<u>convert</u> (kuhn-**vurt**) – the change from one thing to another. When you are talking about measurement, you are changing from one unit of measure to another unit of measure. (I want to convert from minutes to seconds.)

<u>conversion</u> (kuhn-**vur**-shuhn) – a change from one thing to another. (I had no trouble with the conversion of days to weeks.)

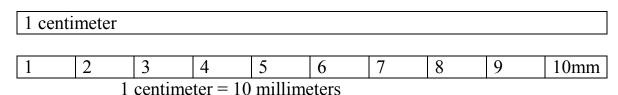
Say each word out loud and write it in the blank.

convert
conversion
Write each definition in your own words.
convert
conversion
Write two sentences using each word. convert 1.
2.
conversion 1.
2.
Study the following. Review of time units of measure. 60 seconds = 1 minute 60 minutes = 1 hour 24 hours = 1 day 7 days = 1 week 52 weeks = 1 year 365 days = 1 year

Make flash cards to study these if you don't know them. Study the flash cards every day for at least a week.

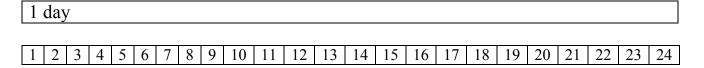
When converting, you are changing the units of measure, not the actual amount of what you have.

### Example:



The same amount, with different units of measure.

### Example:



1 day = 24 hours Same length, with different units of measure.

**Draw an example of 1 centimeter = 10 millimeters.** 

Draw an example of 1 week = 7 days.

There are two parts to converting a unit of measure to another unit of measure.

<u>Part 1</u> is figuring out the relationship between the original unit of measure and the new one.

Example: convert 14 days, to weeks.

Ask yourself what the relationship is between the two units of measure. <u>Days</u> is the original unit of measure, and <u>weeks</u> is the new one.

The relationship between days and weeks is: There are 7 days in 1 week.

### Answer these questions related to Part 1.

1.	What is the relationship between hours and days?
2.	What is the relationship between days and years?
3.	What is the relationship between hours and minutes?
4.	What is the relationship between seconds and minutes?
5.	To convert 48 hours to days, what relationship do you need to know?
6. knov	To convert 240 minutes to hours, what relationship do you need to v?
7.	To convert 4 years to weeks, what relationship do you need to know?

Part 2 is figuring out whether to multiply or divide.

If your original unit of measure is a larger size (like weeks), and you are changing it to a smaller unit of measure (like days), the <u>number</u> of units will be larger, so you <u>multiply</u> the original number by the relationship number.

If your original unit of measure is a smaller size (like days), and you are changing it to a larger unit of measure (like weeks), the <u>number</u> of units will be smaller, so you <u>divide</u> the original number by the relationship number.

Example: Convert 2 weeks, to days.

Part 1: the relationship is 1 week = 7 days

Part 2: Weeks are larger than days, so the <u>number</u> of units will be larger, so you multiply.

Example: Convert 14 days, to weeks.

Part 1: the relationship is 1 week = 7 days

Part 2: Days are smaller than weeks, so the <u>number</u> of units will be smaller, so you divide.

#### Fill in the blanks.

riii iii tiit biaiiks.		
1. What is part 1 f	for converting units?	
2. What is part 2 f	for converting units? If your	original unit of measure is
a size, and	l you are changing it to a	unit of measure,
the <u>number</u> of units w	ill be so you	the original number by
the relationship numb	er.	
3. If your original	unit of measure is a	size, and you are
changing it to a	unit of measure, the nur	nber of units will be
so you	the original number by t	the relationship number.

# Answer these questions related to Part 2.

		measure is seconds, and I want to convert to vide?
	If my original unit of nultiply or divide?	measure is years, and I want to convert to days,
	, ,	measure is hours, and I want to convert to vide?
		measure is weeks, and I want to convert to le?
Con	vert the following using	ng multiplication.
1.	3 minutes =	seconds
2	4 hours =	minutes
3	2 days =	hours
4	5 weeks =	days
5.	2 years =	weeks
6.	2 years =	days
Conv	ert the following usin	g division.
1.	120 seconds =	minutes
2.	180 minutes =	hours
3.	48 hours =	days
4.	28  days =	weeks
5.		years
6.	730 days =	years
Conv	ert the following.	
1	3 meters =	centimeters
		centimeters
3.	10 kilograms =	grams
4.	400 milliliters =	liters
	20 liters =	
	300 centimeters =	

Drawings can also help you figure out whether to multiply or divide.

Example: Convert 2 weeks, to days.

Part 1: the relationship between weeks and days is there are 7 days in one week.

1 week	

1	2	3	4	5	6	7
day	/S					

Part 2:

2 weeks can be shown as follows.

1 week	2 weeks

Replacing each week with 7 days gives the following.

								0					
1	2	3	4	5	6	7	1	2	3	4	5	6	7

You can see you need to <u>multiply</u>, to get the answer.

2 weeks times 7 = 14 days.

# Solve the following using drawings.

1. Convert 2 centimeters, to millimeters.

2. Convert 3 centimeters to millimeters.

3. Covert 3 weeks, to days.

Here is an example of a drawing showing division.

Example: Convert 14 days, to weeks.

Part 1: the relationship between weeks and days is there are 7 days in one week.

1 week								
1	2	3	4	5	6	7		

days

Part 2:

14 days can be shown as follows

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Replacing each group of 7 days, with one week gives the following.

	 	<b>y</b> ,	
1 week		2 weeks	

You can see you need to divide, to get the answer.

14 days divided by 7 = 2 weeks.

### Solve the following using drawings.

1. Convert 20 millimeters to centimeters.

2. Convert 30 millimeters to centimeters.

3. Covert 21 days, to weeks.

Sometimes exact drawing are too difficult because the numbers are too large.

You can do rough sketches as shown below.

Example: Convert 3 minutes, to seconds.

Part 1: The relationship between minutes and seconds is, there are 60 seconds in one minute.

1 minute

1,2,3.....60 seconds

Part 2:

3 minutes can be shown as the following.

1 minute	2 minutes	3 minutes

Replacing each minute with 30 seconds gives the following.

1,2,3,30 seconds	1,2,3,30 seconds	1,2,3,30 seconds

You can see you need to <u>multiply</u>, to get the answer.

3 minutes times 30 = 90 seconds.

## Solve the following using drawings.

#### CHAPTER 14 - METRIC CONVERSION

_	7	40
5.	2 years =	days
$\sim$ .	<b>2</b> , cars	aa y b

### Convert the following using multiplication.

1. 3 centimeters = millimeters

2. 5 centimeters = millimeters

3. 3 meters = \_\_\_\_\_ centimeters

4. 5 meters = \_\_\_\_\_ centimeters

5. 8 meters = \_\_\_\_\_ centimeters

6. 2 kilometers = \_\_\_\_\_ meters

7. 3 kilometers = \_\_\_\_\_\_meters

8. 5 kilometers = \_\_\_\_\_meters

9. 2 grams = \_\_\_\_\_ milligrams

10. 3 grams = \_\_\_\_\_milligrams

11. 4 grams = \_\_\_\_\_ milligrams

12. 5 kilograms = \_\_\_\_\_ grams

13. 6 kilograms = grams

14. 8 liters= \_\_\_\_\_ milliliters

15. 3 liters = \_\_\_\_\_ milliliters

16. 6 liters = \_\_\_\_\_milliliters

17. 2 kiloliters = \_\_\_\_\_ liters

18. 3 kiloliters = \_\_\_\_\_ liters

19. 5 kiloliters = \_\_\_\_\_ liters

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### Convert the following using division.

- 1. 30 millimeters = centimeters
- 2. 50 millimeters = \_\_\_\_\_ centimeters
- 3. 200 centimeters = \_\_\_\_\_ meters
- 4. 300 centimeters = \_\_\_\_\_ meters
- 5. 500 centimeters = \_\_\_\_\_ meters
- 6. 2000 meters = \_\_\_\_\_ kilometers
- 7. 6000 meters = \_\_\_\_\_ kilometers
- 8. 3000 milligrams = \_\_\_\_\_ grams
- 9. 4000 milligrams = \_\_\_\_\_ grams
- 10. 8000 milligrams = \_\_\_\_\_ grams
- 11. 2000 grams = \_\_\_\_\_ kilogram
- 12. 6000 grams = \_\_\_\_\_ kilogram
- 13. 2000 milliliters = liters
- 14. 3000 milliliters = liters
- 15. 3000 liters = \_\_\_\_\_ kiloliters
- 16. 10,000 liters= \_\_\_\_\_ kiloliters

#### Convert the following using multiplication or division.

1. 6 centimeters = millimeters

2. 500 centimeters = meters

3. 2000 grams = \_\_\_\_\_kilograms

4. 7 liters = \_\_\_\_\_ milliliters

5. 2 kilometers = \_\_\_\_\_ meters

6. 40 millimeters = \_\_\_\_\_centimeters

7. 4 kiloliters = \_\_\_\_\_liters

8. 7000 liters = \_\_\_\_\_kiloliters

9. 2000 meters = \_\_\_\_\_kilometers

10. 4 centimeters = \_\_\_\_\_millimeters

11. 5 kilograms = \_\_\_\_\_grams

12. 4000 meters = \_\_\_\_\_kilometers

13. 5000 grams = kilograms

14. 6000 liters = \_\_\_\_\_kiloliters

15. 2 liters = \_\_\_\_\_milliliters

16. 2 meters = \_\_\_\_\_centimeters

17. 12 grams = \_\_\_\_\_milligrams

18. 400 centimeters = \_\_\_\_\_meters

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