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Grade 7 Math

Measurement

Clear, Readable, Reproducible Math Lessons

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Introduction

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We are sometimes asked why we make these lessons available for free. The answer is simple: we believe that you and your students will find these powerful lessons to be both useful and enjoyable. This lesson is a small part of a larger, complete classroom program. We are confident that you and your students will enjoy using this lesson and it will prove to be a useful teaching tool.

If you do find this free math lesson to be a useful resource, we hope you will consider purchasing the complete program which is reasonably priced and available from TREEHOUSEPRESS.COM.

About This Lesson

- teach core grade 7 Measurement math expectations using this comprehensive lesson
- our clear, readable text overcomes the language barrier so your students can succeed at math
- Math Talks selections provide many opportunities where students can talk, write about, discover, and extend their math
- Home Connections sections encourage parental involvement
- prefect for encouraging individual, pair shared, small group, and large group activities
- a curriculum-based, pedagogically sound lesson without the dense, complex text many students can’t read

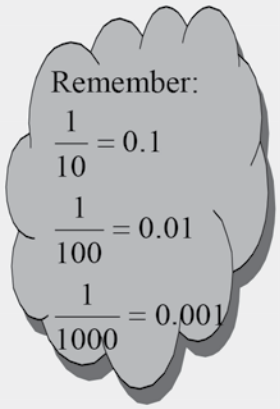
10 MEASUREMENT

The prefix milli means one-thousandth or $\frac{1}{1000}$ or 0.001 of a whole.

1 mm = $\frac{1}{1000}$ m or 0.001 m 1 m = 1000 mm

1 mL = $\frac{1}{1000}$ L or 0.001 L 1 L = 1000 mL

1 mg = $\frac{1}{1000}$ g or 0.001 g 1 g = 1000 mg



The prefix centi means one-hundredth or $\frac{1}{100}$ or 0.01 of a whole.

1 cm = $\frac{1}{100}$ m or 0.01 m 1 m = 100 cm

The prefix kilo means one thousand times or 1000 times a whole.

1 km = 1000 m 1 m = $\frac{1}{1000}$ km

1 kg = 1000 g 1 g = $\frac{1}{1000}$ kg

1. Complete the following.

3.4 kg = _____ g	12.6 km = _____ m	150 mL = _____L
1250 g = _____ kg	12 580 m = _____ km	950 mL = _____L
25 mg = _____ g	498 cm = _____ m	1240 mL = _____ L
4.32 kg = _____ g	53 m = _____ cm	8.5 L = _____ mL
750 mg = _____ g	420 mm = _____ m	65 mL = _____ L
0.34 g = _____ mg	1.2 m = _____ mm	2.87 L = _____ mL

2. At the Farmers Market, JPG Cheese sells their cheddar cheese at $8/kg. Find the cost for each of the following.

2.3 kg 0.25 kg 1846 g

Their Havarti cheese costs $1.69/100 g. How much would the following cost?

300 g 725 g 2.5 kg

3. Selena is helping her dad put baseboards around their downstairs playroom. The baseboards she likes cost $2.29/m. Estimate and then calculate the cost of the baseboards required.

Round up to the nearest metre.

640 cm

380 cm

4. A 2 L carton of juice costs $3.99. A smaller carton of 350 mL costs $0.60. Which is the better buy? Show your work. Compare with your partner.

5. The track around the school soccer field is 350 m long. Jonah runs around the track twice during lunch each school day.

How many days will it take him to run 10 km?

If there are 192 days in the school year, how many km will he run in one year?

6. An average size potato weighs about 170 g. About how many potatoes would there be in a 5 kg bag?

7. Amira invites 12 friends to her birthday party. She wants to have at least 3 drinks for each of the people at her party. An average drink contains 145 mL of juice. How many litres of juice should she buy?

Area

A square metre is 1 m by 1 m or 100 cm by 100 cm.

Show a model of a square metre on the blackboard or on the floor using masking tape. Show a part of the cm grid on your square metre.

How many cm^2 would there be in 1 m^2?

1 cm^2

1 m^2 = _____ cm^2

Work with a partner.

Use the above fact to answer the following. 1 cm^2 = _____ m^2

What is the ratio of 1 cm^2: 1 m^2?

What is the ratio of 1 m^2: 1 cm^2?

1. Complete the following.

1.2 m^2 = _____ cm^2	23.6 m^2 = _____ cm^2
0.56 m^2 = _____ cm^2	0.035 m^2 = _____ cm^2
45 250 cm^2 = _____ m^2	8780 cm^2 = _____ m^2
720 cm^2 = _____ m^2	90 cm^2 = _____ m^2

2. What is the area of the white rectangle below in cm^2?

How many of these white rectangles would be in 1 m^2?

3. Examine your Base Ten blocks.

How many base ten small cubes would be required to fill 1 m^2?

How many base ten longs would be required to fill 1 m^2?

How many base ten flats would be required to fill 1 m^2?

4. Ari wants to paint the basement floor for his dad. The basement is a rectangle with approximate dimensions 850 cm by 680 cm. A pail of paint will cover 30 m^2. How many pails of paint will he need if he plans to do two coats of paint?

Remember to change to the same units..

5. Suri is helping her dad sod the backyard. Their backyard is a rectangle 12.5 m by 15.8 m. One roll of sod is 60 cm by 200 cm.
How many rolls of sod will have to be purchased?

6. How many m^2 are there in 1 km^2?

7. A hectare is a plot of land that is 10 000 m^2 in area. This is equivalent to the area of a square 100 m by 100 m. Is the area of your classroom bigger or smaller than a hectare?
About how many classrooms like yours would equal a hectare?
About how many hectares would your playground be?

Real-Life Applications Of Area

Work with a partner.

1. Sports
   A school soccer field is 60 m by 110 m. What is the area in m^2?

2. Carpetting
   Monique is going help her mom carpet the basement recreation room. The dimensions of the rectangular room are 4.5 m by 3.6 m. Carpet is sold in 3 m widths. How much carpet will she need to buy? Show how she will piece the carpet together to cover the floor. How much carpet will be left over?

3. Repairing the Roof
   Ava's father is going to replace his roof shingles. The roof is made up of two rectangular sections, each with dimensions 6.4 m by 4.1 m. A bundle of shingles covers 3 m^2. How many bundles will he need to buy? He wants to buy 10% more to allow for cutting and trimming.

4. Landscaping
   Julie-Anne mows lawns for a landscaping company. She walks at an average speed of 20 m/min when mowing. The lawnmower cuts the lawn at a width of 60 cm. About how long will it take her to mow a lawn 10 m by 12.6 m?

5. Land Area
   Land area is measured in hectares (1 hectare = 10 000 m^2). Land area is also measured in acres. 1 acre is equivalent to a square 208 feet by 208 feet. 1 foot = 30 cm. Compare a hectare with an acre? How many acres are there in 1 hectare?

   Wesley lives on a farm. The farm is a rectangular lot 220 m by 500 m. What is the area of the farm in hectares?

6. Gardening
   Gina wants to plant tomatoes in a rectangular garden plot which is 2 m by 3 m. The label on the tomatoes says to plant the tomato plants 50 cm apart from each other. Show how she can arrange her garden. How many tomato plants should she buy?

7. Research and Report on Real World Problems Involving Area

Examples:
Zamboni cleaning an ice surface
Laying sod
Buying material for curtains
Painting a house
Paving a road
Watering the lawn
Wallpapering
Parking cars
Sports fields and arenas

Choose 5 examples (you can select some of your own topics).
Discuss how area is important in each topic.
Create two problems for each topic.
Solve each problem.
Share your problems with your partner.
Compare your solutions with your partner's solutions.

8. Create and solve two problems about Olympic size soccer fields.
An Olympic size soccer field can vary from 100 – 110 m in length and 64 – 75 m in width.
Share them with your partner.

Chapter Test

Multiple Choice: Circle the correct answer for each.

1. 47.5 cm equals

A. 475 m	B. 4.75 m	C. 0.475 m	D. 0.0475 m

2. 1.87 L equals

A. 187 mL	B. 1870 mL	C. 18 700 mL	D. 187 000 mL

3. 350 mg equals

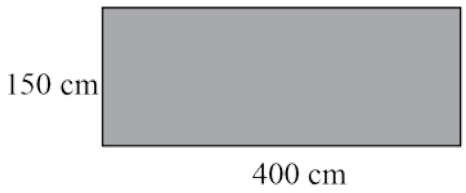
A. 3.5 g	B. 3.5 kg	C. 0.35 g	D. 0.35 kg

4. 1 m^2 equals

A. 100 cm^2	B. 1000 cm^2	C. 10 000 cm^2	D. 100 000 cm^2

5. The area of the rectangle in m^2 is

A. 0.6 m^2	B. 6 m^2
C. 60 m^2	D. 600 m^2



6. Three bags of milk contain 4 L of milk. About how much milk would each bag contain?

A. 133 mL	B. 333 mL	C. 1333 mL	D. 13 333 mL

7. Sweet potatoes are sold at the market for $2.50 / kg. Jenni buys some sweet potatoes. They weigh 860 g. How much would they cost?

A. $1.08	B. $2.15	C. $2.91	D. $3.09

8. Jackson jogs 200 m in 1 min. How long would it take him to jog 3 km?

A. 15 min	B. 20 min	C. 25 min	D. 30 min

9. A sheet of paper is 20 cm by 25 cm? How many sheets of paper would be required to create an area of 1 m^2?

A. 4	B. 5	C. 10	D. 20

Short Answer: Write your solutions in the spaces provided.

10. Jenna bought 3 cartons of juice for her daughter's birthday party. Each carton contains 1.87 L. She estimates that the 20 children at the party would have 2 drinks on the average. Each drink is about 160 mL. Did she buy enough juice? Show your work.

If not how many more cartons should she have bought?

11. Organic bananas sell for $1.59 / kg. How much would 764 g of bananas cost?

An average banana weighs 160 g. How many bananas could you buy for $5?

12. Gennaro's hall is a rectangle 2.4 m wide by 5.7 m long. He is helping his dad tile the hall. They are using squares tiles with sides 30 cm long. How many tiles will they need? Disregard wastage.

Math 7

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Thank You for Using This Lesson with Your Class

Thank you for using this lesson with your class. Hopefully you found it very useful. With this lesson, your students should have been given comprehensive exposure to the math strand Measurement. They will have worked through core Grade 7 Measurement math expectation.

Consider Ordering the Complete *Personal StudentBOOK*

If you found this lesson helpful, imagine using an extensive collection of math lessons across the school year. This free lesson is one of 13 found in our Tree House Press *Personal StudentBOOK* titled Math 7 Blackline Masters (see below for the link). Imagine having a class set of this resource! Further, we invite you to review our Reading Program and our Writing Program. We encourage you to share this information with your principal and colleagues. These highly effective programs contain many of the benefits and features you experienced using this free classroom lesson.

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