



SHELL  
EDUCATION

Full-color  
Teacher  
Resource CD



# Leveled Texts for Mathematics

## Measurement


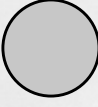
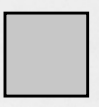



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# How to Use This Product

## Readability Chart

Title of the Text	 Star	 Circle	 Square	 Triangle
Measuring the Length of Objects	1.8	3.5	5.0	6.5
Measuring the Weight of Objects	2.2	3.4	5.0	6.5
Measuring Time	2.2	3.4	5.1	6.6
Measuring Temperature	2.3	3.5	5.5	6.5
Measuring Angles	2.2	3.2	5.4	6.7
Estimating Measurements	2.2	3.4	5.4	6.6
Converting Length	2.2	3.5	5.5	6.9
Converting Weight	2.2	3.5	5.5	7.1
Measuring the Perimeter of Regular Shapes	2.0	3.0	5.0	6.5
Measuring the Area of Regular Shapes	2.2	3.5	5.1	6.5
Measuring the Perimeter of Irregular Shapes	2.2	3.0	5.1	6.5
Measuring the Area of Irregular Shapes	2.1	3.5	5.2	6.5
Measuring the Volume of Solids and Liquids	2.1	3.5	5.2	6.6
Converting Volume	2.2	3.3	5.5	6.8
Measuring Surface Area	2.2	3.4	5.0	6.5

## Components of the Product

### Strong Image Support

- Each level of text includes multiple primary sources. These documents, photographs, and illustrations add interest to the texts. The images also serve as visual support for second-language learners. They make the texts more context-rich and bring the examples to life.



# Converting Weight



You want to cook. You need things. You make a shopping list. You put 1 pound of flour. You put 2 pounds of rice. And you put 32 ounces of sugar. Then you go to the store. The bags say different amounts! There are 24 ounces of flour. There are 18 ounces of rice. And there are 2 pounds of sugar. What if you buy those bags? Will you have enough? Will you need to buy 2 bags for some things? How can you tell?

Do you know how to convert weight? This would help you. There are rules you can follow. They let you convert from one unit to another.

## Converting Weights in English Units

Measurement	Conversion
1 pound	16 ounces or .0005 tons
1 ton	2,000 pounds or 32,000 ounces

**English Units Conversion Rule One:** To convert a small unit to a bigger one, divide.

You need 32 ounces of sugar. There are 16 ounces in a pound. You should divide 32 by 16. This shows that 32 ounces is 2 pounds. The bag is the right size.

$$32 \text{ ounces} \div \frac{1 \text{ pound}}{16 \text{ ounces}} = 2 \text{ pounds}$$

**English Units Conversion Rule Two:** To convert a big unit to a smaller one, multiply.

One pound of flour is 16 ounces. Two pounds of rice is 32 ounces. How do you know this? You multiply the 2 pounds you need by 16. What about your list? One bag of flour would be enough. Would one bag of rice be enough?

$$2 \text{ pounds} \times \frac{16 \text{ ounces}}{1 \text{ pound}} = 32 \text{ ounces}$$

## Converting Weights in the Metric System

Converting units in metric can be easy. The metric system is based on groups of 10. You have to multiply by 10s. Or you need to divide by 10s. This will make units either larger or smaller.

What is a base unit? It is what you are using to measure. The base unit of mass is the gram. This is for the metric system. Big things are measured in kilograms. For small things, use milligrams.

## Converting Weights in the Metric System *(cont.)*

Metric Unit	Unit Multiple
kilograms	1,000 (one thousand)
hectograms	100 (one hundred)
decagrams	10 (ten)
<b>Base Unit:</b> gram	1
decigrams	0.1 (one-tenth)
centigrams	0.01 (one-hundredth)
milligrams	0.001(one-thousandth)

**Metric Conversion Rule One:** To convert from a small unit to a bigger one, divide.

Luke is 95,002,200 milligrams. You can convert that to kilograms. Divide by 1,000,000. Why? Do this because milligrams and kilograms are 6 units apart. You get 95.002200 kilograms. That is close to 95 kilograms. That is how much Luke weighs.

$$95,002,200 \text{ milligrams} \div \frac{1 \text{ kilogram}}{1,000,000 \text{ milligrams}} = 95 \text{ kilograms}$$

**Metric Conversion Rule Two:** To convert from a big unit to a smaller one, multiply.

You have a bag. It is 5.3 kilograms. You want to find out how many grams that is. You multiply by 1,000. This would give you 5,300 grams.

$$5.3 \text{ kilograms} \times \frac{1,000 \text{ gram}}{1 \text{ kilogram}} = 5,300 \text{ grams}$$

## Converting Weight in Our Daily Lives

You are in your car. There is a bridge. You see a sign. You read it. “Take care! Top Weight is 4,000 pounds.” Your car is less than two tons. But is that too heavy? How many pounds is that? You need to convert from tons to pounds. You want to make sure that the car is not too heavy. Think of when you cook. You may need to convert ounces to pounds. People convert weight all the time. They do it every day!

### You Try It

Convert these units:

$$1.5 \text{ tons} = \underline{\hspace{2cm}} \text{ pounds}$$

$$2,465 \text{ milligrams} = \underline{\hspace{2cm}} \text{ grams}$$



# Converting Weight



You make a shopping list. You put 1 pound of flour. You put 2 pounds of rice. And you put 32 ounces of sugar. When you get to the store you find that the bags say different amounts. There are 24 ounces of flour. There are 18 ounces of rice. And there are 2 pounds of sugar. If you buy those bags, will you have enough of each thing? Will you need to buy 2 bags for some of them?

Knowing how to convert weight would help you. There are different rules you can follow. They will help you to convert from one unit to another.

## Converting Weights in English Units

Measurement	Conversion
1 pound	16 ounces or .0005 tons
1 ton	2,000 pounds or 32,000 ounces

**English Units Conversion Rule One:** To convert a small unit to a bigger one, divide.

You need 32 ounces of sugar. There are 16 ounces in a pound. So, you should divide 32 by 16. This shows that 32 ounces equals 2 pounds.

$$32 \cancel{\text{ ounces}} \div \frac{1 \cancel{\text{ pound}}}{16 \cancel{\text{ ounces}}} = 2 \text{ pounds}$$

**English Units Conversion Rule Two:** To convert a big unit to a smaller one, multiply.

One pound of flour is 16 ounces. Two pounds of rice would be 32 ounces. You multiply the 2 pounds you need by 16. In the problem above, one bag of flour would be enough. Would one bag of rice be enough?

$$2 \cancel{\text{ pounds}} \times \frac{16 \cancel{\text{ ounces}}}{1 \cancel{\text{ pound}}} = 32 \text{ ounces}$$

## Converting Weight in the Metric System

Converting units in metric can be easy. This is because the metric system is based on groups of 10. You have to multiply by 10s. Or you need to divide by 10s. This will make units either larger or smaller.

The base unit is what you are using to measure. The base unit of mass in the metric system is the gram. Big weights are measured in kilograms. Small weights use milligrams.

## Converting Weights in the Metric System *(cont.)*

Metric Unit	Unit Multiple
kilograms	1,000 (one thousand)
hectograms	100 (one hundred)
decagrams	10 (ten)
<b>Base Unit:</b> gram	1
decigrams	0.1 (one-tenth)
centigrams	0.01 (one-hundredth)
milligrams	0.001 (one-thousandth)

**Metric Conversion Rule One:** To convert from a small unit to a bigger one, divide.

Luke weighs 95,002,200 milligrams. You can convert that to kilograms. Divide by 1,000,000. This is because milligrams and kilograms are 6 units apart. This gives you 95.002200 kilograms. That is close to 95 kilograms.

$$95,002,200 \text{ milligrams} \div \frac{1 \text{ kilogram}}{1,000,000 \text{ milligrams}} = 95 \text{ kilograms}$$

**Metric Conversion Rule Two:** To convert a big unit to a smaller unit, multiply.

You are carrying a bag. It weighs 5.3 kilograms. You want to find out how many grams that is. You multiply by 1,000. This would give you 5,300 grams.

$$5.3 \text{ kilograms} \times \frac{1,000 \text{ gram}}{1 \text{ kilogram}} = 5,300 \text{ grams}$$

## Converting Weight in Our Daily Lives

You cross over a bridge. You see a sign. It reads, “Caution: Maximum Weight 4,000 pounds.” You know that your car weighs less than two tons. You need to convert from tons to pounds. You want to make sure that the car is not too heavy. When cooking, you may need to convert ounces to pounds. There are many times when people convert weight every day!

### You Try It

Convert the following units of measurement:

$$1.5 \text{ tons} = \underline{\hspace{2cm}} \text{ pounds}$$

$$2,465 \text{ milligrams} = \underline{\hspace{2cm}} \text{ grams}$$



# Converting Weight



On your grocery list you have 1 pound of flour and 2 pounds of rice. You have 32 ounces of sugar. When you get to the store you find that the packages say 24 ounces of flour, 18 ounces of rice, and 2 pounds of sugar. If you buy those packages, will you have enough of each ingredient? Or will you need to buy extra packages for some of the items?

Knowing how to convert weight would help you solve this problem. There are different rules you can follow to convert from one unit of weight to another.

## Converting Weights in English Units

Measurement	Conversion
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You need 32 ounces of sugar. You should divide 32 ounces by 16. This is because there are 16 ounces in a pound. This shows that 32 ounces equals 2 pounds.

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**English Units Conversion Rule Two:** To convert a larger unit to a smaller unit, you should multiply.

One pound of flour is 16 ounces. Two pounds of rice would be 32 ounces. You multiply the 2 pounds you need by 16. In the problem above, one package of flour would be enough. Would one package of rice be enough?

$$2 \text{ pounds} \times \frac{16 \text{ ounces}}{1 \text{ pound}} = 32 \text{ ounces}$$

## Converting Weight in the Metric System

Converting units in the metric system can be easy. This is because the metric system is based on multiples of 10. You have to multiply or divide by multiples of 10 to make units either larger or smaller.

The base unit is the unit you are using to measure. The base unit of mass in the metric system is the gram. This means that the largest weights are measured in kilograms and the smallest weights in milligrams.



## Converting Weights in the Metric System *(cont.)*

Metric Unit	Unit Multiple
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**Metric Conversion Rule Two:** To convert a larger unit to a smaller unit, you must multiply.

You are carrying a bag that weighs 5.3 kilograms. You want to find out how many grams that is. You multiply by 1,000. This would give you 5,300 grams.

$$5.3 \text{ kilograms} \times \frac{1,000 \text{ gram}}{1 \text{ kilogram}} = 5,300 \text{ grams}$$

## Converting Weight in Our Daily Lives

You cross over a bridge. You notice that the sign reads, “Caution: Maximum Weight 4,000 pounds.” You know that your car weighs less than two tons. So you would need to convert from tons to pounds to make sure that the car is not over the weight limit. When cooking, you may need to convert ounces to pounds. There are many times when people convert weight every day!

### You Try It

Convert the units of measurement:

$$1.5 \text{ tons} = \underline{\hspace{2cm}} \text{ pounds}$$

$$2,465 \text{ milligrams} = \underline{\hspace{2cm}} \text{ grams}$$



# Converting Weight



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### You Try It

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$$2,465 \text{ milligrams} = \underline{\hspace{2cm}} \text{ grams}$$

