

**NELSON
MATHS**

**VICTORIAN
CURRICULUM**



DIGITAL
RESOURCES
INSIDE

1
SAMPLE

Teacher's Resource Book

Glenda Bradley

ML estimating, long, longer, longest, measuring, tall, taller, tallest

LESSON PLAN

1

TUNING IN

COMPARING OBJECTS

You will need: NTO 1.23 'Comparing Length'

Present NTO 1.23 'Comparing Length' and point to each word that will be used to describe the object. Point to the first object and ask, 'Which word best describes this? Why do you think that?' Invite a student to drag the words into the empty boxes. Reset the NTO and continue to have students explain which word best describes the objects that are being compared and why they think so.

WHOLE-CLASS INTRODUCTION

DINOSAUR STORY

You will need: a dinosaur picture book, e.g. *Harry and the Bucktoothed Dinosaurs* by Ian Vaneborow (Puffin Books, 1999)

Show the front cover of the picture book and read the title to students. Ask, 'Do you think dinosaurs were tall? Were they taller than you or me?' Read the story and then show the inside cover. Ask, 'Which dinosaur do you think is the tallest? Which dinosaur do you think is the longest?' If you do not have this picture book, use general pictures of dinosaurs from posters or the internet.

INDEPENDENT TASKS

Note: Choose from Tasks 1, 2 or 3.

You will need: coloured pencils, scissors, glue, NTO 1.23 'Comparing Length', Student Book p. 40 'Dinosaurs'

TASK 1: FAVOURITE DINOSAURS

Have students draw a picture of their favourite dinosaur. When they have finished drawing, have them cut out their dinosaurs and compare with the other dinosaur pictures in their table group. Ask, 'Whose dinosaur is the longest? How do you know?' Continue to ask questions about the longest and shortest, having students directly compare their dinosaurs by placing them next to one another. Have students make a poster of the dinosaurs on their table by sorting them in order from tallest to smallest or longest to shortest.

TASK 2: INTERACTIVE TASK

Using NTO 1.23 'Comparing Length', students look at two objects to decide which is the taller or longer. Repeat.

TASK 3: STUDENT BOOK p. 40 'Dinosaurs'

TEACHING GROUP

You will need: BLM 18 'Harry's Dinosaurs'

HARRY'S DINOSAURS

- For students who require support, make sure that they only compare two objects and focus on which of the objects is taller. Hold up an enlarged a copy of BLM 18 'Harry's Dinosaurs', and explain to students that you are going to give them two dinosaurs and they will work out which dinosaur is the tallest. Ask, 'How can we work out which is the tallest?' Discuss with students that they will need to cut out the two dinosaurs and place them side by side or on top of one another to see which is taller. Explain that they will need to have the bottom of each dinosaur lined up carefully to be able to see the difference between the two. Have students work with a partner and cut out their dinosaurs and compare. Have students record what they found and how they worked it out.

LESSON PLAN

2

TUNING IN

HOW CAN YOU MEASURE?

Present a problem to students about wanting to find out which is the longer of two things that cannot be moved. Select something within the classroom or school environment, e.g. your desk and an upright cupboard, and ask, 'How can we work out which is longer – my desk or the cupboard – when we cannot place them side by side?' Discuss with students their ideas, including the idea of using some sort of units that are the same size to measure the objects.

WHOLE-CLASS INTRODUCTION

MAKING A GOOD ESTIMATE

You will need: footprints cut out from BLM 19 'Dinosaur Footprints'

Show students the dinosaur footprints cut out from BLM 19 'Dinosaur Footprints' and tell them that these will be used to measure the desk and the cupboard. Tell students you would like them to think about how many footprints long the desk and the cupboard might be and write students' estimates on a class list. Invite two students to measure the desk and two to measure the cupboard. Ask, 'Which is longer? How do we know?' Look at the class list and find the students whose estimates were closest and ask, 'How did you make your estimate?' Discuss the idea of estimating by thinking about how many of the footprints would fit along the desk or cupboard.

INDEPENDENT TASKS

Note: Choose from Tasks 1, 2 or 3.

You will need: BLM 19 'Dinosaur Footprints', scissors, chalk, Student Book p. 41 'Two Footprints Long'

TASK 1: ESTIMATE AND MEASURE

Have students work with a partner or small group. Give each pair or small group a copy of BLM 19 'Dinosaur Footprints' and have them cut out the footprints. Students then choose two objects in the classroom to measure. Before they measure, they need to record an estimate of how many footprints long they think each object will be and then work together to measure. When students have finished measuring, they need to write about what they did and a statement about which object was the longest and how they know.

TASK 2: DRAW A DINOSAUR

Have students work with a partner or small group to draw a dinosaur that is five or 10 footprints long or tall using chalk on a carpeted, concrete or asphalted area.

TASK 3: STUDENT BOOK p. 41 'Two Footprints Long'

TEACHING GROUP

You will need: BLM 19 'Dinosaur Footprints', scissors

MORE OR LESS THAN A FOOTPRINT

- For students who require support, continue to have them compare individual classroom objects to decide if they are more or less than a dinosaur's footprint. Have students cut out a footprint from BLM 19 'Dinosaur Footprints', and then holding the footprint in their hand, have them look around the classroom to find something they think will be more than the footprint. Have students collect the object and make a direct comparison. Then ask students to find something in the classroom they think will be less than the footprint and directly compare the object. Have students write about their findings.

SORTING DINOSAURS

- For students who require a challenge, have them compare the height or length of a group of classroom objects. Then have students work with a partner and give them a copy of BLM 18 'Harry's Dinosaurs'. Have them cut out the dinosaurs and compare them, finding the longest to the shortest. Then have students sort the dinosaurs from the tallest to the shortest.

REFLECTION

Select from the following to suit your class and their learning outcomes:

- Ask, 'Is it always easy to see which things are taller or shorter? What do you need to remember when comparing objects?'
- Ask, 'I have seen students compare things to find out which is longer and they did not always get the same answer as other students. How do you think that could have happened?'

FIVE THINGS

- For students who require a challenge, have them work with a partner or small group to cut out footprints from BLM 19 and look for things in the classroom that might be at least as long as three footprints. Have students select up to five objects and measure them with the footprints and then order the five objects from longest to shortest. Have students record their findings.

REFLECTION

Select from the following to suit your class and their learning outcomes:

- Have students share their work from Independent Tasks, Tasks 1 and 2, or from the Teaching Groups, and ask, 'Was it easier to measure some things than others? Why?'
- Ask, 'What did you do when you were measuring and the footprint went past the end of the object? How did you count that?'

TUNING IN

MEASURING DINOSAUR FOOTPRINTS

You will need: three pieces of string 5 cm, 27 cm and 75 cm long or drawings of dinosaur footprints (of these lengths) on paper or on the floor using chalk

Prior to the lesson, make sure that all rulers are out of sight. Hold up the pieces of string or point to the footprints, explaining to students that dinosaur footprints were discovered at Lake Quarry in Winton, Queensland, that the footprints belonged to three different types of dinosaurs and that the string (or the drawings) show the average length of the footprints. Ask, 'What do we have in the classroom that we can use to measure the footprints?' During discussions of possible objects, stress that whatever is to be used to measure needs to be of uniform size.

WHOLE-CLASS INTRODUCTION

MEASURE IT

You will need: NTO 1.24 'Measure It'

Present NTO 1.24 'Measure It' and select an object, e.g. a shoe, to measure. Choose between using paperclips, craft stick or square counter. Have students estimate how many of each unit will be needed to measure the shoe, and then invite a student to measure using the unit of choice and identify counting the units. Counting the units presents a good chance to discuss what to do if the unit is more than the object.

INDEPENDENT TASKS

Note: Choose from Tasks 1, 2 or 3.

You will need: three pieces of string 5 cm, 27 cm and 75 cm long, paperclips, craft sticks, counters, playing cards, NTO 1.24 'Measure It', Student Book p. 42 'Paperclips or Counters?'

TASK 1: MEASURING WITH THINGS

Have students work with a partner and choose two of the dinosaur footprints (or pieces of string) to measure. Have them record an estimate first and then measure, choosing from a range of informal uniform units, e.g. paperclips, counters, craft sticks, playing cards. Have students record their results.

TASK 2: INTERACTIVE TASK

Have students explore NTO 1.24 'Measure It' choosing different informal units to measure objects.

TASK 3: STUDENT BOOK p. 42 'Paperclips or Counters?'

TEACHING GROUP

You will need: paperclips, craft sticks, playing cards

HOW LONG IS A TABLE?

- For students who require support, have them focus on one object and the skills involved in using uniform units to measure its length. As a group, decide on an object in the classroom to measure, e.g. a tabletop. Explain to students that they are to measure the length of the tabletop using paperclips. Give each student a paperclip and ask, 'How many paperclips do you think will fit end to end from one edge of the tabletop to the other?' Have students write down their estimates. Then have them work in pairs or small groups to measure the tabletop. Have students compare results and discuss reasons for any discrepancies.

MEASURING WITH DIFFERENT UNITS

- For students who require a challenge, have them explore using different uniform units. As a group, decide on a number of things in the classroom that can be measured, e.g. the width of the doorway, the shortest side of your desk, the width of a computer keyboard. Have each pair of students use something different to measure with, e.g. paperclips, craft sticks or playing cards. Have students record estimates before they measure. When students have finished measuring, have them share results. Record the different results and ask, 'Were the results the same? Why not?'

REFLECTION

Select from the following to suit your class and their learning outcomes:

- Have students share their results from Independent Tasks, Tasks 1 and 2, or from the Teaching Groups, and ask, 'Did everyone get the same results? Why not?'
- Have the students who estimated well explain what strategies they used.
- Have students explain how they measured and record a list of the key things they need to remember on the board or poster paper.

Assessment

- Have students complete **Student Assessment p. 43**.
- Review with students **Assessment Task Card 1.10**.

During the three lessons:

- Collect created items from Lesson Plan 2, Independent Tasks, Task 1, and Lesson Plan 3, Independent Tasks, Task 1 as work sample portfolios.
- Observe students as they complete Lesson Plan 2, Independent Tasks, Task 1, and Lesson Plan 3, Independent Tasks, Task 1, and mark off on a class list students who are able to make reasonable estimates and measure the length of objects reasonably accurately.
- Make notes of students completing the scaffolding tasks or the more challenging activities of the Teaching Groups.
- Review Student Book pages and make notes of areas of difficulty.

Recommendations for Future Learning

Specific to Student Assessment p. 43; if the student is experiencing difficulty:

- Q 1–2 Look for everyday opportunities in the classroom environment for the student to compare objects, e.g. seeing who gets the longest pencil or the shortest rope.
- Q 3 Provide more experiences in the classroom for the student to measure and compare two objects according to length, e.g. finding who has the longest shoe.
- Q 4–5 Have the student use NTO 1.24 'Measure It' to measure pairs of objects with the same uniform informal unit. Ask, 'How does this tell us which is longer/shorter?'

If the student has not achieved the recommended skills for this unit:

- See **Assessment Task Card 1.10** for specific recommendations.
- Have the student directly compare objects and determine the longest prior to using uniform informal units.
- Review *Nelson Maths: Victorian Curriculum Foundation Unit 7*.

If the student has achieved the recommended skills and these skills are firmly established, consider:

- Moving forward to *Nelson Maths: Victorian Curriculum Year 2 Unit 3*.
- Extending the student in any of the listed activities or tasks by using more than two objects to measure the length and compare using uniform informal units.

SAMPLE