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Week overview

Students need to work out:

We are also hoping that students will learn:

For your own information:

You will need the following objects:

Monday: At-Home Investigation

Tuesday: Connecting Lesson

Wednesday: Connecting Lesson

Thursday: Interleaved Practice Questions

Friday: Connecting or Extending 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 dividing (or sharing fairly). This concept is strongly linked with the work on arrays and counting patterns that we did last week. It also links strongly with the fractions work that we will be introducing in a few weeks' time.

Students need to work out:

- When dividing, it is important to ensure that each portion contains the same number of objects.
- When given an amount, work out how many people could share that amount fairly and also work out how much each person would receive. NB. It is particularly helpful if students can work out how to share the amount in more than one way.
- Arranging objects into arrays helps with dividing.
- When we divide collections of items, it is the same as making a fraction of that collection. For example, dividing 12 counters between 2 people is the same as finding half of the counters. Dividing 12 counters between 3 people is the same as finding one third of the counters.
- How to easily calculate multiplication and division for 1, 2, 3, 4, 5 and 10 facts, and be able to efficiently work out 6, 7, 8 and 9 facts.

We are also hoping that students will learn:

- Arrays can show us the amount altogether (total number of items), the number of groups we are making (rows or columns) and the amount in each group (columns or rows) at the same time. For example, 15 soldiers lined up in 5 rows gives 3 in each row.
- Arrays show us the link between "counting in" and multiplication/division. For example, counting in 5s from 0 means that we can also make an array with 5 in each row for each of those numbers.
- Prime numbers, when formed into arrays, only make lines. Composite numbers make other arrays as well as lines.
- Sometimes when we are dividing objects between people we end up with left overs, or we need to cut the objects into parts to share fairly.

For your own information:

When we are dividing, we can use two different models. Both ask "how many". Here is a simple example of dividing some objects between people.

Partition division: "how many" objects will each person receive? Children are determining the number in each share.

Quotition division: "how many" people can share the objects fairly? Children are determining the number of shares.

You will need the following objects:

- Copies of the coins and grid paper

Monday: At-Home Investigation

You will need:

- A copy of the coins and the grid paper.
Please note, your child will only need the dollar coins to complete this activity. Providing the other coins will also encourage your child to think about dividing the amount into dollars and cents which shows a higher level of thinking.

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. Ask your child to make \$24 from the coins.
3. Read the sheet to your child. Ask for their ideas on how to solve the first problem. Encourage them to guess how many people could share the money and how much each person would receive.
4. Make sure that your child draws the answers rather than just writing the numbers. Do not do the drawing for them as drawing is an important part of reinforcing ideas. Using a circle is fine for the coin – they do not need to draw the kangaroos!
5. Try to find all the combinations of people and money that would make \$24. Use the grid paper to track your thinking by shading rectangles (e.g. 3 people with \$8 each, shade 3 rows of 8).
6. The second question will create the need for your child to think about splitting the remaining \$4 into cents to distribute. This provides a strong link with decimal numbers which we are also teaching this term.
7. 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

Sharing out money.

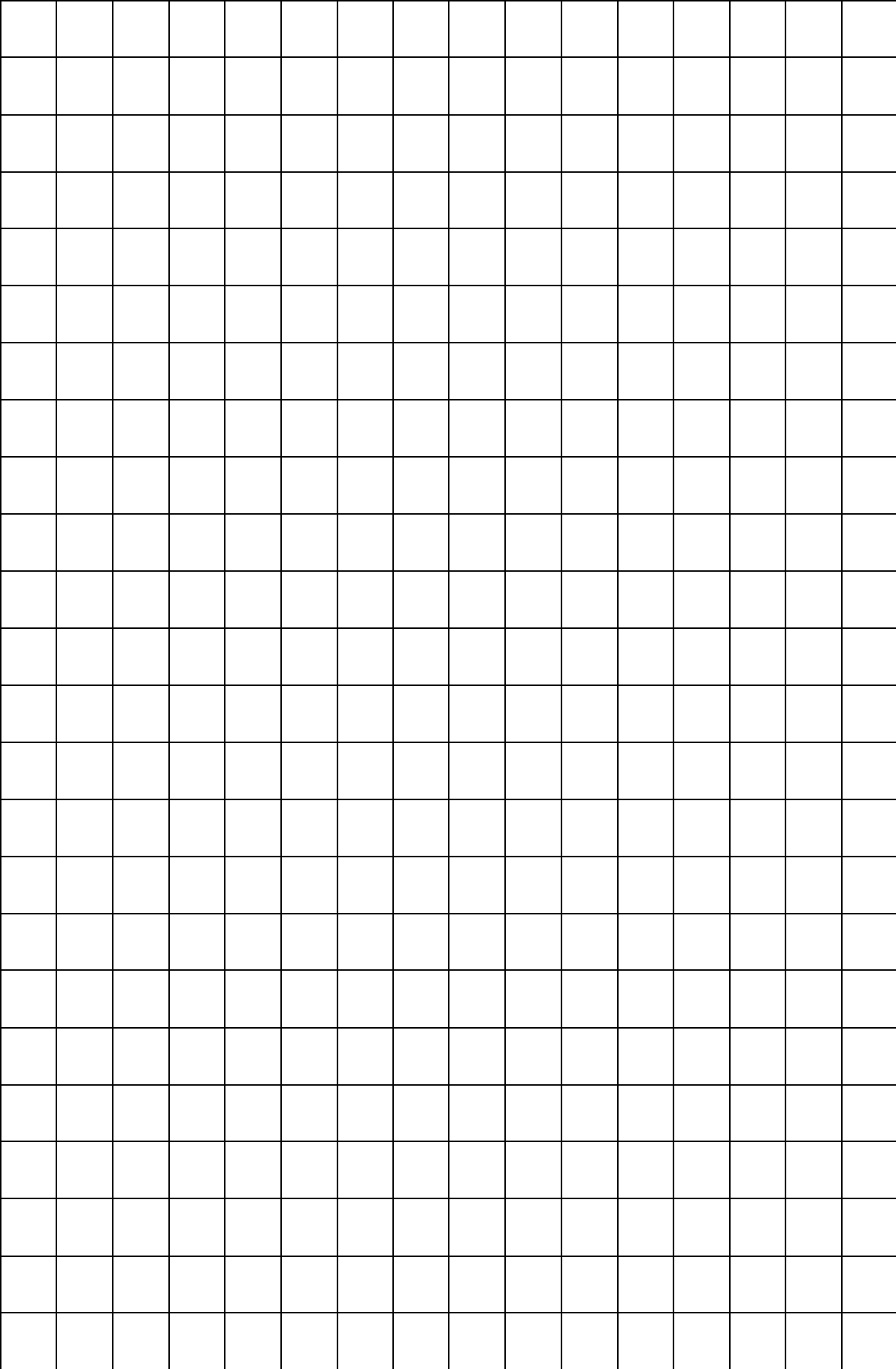
You have \$24 to share between people in as many ways as you can. How could it be done?

Make sure that you show how many people are sharing the money and how much each one would receive. Write a number sentence with multiplication for each one.

What would happen if you had an extra person to share the money with? How could you share \$24 fairly between 5 people?

Show how much money each person would receive and explain how you did it.





Tuesday: Connecting Lesson

Multiplication practice: 10-20 mins

Have your child complete one of the multiplication practice grids provided on the following pages.

Worksheet task: 15-20 minutes

Please make sure that you have read through this worksheet yourself before trying it with your child. It uses MAB blocks (tens and ones) to model division. The idea is to learn that when you have a ten left over, this will need to be changed into ones before you can divide easily. You will probably need to be available to help your child to interpret what the pictures are showing and discuss the idea of breaking the left-over ten into ones to make dividing easier.

If you get stuck with this worksheet, contact your child's teacher. Hopefully they will be able to use any online time to model the process with your child.

Please make sure that you discuss your child's ideas with them as discussing ideas helps children to retain them for longer periods. As division is a particularly difficult concept in later years, we need to make sure that children use multiple modes of thinking to build strong understanding and retention:

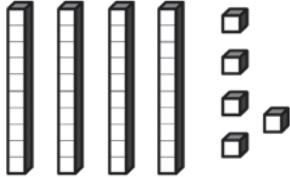
- Discuss ideas of dividing
- Use physical materials to model sharing and dividing (e.g. use counters)
- Draw what they have made
- Write numbers to represent what they have made and explain it out loud
- Unpack the written models once they understand what they are doing, rather than introducing the written models too quickly.

D11. Division with regrouping

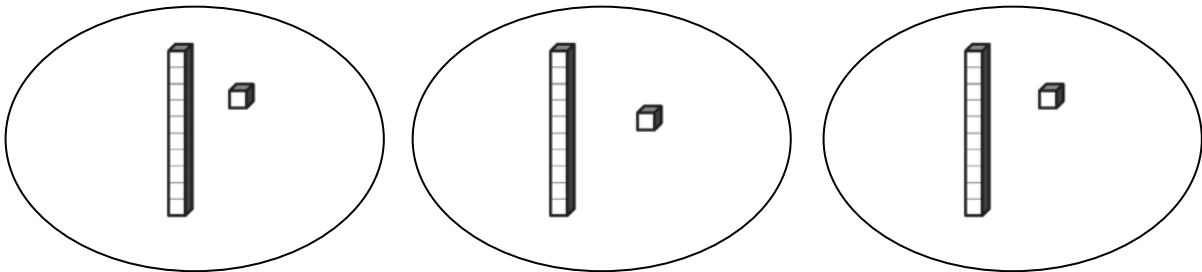
□ Make the following number sentences using MAB. Try to share them equally. What will you do with the MAB that do not share equally?

Example:

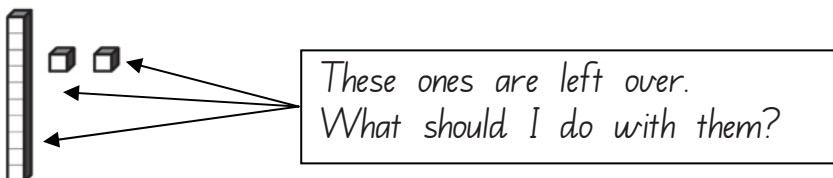
$$45 \div 3 =$$



Let's share them between three groups:



Uh oh, we have a problem:



What could you do with the left over MAB?

How could they be shared between the groups? Explain and draw a picture:

Did it work? Explain what you did and draw the blocks onto the pictures above:

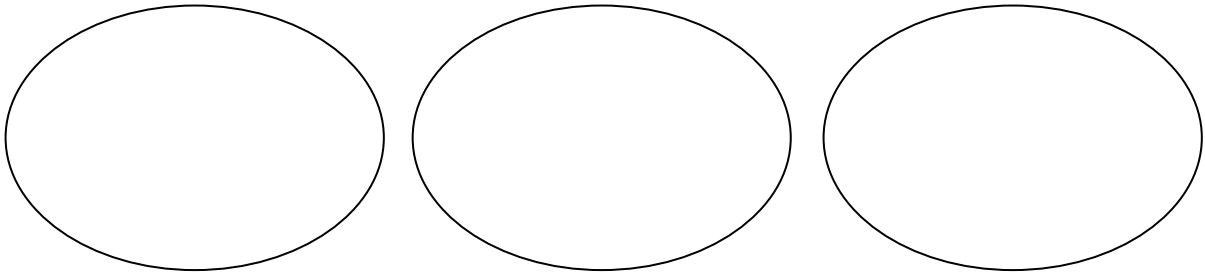
Try to use what you worked out to solve the questions below. Draw a picture to show the groups that you have made for each one.

Questions:

$$58 \div 3 =$$



Let's share them:

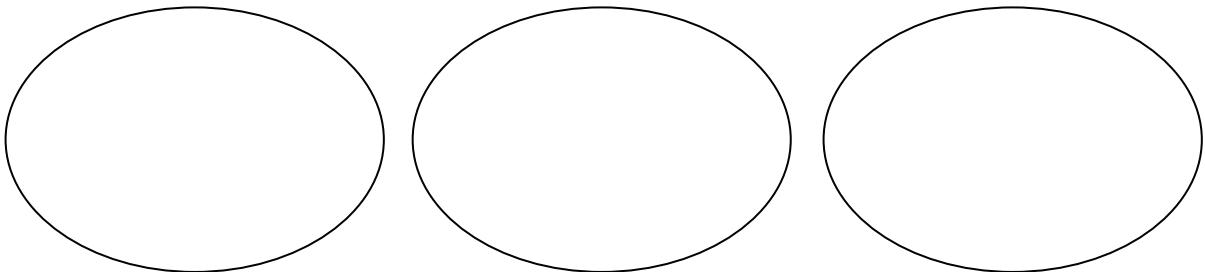


Explain how you did it:

$$34 \div 2 =$$



Let's share them:



Explain how you did it:

Multiplication practice grids:

	2	3	4	5	6	7	8	9	10
2									
3									
4									
5									
6									
7									
8									
9									
10									

	2	3	4	5	6	7	8	9	10
2									
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	2	3	4	5	6	7	8	9	10
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	2	3	4	5	6	7	8	9	10
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Wednesday: Connecting Lesson

This lesson allows your child to develop a written format for the questions that they explored yesterday. The numbers in this worksheet are deliberately similar to those from yesterday so that you can focus on how to record the answer, rather than figuring it out from scratch. If you get stuck with this lesson, ask your child's teacher to demonstrate the process online.

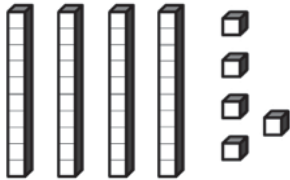
Please also complete one of the grids on multiplication/division facts from the previous lesson.

D12. Written methods for dividing

 The picture below shows what you learned in activity D7. In this task you will learn how to write this using a standard format

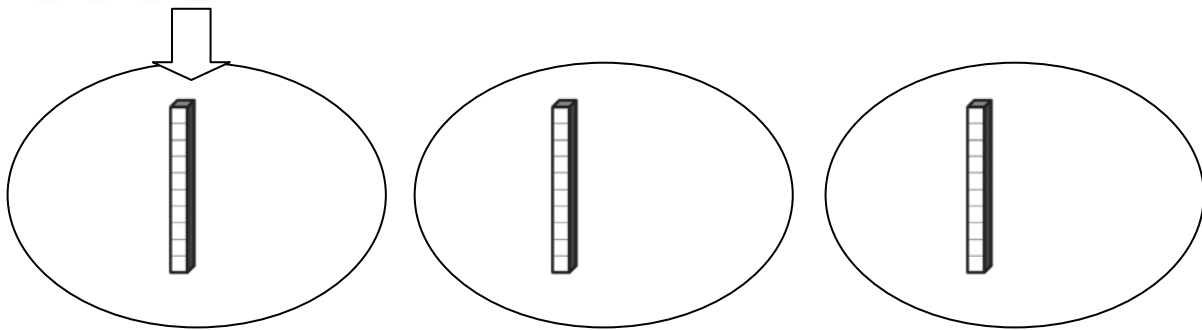
Example:

$$45 \div 3 =$$



Start like this:

$$3 \overline{)45}$$



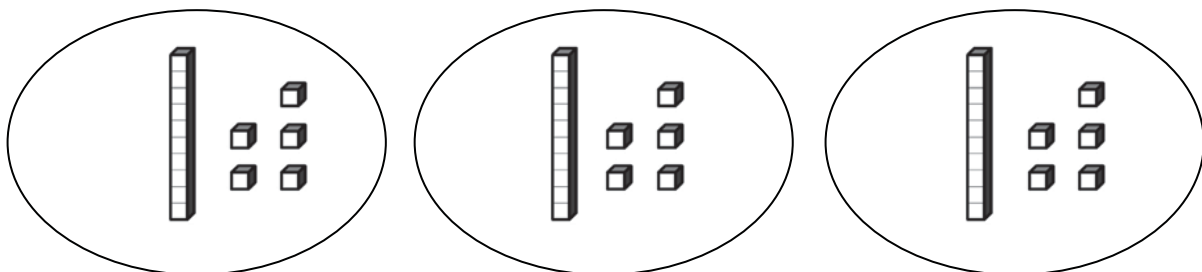
Write:

$$3 \overline{)4 \overset{1}{5}}$$

One ten fits in each group. I show this here.

 This ten is left over. I show it here

After I have regrouped my ten to make 10 ones, this is what I have to share:



Write:

$$3 \overline{)4 \overset{1}{5}} 5$$

Fifteen ones divided into 3 groups gives 5 in each. I show this here.

Try to use what you worked out to solve the questions below. Draw a picture to show the groups that you have made for each one.

Questions:

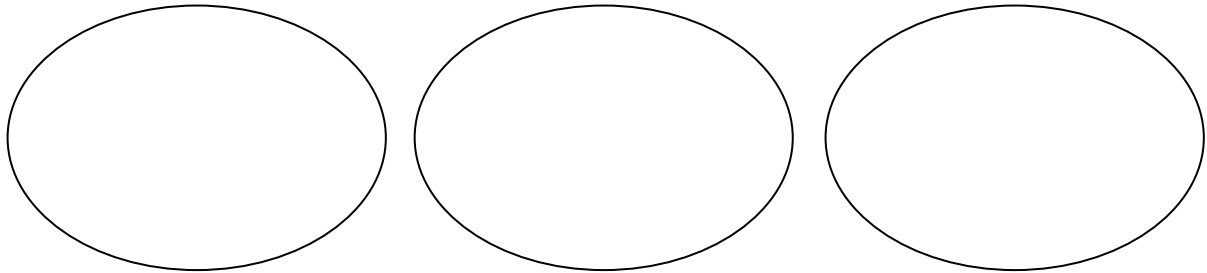
$58 \div 3 =$



Write it here:

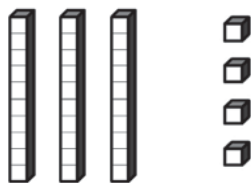
$$3 \overline{) 58}$$

Let's share them:



Explain how you did it:

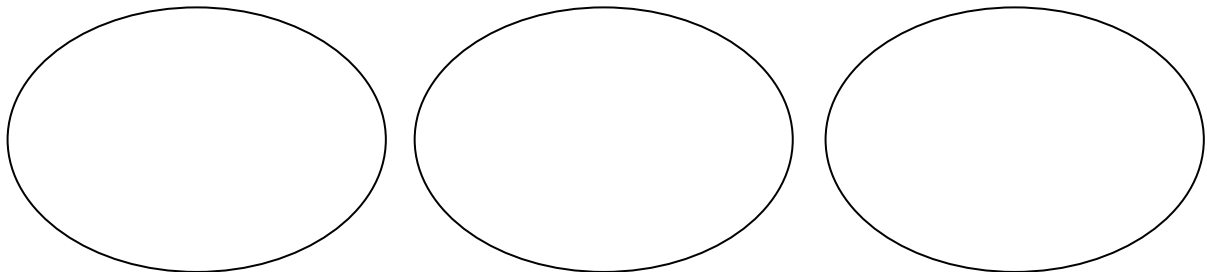
$34 \div 2 =$



Write it here:

$$2 \overline{) 34}$$

Let's share them:



Explain how you did it:

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 practice

Number:

1. Complete the following number sequence and describe it:

_____, 32, 36, _____, _____, 48, 52, _____, _____

2. Find the answer and show how you worked it out.

$$\boxed{} = 197 + 385$$

3. What number has 31 thousands, 2 hundreds, 16 ones and 4 tens?
4. Draw what 4×7 looks like and show how you would work out the answer.
5. How much change will you receive from \$2.50 if you buy 2 chocolates worth 95c each? Show how you worked it out.

Measurement/Geometry:

6. Find a rectangular prism (box, like for cereal) and a cylinder. How many faces or curved surfaces do they each have? What do you notice about the faces, edges and vertices (corners)? How are they the same? How are they different?
7. How many hours are there between 2:45pm and 5:15pm?
8. How many minutes are there in $3\frac{1}{4}$ hours?

Chance/Data:

9. Roll a dice 50 times and record how many times each number comes up. Use the table below to record your results.

Number	1	2	3	4	5	6
Number of times rolled						

Friday: Connecting or Extending Lesson

For this lesson your child will need to focus strongly on the connections between multiplication and division. While it is not strictly necessary to solve the problems, it would be sensible to do so once your child has decided which operation is necessary. This acts as additional practice.

D14. Identify situations requiring \times or \div

Often you need to decide what operation is needed in a situation and also decide whether an exact or approximate answer is required. The situations below are either multiplication or division. Decide on the operation needed and whether an exact or approximate answer is required. Give reasons for your answers.

Situations:

1. There are five people. Each person needs a certain number of drinks. How many drinks would be required?
2. There are around fifty people coming to the dinner party. Each person will eat around 5 or 6 canapés. How many should we order?
3. Our total bill at the café arrived. We were sharing it between 7 people. How much did each person have to pay?
4. Ice skating costs a certain amount every week. How much will it cost for a year?
5. A packet of lollies costs a certain amount. There are 10 lollies in the pack. How much is it per lolly?
6. Our class needed to be organised into 5 groups. How many students would be in each group?

What patterns have I found?