

Important Concepts . . .

Preview Review



Mathematics

Grade 5

**W2 - Lesson 3: Estimating and
Taking Measurements**

Important Concepts of Grade 5 Mathematics

| | |
|---------------------|--|
| W1 - Lesson 1 | Number Sense Numbers 0 to 100 000 |
| W1 - Lesson 2 | Exploring Proper Fractions |
| W1 - Lesson 3 | Exploring Decimals |
| W1 - Lesson 4 | Numbers With Up to 2 Decimal Places |
| W1 - Lesson 5 | Multiplication |
| W1 - Quiz | |
| W2 - Lesson 1 | Division |
| W2 - Lesson 2 | Collecting Data and Analyzing Patterns |
| W2 - Lesson 3 | Estimating and Taking Measurements |
| W2 - Lesson 4 | Perimeter and Area Measurements |
| W2 - Lesson 5 | Metric Measurements |
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| W3 - Lesson 1 | Volume, Capacity, Mass, and Time |
| W3 - Lesson 2 | 2-D Shapes and 3-D Objects |
| W3 - Lesson 3 | Transformations |
| W3 - Lesson 4 | Statistics and Probability |
| W3 - Lesson 5 | Chance and Probability |
| W3 - Quiz | |

Materials Required

Protractor
Ruler
Calculator

A textbook is not needed.

This is a stand-alone course.

Mathematics Grade 5

Version 5

Preview/Review W2 - Lesson 3

Publisher: Alberta Distance Learning Centre

Author: Leslie Friesen

In-House Teacher: Sue Rees

Project Coordinator: Dennis McCarthy

Preview/Review Publishing Coordinating Team: Nina Johnson,
Laura Renkema, and Donna Silgard



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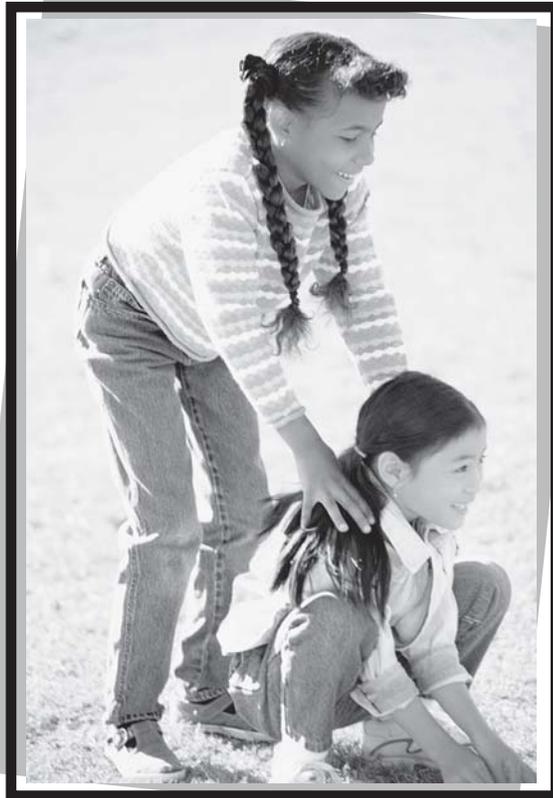
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Preview/Review Concepts for Grade Five Mathematics



*W2 - Lesson 3:
Estimating and Taking
Measurements*

OBJECTIVES

By the end of this lesson, you should

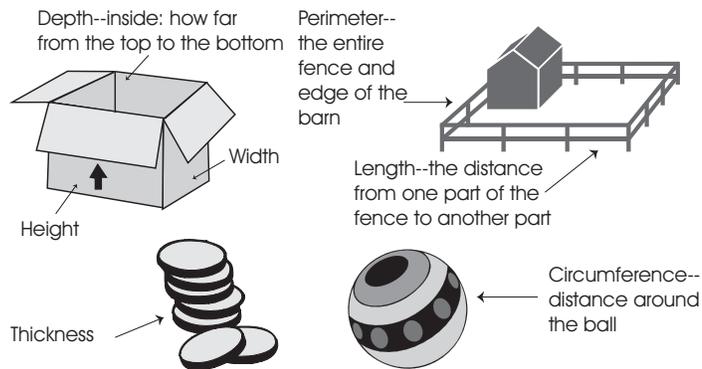
- understand the concepts of measurement including length, width, height, depth, thickness, perimeter, and circumference
- both estimate and measure various items
- use a three-step problem-solving process

Glossary of Terms

Circumference: The perimeter (distance around) of a circle or a round object is the circumference.

Depth: Measurement of the distance from top to bottom or height of an object is its depth. (3-D measurement)

Estimate: An estimate is the best *educated* guess. In this unit, you will be estimating various measurements.



Height: Height is the measurement of *how high* an object is.

Length: Measured in units such as mm, cm, and km, length is often thought of as a measurement of distance or the measurement of *how long* an object is.



Perimeter:

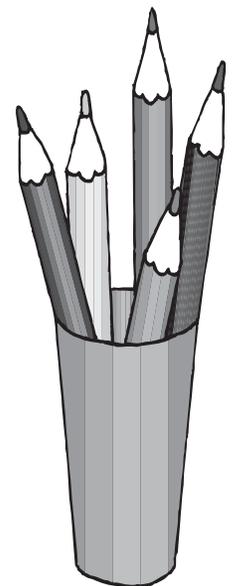
Perimeter is the outside measurement or *distance around* an object. Often people use the image of a fence around a yard to remember perimeter.

Thickness:

Thickness is the measurement between opposite sides of an object (3-D measurement).

Width:

Width is the measurement between opposite sides of an object.

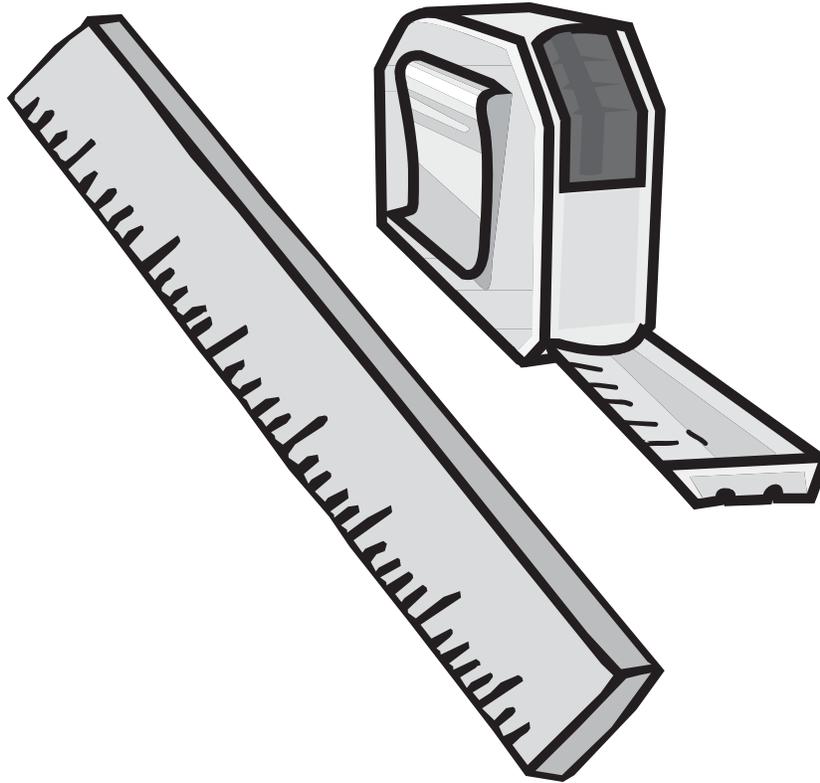


W2 - Lesson 3: Estimating and Taking Measurements

Concepts:

- Length, Width, Height, Depth, Thickness, Perimeter, and Circumference
- Choosing the Best Unit of Measurement
- Estimate and Measure Items in the Room

You need a ruler and measuring tape to complete this lesson.



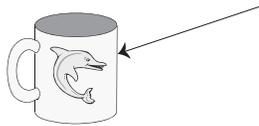
Length, Width, Height, Depth, Thickness, Perimeter, and Circumference

Half the success of taking measurements is knowing **what** to measure! Use the following terms from the glossary to show what needs to be measured.

| | | |
|----------------------|------------------|------------------|
| circumference | thickness | perimeter |
| length | depth | width |
| | | height |

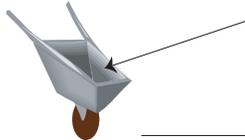
1. Each term can be used more than once.

a.



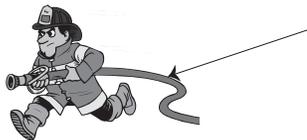
Hint: the distance around the cup

c.



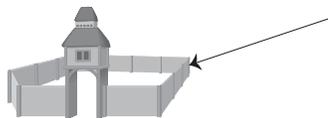
Hint: how far down inside the wheelbarrow

e.



Hint: how big is the hose

g.



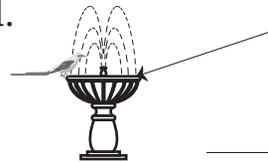
Hint: the distance around the outside of the wall

b.



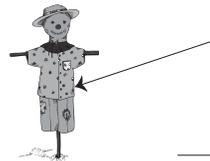
Hint: the side of the barn

d.



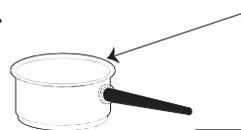
Hint: the ledge that the bird is standing on

f.



Hint: how tall is the scarecrow

h.



Hint: the distance around the pot

2. Name 3 things that you would measure using millimetres as the units.

a. _____

b. _____

c. _____

3. Name 3 things that you would measure using centimetres.

a. _____

b. _____

c. _____

4. Name 3 things that you would measure using metres.

a. _____

b. _____

c. _____

5. Use the chart on the next page to find answers for the following.

a. How many mm are in 1 cm? _____

b. How many cm are in 1 m? _____

c. How many mm are in 1 km? _____

Choosing the Best Unit of Measurement

Metric Units for Length

mm, cm, dm, m,
dam, hm, km

millimetres
centimetres
decimetres
metres
decametres
hectometres
kilometres

Units can be compared as follows:

| kilometres - Km | hectometres - hm | decametres - dam | metres - m | decimetres - dm | centimetres - cm | millimetres - mm |
|-----------------|------------------|------------------|------------|-----------------|------------------|------------------|
| 1 000 m | 100 m | 10 m | 1 m | 0.1 m | 0.01 m | 0.001 m |

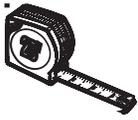
Each unit is best for measuring a particular **length**. For instance, marathons are measured in kilometres, but pencil leads are measured in mm.

Therefore 1 km = 1 000 m
and 1 000 mm = 1 m

1. Which unit would you use to measure the following? km \longleftrightarrow mm

a.  _____
a garden hose

 _____
or
_____ length of a shovel

e.  _____
or
_____ tape measure

b.  _____
or
_____ bricks

 _____
or
_____ screws

f.  _____
or
_____ wrench (the amount the mouth can slide open)

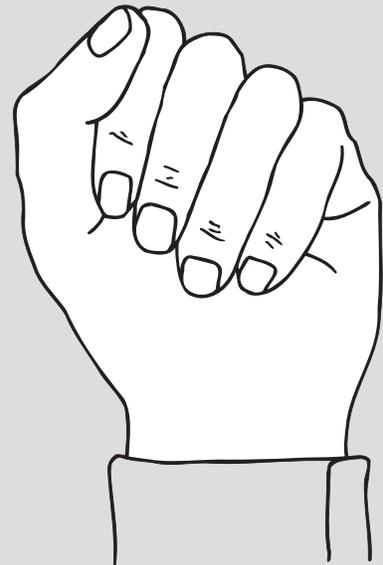
2. Which units would you use to measure the following:

- a. the distance between cities _____
- b. the distance to the moon _____
- c. the distance between houses on a city street _____

Estimate and Measure Items in the Room

How do I estimate?

1. Before you can **estimate**, you must know approximately the size of each unit. The easiest way to do this is to measure yourself. For example, how wide is your fingernail? How long is each of your steps as you walk?
2. Guess: The easiest way to estimate is to imagine that you are measuring the object with an imaginary stick. For example, if you need to estimate the length of a wall, you first familiarize yourself with the length of a metre. Next, you start at one end of the wall and mark off one metre just like you would do if you had a metre stick. Continue moving your imaginary metre stick along the wall just as you would a real metre stick.



3. Determining some body measurement is a good starting point. Measure the following with a friend:

a. Length of index finger _____

b. Width of index fingernail _____

c. Hand span (tip of thumb to end of pinky while hand is spread as wide as possible) _____

d. Length from elbow to tip of fingers _____

e. Height from floor to waist _____

f. Height from floor to chin _____

g. Width of normal walking pace _____

h. Length from shoulder to fingertip _____



Estimate the following items in your classroom.

- a. width of your desk _____
- b. height of the classroom door _____
- c. length of this page _____
- d. perimeter of your desk top _____
- e. length of your ruler _____
- f. circumference of your pencil _____
- g. depth of the bookshelf _____
- h. length of the chalkboard _____

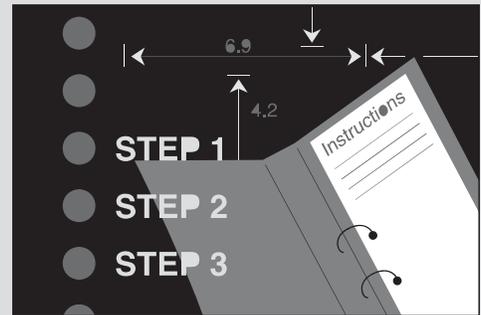
Measure the following items in your classroom.

- a. width of your desk _____
- b. height of your desk _____
- c. length of this page _____
- d. perimeter of your desk top _____
- e. length of your ruler _____
- f. circumference of your pencil _____
- g. width of the classroom _____
- h. thickness of your desktop _____

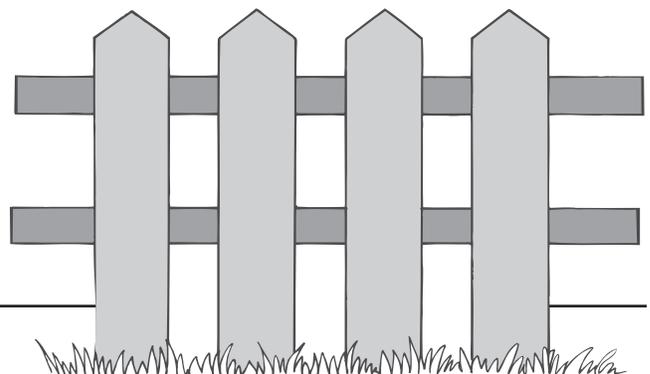
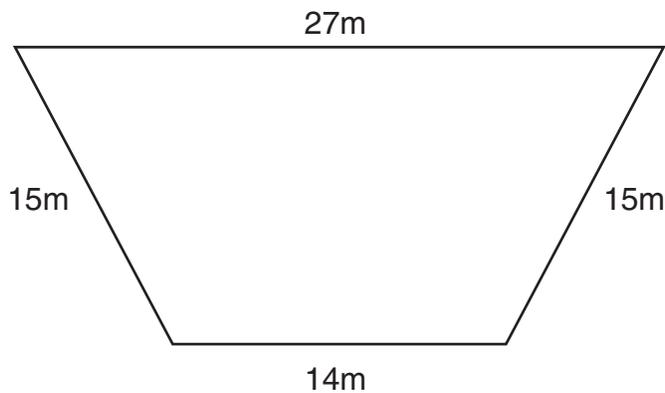


3-Step Problem-Solving Process

1. Write the problem in a number question.
2. Solve the problem. **Show your work.**
3. Write a sentence with the answer.



1. Because Mark is building a fence for his yard, he made the following diagram. He needs to know the perimeter of the yard before he can buy the fencing materials. What is the perimeter?



2. Doug wanted to measure the circumference of a giant beach ball. Unfortunately, he had only a metre stick for measuring. How can Doug measure the circumference and still have a fairly accurate measurement? Think of two ways to go about this task.

-
3. Estimate the height of the classroom. Give two reasons you chose your answer. Your answers should demonstrate that you have made an educated guess.

