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Week overview

We are hoping that students will:

Important terms to use:

Monday: At-Home Investigation

Tuesday: Connecting lesson

Wednesday: Connecting lesson

Thursday: Interleaved Practice Questions

Friday: Generalising and 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 chance. We want children to be able to work out what will definitely happen, what might happen and what will definitely not happen.

For your information: When students are learning about chance or probability in later years, they need to understand that chance is linked heavily with fractions. That means that all the ideas we explored last week with fractions still apply. Probability is always a fraction between impossible (no chance, 0%) and certain (100% chance).

We are hoping that students will:

- Decide on how likely some events are to occur: are they certain, possible or impossible? Are they likely or unlikely?
- Work out that very few things in life are certain and impossible. Mostly they are likely or unlikely.
- Predict what might occur in simple familiar events. Predict what will definitely not occur.
- Classify outcomes of events according to how likely they are to occur.
- Conduct simple experiments to gather data.

Important terms to use:

- Impossible: there is no chance that this event will ever occur
- Certain: there is 100% chance that this event will occur (NB. Note the saying that the only things to be certain of in life are death and taxes. This points out that very few events are considered "certain. An example would be drawing out a ball that is red from a bag that only contains red balls.)
- Likely: over 50% chance of occurring, but not certain
- Unlikely: less than 50% chance of occurring, but not impossible

Monday: At-Home Investigation

Today you will be discussing some contexts with your child and deciding whether events are certain, likely, could happen (50:50), unlikely or impossible. The emphasis of this lesson is on discussion and justification. Please make sure that your child answers at least half of the questions in written form, however you can just discuss the rest.

Steps:

1. Make sure you have read “What you need to know this week” so that you know what to emphasise with your child and are familiar with the terminology.
2. Read the sheet to your child. Ask for their ideas. If your child gets stuck, focus on using the terms “possible” and “impossible”. If the worksheet is too simple, try asking, “Which events have a similar likelihood? What order could you put them in?”
3. Help your child think about what worked and what didn’t, then come up with a new plan if needed.
4. Encourage your child to write answers to at least half the questions on the page. Scribe for them if you need to. Discuss each possible event and how you know that they are possible or impossible.
5. 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.
6. The Manipulation Problem is an extension task. Feel free to skip it if you need to. It should provoke some good discussion though and would lead to some debate.
7. At the end: consider writing a comment on the page to say what went well or what you are concerned about.

PROBLEM 26: SIMPLE CHANCE EXPERIMENTS

Find a partner. Examine the descriptions and events below and match them up if they fit. Sometimes multiple events might fit one description and sometimes no events might fit a description. Be prepared to prove you are right to another pair of students at the end.

Match up the events to the right description.

Event

Tomorrow I will sleep in late

Tomorrow I will be a frog

Tomorrow I will go to school

Tomorrow I will love pizza

Tomorrow I will have a hair cut

Tomorrow I will eat bread

Tomorrow I will visit my friend

Tomorrow I will be sick

Tomorrow the sun will rise in the morning

Description

Certain to happen

Likely to happen

Could happen

Unlikely to happen

Impossible



Sharing time: Which ones were hard to work out? Why were they hard?

Understanding: Choose a statement that you and your partner disagree about. Explain how you know that you are right.

Questions:

1. Which event do you think is the most likely to happen? Why?

2. Which event do you think is the least likely to happen? Why?

3. Brainstorm some other words that we use to describe how likely something is to happen. Write any that you can think of here and give an example of an event that would be this likely:

Manipulation problem:

Two friends were trying to decide who should roll the die for their team. Charlie argued that she should roll because last time she rolled a six and therefore she is clearly a good roller. Liam argued that he should roll because Charlie couldn't roll another six when she had just rolled one. What do you think?

Teacher initials:

Date:

Problem solving / T&R:

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

Reasoning / Comm.:

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

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

Understanding / Reflect:

- Well reasoned manipulation problem, saw problems with both arguments
- Some help with manipulation problem, but then saw problems with both arguments
- Answered manipulation problem by relying on previous experience not on reasoning, or saw problems with only one argument
- Did not answer appropriately
- Student not observed

Tuesday: Connecting lesson

Number focus game for 15 minutes: *making ten go-fish*

This is repeated from last week

You will need: the cards provided. You may want twice as many cards, so feel free to print them out two times. If needed, remove the cards that show more than 10 so that you can focus on adding smaller amounts.

This is a cooperative game, not a competitive game. You need 2 or more players. You all “win” by using up all the cards. The aim is to make a set of cards that add or take away to give an answer of 10. A set can have as many cards as you want, as long as you can describe how to use the numbers to make 10. E.g. a set could have a 4, 8 and 2 because $4 + 8 - 2$ makes 10

How to play:

1. Deal out 3 cards to each player. Show them face up so that everyone can see them.
2. One player starts by asking another player for a particular card so that they can make a set that adds or takes away to give ten. E.g. if they have a 4, they could ask for a 6.
3. When the second player is asked to give a card, they respond by asking, “How will you make 10?” The first player explains how they will use the card in combination with their own to make 10 (e.g. If I add your 2 to my 8 that makes 10).
Please note: a set can have as many cards as you like (e.g. $10 + 10 - 8 - 3 + 1 = 10$). This means that older players can make the game trickier by using all their cards in one go.
4. The set that makes 10 is added to a discard pile. Each player draws extra cards as needed so that they have 3 again.
5. If the first player cannot see how to make a set of 10, another player can help by saying, “you could use my 8 to make 10”. The first player can then try and work out how, and ask for the card indicated.
6. If there is no way to make 10 using the cards in play, the first player draws a card from the deck. They can either try again, or play passes to the second person. Each successive set of 10 is added to the discard pile – you don’t score how many sets you make.
7. The game ends when all the cards are used up. A “perfect game” uses up all the cards exactly.

Worksheet task:

The worksheet for today refers to school sports day. You will need to explain that you are pretending it is the day before sports day, sports day is really not happening tomorrow.

Start by sorting the event cards with your child into two piles: might happen, will never happen. Next, take the “might happen” pile and sort them as “likely” and “unlikely”.

Use the events cards and choose one story to glue into each box on the worksheet. Focus on discussing each event and why it is likely/unlikely.

Making ten card game

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Appendix 5: Chance worksheet (Addition to Problem 28)

Every student will win a race.	Most students will wear their house colours.	All houses will end with the same score.	The teachers will all go home early
The year 7 students will run faster than the year 1 students.	A year 3 student will break the school high jump record.	No students will come to school.	Parents will come to school to watch.
The blue house will win every race.	A frog will win the long jump competition.	There will be a trophy for the winning house.	The Sports Day will be cancelled.

Every student will win a race.	Most students will wear their house colours.	All houses will end with the same score.	The teachers will all go home early
The year 7 students will run faster than the year 1 students.	A year 3 student will break the school high jump record.	No students will come to school.	Parents will come to school to watch.
The blue house will win every race.	A frog will win the long jump competition.	There will be a trophy for the winning house.	The Sports Day will be cancelled.

Problem 28: Chance

School Sports Day is tomorrow and all classes are getting ready. Read the stories that are about things that:

might happen

are impossible or will never happen

Work with a partner to sort the cards into 2 groups – things that might happen and things that will never happen. Make sure you both agree.

Things that might happen can be sorted into two groups.
Things that are:

likely to happen

unlikely to happen

Work with your partner to sort the cards in your 'might happen' group.
Make 2 groups – things that are likely to happen and things that are unlikely to happen. Make sure you both agree.



Choose one story from each group to glue in these boxes.

Something that is
likely to happen.

Something that is
unlikely to happen.

Problem solving:


Teacher initials:

Date:

Student solved the problem with:

- Minimal help
- Some prompting
- Solved after explanation
- Did not work out a solution by themselves
- N/A – not a novel problem

 Why did you put them in these groups?

 Tell a friend why these things are likely or unlikely to happen.

Peer Assessment

Name:



Wednesday: Connecting lesson

This lesson allows your child to further explore the idea of chance. They explore the context of going to a beach in summer and what you might need to take. It would be a good contrast to talk about what would change if you were going to the beach in winter. You could also include the idea of taking a picnic and consider the following ideas.

Some maths tasks you could do to plan for a picnic include:

- Planning how many items of food to take
- Weighing the food or measuring the drinks
- Shopping for the food and collecting the right number of each item
- Collecting the right number of cups, spoons etc.
- Thinking about what time of the day would be good and how long to allow for your picnic
- Thinking about how likely it is to rain
- Packing all the food and equipment into a box, bag or basket
- Looking at the squares on your picnic rug and working out how many there are
- Using words to describe your location (in front, behind, left, right, above...)

Application questions

Alice's family is going on a holiday to the beach for the summer holidays.

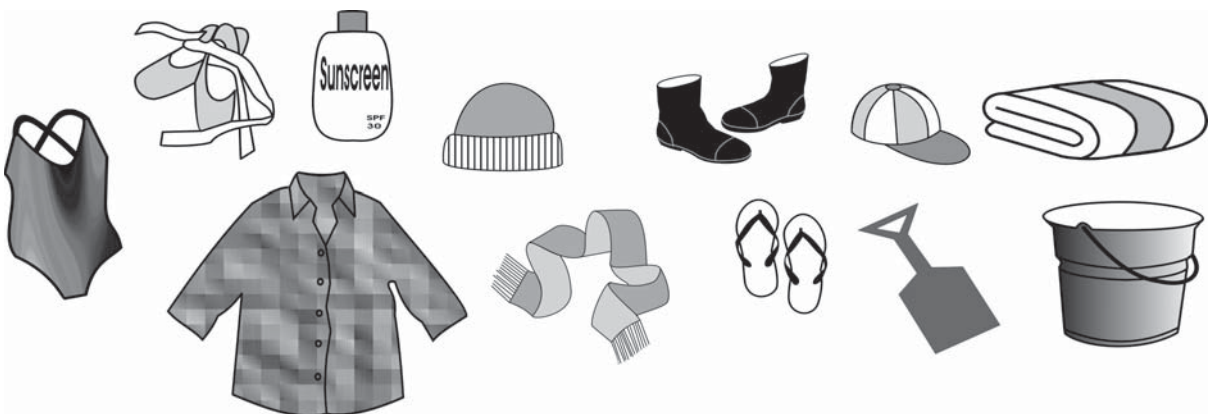
 or  Draw or write about something that might happen at the beach.

 or  Draw or write about something that will not happen at the beach.

Alice is packing her bag ready to go.
Which of the following things is she likely to need while she is away?

 Draw a circle around the things Alice is likely to need.

 Draw a cross through the things that Alice is unlikely to need.



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:

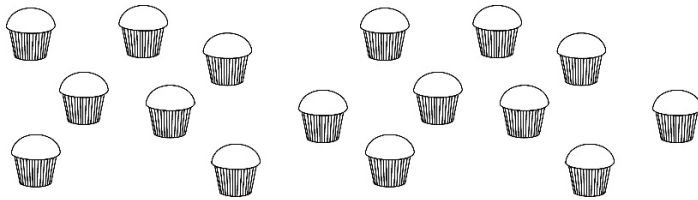
Your child will probably have forgotten how to complete quite a few of the questions. If needed, change the numbers in each question to make them easier because this will still require your child to think hard and remember a process. If they still can't work it out, feel free to show them, but try using 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. Draw 20 counters arranged as an array or rectangle.

2. How many cupcakes are shown? How many is half the cupcakes? How many is a quarter of the cupcakes?



3. How many hundreds, tens and how many ones are there in 438?

Measurement/Geometry:

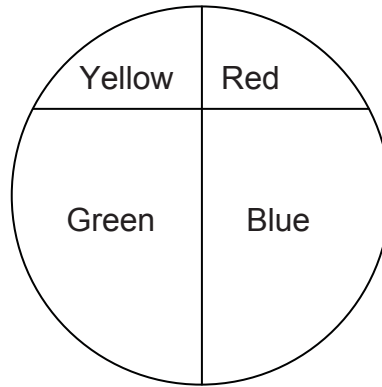
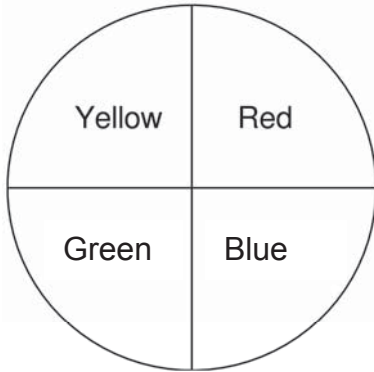
4. What is the day and date today? What will be the date in one week from today?
5. Draw at least 5 coins to make \$2. Do not use a \$1 coin.
6. Draw a ball rolling down a ramp. Use 3D objects in your drawing (e.g. rectangular prism for a box to rest the top of the ramp on) and name them.

Chance/Data:

7. Write something that is impossible, something that is likely, and something that is certain.


Manipulation problem

There are four colours on a spinner. Each person chooses one colour. When a spinner lands on the person's colour, they score a point. Here are the spinners:



 Would it matter which colour you chose? Explain:

Backwards question

 Design a spinner where Red is the most likely to win, and Yellow is the least likely to win.

