Number and Algebra: Number and Place Value: Robot Rounding

Australian Curriculum
This lesson plan could be used to support the teaching and learning of the following Content Descriptions from the Australian Curriculum.

Y5 – Number and Algebra
Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)

Child–Friendly Aim:	Success Criteria:	Resources:
I can round numbers to a required degree of accuracy.	I can identify which digit to consider when rounding to different degrees of accuracy. I can identify which digits to round up and which digits to round down.	**Lesson Pack** Paper clip – per pair Dice – per pair
	Key/New Words: Round, digit, place value, ten, hundred, thousand, ten thousand, hundred thousand, million, accuracy.	**Preparation:** **Dice Dilemma Activity Sheet** – per pair Differentiated **Robot Rounding Activity Sheet** – per pair **Extra Challenge Activity Sheet** – as required

Prior Learning: It will be helpful if children have covered place value of numbers up to 10 000 000.

Learning Sequence

Dice Dilemma: Children work in pairs to complete the number comparisons on the **Dice Dilemma Activity Sheet.** Children roll a dice to generate the digits to fill in the spaces, making sure they position the digits correctly to make the number comparisons correct.

Rounding: Introduce rounding, referring to the **Lesson Presentation**, and explain why it is useful.

Rounding Accurately: Use the **Lesson Presentation** to explain how to round numbers to a given degree of accuracy. Share the examples shown on the **Lesson Presentation** and work through them. Click to explain that we first find the tens numbers (or hundreds numbers, or thousands numbers) either side of the number to be rounded. Click to explain how to find which digit to consider when deciding to round up or down. Click again to show that we round down for 1, 2, 3 and 4 and round up for 5, 6, 7, 8 and 9. Click to show how to work through the examples shown on the **Lesson Presentation.** Children choose one of the numbers from the differentiated table on the **Lesson Presentation.** Can children round the number to the required degrees of accuracy? Share the answers and address any misconceptions.

Robot Rounding: Introduce the robot shown on the **Lesson Presentation** and explain that its job is to round any number to a required degree of accuracy. Can children round each robot's number to the degree of accuracy shown on the dial? Choose children to click each robot's speech bubble to reveal the answers.

Robot Rounding Activity: Children use the dial on the differentiated **Robot Rounding Activity Sheet** to play a rounding game. Children use a paper clip and pencil as described on the **Lesson Presentation** to use the dial to find the degree of accuracy to round each number to. Children record their answers in the tables on the sheet, depending on whether they are Player 1 or Player 2. Can children round the numbers to the required degrees of accuracy?

★ Use numbers to 1 000 000. Round to the nearest 10 000.

★★ Use numbers to 10 000 000. Round to the nearest 100 000.

★★★ Use numbers to 10 000 000. Round to the nearest 1 000 000. An **Extra Challenge Activity Sheet** is provided as an extension activity if required.

Rounding Reminders: Children think of their top tips for rounding numbers to a required degree of accuracy. Children could write their top tips on a poster or note card for display.

Masterit
Roundit: Use this **Activity Sheet** to round numbers to a required degree of accuracy, and to suggest possible numbers that could have been rounded.
Findit: Children roll a five-, six- or seven-digit number. Children round the number they make to the nearest ten thousand, hundred thousand or million. Can they then roll another number that rounds to the same ten thousand, hundred thousand or million?