


LESSON PLANS: AUSTRALIA

Year 2: Number

 45 MINS

powered by

 Mathletics

Strand: Number and Algebra

Substrand: Number and Place Value

Outcome:

- Solve simple addition and subtraction problems using a range of efficient mental and written strategies. (ACMNA030)

Introduction to Lesson

 10 MINS

Teacher Background:

Review the teacher notes from the Dr. Small eBook. This is located in the

Teacher Console > eBooks > Year 2 > 3 Ribbons

After clicking on the eBook, options will show up on the far right; click on the Teacher Notes.

Play video from "3 Ribbons" on your interactive whiteboard for the students. The video is located in the Mathletics Teacher Console under eBooks. This will initiate the thought process for computational learning based on a visual. This is to start a discussion but not to solve the question. Students will have the opportunity to solve the question during the lesson.

For further extension, students should start thinking about how they can solve the problem:

- Do you think that the shortest ribbon could be 80 cm long?
Why or why not?
- Do you think that the longest ribbon could be 50 cm long?
Why or why not?
- Could one ribbon be 5 cm long?
Why or why not?
- Could one ribbon be twice as long as another?
- What strategy did you use to come up with solutions?
- Is there another way to work out the answer?

ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Teacher notes from "3 Ribbons"
- ✓ Student handout: "3 Ribbons"
- ✓ Maths journals (if implemented by teacher)
- ✓ Computers/mobile devices

ASSESSMENTS

- ✓ Observation
- ✓ Participation
- ✓ Reviewing completed "3 Ribbons" student worksheet
- ✓ Reporting results within the Teacher Console of Mathletics for curriculum and Live Mathletics results

ACCOMMODATIONS/ MODIFICATIONS

- ✓ Provide students with ribbons for manipulative.
- ✓ Encourage students to click on "Something Easier" and "Something Harder" within the Mathletics curriculum activities.

EXTENSION OF LEARNING

- ✓ Problem Solving game under Subtraction
- ✓ Curriculum activities
- ✓ Live Mathletics Level 1-2

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The Lesson

 30 MINS

eBook: 3 Ribbons

- Display the "3 Ribbons" eBook on the interactive whiteboard. Within the eBook, click on the interactive on the far right. Click on the "See Question" tab. Discuss some strategies students can use to solve the problem. Teachers can access Problem Solving strategies under eBooks, Problem Solving tab on the far right. Once you click on the Problem Solving tab, there will be three books to choose from. For year 2, click on the Level 1 Problem Solving booklet.
- The strategies discussed in the Problem Solving eBook are; Read, plan, work and check, Draw a diagram, Look for patterns, Act it out, Trial and error, Make a list, Estimation, Work backwards, and Open ended. Discuss strategies with students and allow them to work in groups/pairs to solve the problem.
- **Reinforcement:** Using computers or mobile devices, students complete curriculum activities in the Student Console. Go to Addition and Subtraction.
 - Suggested activities:**
 - Addictive Addition
 - Simple Subtraction
 - Repartition to Subtract
- **Extra-time activity/cross-curriculum activity:** Mystery Number. Pick a two-digit number and create hints for classmates to figure out the number. Have the students create a poster displaying hints on what the number could be. Encourage students to use number sentences, pictures, or words. Teachers can implement rules such as, a minimum of 4 hints, you cannot use any numbers from your mystery number, has to be at least a 2-digit number, etc.



After the lesson

 5 MINS


- Have the students reflect in their journals about the lesson.
- What strategies did they use?
- Which ones did they find to be helpful in solving this problem?
- Or create a "What stuck with you today?" board.
- Students write their responses on sticky notes and place them on this board. These sticky notes can be reviewed with the class at the end of the week.



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LESSON PLANS: AUSTRALIA

Year 2: Patterns

 45 MINS

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 Mathletics

Strand: Number and Algebra

Substrand: Patterns and Algebra

Outcome:

- Describe patterns with numbers and identify missing elements. (ACMNA035)

Introduction to Lesson

 10 MINS

Ask students when something is balanced and unbalanced.

Prompt questions about a scale with weighed objects. Then have the class discuss what they think/know about the terms equal and inequality. Display this on a whiteboard/poster paper.

On the interactive whiteboard, bring up

Mathletics Teacher Console > Demonstrations > Concept Search.

Search Equal and Unequal. The slides will display the definitions and symbols and give examples. Have the students brainstorm items they could use these symbols for, or where they have seen these before.

Display examples on the board and have students figure out which symbol to use.

ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Mathletics student logins
- ✓ Student handouts from eBooks
- ✓ Problem solving page
- ✓ Classroom manipulatives
- ✓ Computers/tablets
- ✓ Maths journals (if implemented by teacher)

ASSESSMENTS

- ✓ Observation and participation
- ✓ reviewing completed worksheets or review journaling responses
- ✓ Results and reports from the Mathletics teacher console

ACCOMMODATIONS/ MODIFICATIONS

- ✓ Allow students to access manipulatives to help create patterns.
- ✓ Create mixed ability groups
- ✓ eBook pages from higher or lower grades.

EXTENSION OF LEARNING

- ✓ Problem solving games
- ✓ Curriculum activities
- ✓ Explore Rainforest Maths
- ✓ Live Mathletics

LESSON PLANS: AUSTRALIA

Year 2: Patterns

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Mathletics

The Lesson

 30 MINS

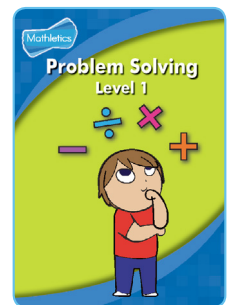
- **Discover:** Hand out Problem Solving worksheet from eBooks. This is located in **Teacher Console > eBooks > Problem Solving > Level 1.**

The worksheet is located under "Open-ended" worksheet 6. This worksheet will allow students to solve a problem based on the scale being balanced/equal. Have students record their answers. Open class discussion about answers and strategies.

Extension questions:

- What if we wanted to make the scale unbalanced or unequal?
- What if we doubled the pile of books? What pile of books can be added to balance it now?
- Can you create this problem only using numbers?
- What would that look like?
- What symbols can we use while solving this problem?

Ask students to flip the page over and create their own problem using pictures. The answer can be either equal or unequal.



- **Explore:** Mathletics—Students can explore within Mathletics. They should focus on Rainforest Maths, Years 2 and 3, Algebra; Concept Search, Problem Solving and Balance.
- **Reinforcement:** eBooks—Students are to complete the pre-selected pages. Teacher can place manipulatives to help support various learning styles. Recommended pages: Year 2/Patterns and Relationships, pages 18–25 and Year 3/Patterns and Relationships, pages 13–18.
- **Extra-time activity/cross-curriculum activity:** Students can create their own balance scale. This is created with a hanger, placing a cup attached to string on each end of the hanger. Students can compare various objects in the classroom and record what is equal and unequal. They should record their number sentences using the correct symbols.

After the lesson

 5 MINS

- Review the symbols for equal and unequal. What strategies did students use?
- How can they use these symbols with numbers, words, pictures, and sounds?
- Have the students play a game of Live Mathletics and compare their game to the previous game.



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LESSON PLANS: AUSTRALIA

Year 2: 3D Objects

 45 MINS

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Strand: Measurement and Geometry

Substrand: Shape

Outcome:

- Describe the features of three-dimensional objects. (ACMMG043)

Introduction to Lesson

 10 MINS

Teacher Background:

Prompt the question to your students, "What does three dimensional mean?" This will allow students to share their prior knowledge. You can also have students fill out a KWL chart for further extension. On your interactive whiteboard, go to

Mathletics Teacher Console > Demonstrations > Concept Search.

Click on **Animated Maths Dictionary** and search Three Dimensional. Discuss with students the definition and the picture that is displayed. Click back on **Concept Search** within the Demonstrations tab and click on the icon **Concept Search**. Search 3D objects in the **Search** field on the top left side. It will bring up a few different slides. Click on the first slide displaying multiple objects. There are ten slides here and not all will apply to the lesson (The applicable slides are 2, 3, 5, and 7). As a further extension activity, teachers can search each object in the search field.

Ask students for further extension:

- What objects in the classroom have the same shape?
- How are these shapes similar or different?
- Why do you think these are 3D shapes?
- How are they different from 2D shapes?
- What could these shapes be used for (buildings, household products)?

ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Mathletics student logins
- ✓ eBook student pages from Year 2/ Space and Shape
- ✓ Shape manipulatives
- ✓ Maths journals (if implemented by teacher)
- ✓ Computers/mobile devices.

ASSESSMENTS

- ✓ Observation and participation
- ✓ Reviewing completed student worksheet
- ✓ Results from the Mathletics curriculum activities, which is located under Reports in Teacher Console.
- ✓ Assessment from teacher eBook under Assessments: pages 44–49.

ACCOMMODATIONS/ MODIFICATIONS

- ✓ Provide students with extra worksheets about 3D shapes from Year 1 Shape and Space or Year 3 Space, Shape and Position.
- ✓ Encourage students to click on "Something Easier" and "Something Harder" within the Mathletics curriculum activities.

EXTENSION OF LEARNING

- ✓ Curriculum activities
- ✓ Explore more in Concept Search and Rainforest Maths.
- ✓ Students can record 3D objects they come across over the next couple of days.

LESSON PLANS: AUSTRALIA

Year 2: 3D Objects

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Mathletics

The Lesson

 30 MINS

eBook: Space and Shape

- Go to **eBooks > Year 2 > Student Book > Space and Shape**. Refer to pages 18–19 and 24–25. Students will work on these pages with partners. The pages indicate the items needed along with shape manipulatives. After they complete the pages, have the student search the classroom for other objects they believe to be three dimensional. They can record these objects in their journals. If there is time, show and share with the class.
- **Reinforcement:** Computers/Tablets—Students complete curriculum activities in the Student Console. Go to Shape. Suggested activities: Collect the Objects and Relate Shapes and Solids; Rainforest Maths, Year 2, 3D objects. Students can explore several different options here, including a quiz they can complete with a partner.
- **Extra-time activity/cross-curriculum activity:** Creating Shapes— Students can create 3D objects using straws/toothpicks and play dough. They are to pick an object and create it using the materials provided. This can be conducted as an individual or partner activity.



After the lesson

 5 MINS

- Show two different objects and ask the students how they are similar and how they are different. They can refer to some of the strategies they used while completing the activities earlier. Have the students indicate the name for each of the objects they came across today (cubes, spheres, cones, cylinders, pyramids).
- If students did not get a chance to complete the curriculum activities, they can be assigned for homework. This feature is under the Results tab within the Mathletics Teacher Console.



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LESSON PLANS: AUSTRALIA

Year 2: Data



45-50 MINS

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Mathletics

Strand: Statistics and Probability

Substrand: Data representation and interpretation

Outcome:

- Identify a question of interest based on one categorical variable. Gather data relevant to the question. (ACMSP048)
- Collect, check and classify data. (ACMSP049)
- Create displays of data using lists, table and picture graphs and interpret them. (ACMSP050)

Introduction to Lesson



10-15 MINS

Teacher Background:

Ask the class what their favourite school subject is. Collect some data and discuss ways this data can be displayed. Depending on the students' prior knowledge, they might say charts, graphs, a picture, tallies, or writing the data down using a sentence.

Ask students what they think a pictograph is.

- Why would it be used?
- What kind of information can it display?

On your interactive whiteboard, go to

Teacher Console > Demonstrations > Concept Search > Animated Maths Dictionary.

Search the term pictograph and discuss the definition. If students have individual journals or dictionaries, have them write down the definition.

On the interactive whiteboard, go to

Teacher Console > Demonstrations > Concept Search > Concept Search.

In the **Search** field, search Picture Graph. This will bring up an interactive slide. For the first side you can ask the class what items of fruit they have in their lunch boxes. Click on the name of each fruit and it will be displayed within the chart. After the data is collected, ask the students questions based on the data that was just collected.



ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Mathletics student login
- ✓ Manipulatives
- ✓ Student handout from eBooks pages 14-16
- ✓ Maths journals (if implemented by teacher)
- ✓ Computers/mobile devices.



ASSESSMENTS

- ✓ Observation
- ✓ Participation
- ✓ Reviewing completed worksheets.
- ✓ Reporting results within the Teacher Console of Mathletics for curriculum.
- ✓ Graphs created by the students
- ✓ Teacher assessments in the teacher eBook- Year 1 Chance and Data, page 29



ACCOMMODATIONS/ MODIFICATIONS

- ✓ Create centre groups according to heterogeneous grouping.
- ✓ Encourage students to click on "Something Easier" and "Something Harder" within the Mathletics curriculum activities.
- ✓ Print out student worksheets from lower or higher grades.
- ✓ Provide various manipulatives.



EXTENSION OF LEARNING

- ✓ Curriculum activities
- ✓ Extra worksheets from eBooks
- ✓ Rainforest Grade 1: Data
- ✓ Live Mathletics

LESSON PLANS: AUSTRALIA

Year 2: Data

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Mathletics

The Lesson

 30 MINS

Centres

- **Background for teacher**—You can add more centres to the ones indicated below. For the eBook centre, please review which pages you would like the students to complete. Depending on how much work students can get done with each centre, centre rotation can be about every 10 minutes. Groups will vary depending on class size.



- o **Centre 1:** Computers/tablets—Students complete curriculum activities within the student Mathletics site. Suggested activities under Chance and Data are: Make Graphs, Sorting Data and Reading from a Column Graph.
 - o **Centre 2:** eBooks—page 14–16 in the Year 1 Chance and Data student booklet. Student can work in pairs or complete individually.
 - o **Centre 3:** Creating a Graph—Students create their own question and collect their data within the classroom. Students then can display the data with manipulatives provided by the teacher. This centre is for the construction of concrete graphs. If students need help with a model, have them click on Concept Search within their Student Console and search Picture Graph. Students are encouraged to collect data based on Mathletics. Questions could be around their favorite part in Mathletics: the items they like to buy with their credits, the certificates they earned, and so forth.
- **Extra-time activity/cross-curriculum activity:** Collect Mathletics certificate data. Have the students collect the Mathletics certificates they earned. Brainstorm as a class, the best way to display this data in the classroom. Students can create their own pictures of the certificates they earned and place them on the classroom chart. This chart can be updated throughout the year!

After the lesson

 5 MINS


- Have the students share with a partner sitting beside them what they learned today. Have them discuss key concepts, such as how they collected the data, what a pictograph is, how they created their graphs, did they find anything interesting in the data, and so forth.
- Teachers can also close the lesson with the one-page assessment located in eBooks > Year 1 > Chance and Data > page 29.



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LESSON PLANS: AUSTRALIA

Year 2: Multiplication

 45 MINS

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 Mathletics

Strand: Number and Algebra

Substrand: Number and Place Value

Outcome:

- Recognise and represent multiplication as repeated addition, groups and arrays. (ACMNA031)

Introduction to Lesson

 10 MINS

Teacher Background:

Review the teacher notes from eBooks "Build a Number" located in

Mathletics Teacher Console > eBooks > Year 3 > Build a Number.

Click on the eBook and options will show up on the far right. Click on the Teacher Notes.

Play video from "Build a Number" on your interactive whiteboard for the students.

During the video, pause and discussed the key words that are underline in red. If students are not aware of the fraction $\frac{1}{4}$, please clarify. This is to start a discussion but not to solve the question. Students will have the opportunity to solve the question during the lesson.

Ask students for further extension to get them to start thinking about how they can solve the problem:

- Were you free to choose the number of flats?
- How about the number of longs?
- Why did the number of longs have to be even?
- What did you notice about the number of unit blocks?

ITEMS NEEDED

- ✓ Interactive whiteboard
- ✓ Mathletics teacher login
- ✓ Teacher notes from "Build a Number"
- ✓ Base ten blocks
- ✓ Student handout for "Build a Number"
- ✓ Maths journals (if implemented by teacher)
- ✓ Computers/mobile devices
- ✓ Dice

ASSESSMENTS

- ✓ Observation and participation
- ✓ Reviewing completed "Build a Number" student worksheet
- ✓ Reporting results within the Teacher Console of Mathletics for curriculum

ACCOMMODATIONS/ MODIFICATIONS

- ✓ Provide manipulatives.
- ✓ Encourage students to click on "Something Easier" and "Something Harder" within Mathletics curriculum activities.
- ✓ Teacher can work with a small group of students.

EXTENSION OF LEARNING

- ✓ Rainforest Maths activities within Grade 3, Number
- ✓ Curriculum activities
- ✓ Live Mathletics Level 3-4

LESSON PLANS: AUSTRALIA

Year 2: Multiplication

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Mathletics

The Lesson

 30 MINS

eBooks: Build a Number

- Provide students with the "Build a Number: student handout. Teachers can provide students with the base ten blocks sets as well. Have the students come up with as many possible solutions as they can. If students need help with ways to solve this problem, teachers can review the Problem Solving booklets within eBooks. The strategies discussed in the Problem Solving eBook are Read, plan, work and check; Draw a diagram; Look for patterns; Act it out; Trial and error; Make a list; Estimation; Work backwards; and Open ended.
- On the interactive whiteboard bring up the "Build a Number" interactive for the class by going to **Teacher Console > eBooks > Year 3 > Build a Number** and clicking on the interactive on the far right. The interactive will display the base ten blocks on the left side; double click on each one and it will be added to the center of the screen. Have the students come up and share some of the solutions they found, along with a strategy they used to solve this problem. As each group comes up and shares, click the "store" button, which will store the solutions on the right side. After all the groups have shared, review all the solutions.
- **Reinforcement:** Use computers or mobile devices. Students complete curriculum activities in the Student Console.
Suggested activities in Multiplications are: Multiplication Arrays.
Suggested activities in Division are: Fill the Jars.
- **Extra-time activity/cross-curriculum activity:** Number Cubes—Students can play a game using 2 or 3 dice. Students roll the dice and they decide what symbol they will use to add or multiply. They will display the answer using the base ten blocks and have the partner figure out what symbol they used. For example, a student rolls three dice and gets the number 3, 4, and 2. Students can add or multiply the numbers and display the total using the base ten blocks.



After the lesson

 5 MINS

- Have the students reflect in their journals about the lesson. What strategies did they use? Which ones did they find to be helpful to solve this problem? Or create a "What stuck with you today?" board.
- Students write their responses on sticky notes and place them on this board.
- Teachers can review these sticky notes at the end of the week and share the process/thoughts with the students.



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