

Name: \_\_\_\_\_

## 7<sup>th</sup> Grade Summer Science Assignment

### Scientific Method Practice

**Directions:** Read the text below. Then match each statement with the number of the correct step in the scientific method.

The scientific method is a set of steps that scientists use in order to learn more about something. By following the scientific method, scientists can gather information, perform experiments, and discover new things about our world. The scientific method follows this general pattern:

- 1. identify a problem or question**
- 2. research information about the problem or question**
- 3. generate a hypothesis about the problem or question**
- 4. design and perform an experiment**
- 5. gather and analyze observations from the experiment**
- 6. draw conclusions that are supported by your experiment**

\_\_\_\_\_ Elissa hypothesizes that crickets make more noise on hot nights than on cool nights.

\_\_\_\_\_ Elissa counts the number of chirps made by two groups of crickets. One group of crickets is in a cool cage and one group is in a warm cage. There are five crickets in each cage and she counts for 30 minutes.

\_\_\_\_\_ Elissa goes to the library to read information in an encyclopedia about the habits of crickets.

\_\_\_\_\_ Elissa wonders what causes crickets to make more noise some night than others

\_\_\_\_\_ Elissa makes a chart of the number of chirps made by the two groups of crickets and compares the findings.

\_\_\_\_\_ Elissa concludes that crickets chirp more often on hot nights than on cool nights.

Name two ways Elissa controlled her experiment. (What did she keep the same?)

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What was Elissa's variable?

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# Analyzing Data



1. An experiment studies the effects of an experimental drug on the number of offspring a mother mouse has. 10 female mice are given the drug and then impregnated. The number of mice in their litters is compared to the litters of mice that did not take the drug.

Number of Babies in Litter										
Group A (drug)	5	6	4	8	5	2	7	12	12	8
Group B (control)	4	4	6	6	5	6	4	7	5	3

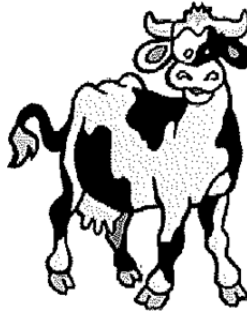
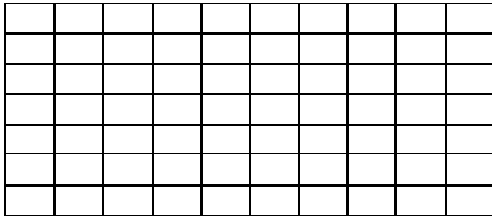
Based on the data, what would you conclude about the drug, did it work?

## 2. Cow Growth Rates

A type of feed claims to boost the growth rate of cows. The feed is tested on two twin newborn cows. Bessie receives the experimental feed, and Bertha receives regular corn feed. Their weights are recorded below.

Month	April	May	June	July	Aug
Bessie	150 lbs	210 lbs	260 lbs	320 lbs	400 lbs
Bertha	150 lbs	250 lbs	290 lbs	340 lbs	400 lbs

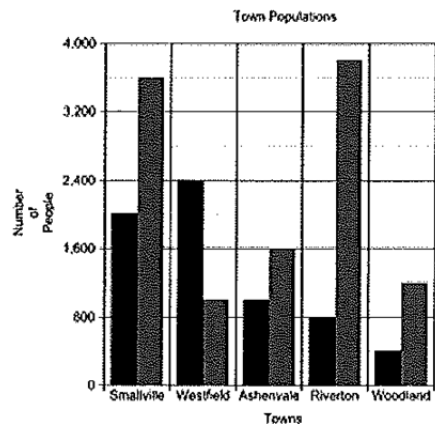
Graph the data; use a dotted line for Bessie and a straight line for Bertha. Make sure you label the X and Y axis.



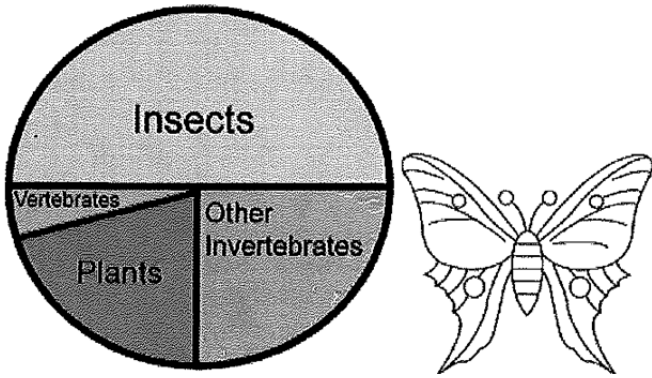
Both cows ended at the same weight, but did the experimental feed change the way they gained weight at all? Describe your conclusions about the experimental feed and explain why it is important that the experiment used twin cows?

## 3. Town Populations Graph

- According to the graph, which town grew the fastest?
- Which town declined in population?
- Which town had the smallest change in population?
- What is the population of Woodland in 2000?



#### 4. Insect Graph

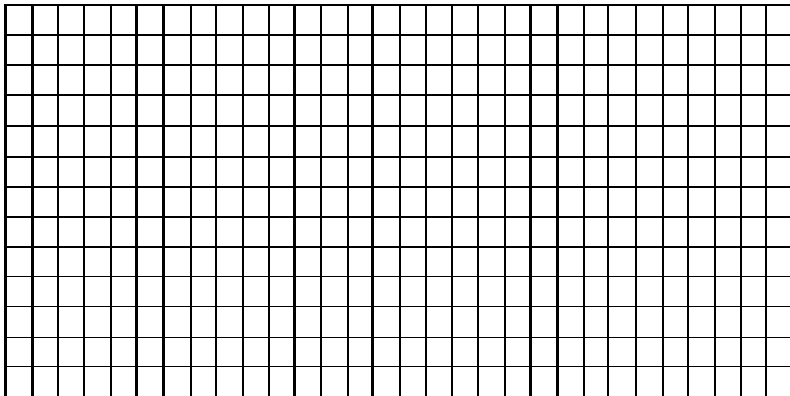


- According to the graph, which group of organisms has the most number of species?
- What is the total percentage for all invertebrates?
- Approximately what percentage are vertebrates?

#### 5. Tiger Shark Population

The population of tiger sharks off the coast of Florida was recorded over several months. Graph the tiger shark populations below.

January - 12	May-34	September-72
February - 15	June-44	October-85
March -25	July-49	November-98
April- 35	August- 55	December- 105



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The number of nurse sharks was also recorded for this time period; though the person recorded the number was not as reliable as the person recording tiger shark numbers. The following data was taken on nurse sharks. Use a different color to graph the nurse shark population on the graph above.

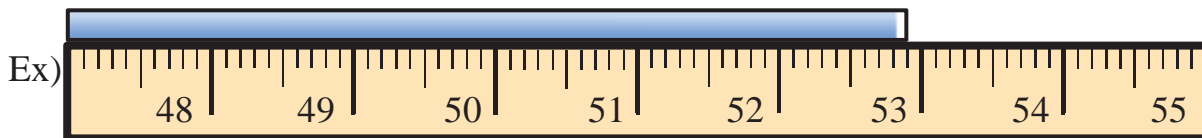
March- 60 | April- 52 | July- 38 | August- 20 | November- 14 |  
December- 11

- At what month would you expect the number of nurse sharks to equal the number of tiger sharks?
- What does the graph tell you about the trends both shark populations?

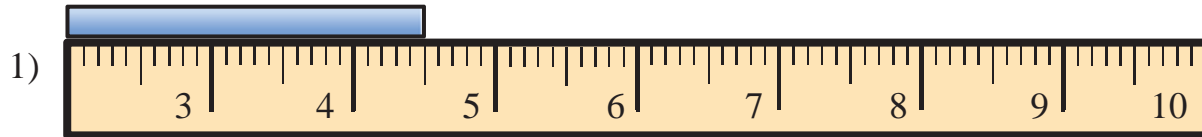


Determine the length of the bar above the ruler. Write your answer in centimeters.

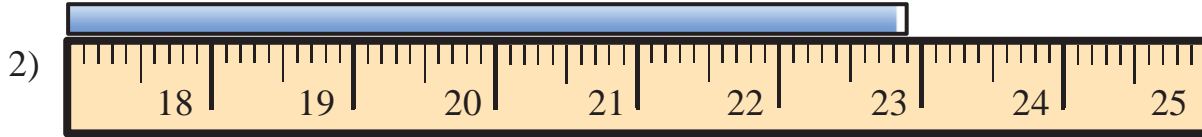
Answers



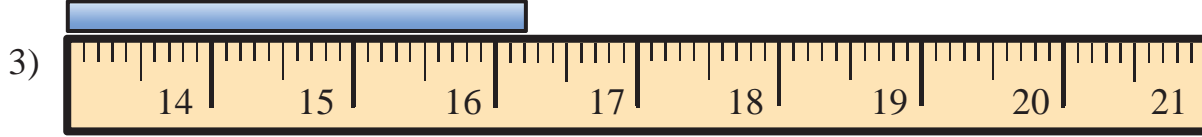
Ex. **52.9 cm**



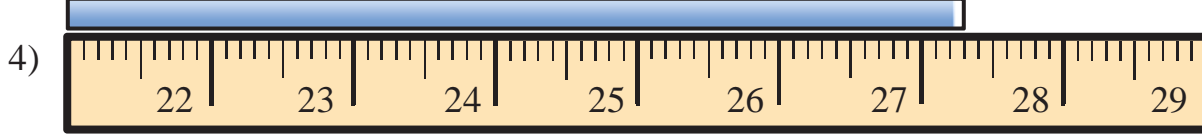
1. \_\_\_\_\_



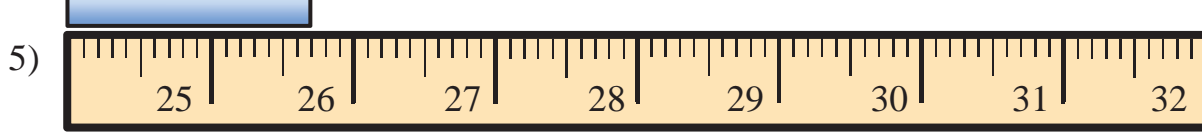
2. \_\_\_\_\_



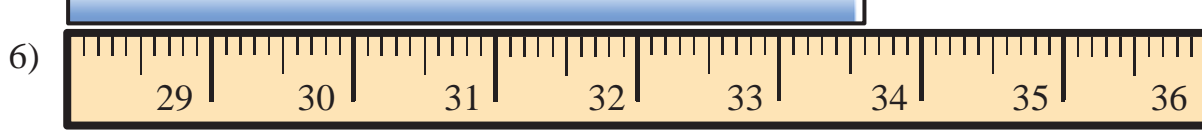
3. \_\_\_\_\_



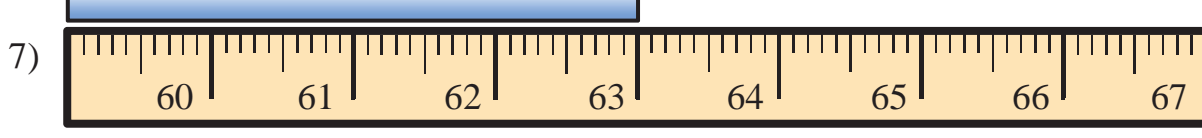
4. \_\_\_\_\_



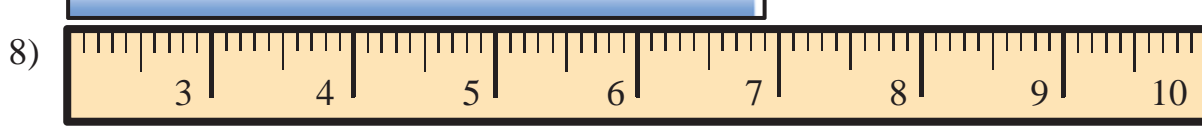
5. \_\_\_\_\_



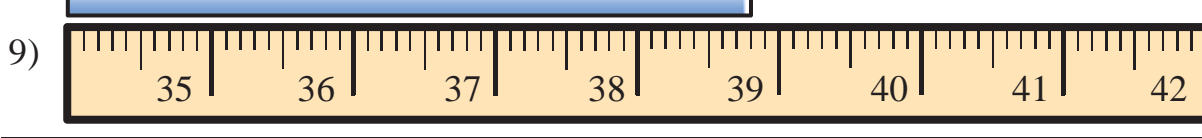
6. \_\_\_\_\_



7. \_\_\_\_\_



8. \_\_\_\_\_



9. \_\_\_\_\_



## UNDERSTANDING METRICS

In the United States, people usually use English units of measurement such as ounces, pounds, inches and feet. Most other countries use metric units. Metric units include the gram, kilogram, meter and centimeter. Scientists also use the metric system. In science, you will use mostly metric units.

The metric system is based upon units of ten. Each unit is ten times smaller or larger than the next unit. This means that a unit is made larger by multiplying it by 10 and made smaller by dividing by 10. Prefixes describe a unit's value. The prefixes and their meanings are listed below.

Prefix	Meaning	
kilo	On thousand (1,000)	Each, larger by a multiple of 10
hecto	One hundred (100)	
deca	Ten (10)	
deci	One tenth (1/10)	Each, smaller by a multiple of 1/10
centi	One hundredth (1/100)	
milli	One thousandth (1/1000)	

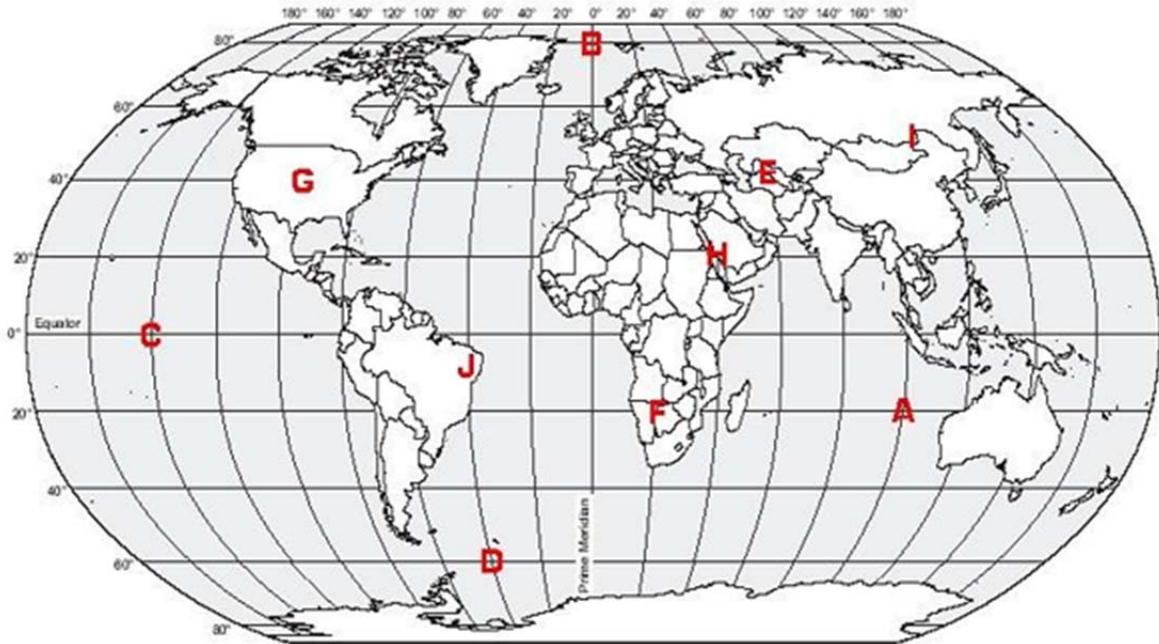
Use the chart above to answer the following questions.

- To change from tens to hundreds, you multiply by \_\_\_\_\_  
1, 10, 100
- To change from hundreds to thousands, you multiply by \_\_\_\_\_  
1, 10, 100
- In the metric system, to change from one unit to the next higher unit, what must you do?  
\_\_\_\_\_
- To change from one unit to the next lower unit, you must divide by \_\_\_\_\_  
1, 10, 100
- Which prefix stands for a greater value?
  - deca- or kilo- ? \_\_\_\_\_
  - kilo- or milli- ? \_\_\_\_\_
  - centi- or milli-? \_\_\_\_\_
  - hecto- or kilo-? \_\_\_\_\_
  - centi- or deci-? \_\_\_\_\_
  - deca- or deci-? \_\_\_\_\_

## Metric Conversion

- 3 cm = \_\_\_\_\_ mm
- 2.84 hm = \_\_\_\_\_ dam
- 14 dm = \_\_\_\_\_ mm
- 9 mm = \_\_\_\_\_ km
- 56 hm = \_\_\_\_\_ cm
- 107.6 km = \_\_\_\_\_ dm
- 0.919 m = \_\_\_\_\_ mm
- 67 cg = \_\_\_\_\_ mg
- 2 mg = \_\_\_\_\_ cg
- 7.4 dag = \_\_\_\_\_ g
- 0.210 kg = \_\_\_\_\_ hg
- 5 g = \_\_\_\_\_ kg
- 19.12 dg = \_\_\_\_\_ dag
- 116 hg = \_\_\_\_\_ dg
- 7 kL = \_\_\_\_\_ L
- 3.6 cL = \_\_\_\_\_ hL
- 15 L = \_\_\_\_\_ mL
- 8.41 mL = \_\_\_\_\_ cL
- 740 dL = \_\_\_\_\_ kL
- 24.005 hL = \_\_\_\_\_ daL

## Latitude and Longitude Practice



An airplane crashes at 40 degrees north and 60 degrees east. Which letter would you travel to if you were looking for survivors?

What continent would you be on at 10 degrees south and 70 degrees west?

0 degrees latitude, 0 degrees longitude, the intersection of the Equator and the Prime Meridian, would be located in which ocean?

You receive a radio SOS call that a boat is sinking at 20 degrees south and 100 degrees east. What ocean would you travel to try to rescue the people?

Which letter is located at 50 degrees north and 120 degrees east?

Fill in the corresponding coordinates below.

Letter	Latitude	Longitude
A		
B		
C		
D		
E		
F		
G		
H		
I		

- Choices**
- 20 N, 40 E
  - 0 N, 140 W
  - 20 S, 100 E
  - 40 N, 60 E
  - 20 S, 20 E
  - 80 N, 0 E
  - 60 S, 40 W
  - 40 N, 100 W
  - 50 N, 120 E