digital form on their MWBs. Ask them to 'show' their proposed answers, and record all of these on the board. Be careful not to confirm the correct answer. Ask:

- Are there any answers that are unreasonable/not likely because they don't make sense? Which ones? Why do you think this?

- Which answer do you agree with? (Ask the children to verbalise the written digital times as analogue times, e.g. to say 3:30 as 'half past three'.)
- Explain the strategy you used to get your answer.
- Did anybody use a different strategy?

When there are no new strategies to discuss, reveal the image again and confirm the answer, using a variety of possible strategies.

Main event

- D** Digital activity: Programmes **MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond, with Write-Hide-Show**

Display the poster and, using Think-Pair-Share, ask:

- What do you notice?
- What do you wonder?

Record the children's responses to both questions on the board. Allow the children the opportunity to respond to (agree/disagree with or query) others' responses, but do not confirm or reject any of the ideas. Note any 'wonderings' that could become the basis for a subsequent maths investigation.



Then ask the children to use Write-Hide-Show on their MWBs to respond to the questions below. Ask them to give reasons for their responses (some of these questions may have been answered previously). Click to play or ask:

- What time is it?
- Jay is confused. He thought cartoons were on now. What has happened?
- Is it 7:30 in the morning or in the evening? Explain why.
- When writing time, how might we show that we mean 7:30 in the morning?

- How might we show that we mean 7:30 in the evening?
- How many hours are there in one day?
- How many hours are there on an analogue clock?
- In one day, how many times does the hour hand go all the way around the clock?
- What do we call the time when one day starts and another one ends?
- What do we call the time in the middle of each day? What time is this?

You could also ask:

- Have you ever been awake at 12 o'clock midnight? When?
- Something that happens before midday/noon happens in the ... (morning).
- Something that happens after midday/noon happens in the ... (afternoon, evening or night).



D Video: a.m. and p.m.

MAM Routine: Reason & Respond

Play the video and prompt the children to respond to the question posed in each segment.

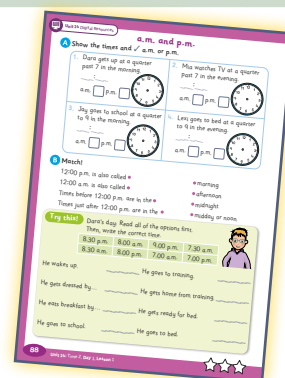
Let's strengthen

The children may incorrectly interpret a.m. as after midday and p.m. as before midday. Share this helpful mnemonic: In the same way that 'a' is in the first half of the alphabet and 'p' is in the second half of the alphabet, *a.m.* is about the first half of the day and *p.m.* is about the second half of the day.

Let's deepen

Can the children recall from the video what a.m. and p.m. stand for in Latin? Challenge them to think of other words they know that use the prefix 'post', meaning 'after' (e.g. to postpone something means to do it after it was supposed to happen; a post-season match is played after the main season of matches, and so on).

P Pupil's Book page 88: a.m. and p.m.



Let's strengthen

Due to the nature of this lesson, some children might benefit from additional support, such as completing the page in pairs and/or having someone read them the text on the page.

Optional consolidation and extension possibilities

Integration Understanding of the concept of time can also be reinforced in many other subjects. Language: English: Report writing genre, including diary entries and use of time connectives (*first, next, last*), procedural writing, for how long something must happen. Language: Irish: An t-Am. History: Skills and concepts development; working as a historian; time and chronology. Geography: Time it takes to travel to school; towns/cities in a local area. Using units of time to measure investigations in Geography and STEM investigations. PE: Timing races, matches, identifying fastest, etc. Music: Notation, steady beats, etc.

Let's Strengthen For further practice, the children could distinguish between a.m. and p.m. times using the images from the Unit 14 Let's Strengthen PCM. This can be completed at any stage after this lesson.

Let's Deepen Task A or B can be completed from the Unit 14 Let's Deepen PCM at any stage after this lesson.

Story Read *It's About Time* by Stuart J. Murphy, which features the use of a.m. and p.m. You can listen to a reading at: edco.ie/bpcb

My Book of Time These PCMs may have been created during Unit 5. If still available, the children could return to them and add a.m. and p.m. to the times. The children could also paste them into their Maths Journals.

Review and Reflect Use the Prompt Questions Poster for Review and Reflect.



Days 2 and 3, Lesson 2

Duration

Focus of learning (with Elements)

- Estimates and compares lengths of elapsed time (R)
- Explores different ways of presenting time, using a variety of strategies (e.g. using open number lines and empty clock faces, etc.) (C)

Learning experiences

- D** Digital activity: Time – Quick Images (2)
MAM Routines: Quick Images, with Write-Hide-Show
- C** **D** Digital activities: Modeling Duration **MAM Routine: Would This Work?, with Build it; Sketch it; Write it**
- P** Pupil's Book page 89: Duration

Equipment

- Teaching clocks, preferably geared (i.e. hour hand moves when minute hand moves)
- Online clocks
- Open number line on the MWBs (to create 'time number lines')
- PCM 41

Maths language

- duration, how long, time number lines

Warm-up


D Digital activity: Time – Quick Images (2) MAM Routines: Quick Images, with Write-Hide-Show

Display the slideshow. Click to briefly reveal and then hide the image. Tell the children to record the time in digital form on their MWBs and to indicate whether it is a.m. or p.m. Ask them to 'show' their proposed answers, and record all of these on the board. Be careful not to confirm the correct answer. Ask:

- Are there any answers that are unreasonable/not likely because they don't make sense? Which ones? Why do you think this?

- Which answer do you agree with? (Ask the children to verbalise the written digital times as analogue times, e.g. to say 3:15 p.m. as 'a quarter past three in the afternoon'.)
- Explain the strategy you used to get your answer.
- Did anybody use a different strategy?

When there are no new strategies to discuss, reveal the image again and confirm the answer, using a variety of possible strategies.

Main event


D Digital activity: Modeling Duration MAM Routine: Would This Work?, with Build it; Sketch it; Write it

Display the activity. First ask the children to use Build it; Sketch it; Write it to model and solve the question: for about how long did *Cartoon Time* last?

Allow time for the children to share how they did it. Ask:

- Why did you do it this way?
- How can you prove your answer?



Then click to see the approaches of the programme characters: do they work?

Let's deepen

Challenge the children to suggest why the question is 'For *about* how long' rather than 'For how long'. Prompt them, if necessary:

- If *Cartoon Time* starts at 7:30, and if the next programme starts at 8:00, will *Cartoon Time* be on for all of that time? Explain why.

C Concrete activity: Modeling Duration
MAM Routines: Build it; Sketch it; (possibly with I Do, We Do, You Do)

Ask the children to work in pairs or groups. Distribute two teaching clocks to each pair/group. Display the previous activity and look at the characters' various models and approaches again. Ask/say:

- For about how long did *Kid's Got Talent* last? Write your proposed answer.
- How can you prove your answer?
- Why did you do it this way?
- Build it: Can you use the clocks to prove your answer? Show us. (Use one to show the start time and the other to show the finish time.)
- Sketch it: Can you sketch clock faces on your MWBs to prove your answer? Show us.
- Sketch it: Can you create a 'time number line' using the open number lines on your MWBs to prove your answer? Show us.

Teaching tip

In their Maths Journals, the children could use images/words to record what they built, sketched or wrote.

Prompt the children to try out any mathematical model suggested by another child, which they did not use themselves. If they are unsure how to use these mathematical models to represent duration, use the 'I Do, We Do, You Do strategy':

I Do: Use clocks, sketches of clock faces and/or time number lines to model possible approaches. Verbalise your thinking processes (think aloud) to provide an explanation and rationale for each step of the process(es).

We Do: Give the children the opportunity to complete similar problems in pairs or small groups.

You Do: When ready, ask the children to create their own choice of models, independently.

Let's strengthen

The children might benefit from the additional support of PCM 41: Blank Time Number Lines.

Repeat the process above, incorporating an appropriate degree of cognitive challenge. For example, choose a programme from the TV listing and ask:

- For about how long did ... (programme title) last?
- Lexi watched ... and ... (two adjacent programme titles). For about how long was she watching TV?
- Luca watched ..., ... and ... (three adjacent programme titles). For about how long was he watching TV?

The children use a model each time to show how they worked out their answer.

Let's strengthen

Initially, the children may benefit from only working out the duration of an individual programme that starts and ends on the hour or half hour (i.e. not quarter-hour intervals).

Let's deepen

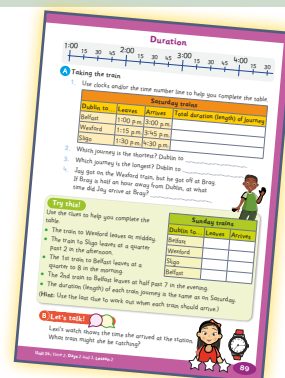
Challenge the children to calculate the total duration of non-adjacent programmes on the listing.

P Pupil's Book page 89:
Duration

For all the activities on this page, prompt the children to use a variety of models, including showing elapsed time on analogue clocks or sketches of the same, using number lines (see PCM 41: Blank Time Number Lines), etc.

Try this! It is not required that all children complete this low-threshold, high-ceiling task. Some children may only complete the 'Leaves' column, while others may complete part of the 'Arrives' column. This could also be a whole-class task.

Let's talk! It is most likely that Lexi is catching a train to Belfast, but can we know which one? The children should explain that it is impossible to know because analogue clocks do not indicate whether it is a.m. or p.m.



Optional consolidation and extension possibilities

Let's Strengthen For further practice, the children could use the images from the Unit 14 Let's Strengthen PCM to practise calculating the duration of events or the time between two events.

Story Read *Get Up and Go!* by Stuart J. Murphy. This book features timelines used to calculate elapsed time.

Maths Eyes Collect and display TV listings from a newspaper or TV guide magazine.

TV Listings Ask the children to create their own questions based on how long certain programmes last. They can use the TV listings from a newspaper or TV guide magazine.

Review and Reflect Use the Prompt Questions Poster.

Day 4, Lesson 3

Timetables

Focus of learning (with Elements)

- Analyses and creates timetables (A&PS)

Learning experiences

- D** Digital activity: Time – Quick Images (3) **MAM Routines: Quick Images, with Write-Hide-Show**
- D** Digital activities: Slow-Reveal – Timetables (1–4) **MAM Routines: Notice & Wonder, with Think-Pair-Share; Reason & Respond**
- C** Concrete activity: Analysing and Creating Timetables
- P** Pupil's Book pages 90–91: Timetables

Equipment

- Selection of timetables

Maths language

- timetable

Warm-up



- D** **Digital activity: Time – Quick Images (3)** **MAM Routines: Quick Images, with Write-Hide-Show**

Display the slideshow. Click to briefly reveal and then hide the image. Tell the children to record the time in digital form on their MWB and to indicate if that is a.m. or p.m. Ask them to 'show' their proposed answers, and record all of these on the board. Be careful not to confirm the correct answer. Ask:

- Are there any answers that are unreasonable/not likely because they don't make sense? Which ones? Why do you think this?
- Which answer do you agree with? (Ask the children to verbalise the written digital times as analogue times, e.g. to say 3:15 p.m. as 'a quarter past three in the afternoon'.)

- Explain the strategy you used to get your answer.
- Did anybody use a different strategy?

When there are no new strategies to discuss, reveal the image again and confirm the answer, using a variety of possible strategies.

Let's deepen

Challenge the children to write the time that is one hour later/earlier, two hours later/earlier, etc. than the displayed time.

Main event



D Digital activities: Slow-Reveal – Timetables (1–4) **MAM Routines: Notice & Wonder, with Think-Pair-Share**

Display the first timetable. Using Think-Pair-Share, begin by asking:

- What do you notice?
- What do you wonder?



Record the children's responses to both questions on the board. Allow the children the opportunity to respond to (agree/disagree with or query) others' responses, but do not confirm or reject any of the ideas. When all the feedback has been collected, click to reveal the next slide and repeat above, until all of the timetable has been revealed. Repeat the process for the remaining timetables.

Then say/ask the questions below. Ask the children to give reasons for their responses.

- Do you know what these are called?
- These are tables of information. What is the same about all of them?
- The main information shown on each of these tables is the times that something is due to happen. We call them timetables. Have you seen a timetable before? Where?
- What else is the same about all of these?
- What is different?
- What did you find interesting?
- Who might find these useful?

C Concrete activity: Analysing and Creating Timetables

Source a selection of timetables that the children are likely to encounter (e.g. for class/school, local cinema, local bus or train route, local swimming pool, after-school activities/classes in a community centre). These can be collected or printed from the internet. Give each group copies of the timetables or display them on the board. Use the questions in the previous activity to help direct this one, if useful.

Other possible questions:

- What do you notice about these timetables? What do you wonder?
- Which activities last under an hour/more than an hour?
- What would you choose to do? Explain why.
- How long would it take you?

Let's deepen

Cut each timetable or crop the images so that it is not immediately obvious what the timetable is for (as was done in the 'Slow-Reveal Timetables' digital resource). Challenge the children to suggest what each timetable might relate to.

Ask the children to create their own timetables or schedules.

Teaching tip

Many of the timetables that children encounter will include times that are not on the quarter hour, and may even use 24-hour form. In class, prioritise any timetables that display times on the quarter hour and use 12-hour or a.m. and p.m. However, this may not be possible, and it is advisable not to exclude all other types of timetables. Even though some children may not be able to read or interpret these timetables, it is important to acknowledge them, as it is likely they will encounter them in real life.

P Pupil's Book page 90: Timetables



Optional consolidation and extension possibilities

Let's Deepen Task C or D can be completed from the Unit 14 Let's Deepen PCM at any stage after this lesson.



Story Read *Rodeo Time* by Stuart J. Murphy, which features schedules/timetables that are used to organise the characters at: edco.ie/zz3
This book features schedules/timetables that are used to organise the characters.

Home/School Links Book page 25 can be completed at any stage after this lesson.

Maths Eyes Collect timetables to make a display and/or use the timetables collected for the Main Event section. The children draw, write or stick images of timetables in their maths journals.

Review and Reflect Use the Prompt Questions Poster.

Day 5, Lesson 4

Review and Reflect

Focus of learning (with Elements)

- Reviews and reflects on learning (U&C)

Warm-up

Carry out a warm-up activity of your choice from one of the lessons in this unit.

Main event

Use this menu of activity ideas to choose how best to structure this last lesson of the unit to suit your needs and the needs of your class.

Let's talk!	Let's create!
Review and Reflect Poster: Use Think-Pair-Share alongside the prompt questions to review the unit. The children record what they know in their Maths Journals (e.g. using a concept map).	Ask the children to work in groups to create a timetable, using PCM 42: Blank Timetable Template. This could represent a typical day in school or an ideal day in school, or it could be a timetable for an upcoming school event or trip.
Maths language	Maths strategies and models
Ask the children to explain the following terms (perhaps using examples or drawings on their MWBs): o'clock, half past, quarter past, quarter to, analogue, digital, day, night, midnight, midday, noon, morning, afternoon, evening, timetable. Use the Unit 14 Maths Language Cards to revise the key terms. For example: If the image and text are cut apart, can the children match them? If not completed already, complete the My Maths Fact File on page 124 of the Pupil's Book.	Ask the children to give examples of the strategies they used in this unit, e.g. how to remember that a.m. is the first half of the day and p.m. is the second half; how to use clocks, sketches of clocks and time number lines to model and calculate duration, etc. Which strategies and models did they prefer and why?
Progress Assessment Booklet	Maths eyes
Complete Questions 52–55 on pages 24–25. Alternatively, these can be left to do as part of a bigger review during the next review week.	Go for a walk through the school and/or local area in search of timetables (e.g. for when classes have access to devices or the PE hall, for buses, for local swimming lessons). How are these timetables similar to/different from those we saw during this unit? Take photos to display or compile in a digital slideshow for the classroom.
Let's strengthen	Let's deepen
Identify children who might benefit from extra practice with some of the key concepts or skills in this unit. Consult the Unit 14 Let's Strengthen Suggestions for Teachers and/or use the Unit 14 Let's Strengthen PCM.	Use the Unit 14 Let's Deepen PCM.

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