Contents – click on the link below

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.
- **Generalising lesson:** This lesson contains some extension material for use if your child found the week's lessons too easy. *If you would prefer*, you can spend this lesson playing more of the number games that are included in the connecting lesson or giving your child time to complete any of the lessons that they have not yet done.

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 Length. In early primary, this means measuring using **measuring objects** such as shoes, hand prints, blocks or pens rather than using a ruler or measuring tape. This week we are introducing the concept of metres and centimetres for measuring.

Students need to work out:
- Measuring needs to go from the start of an object to the end – you can't start part way along or miss out a bit (e.g. start from the head of the bed and go to the foot rather than half way along)
- We measure straight objects along a straight edge and curved objects along a curved edge
- We use metres and centimetres so that everyone can communicate the length of an object
- 100 centimetres are in one metre

We are also hoping that students will learn:
- Sometimes measuring in centimetres will end up with a gap, so we will need to break the centimetres into even smaller units
- If we measure in centimetres, we will end up with a number one hundred times larger than if we measure in metres
- Sometimes it can be hard to directly measure the length of an object (e.g. measuring your bedroom if there is furniture in the way), so we have to think about what distances might be the same and measure those instead. For example: we might measure from one wall to the centre of the room, then move sideways and measure from the centre to the other wall, then add these measurements together.
- Perimeter is the distance around an object. We could measure the length of each wall in your lounge room then add them together to find the perimeter.

You will need the following objects:
- A ruler, measuring tape, a 1m strip of paper to make into a measuring tape

Monday: At-Home Investigation

In this lesson, you will make a metre measuring strip with your child.

Number task: 10-15 minutes
Give your students 3 numbers that have 3 digits each (e.g. 412, 378 and 903). For each number ask them how many hundreds, tens and ones are in the number. Ask them to write the number in words. Ask them to add the 2 smaller numbers. Ask them to subtract the smallest number from the largest number.

Investigation task
Give your child a strip of paper that is exactly one metre in length. To do this you may need to cut up a sheet of A4 paper lengthways into strips and sticky tape them together.

Next, explain to your child that the length is one metre, which is the same as 100 centimetres. Ask your child to find where 50cm would be. Hopefully they will do this by folding the strip in half. Mark on the 50cm. Repeat, finding where 25cm and 75cm would be.

Next, supply your child with a ruler or measuring tape and ask them to make marks to show each centimetre on your metre strip.

At-Home Investigation

Come up with a plan to divide your metre strip into smaller sections. You will eventually need to show each centimetre, but start by thinking about the line as representing 100 centimetres. Where might 50cm go? How about 25cm and 75cm?

My plan: answer these questions
- What could I do to accurately mark the 50, 25 and 75cm positions without using a ruler or measuring tape?

- How will I make sure that my numbers are accurate?

Carry out my plan: follow these steps and answer the questions
- Try out your idea. Did it work? Is it accurate enough?

- Use a ruler or measuring tape to check how close you were. Mark on the correct position (you might need to use the other side of the paper strip). How many 50s make up 100? How many 25s make up 100? How does this relate to your folding?

Apply your learning: follow this step
Check where 23cm is on your ruler and compare it with your strip. Add in numbers for each 10cm and lines for each centimetre to make sure that you can accurately use your strip as a measuring tool for tomorrow.

Tuesday: At-Home Investigation (2)

You will need:
- Your metre strip from yesterday
- Clear space along the floor wherever possible

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 how to solve the problem. Don't give your opinion just yet on their ideas, even if they are clearly wrong.
3. Make sure that you try out their ideas first before you try to help them come up with a better plan. This is important because then they will know *why* their idea didn't work.
4. Help your child think about what worked and what didn't, then come up with a new plan if needed.
5. Encourage your child to draw or write answers to the questions on the page. Scribe for them if you need to.
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.
7. We will be coming back to measuring length again later in this program, so don't worry too much if today didn't quite work.
8. If your child found this task easy, ask them to find the distance around their bedroom. Tell them that this distance is called the perimeter.

At-Home Investigation

Come up with a plan to compare the length of your bedroom, lounge room and kitchen, then order them from the shortest to the longest room.

My plan: answer these questions

- Look at the lengths that you will have to measure for each room. What problems can you see? Come up with a plan for measuring the length of each room without having to move your furniture.

- How will I make sure that I am measuring accurately when there is furniture in the way? What would happen if I didn't measure straight along?

Carry out my plan: follow these steps and answer the questions

- Measure each room. Explain how you did it in the space below and give the final measurement for each.

Extend your learning: follow this step and answer the question

The perimeter of your bedroom would be the distance all the way around it, along every wall, and back to the start. Work out the perimeter of your bedroom.

Wednesday: Connecting Lesson

This lesson allows your child to practise what they have learned about measuring over the past two days and introduces the idea of measuring around curves.

Number practice: *Multiplication facts*
Ask your child to complete one of the multiplication grids at the bottom of this page. Be aware that this might take a considerable period of time the first time around. Hopefully in a few weeks you will find that the time taken is much shorter.

Worksheet task: 15-20 minutes
You will need your metre-long strip from Monday, or to supply your child with a measuring tape or ruler. This lesson is following on from what your child learned yesterday about with centimetres and metres and applying their thinking to measure a curve like the distance around their head.

Make sure that your child **explains out loud** how they measured each object as this means that they will be more likely to remember it later. Please ask your child to compare the head circumference and table measurements then order them from smallest to longest.

Multiplication Practise:

X	3	4	5	6	7	8	9
3							
4							
5							
6							
7							
8							
9							

Record your time here for the 49 questions:

Mark your answers using a calculator or with an adult. Circle any that are wrong.

E4. Measure and estimate length in m and cm

Sometimes we need to guess how long something is so that we know if our measurement is about right. Answer these questions using cm and m.

For measuring the distance around your head:
1. What instruments could you use to measure it?

2. Would you measure it in metres or centimetres or both? Why?

3. Have a guess: what do you think the distance will be? Why?

4. Choose an instrument and measure it. What did you get?

5. How good was your guess?

For measuring the distance around your school oval:
1. What instruments could you use to measure it?

2. Would you measure it in metres or centimetres or both? Why?

3. Have a guess: what do you think the distance will be? Why?

4. Choose an instrument and measure it. What did you get?

5. How good was your guess?

For measuring the distance around your desk:
1. What instruments could you use to measure it?

2. Would you measure it in metres or centimetres or both? Why?

3. Have a guess: what do you think the distance will be? Why?

4. Choose an instrument and measure it. What did you get?

5. How good was your guess?

How did you decide whether to use metres or centimetres or both?

How did you measure around curved things?

BACKWARDS QUESTION:
If the distance around a square measured 40cm, how long would one of the sides be?

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.
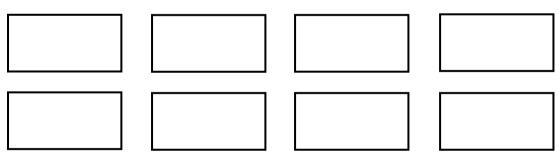
Interleaved practise

Number:

1. Starting at 14 326, count in 10s until you get past 14 500.

2. 2 478 + _____ = 2 629

3. Read this number and say it: 23 748. Write it in words. How many tens of thousands, thousands, hundreds, tens and ones does it have?

4. Find two ways that you can make $62.70 using coins and notes and draw them here.

5. Share 24 counters equally to show halves, then thirds, quarters, and eighths. Draw it.

Measurement/Geometry:

6. Find 4 objects that would be measured in kilograms. Find 4 objects that would be measured in grams. List them here.

7. What time is it? What time will it be in half an hour?

8. Cut these rectangles to make triangles in as many ways as you can.

Chance/Data:

9. What could the weather be like tomorrow? List as many possibilities as you can. Which is most likely? Which is least likely?

Friday: Connecting Lesson

You will need to decide between the following options:

- Child found the measuring work easy: Apply what you have learned about length to calculate the perimeter of your house.
- Child found the measuring work hard: Complete the worksheet to reinforce the concept and build estimation skills.

Friday: Connecting Lesson

☐   In the olden days people used to measure things with their bodies and familiar objects. Examine the examples to see how you can use objects to estimate.

Length estimations:

1. About how long is your arm span with both arms stretched out horizontally, finger tip to finger tip?

   - When might you use this for estimating?

2. About how wide is your hand span when stretched out from thumb to little finger?

   - When might you use this for estimating?

3. About how wide is one of your fingers?

   - When might you use this for estimating?

4. About how wide is your hand when your fingers are not spread out?

   - When might you use this for estimating?

5. About how long is your foot?

   - When might you use this for estimating?

6. About how long is your stride? (Average step that you take)

   - When might you use this for estimating?

7. About how long is the distance from your elbow to finger tip?

   - When might you use this for estimating?