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Week overview

Students need to work out:

You will need the following objects:

Monday: At-Home Investigation

Tuesday: Connecting Lesson

Wednesday: Number focus and Connecting Lesson

Thursday: Interleaved Practice Questions

Friday: Connecting and Generalising Lesson

How to use this work program

Accessing the online resources

To access the online resources, please go to: <https://www.backtofrontmaths.com.au/b2fmathshome>

Running the program each week

Each week is designed with five maths lessons so that you can do it each day. Different days have different types of lessons to make sure that students experience the kind of thinking that they need to continue growing in maths. The types of lessons include:

- **At-home investigation:** This is a hands-on task where students explore a new idea before they are taught that skill. They need to come up with an idea to try to solve the problem, try out their idea, decide if it worked or not, try again if needed, and explain what they did. If your child has time with your teacher with a webcam, the teacher will generally be doing this lesson with your child. This is the lesson that will require the heaviest input from you to help your child think through an idea and generally requires the use of some hands-on materials that are listed in the information page.
- **Connecting lesson:** This type of lesson has questions that lead students to develop their ideas and learn a new skill. It should be fairly easy for a student to do, but you will need to be available to read the question to your child as needed, encourage them to think further, and make sure that they complete the work. Most of these lessons will include 10 minutes of practising number operations or concepts through activities or games.
- **Interleaved practise lesson:** This type of lesson provides 8-10 questions from different areas of maths so that students practise remembering what they have previously been taught. Some of the questions may not be easy for your child, so feel free to help whenever you see them struggling.
- **Number practice:** This lesson contains games and number tasks to do regularly with your child. Number is the most important concept to establish in Foundation, so we will be using similar activities each week to help your child develop a very firm understanding of “how many”, to be able to picture that amount in their head, and to be able to add and subtract small amounts very flexibly. **These sessions will not focus heavily on counting, as counting is far less important than making amounts, drawing those amounts and recognising that the amount is still the same when the objects move.**

Getting help

The website above will have answers to frequently asked questions as well as videos to help you successfully teach your child at home. If you have further questions or need support, please contact your child’s teacher directly using the contact details that they have provided to you. If they can’t answer your questions, they will contact the B2FMaths@Home team directly to get an answer within 3 days.

What you need to know this week

Week overview

This week we are teaching the concept of time. In the early years we are considering sequence and time of the day (morning, midday, afternoon, night), time duration, and for Years 1-3 telling the time with clocks. Many familiar social contexts use time references that are not always accurate (e.g. “Wait a minute” and “In a second”) or use non-standard terms for duration (e.g. “I’ve been waiting for ages”). Distinction will need to be drawn between these social contexts and more formal situations. Discussion of time concepts can include an outline of the planned activities for the day, the order in which they usually occur and discussion of upcoming events including how long students have to wait until they happen and what days they are scheduled for.

Students need to work out:

Time duration:

- Some words help us to understand how long something will take (e.g. ‘day’, ‘week’, ‘month’, ‘year’ or parts of days including ‘morning’, ‘afternoon’, ‘evening’, ‘night’) or how long it will be until an event occurs (e.g. ‘soon’, ‘later’)
- Durations can be compared using words such as ‘longer’ and ‘shorter’. ***We need children in Year 3 to investigate time duration, including in days, minutes and hours.***
- Durations can be directly compared only if the activities you are timing begin at the same time (e.g. the time it takes for different people to walk a prescribed distance).
- Familiar durations can be used to estimate and/or measure how long something will take (e.g. the duration of a favourite television show can be used to gain an idea of how long something will take “It will take the same amount of time as Play School to drive to Grandma’s”)

Sequence and time of day:

- There are words we use to indicate points in time (e.g. ‘today’, ‘yesterday’, ‘tomorrow’, ‘morning’, ‘afternoon’, ‘night’, names of the days of the week, ‘week’, ‘weekend’). ***We need children in Year 3 to tell the time on analogue and digital clocks to the minute.***
- There are words we use to indicate order and that can be applied to events (e.g. ‘before’, ‘after’, ‘next’, ‘early’, ‘earlier’, ‘late’, ‘later’)
- Familiar events can be sequenced according to when they usually occur.
- Familiar events are made up of components which usually happen in a predictable sequence.
- Timetables and calendars help us to record when events will occur.

You will need the following objects:

- Printed out cards showing events (included)
- Access to a 1 minute timer (e.g. the stopwatch function on a phone)
- A paper plate or cut out paper circle, and something to act as an hour hand (e.g. pipe cleaner, Lego block, stick) for lesson 2

Teacher Overview

Students will be thinking about time duration, sequencing and telling the time. Time is a particularly difficult concept to teach, so it makes sense to teach it regularly and build in activities that help students develop a sense of time. This week we are focusing on recording duration of events and ordering them. We will be telling the time with the hour hand before introducing the minute hand.

Students need to experience in time in different ways. This includes sequencing activities or events, experiencing the duration of events, developing comparison points and developing appropriate vocabulary to describe time.

- Students need to develop an appropriate vocabulary to describe time duration, sequence and times of the day. See the “students need to work out” section for good terms to use.
- Students need to experience time duration and pay attention to length of time to develop estimation skills
- Students should develop familiarity with clocks and calendars as well as time tables and schedules

While it is commonly understood that telling the time with analogue clocks is difficult to teach, you will also need to **watch out for students who:**

- have difficulty naming, describing and ordering routine daily activities
- have difficulty using or interpreting common words that describe duration
- do not yet understand vocabulary associated with points in time
- do not yet know or may confuse the order in which the days occur
- have an unrealistic idea of how long activities will take and how many can be engaged in during a specified time

What to emphasise

If you have time online with a webcam

Discuss lesson 2 on building a clock and telling time with only the hour hand. Try to use vocabulary of times of the day and days of the week with children. As the achievement standard also includes dates and calendars, you might want to include these in your discussions.

Check that the parents understand how the number tasks for the week work and make sure that you ask the student if they have completed them yet.

If you have only email or phone contact

Check that parents have read the “What you need to know this week” section. Check that they understand the importance of using the number tasks and interleaving sheet so that students retain what they have learned and think regularly about number.

Tracking student achievement

Check if students can:

- Tell the time to the nearest minute (**M5C**). Investigating relationships between units of time and calculating durations would be an A standard (**M5A**).

Monday: At-Home Investigation

You will need:

- A copy of the pictures from the page, cut into cards to sort out
- Something to time activities with (e.g. stop watch function on your phone)

Steps:

1. Make sure you have read “What you need to know this week” so that you know what to emphasise with your child.
2. Read the sheet to your child. Ask for their ideas on which activities might take the longest time and which would be the quickest. Discuss any ideas that they might have about time, including thinking about how to work out which activities would be quick and which would take more time.
3. Ask your child to choose 5 activities to do today. Choose another 5 for later in the week. We have tried to suggest activities that would encourage helping around the house as well as including normal weekly tasks.
4. Time each task and ask your child to explain whether the time spent was ‘longer’, ‘shorter’, or ‘about the same’ as an hour or half hour. Explaining durations of time with reference to whole and quarter hours (15 minutes) is an important part of achieving the “C” standard. Feel free to do the writing for your child and record the numbers.
5. Discuss **when** you could do each task, making sure to refer to days of the week and times of day using the vocabulary from the “Students need to work out” section.
6. Discuss what your child found out with them. Keep in mind the ideas from the “What you need to know this week” section so that you can ask questions that are appropriate to the issues identified.

At-Home Investigation














Some activities take a long time and some are very short. Look at the pictures and decide which activities will take the most time and which ones will be the quickest.

Pick 5 activities to do today, and 5 more to do later this week from the pictures.

Time how long they take and record your findings below.

Write the activities you completed here in order from shortest to longest amount of time. Describe what you found. Record the time that you spent on each activity.

Less than a quarter of an hour	About half an hour
About three quarters of an hour	One hour or longer

<p>sleeping</p> 	<p>writing a story</p> 	<p>combing hair</p> 	<p>brushing teeth</p> 
<p>Watching one tv show</p> 	<p>eating breakfast</p> 	<p>drinking milk</p> 	<p>cooking with my family</p> 
<p>setting the table</p> 	<p>tidying up</p> 	<p>making the bed</p> 	<p>riding a bike</p> 
<p>running around outside</p> 	<p>doing a puzzle</p> 	<p>playing a game</p> 	<p>reading a book</p> 

Teacher Overview

This is a **Problem Solving and Reasoning** task.

The emphasis is on *investigating* time duration and discussing the *similarities, differences* and *patterns* or *characteristics*. We want students to explore and experience different length durations and to build reference points for discussing time, particularly using whole and half hours. There is also an emphasis on *generalising*.

If you have webcam time with children, discuss which activities they are going to do and how long they think each will take. What are they planning to do to measure the time duration? How will they record what they find?

Please make sure to read the Teacher Concerns for this week, particularly the section on what to watch out for.

Good questions to prompt thinking:

- What can you do that would take around half an hour? How do you know? (repeat: quarter hour, three quarters of an hour)
- How many minutes are in half an hour? (quarter of an hour, three quarters of an hour)
- What would take longer than an hour? How do you know?
- How could you accurately time an activity? How accurate do you need to be for this task?
- Repeat until students have exhausted their ideas or your suggestions (e.g. "Have you ever heard of a year?" "How long is a year?" "How will you know if a whole year has gone by?" "What is something that might take a year to complete?") Encourage students to use comparative language to discuss the different terms.

Students requiring support:

- Use examples of activities that have larger differences in duration and can be easily categorised. Gradually include activities that would take relatively similar amounts of time to complete.
- Sort activities by half hours, rather than quarter hours.

Extension:

- Use activities that can be expected to take relatively similar amounts of time to complete or have students sort a larger number of pictures.
- Encourage students to use formal language when discussing how long certain activities take and explain their reasoning. Students should be able to make indirect comparisons of durations using these labels.
- Encourage students to think about the movement of the minute hand during the time they have looked at.

Tuesday: Connecting Lesson

Number focus: relative size with two-digit numbers 15-20 minutes

You will need: printed copies of the number cards below and paper to record.

1. Show your child the numbers and ask them to read each one out loud. Ask how many tens are in each number and how many ones.
2. Ask your child to order the numbers from the largest to the smallest.
3. Find a line that stretches across your floor (e.g. the length of one wall). Place the smallest amount at one end and the largest at the other end.
4. Ask your child to organise the remaining numbers and the intervening spaces, thinking about how large they are compared to one another.
5. Ask your child to draw what they have made, or take a photograph to show their teacher later.

25	45	60
85	50	75

Worksheet task: 20 minutes

Please note: your child might need a few attempts to write the numbers correctly on the clock face. Let them try quite a few times before intervening as they will be able to tell the time more easily if they construct a clock by themselves. *You should allow extra time for this part of the task.*

In this task your child will explore how a clock is structured (writing the numbers on the face) and telling the time to the half hour using only the hour hand. While it might seem strange to ignore the minute hand, we find that it is much easier to teach telling the time with the hour hand to start with, then reintroduce the minute hand when they are confident.

For this activity, your child needs to determine how the hour hand moves over the course of an hour. The idea is to figure out that the hour hand moves between 2 numbers on the clock (e.g. between the 5 and the 6). By looking at how close the hour hand is to those numbers we can estimate what the time is. Check out the video online for more information as needed.

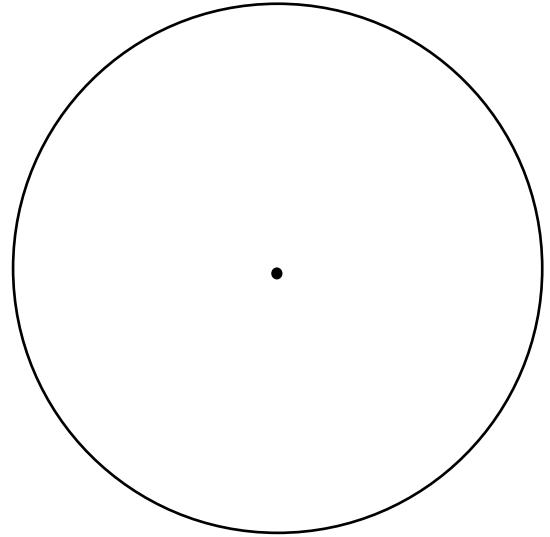
Connecting the hour hand

How a clock works

Draw the numbers on this clock face.

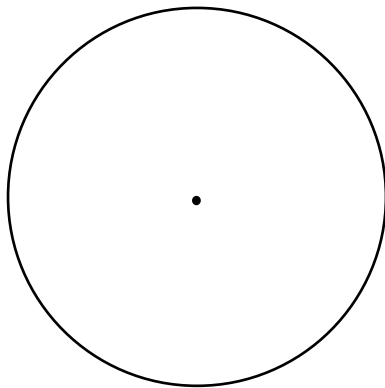
You might need to try a few times, so use a pencil.

Draw where the **hour hand** would point for 3:00.



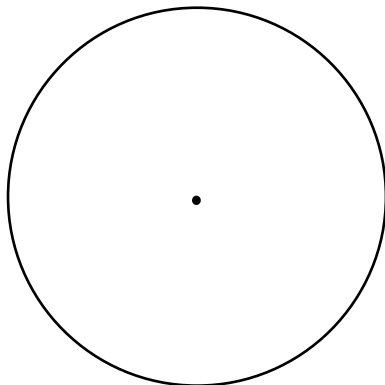
How will the hour hand move to get to 4 o'clock?

Think about this then answer the following questions:



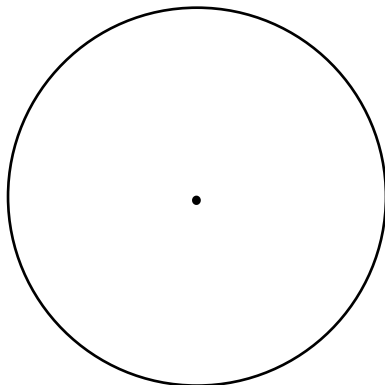
Where might the **hour hand point** when it was half-past 3? How could you work it out?

Draw on the hour hand and explain what you did.



Where might the **hour hand point** when it was a quarter-past 5?

Draw on the hour hand and explain what you did.



Where might the **hour hand point** when it was a quarter to 7?

Draw on the hour hand and explain what you did.

Add in the minute hand in a different colour if you understand how that works.

Teacher Overview

This is an ***Understanding and Reasoning*** task.

The purpose of this lesson is to *connect* the clock face and establish the importance of the hour hand. A great article on teaching analogue time is available here:

<https://www.backtofrontmaths.com.au/problem-of-the-week/timely-thoughts-on-analogue-time>

Teaching the hour hand first, then reintroducing the minute hand once they are confident, is a far quicker way of teaching how to read clocks.

If you have time online with students this activity will allow you to look at their drawings of clocks. You might want to warn families that it can take children quite some time to get the position of the numbers correct.

To help students retain the information, make sure that they have *discussed timing of events for each day* with their parents. Emphasise whole and half hours.

Wednesday: Number focus and Connecting Lesson

Comparing amounts to 100 10 minutes

You will need: copies of the cards from yesterday.

Please complete the following tasks as a warm-up. Each task should not take long. Students are expected to complete these tasks mentally, however feel free to write them down if you need to.


- What do we add to each card to make exactly 100?
- Add 50 to each number
- Add the largest number to the smallest number
- Find a pair of numbers that add together to make 100

Worksheet Task:

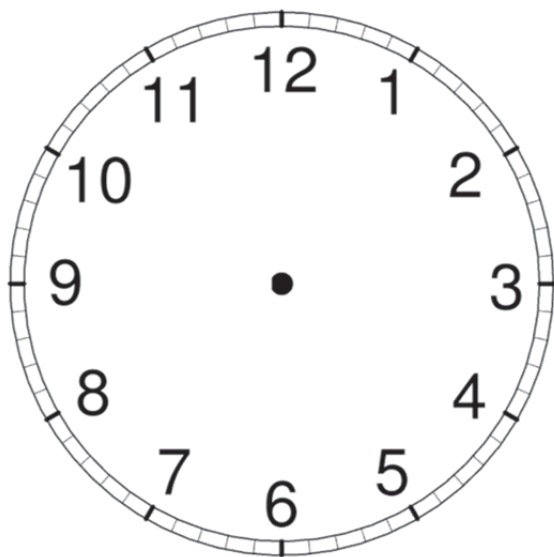
In this lesson children work on telling time on analogue clocks to the quarter hour. If your child has already mastered clocks, you can use the time to practise addition and subtraction instead or use the worksheet from Thursday in which children tell time to the minute.

If your child struggled in the task yesterday, use that as a discussion starter before trying today's task. There is a video online to offer additional help on teaching time.

F2. Half hours and quarter hours

 Work out how many minutes are in the following fractions of an hour.

1. Draw the **minute hand** on the clock below to show the start of an hour. How many minutes are there in an hour?

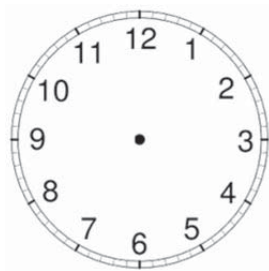


2. Now draw in the hand to show half an hour. How many minutes would there be in half an hour?

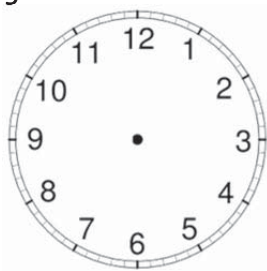
3. Now draw in the hand to show quarter of an hour. How many minutes would there be in quarter of an hour?

4. Now draw in the hand to show when there is a 'quarter to' the next hour. How many minutes would have passed altogether to get to that point?

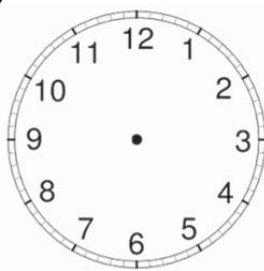
Draw in the following times on the following clocks:



half past
seven



quarter past
nine



quarter to
five



quarter to
twelve

BACKWARDS QUESTION:

A father needed to get to school at 2:45 to pick up his children. He needed to allow half an hour for the traffic. What time did he need to leave home? Explain.

Teacher Overview

This is a ***Quantity and Partitioning*** lesson. It gives students an opportunity to develop the concept of “how many” in relation to numbers to 100 and to focus on developing a strong understanding of two digit numbers. Please read the important information for the week to understand why quantity is important. There is also a free webinar to watch on important number concepts in the article on the website called, “When kids get stuck and never catch up”. It will take you through the first 3 number concepts that are most important for children to understand in early primary.

The worksheet task focuses on introducing the minute hand for quarter hours. While there is a video online, this task is likely to be tricky for children, particularly those without access to analogue clocks. You will probably need to reinforce this concept once we return to school.

Tracking note:

This lesson allows you to determine if students can tell time to the quarter hour (M5C).

Thursday: Interleaved Practice Questions

Why we are using mixed up questions:

In this lesson your child will be reviewing a range of skills that they have learned previously. Each question is unrelated to the previous question, because we want your child to have to *think hard* about what to do. Mixing up questions like this, rather than just practising related questions, has been shown in research to improve student retention of concepts by 60% over a 4 month period.

What to expect:

Your child will probably have forgotten how to complete quite a few of the questions. If needed, change the numbers in each question to make them easier because this will still require your child to think hard and remember a process. If they still can't work it out, feel free to show them, but try using different numbers rather than the exact same question. There are answers to each question on the website in case you get stuck.

Time worksheet:

An additional practice sheet for time has been provided to reinforce what we have been learning. On Friday we have an extension task to do, so please use these questions to practise skills that you will need.

Interleaved practise

Year 3, week 5

Number:

1. Write the last 3 numbers for this pattern and describe the pattern.

341, 348, 355, 362, _____, _____, _____

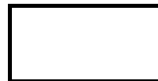
2. Is 27 odd or even? Show how you worked it out.

3. Write this number on the place value chart: **Fourteen thousand and fifty**

Ten-Thousands	Thousands	Hundreds	Tens	Ones

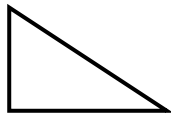
4. $3 \times 7 = \underline{\quad}$ Show how you worked it out.

5. These rectangles represent whole cakes. Show 2 different ways that you could cut off one quarter. How much cake would you have left?



Measurement/Geometry:

6. Draw what this shape would look like if it was rotated a half turn clockwise.



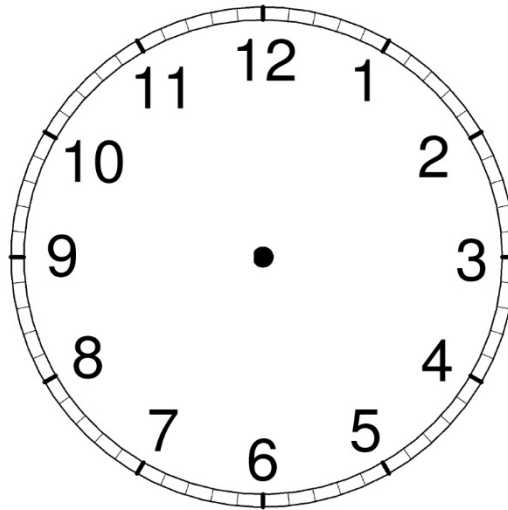
7. Draw a shape that has 4 straight sides, 4 corners and 2 sides that are 2cm long.

8. Find a box at home that you no longer need. Open it up so that it lies flat (you will need to cut or detach some of the joins) and draw what the flattened box looks like on the back of this page. What shapes can you find?

Chance/Data:

9. Write two questions that you could ask your family to find out about the food they like.

F1. Read and record 12 hour time



The minute hand: (long hand)

Record the position of the long hand on the clock face every 5 minutes for 10 minutes, then answer the questions below.

Look at the little marks around the outside of the clock:

1. How many marks does the minute hand move every 5 minutes?

2. How many minutes would it take for the minute hand to go around the clock?
How come?

Where do you think the hour and minute hands would be at these times? Explain why.

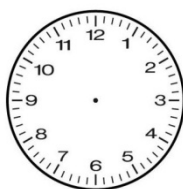
1. 9:10

2. 11:45

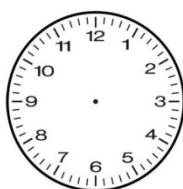
3. 1.25

4. 3.13

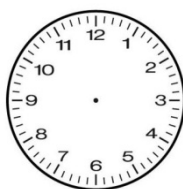
For the following clocks, draw on the times using the hour hand and the minute hand.



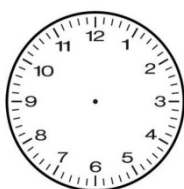
12:30



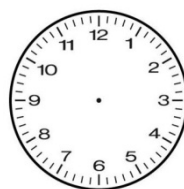
2:15



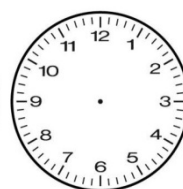
3:45



7:00

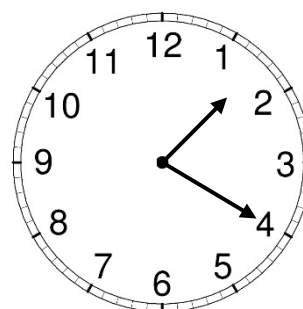
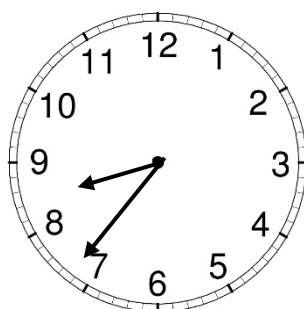
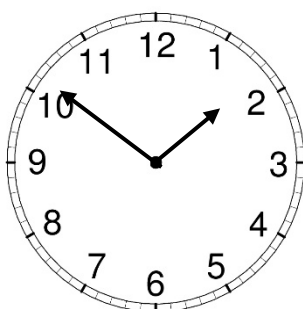


9:10



11:35

For the clocks below: Circle the hour hand. Write the time below in digital format.

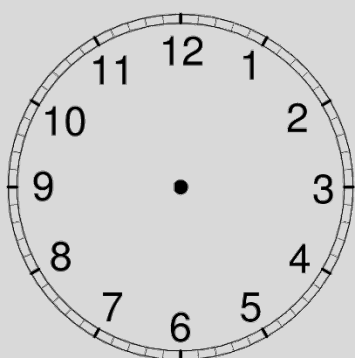


How do I read the time on an analogue clock?

Explain what I would do to work out what the time was.

Backwards Question:

If I needed to leave the house at 12:30, but wanted an alarm to go off 30 minutes before I left, what time would I set the alarm for? Draw it and explain what to do.



Teacher Overview

The questions on these worksheets are drawn from the “C standard” of the Achievement Standard. See your tracking sheet for more detail. Each week the interleaved questions will get a little harder, and more concepts will be reviewed throughout the program as we teach that concept. We have included answers to these questions on B2FMaths@Home so that parents can find them if needed.

Support for struggling students:

You might like to reduce the numbers in the questions. You might also give the student the answer, then ask them to work out how the answer was obtained.

Friday: Connecting and Generalising Lesson

This week we have provided an extension task on time. You will need to choose between:

- Completing the extension task if your child has mastered telling time to the minute
- Giving your child more practice at reading clocks and writing the time in minutes.

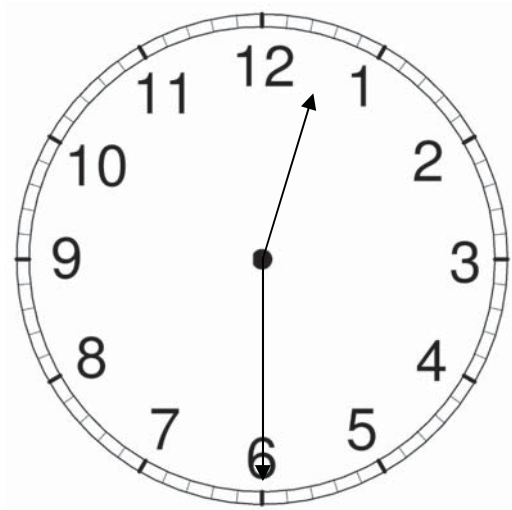
Please make sure that you let your child's teacher know which choice you have made.

PROBLEM 25: ELAPSED TIME

TR p100

Paul's dad needs to leave home **45 minutes before** school ends so that he gets to school in time to pick Paul up. School ends at 3:00pm. Look at the time on the clock below.


How long does Paul's dad have before he has to leave?



1. What time is it now?
2. What time does Paul's dad have to leave?

 **Sharing time:** Explain how you worked out what time Paul's dad had to leave:

3. So how long is there between now and when he has to leave?

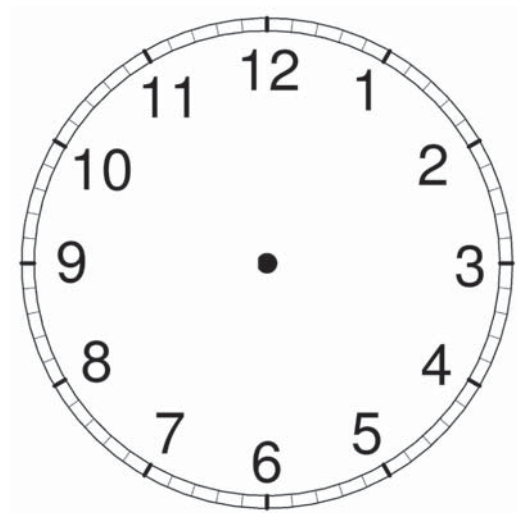
 **Sharing time:** Explain how you worked out how much time there is between now and when he has to leave:

Manipulation problems:

Paul's dad needs to go to the shop on the way to school. It will take him **half an hour** to do the shopping. What time should he leave home so that he has time to do the shopping?



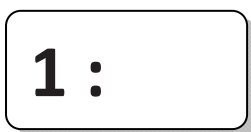
Draw the time on the clock.



Explain how you worked out what time Paul's dad had to leave:

How long does Paul's dad have before he has to leave home if he wants to do the shopping before picking Paul up? Explain how you got your answer:

Paul's dad accidentally fell asleep! The time when he woke up is shown below. Does he still have time to do the shopping if he leaves now?



Understanding: Prove that you are right. Show how you worked it out.

Teacher initials:

Date:

Problem solving / T&R:

- o Problem solved with minimal or non-mathematical prompting
- o Some leading questions were used to prompt thinking
- o Solved after explanation
- o Did not work out solution
- o N/A- not a novel problem

Reasoning / Comm.:

(verbal, written, working and equations, or visual representations)

- o Clearly and logically reasoned
- o Easily understood
- o Understood with some interpretation needed
- o Some gaps but on topic
- o Minimal or off topic

Understanding / Reflect:

- o Connected manipulation problems to previous questions and answered easily
- o Connected manipulation problems to previous questions with some prompting, and answered correctly
- o Answered once the similarities to previous questions had been pointed out
- o Had some problems in answers but was on the right track
- o Did not answer appropriately
- o Student not observed

Teacher Overview

This is a **Reasoning** lesson. It is designed to extend student understanding further and promote generalising. In particular, this lesson asks students to tell the time to the minute and also calculate time durations (A standard).

To extend student thinking further:

- Plan a class event using time durations, or use time durations to explain how to cook a meal (or follow a recipe).