


# LESSON PLANS: AUSTRALIA

## Year 5: Number and Algebra

### Repeating Patterns

 45 MINS

powered by

 Mathletics

**Strand:** Number and Algebra

**Substrand:** Patterns and Algebra

**Outcome:**

- Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction. (ACMNA107)

### Introduction to Lesson

 5 MINS

**Teacher Background:**

- Give students a blank piece of paper. Have students create as many different number patterns as they can. Their number patterns can increase or decrease. Students can also create geometric patterns. Have students represent number patterns in as many ways as they can, working collaboratively in their table groups.
- Have students determine what the rule could be for their pattern.

### ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Student handouts from eBooks
- ✓ Computers/tablets
- ✓ Toothpicks
- ✓ Chart paper
- ✓ Markers
- ✓ Geometric pattern blocks

### ASSESSMENTS

- ✓ Observations
- ✓ Collaborative/Group work
- ✓ Assess patterns on chart paper.
- ✓ Assess patterns made with toothpicks.

### ACCOMMODATIONS/ MODIFICATIONS

- ✓ Allow students to use translucent geometric pattern blocks to help create their patterns.
- ✓ Encourage students to click on "Something Easier" and "Something Harder" within the Mathletics curriculum activities.

### EXTENSION OF LEARNING

- ✓ Curriculum activities
- ✓ Year 5 eBook "Patterning and Algebra," Patterns and functions additional pages.
- ✓ Rainforest Maths Year 5: Number Sequences for extra practice.

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## Year 5: Number and Algebra

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#### The Lesson

30 MINS

##### Collaborative Group Work

###### • Group 1—Matchstick Problems

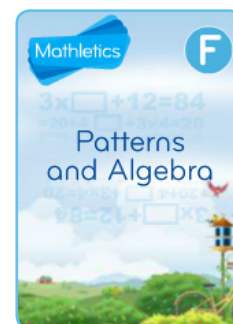
Print student handouts from the eBook > Year 5 Mathletics > Patterns and Algebra > Patterns and functions – matchstick patterns on pages 5 and 6. Have students use toothpicks to practice making a repeating geometric pattern. Students can complete a few of the tables found on these handouts. Ask students to then use the toothpicks to create their own geometric patterns and determine the function rule. Students should work together to create their pattern and glue it onto cardstock, displaying their rule at the bottom. These can then be displayed around the classroom for future reference.

**Note:** Students can also experiment with growing and shrinking patterns. Can students add on to their existing shape? How would the pattern look if the shape were repeated with flips, slides, and turns?

• Assign curriculum activities for students to complete in the student console. Year 5 Australia course, suggested activities include:

- Describing Patterns
- Increasing Patterns
- Decreasing Patterns
- Table of Values
- Pyramid Puzzles 2.

**Note:** With collaborative group work students should be working together to come to a conclusion. All members of the team should be communicating and contributing to the group's mark. You can have students switch groups once they have completed one task and instruct students to complete the second task. This time should allow for both tasks to be completed.



#### After the lesson

10 MINS

##### Discussion

- Have a quick discussion with your students about repeating patterns. **Prompting questions:** Where have you seen geometric patterns in real life? How do we grow or shrink a pattern? Where have you seen a numerical pattern? How do you know the function rule?



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# LESSON PLANS: AUSTRALIA

## Year 5: Measurement and Geometry

### Measuring Length

 45 MINS

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**Strand:** Measurement and Geometry

**Substrand:** Using units of measurement.

**Outcome:**

- Choose appropriate units of measurement for length, area, volume, capacity and mass. (ACMMG108)

## Introduction to Lesson

 10 MINS

**Teacher Background:**

Log in to your

**Teacher Console > Demonstrations > Concept Search.**

Type Length into the **Search** bar. Review perimeter and area with students. Search different units of measurement in **Concept Search** and **Animated Maths Dictionary**.

**Ask students:**

- When it is appropriate to use specific units of measurements.
- When would we use centimetres as our unit of measurement?
- When would it be appropriate to use metres?
- Have students estimate different lengths in the classroom.

**Ask students:**

- How did you know what unit of measurement to use?
- Was your estimation close to the actual length/height?
- Why or why not?
- Record information on a KWL chart.

**NOTE:** Teachers should show students a variety of manipulatives they can use during the measurement unit. Scales, rulers, metre sticks, links, tape measures, measuring cups, pedometers, etc.). Have students brainstorm real-life examples of when you would use these measurement tools.

## ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Computers/tablets
- ✓ Measurement tools

## ASSESSMENTS

- ✓ Observations
- ✓ Participation
- ✓ Curriculum activity marks (found in Results)
- ✓ Have students initial their sticky notes for assessment.

## ACCOMMODATIONS/ MODIFICATIONS

- ✓ Ability groups
- ✓ Encourage students to use the "Something Easier" and "Something Harder" sections of curriculum activities.
- ✓ Allow students to work in a year level above or below in Rainforest Maths.

## EXTENSION OF LEARNING

- ✓ Problem Solving
- ✓ Use scales for measurement in science.
- ✓ Design a recipe with students. Use different types of measurement within the recipe. Ask students to convert measurements where necessary.
- ✓ eBook: Year 5, Length, Perimeter and Area, Units of length

# LESSON PLANS: AUSTRALIA

## Year 5: Measurement and Geometry

### Measuring Length

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#### The Lesson

30 MINS

##### Research/Curriculum Activities/Rainforest Maths

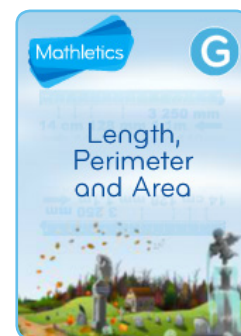
- Have students log in to their **Student Console** of Mathletics. Give students time to explore different types of measurement in the **Concept Search** and **Animated Maths Dictionary** on their own.
- Have students complete curriculum activities in the student console.  
Suggested activities (Year 5 Australia course):
  - Which unit of measurement?Suggested activities in something easier:
  - Measuring lengthSuggested activities in something harder:
  - Converting units of length.



**Cross-Curriculum Activity:** Students can measure and record their height and their body parts during phys. ed time. They can measure different objects and physical activities (i.e., distance jumped, length of the gymnasium, length of strides when walking, etc.).

##### eBook: Unit Bingo

- As a class, play a game of Unit Bingo. Players should fill out their individual bingo cards. Unit bingo is found in **eBooks > Year 6 > Length, Area and Perimeter** on page 2 in the Units of length section.
- Once students have completed their cards, the teacher can call out units of measurement. If there is an item written on their card that could be measured using that unit of measurement, they can cross it off. First player to get a bingo wins!
- Discuss with students what the most common unit of measurement is. Why do they think this is the case?



#### After the lesson

5 MINS

- On the KWL chart, have students fill out a sticky note with one thing they learned about choosing the correct unit of measurement, a real-life example of something we measure, or one thing they learned about measurement they did not know before today's class. Students can stick these onto the "L" spot.
- Have students periodically complete these; at the end of the Measurement unit you will be able to see all of the things students have learned each day.




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# LESSON PLANS: AUSTRALIA

## Year 5: Measurement and Geometry

24 Hour Time

 50 MINS

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**Strand:** Measurement and Geometry

**Substrand:** Using units of measurement

**Outcome:**

- Compare 12- and 24-hour time systems and convert between them. (ACMMG110)

### Introduction to Lesson

 10 MINS

**Teacher Background:**

Students should be familiar with reading and using a 12-hour clock prior to this lesson.

- Display on interactive whiteboard the word Time. Have students write down all of their ideas about time on chart paper. They can draw pictures or write words and numbers to represent what time means to them.

**Prompt students:**

- How do we measure time?
  - What types of time are there?
  - When/Where do we use time?
  - Discuss a variety of answers. Introduce 24-hour time and when we generally measure time using the 24-hour clock.
- Log in to the

**Teacher Console > Demonstrations > Concept Search.**

Type Time into the **Search** bar. Display on the interactive whiteboard the 12-hour clock and review with students. Then click on the 24-hour clock and explain how to convert the time.

**Ask students questions like,**

- What type of activity would you do at 18:00?
- What types of activities would you not do at 23:00?
- What could be done between 9:00 and 13:00?
- How much time has elapsed?

### ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Student handouts from eBooks
- ✓ Computers/tablets
- ✓ 12-hour and 24-hour clocks

### ASSESSMENTS

- ✓ Observations
- ✓ Collaborative/group work
- ✓ Collect and assess time wheel.

### ACCOMMODATIONS/ MODIFICATIONS

- ✓ Allow students to make their own clocks with both 24-hour and 12-hour time intervals. Students can use this as a maths manipulative.
- ✓ Encourage students to click on "Something Easier" and "Something Harder" within the Mathletics curriculum activities.

### EXTENSION OF LEARNING

- ✓ Measure time in phys. ed and record with a stop watch. Students can then determine total elapsed time to complete an activity.
- ✓ Year 4 and 5 time sections in Rainforest Maths for extra practice

# LESSON PLANS: AUSTRALIA

## Year 5: Measurement and Geometry

### 24 Hour Time

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Mathletics

## The Lesson

 35 MINS

### eBook: 24-Hour Time Dominoes Game

- Have students work in partners or play this game as a class.
- Print off the 24-hour bingo game cards by logging in to your **Teacher Console > eBooks > Year 5 > Measuring Time**.
- Print page 8, "24-hour time bingo game".
- One student or the teacher can be the caller.
- The other partner, or the class will write down 6 times.
- They must be o'clock or half past time, no other intervals.
- The caller or teacher then shuffles the cards and calls out the times.
- The first person to cross out all 6 times wins!
- You could call the times out in 12-hour clock times and students would need to convert the time to 24-hour times.

### Collaborative Group Work

#### • Group 1—Live Maths

Students should try Level 5/6 of Live Mathletics on their own accounts or on a classroom computer under teacher account. One student types while the other group members shout out the answers. These levels include time conversion.

#### • Group 2—Time Activities

Students should work on curriculum activities.

Suggested activities in the Year 5 Australia course are: 24-Hour Time.

Suggested activities in the Year 4 Australia course are: Hours & Minutes.

Suggested activities in the Year 3 Australia course are: Five Minute Times, What is the Time?.

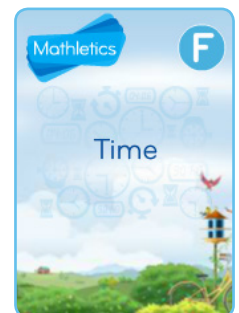
#### • Group 3—eBook Handouts

##### o Option 1:

Students work together on Year 5 eBook: **Time > Measuring Time > page 5 > Question 6**.  
Printed or on interactive whiteboard.

##### o Option 2:

Students who still need some additional practice with 12-Hour Clocks can use the **Year 4 eBook or Year 5 eBook: Time > Telling Time section or Time > Measuring Time section**.



## After the lesson

 5 MINS

### Think, Pair, Share

- Have students reflect on their learning of Time with a partner. Give students a few minutes to think, pair up with another partner and share their learning.
- Prompt question: How did you measure time today? What were your challenges with a 24-hour clock?



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# LESSON PLANS: AUSTRALIA

## Year 5: Statistics and Probability

### Introduction to Probability

 45 MINS

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**Strand:** Statistics and Probability

**Substrand:** Chance

**Outcome:**

- List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions. (ACMSP116)

### Introduction to Lesson

 10 MINS

**What Is Probability:**

- Take a few minutes to begin a discussion about probability.
- Create a KWL chart with students to determine what they already know about probability and what they would like to learn.
- On the interactive whiteboard or individually look through Concept Search.
- Log in to

**Teacher Console > Demonstrations > Concept Search.**

- Suggested terms to search are Probability, Chance, Random, Spinner. Add these words to your Maths Word Wall or maths journal.
- You can also look up the terms in the **Animated Maths Dictionary** for a specific definition.

### ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Computers/tablets
- ✓ Spinners
- ✓ Die
- ✓ Chart paper
- ✓ Markers
- ✓ Coins

### ASSESSMENTS

- ✓ Observations
- ✓ Participation
- ✓ Probability questions (index cards)
- ✓ Maths journals (if implemented by teacher)
- ✓ Collect eBook handouts for assessment.

### ACCOMMODATIONS/ MODIFICATIONS

- ✓ Ability groups
- ✓ Encourage students to use manipulatives for probability.
- ✓ Limit/modify the number of questions required,
- ✓ Have a teacher-led centre. Scaffold student learning.
- ✓ Allow students to work in a Year level above or below in Rainforest Maths.

### EXTENSION OF LEARNING

- ✓ Curriculum activities
- ✓ During Science, have students determine the outcomes of an experiment.
- ✓ Have students create tree diagrams during language arts.

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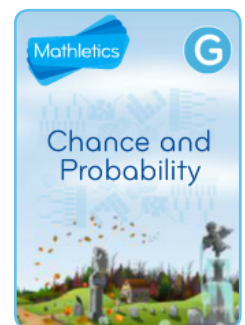
 30 MINS

##### Problem Solving

- To begin having students think about possible outcomes, start with a combinations problem solving game. Go to [Demonstrations > Problem Solving > Combinations > I-scream Lady game](#).
- Students should take turns coming up to the interactive whiteboard and determining a possible combination. At the end, **ask students:** How many different combinations are there? If all the ice cream cones were in a freezer and I pulled one out, what would be my chances of having one with chocolate? mango? How would we represent this as a fraction? How else could we organise this data? Am I more likely to get an ice cream with chocolate or strawberry?
- You can also try the **Monkey Matters** game under **Data** in **Problem Solving**. This will introduce students to a tree diagram and how to record possible outcomes using this method.

##### Probability Games (Centres)

- o **Centre 1—Spinners:** Have students complete page 6 of the Year 6 eBook "Chance and Probability." Give students spinners, or have them create their own. Students should use these manipulatives to help answer the questions. Have students glue these sheets into their maths notebooks. What are you most likely to land on? What are you less likely to land on? What outcomes are possible?
- o **Centre 2—The Mathletics Cup:** Have students complete page 9 of the Year 5 eBook "Chance and Probability." Students should work in partners to create their own games. Once they have tested their game, students should play with another pair. Is your game fair? How could you improve your game?
- o **Centre 3—"Rainforest Maths":** Using the interactive whiteboard, log in to the [Teacher Console > Demonstrations > Rainforest Maths > Year 5 > Space > Probability](#). Have students work together at this centre to complete the interactive problems. Students will have a chance to explore dice probability, spinners, and tree diagrams. After centres are completed, have one student from each group teach the other students what their group did and the strategies they used to determine the possible outcomes.



#### After the lesson

 5 MINS

##### What Are the Chances?

Have students complete on an index card their own probability question. With elbow partners, give students the sentence starter, "What are the chances..." Students should think about when they would see/use probability in real life. Partners should determine a question to ask another group. Collect questions to solve next class. (Ex. What are the chances of running into a girl in our classroom?) Students could then determine the odds of running into a girl out of the whole school or class.



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