

Suggested Lesson Plan. Review and modify these plans according to your class

Topic: Measure the school play spaces (using trundle wheel)	
Subject: Math and PDHPE	Date/Time:
Stage: Stage 2 and 3	Allocated time: 2 x 50 minute lessons
Curriculum Links: Measurement and Geometry Stage 2 and 3, Mathematics K–10 Syllabus 160	
Outcomes: A student: <ul style="list-style-type: none">• Uses appropriate terminology to describe, and symbols to represent, mathematical ideas- MA2-1WM• Selects and uses appropriate mental or written strategies, or technology, to solve problems- MA2-2WM• Checks the accuracy of a statement and explains the reasoning used- MA2-3WM• Measures, records, compares and estimates areas using square centimetres and square- MA3-9MG• Selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length. PDHPE – Stage 2 and 3, Healthy, Safe and Active Lifestyles K–10 Syllabus 160- PD2-7 <ul style="list-style-type: none">• Describes strategies to make home and school healthy, safe and physically active spaces- PD3-7• Proposes and implements actions and protective strategies that promote health, safety, wellbeing and physically active spaces.	
Learning Intention: I can use a trundle wheel to measure the perimeter of a school playground space. I understand the importance of play space for physical activity.	
Success Criteria: <ul style="list-style-type: none">• I know the length of one trundle wheel rotation.• I can measure the length and width of a playground space.• I can draw a diagram of the playground space and record the length and width.• I can work cooperatively in a small group.• I know the importance of playground space for physical activity and play.	

Lesson Content:

Prior Knowledge:

Students should have an understanding of estimation and perimeter.
Students should also be able to measure using meters.

Equipment:

- Trundle wheel
- Chalk
- or one metre ruler
- or one metre string

Lesson 1:

Aim: Students can confidently use a trundle wheel and understand that one rotation of the trundle wheel = 1 meter.

Guided Learning:

Small groups of students will investigate the length measured by one trundle wheel rotation. Explain to students that they are individually going to measure the length of 5 rotations of the trundle wheel.

After each member of the group has measured 5 rotations, the group will then compare their own measurements together.

Students have the choice of either:

- (1) Drawing a chalk line along the ground as the wheel rotates once OR
- (2) Drawing a line 1 metre long, or place the 1 metre ruler on the ground and rotate the wheel along the line.
- (3) Cutting a piece of string one metre long and place it around the wheel OR
- (4) Placing a tape measure around the wheel.

Group work Activity:

1. Students record the procedure used to measure the length of 5 rotations and report on the accuracy of their group's trundle wheel.
2. What was the length of one trundle wheel rotation?
3. Was this measurement accurate for all rotations in your group?

Wrapping up:

Teacher to discuss students answers and establish that one rotation of the trundle wheel = 1 meter.

To end the lesson, have students discuss the following question in their groups: Why do you think it is important to measure our play space at school? (This will lead into lesson 2.)

Lesson 2:

Aim: To measure the perimeter of all play spaces in the school and calculate the total area of each play space. Link the importance of play space to physical activity.

Guided learning:

- As a whole class, discuss the importance of play space in the school playground. Why is play space important to you?

Students create a mind map of why play space is important for physical activity.

- Divide students into small groups and provide each group with an allocated play space. Explain to students that their task is to measure the perimeter of the allocated play space and record the length and width in their work books.
- Ensure that all playground spaces in the school are measured.
- Students estimate each space before they begin measuring.

Group work activity:

- Working in groups, each student has a turn of measuring a part of their allocated space. Counting the number of clicks to record each metre, the others write down the distance of the 'length' and 'width' of their space.
- Students then draw the play space area that they have measured in their work books and include the length and width of their play space.

Extension Opportunity

- Add all the measured spaces together from each play space in the school to determine the total area of each play space.
- What is the total area of each play space in your school? Record and report to the whole class.
- Optional: Area can also be calculated by the teacher and/or students.

Wrapping Up:

As a whole class, discuss what the results mean to the students.

How close are we to meeting the recommended 25m² of space per student?

Pose the question: Do you think we have enough play space area in our school? Why/why not?

How can we make the most of the play space that we have in our school?

Differentiation:

- See extension activity
- Pair together students of varying levels together to provide peer support to those students who need it.
- Calculators can be used

School Play Space... how much is enough?

Background

Only a minority of Australian children meet recommended physical activity levels. With increasing student numbers, our schools need to ensure they maintain sufficient playground space to support physical activity and wellbeing.

The study

The relationship between primary school playground size and children's physical activity levels was examined. Free play space was mapped within forty-three randomly selected NSW primary schools. The play space data was cross matched with physical activity data from the 2015 Schools Physical Activity and Nutrition Survey.

Results



Recommendations



Set a benchmark of 25m² free play space per student when planning and designing schools.



Ensure loose play equipment is available.



Undertake further research on real world variables such as school design, surrounding open space and population density.

Reference:

1. Ecological study of playground space and physical activity among primary school children, 2020
Anne Grunsell, Blythe O'Hara, Bradley Drayton, Vincent Laminhan, Louise L. Hardy, Eve Clark, Paul Klarenaar, Lina Engelen <https://www.researchprotocols.org/2020/1/e15456>

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