

HOW TO LEARN IN THE ONLINE ADVANCED YEAR 5-6 MATHEMATICS CLASS

There are 11 lesson recordings (approx. 2 hours each). Students are expected to complete a small workbook at the middle of the recorded lesson before continue with the lesson to watch the working-out of all the questions. Students are expected to spend at least 2 hours per week to watch each lesson and do the workbook for it. However, a more realistic amount of time would be 4 hours to cover many resources for each week.

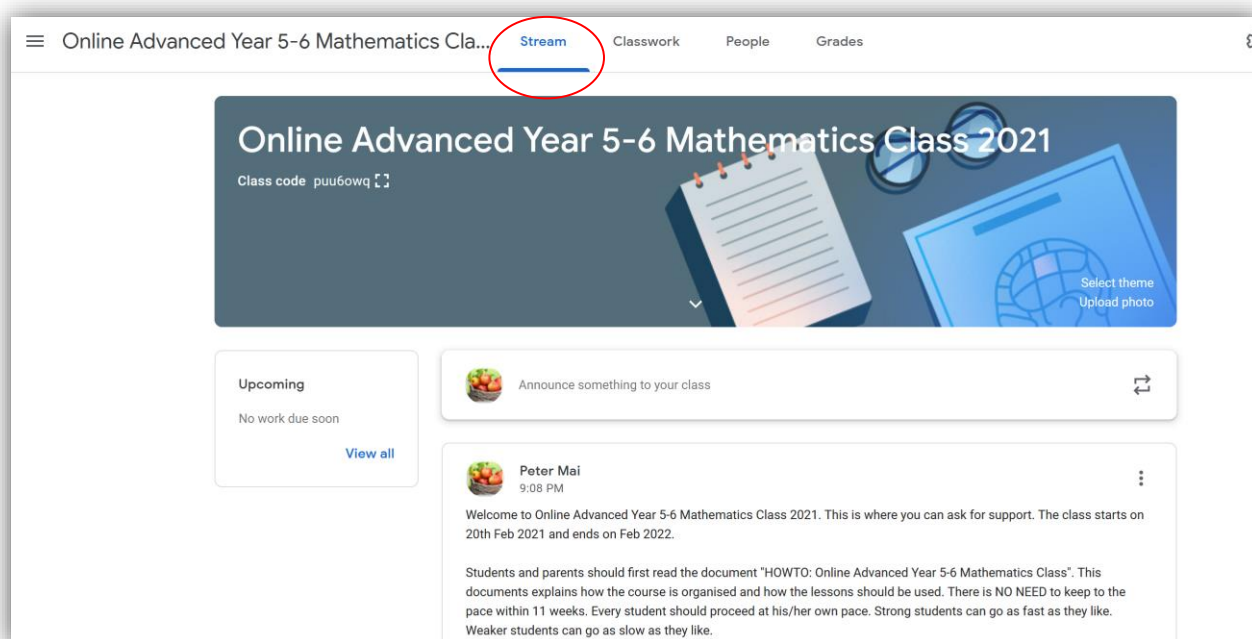
Course organisation

The course is organised with 5 lessons on theory of maths with topics chosen from year 6-8. It is very advanced for year 5-6 students. During week 6-11, students will move away from maths theory and focus on problem solving strategies. It is expected that students will come back to the Google classroom and continue to work over several months to relearn, revise and practise until they remember the theory and become very good at practice.

- Students will complete a workbook each week during lessons 1-5.
- During the lessons 6-10, they complete a set of 10 tests associated with the 10 problem solving strategies. They can choose to do this online or on printed copies.
- In lesson 11, they complete a hard test of mixed questions to practise choosing maths problem-solving strategies.
- Students also have access to a PDF copy of Maths Problem Solving Strategies for year 5-6. There is also a massive set of past Singapore exam papers for students to practise the skills.

Access the Google Classroom

To access the Google Classroom, each student will need a Google Account. As some of the resources are videos on YouTube, a Google account for kids under 13 years of age will have problem playing these videos. Therefore, parents must set up Google account for a kid 13 year of age or older to use the Google Classroom for this maths class.



Students can read the STREAM for information and post their request for help. Students who join in later can answers to their questions by reading posts on the STREAM.

Preparation for the class

As students are expected to have the basics of year 6 Australian school mathematics, those who have not covered all year 6 school maths, should make an attempt to cover it before starting the lessons. The section "Preparation for the Advanced Year 5-6 Mathematics Class" has all the information. Students should use the tracking sheet in this section and Maths Online to rapidly cover the entire year 6 school maths (all members of the Mathemafix Selective Support group have access to Maths Online).

Week 1 to 5

The first 5 weeks provide in depth coverage of maths theory. Each lesson has a **video recording, a practice workbook, answers to the questions in the practice workbook** and extra resources. The extra resources are mainly YouTube videos and some worksheets.

The screenshot shows a Google Classroom interface for a class titled "Online Advanced Year 5-6 Mathematics". The "Classwork" tab is selected and circled in red. The page displays a list of assignments and resources. A blue bracket on the left groups the bottom section of resources under the label "Other resources". Red arrows point from blue text labels on the right to specific items in the list.

Item	Label
Preparation for the Advanced Year 5-6 Mathe...	
Rapid Coverage of Gaps in Year 6 School M...	
Year 6 - Maths Online Tracking Sheet - fast ...	
Year 6 - Maths Online Tracking Sheet - nor...	
Year 6 Weekly Revision Tests	
Week 1 - Advanced Year 5-6 Mathematics Wor...	
Advanced Mathematics Grade 5-6 Worksho...	Recorded lesson
Week 1 - Practice workbook	Mid-lesson practice
Week 1 - Practice workbook answers	Answers for practice questions
Indices rules and worksheet	
Week 1 - Skills - Long division (video)	
Week 1 - Skills - Short division (video)	
Week 1 - Skills - Division with large divisor (...)	
Week 1 - Skills - Division with decimal result...	
Week 1 - Skills - Division of decimal by deci...	
Week 1 - Indices / Exponent (video)	

Students should proceed in the following order for each lesson. Each lesson should be learned over 2 sessions to get the maximum retention.

Learning session

1. Print the workbook for the week.
2. Watch the video recording of the lesson until the section about the practice workbook. Pause the video and turn to the workbook and do the questions.
3. Come back to the video recording and follow the working-out of the questions in the workbook.

Review session

4. *Wait for one day or more* then open the document with answers for the workbook and study the working-out to make sense of how the questions should be answered.
5. Watch the YouTube videos for the week to see how other teachers teach ways to handle the maths operations covered in the lesson.

This learning procedure should be repeated for lessons all the way to week 5. Students should also use the extra resources. They provide different views into the maths topics and different ways that things could be done. They also provide knowledge about relevant topics that are not covered in the lessons due to time limit.

Week 6 – 10

During week 6-10, the focus is switched to maths problem-solving strategies. Each week covers **2 strategies**. There is one video section for each of the two strategies and one test book for each strategy. The format of the lesson is as the following.

Studying with a membership of the Mathemafix Selective Support group.

1. Watch the video recording of the lesson until the section about the test workbook for the first problem-solving strategy. Pause the video and log on the Mathemafix website and do the test online.
2. Come back to the video recording and follow the working-out of the questions in the test.
3. Open the test book with answers (PDF format) and study the working-out to make sense of how the questions should be answered.
4. The procedure is repeated for the second strategy.

Studying without a membership of the Mathemafix Selective Support group.

1. Print the test book for the first strategy.
2. Watch the video recording of the lesson until the section about the test workbook. Pause the video and turn to the printed test and do the questions.
3. Come back to the video recording and follow the working-out of the questions in the test.
4. Open the test book with answers and study the working-out to make sense of how the questions should be answered.
5. The procedure is repeated for the second strategy.

Week 11

In week 11, the focus is to practise the skill and experience to select strategies for solving a question. It is expected that students try to select one main strategy and one or more supporting strategies to solve a hard maths problem. There are two tests but the lesson recording only covers the first test. The second test

is very difficult and therefore has a lot of time given to do it. Students should be working on this test on their own when they feel ready. This test could be done several weeks later after students have revised the whole course.

Studying with a membership of the Mathemafix Selective Support group.

1. Watch the video recording of the lesson until the section about the first test for choosing problem-solving strategies. Pause the video and log on the Mathemafix website and do the test online.
2. Come back to the video recording and follow the working-out of the questions in the test.
3. Open the test book with answers and study the working-out to make sense of how the questions should be answered.

Studying without a membership of the Mathemafix Selective Support group.

1. Print the first test book for choosing strategies.
2. Watch the video recording of the lesson until the section about the test workbook. Pause the video and turn to the printed test and do the questions.
3. Come back to the video recording and follow the working-out of the questions in the test.
4. Open the test book with answers and study the working-out to make sense of how the questions should be answered.

Content of the online advanced year 5-6 mathematics class

Maths Enrichment in important areas		
1.	Advanced Number Sense	<ul style="list-style-type: none"> – Place values, decimal place values and how to read place value tables – Basic maths operations on large numbers – A deep look at how division algorithms work – Multiplication and division fact family
2.	Fraction Sense and Operations	<ul style="list-style-type: none"> – How to draw fractions to enable comparisons – Division vs Fraction – Common multiples and denominators – Fraction operations – Equivalent fraction and cancelling down
3.	Relationships	<ul style="list-style-type: none"> – Proportional relationships and rates: direct and inverse – Distance, time and speed – Ratios
4.	Algebra	<ul style="list-style-type: none"> – Pre-algebra skills: number sentence, unknowns and write number sentences with unknowns – Strategies: guess & check, balance scales
5.	Geometry	<ul style="list-style-type: none"> – Perimeter, area, volume, angles and circle
Maths Problem Solving Strategies		
6.	Problem Solving Strategies Session 1	<ol style="list-style-type: none"> 1. Making a List of Items (including using a table) 2. Guess and Check
7.	Problem Solving Strategies Session 2	<ol style="list-style-type: none"> 3. Looking for Patterns to find the Rule 4. Solving a Simpler Problem First
8.	Problem Solving Strategies Session 3	<ol style="list-style-type: none"> 5. Working Backwards 6. Acting It Out
9.	Problem Solving Strategies Session 4	<ol style="list-style-type: none"> 7. Eliminating Possibilities 8. Drawing Diagram to Illustrate Problems
10.	Problem Solving Strategies Session 5	<ol style="list-style-type: none"> 9. The Model Method for Algebra 10. Avoiding Unnecessary and/or Complex Calculations
11.	Problem Solving Strategies Session 5	<ol style="list-style-type: none"> 11. Choosing strategies for a maths problem.