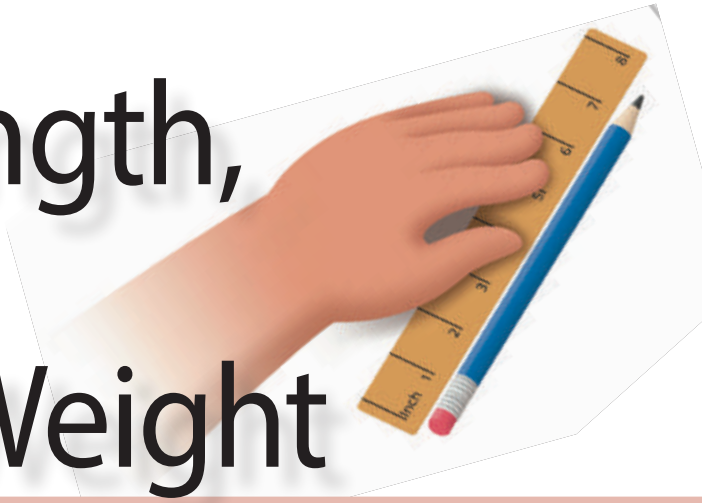
Core Knowledge® MATHEMATICS

Measuring Length, Time, Liquid Volume, and Weight



Student Workbook

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Measuring Length, Time, Liquid Volume, and Weight

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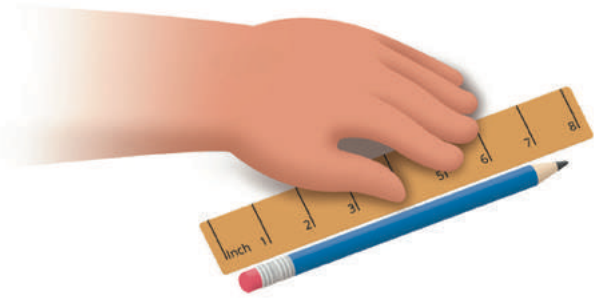


Measuring Length, Time, Liquid Volume, and Weight

Student Workbook

Core Knowledge Mathematics™

Lesson 1: Measure in Halves of an Inch

- Let's measure the length of objects around the room.

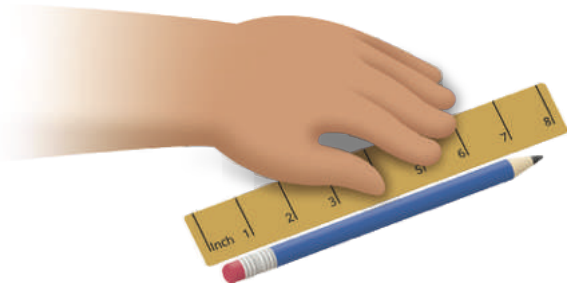
Warm-up: What Do You Know About Inches?

What do you know about inches?

1.1: Measure Around the Room

Use the ruler from your teacher to measure the length of objects in the room. Be prepared to discuss your reasoning.

object	length (inches)



1.2: Partition Inches into Halves

You will need one ruler from an earlier activity.

1. Work with your partner to partition every inch on the ruler into halves of an inch.
2. Use the ruler marked with halves of an inch to measure some lengths around the room.

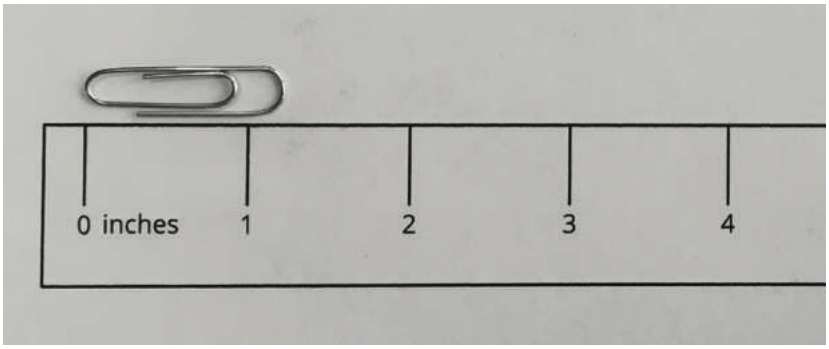
object	length (inches)

Lesson 2: Measure in Fourths of an Inch

- Let's measure lengths in quarters of an inch.

Warm-up: Estimation Exploration: Measure in Inches

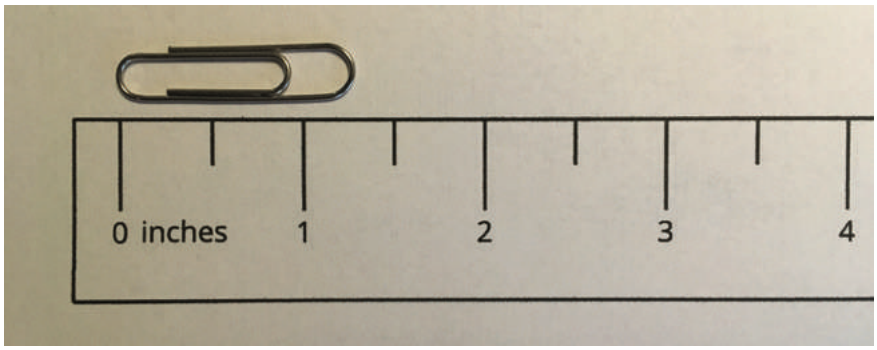
What is the length of the paper clip?



Record an estimate that is:

too low	just right	too high

2.1: Partition Inches into Fourths



You will need the ruler that was not partitioned in an earlier activity.

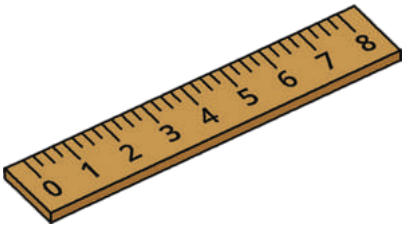
1. With your partner, partition the ruler to show fourths of an inch.
2. Take turns using this ruler to measure the length of 4 objects around the room.

object	length

2.2: Find Some Lengths

You will need the rulers you partitioned for this activity.

With your partner:



- Find at least 4 objects in the classroom that have the lengths shown in the table.
- Practice saying each measurement.
- Record the object in the table. If you find an object that is a whole number plus a fraction of an inch, write the exact measurement.

object	length
	$2\frac{1}{2}$ inches
	$1\frac{1}{4}$ inches
	$3\frac{3}{4}$ inches
	$8\frac{1}{2}$ inches
	a whole number of inches
	a whole number and $\frac{1}{4}$ inches
	a whole number and $\frac{2}{4}$ inches
	a whole number and $\frac{3}{4}$ inches

Lesson 3: Measure in Halves and Fourths of an Inch

- Let's measure lengths in halves of an inch and quarters of an inch.

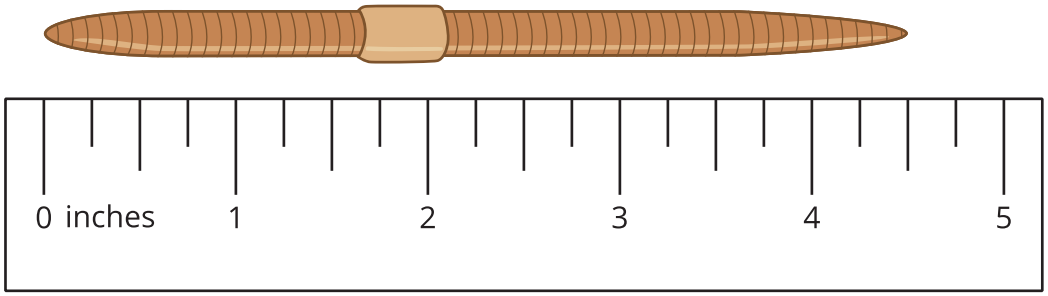
Warm-up: Notice and Wonder: Rulers

Look at the rulers you have been using to measure and the ruler your teacher gave you.

What do you notice? What do you wonder?

3.1: Halves and Quarters

1. Kiran and Jada are discussing the length of a worm.

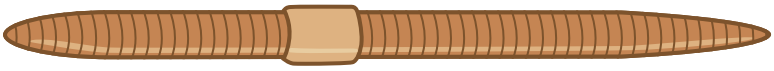


   - Kiran says that the worm is $4\frac{2}{4}$ inches long.
   - Jada says that the worm is $4\frac{1}{2}$ inches long.

   Use the ruler to explain how both of their measurements are correct.

2. Measure the length of the following worms.

A



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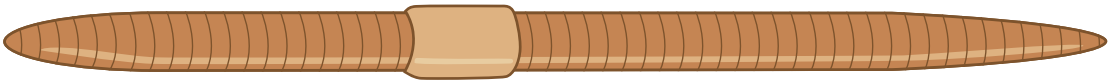
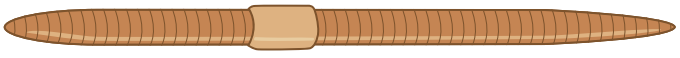


C

D



3.2: Measure and Describe

1. Use the ruler you received today to measure some objects around the room.

   Find at least 1 object whose length is a whole number of inches and at least 3 objects whose lengths are not whole numbers.

object	length

2. Trade lists with another group. Find a length that could be written a different way.

object	length	equivalent length

Lesson 4: Interpret Measurement Data on Line Plots

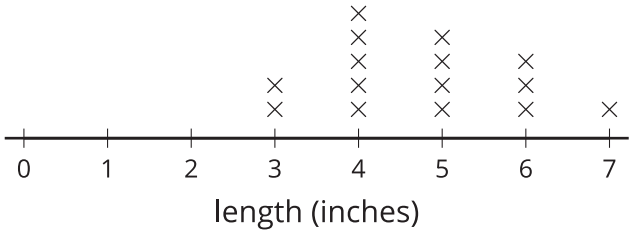
- Let's make sense of line plots with lengths in half inches and quarter inches.

Warm-up: Notice and Wonder: A List and a Line Plot

What do you notice? What do you wonder?

Lengths in Inches

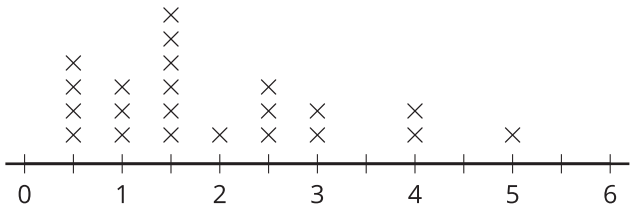
3	5	4	4	5	6	7	5
3	4	4	5	6	6	4	



4.1: A Set of Seedlings

heights of seedlings (in inches)

$\frac{1}{2}$	1	1	$\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	4	$\frac{1}{2}$
3	$1\frac{1}{2}$	5	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	3	$\frac{1}{2}$
$2\frac{1}{2}$	$1\frac{1}{2}$	1	$1\frac{1}{2}$	4	2		

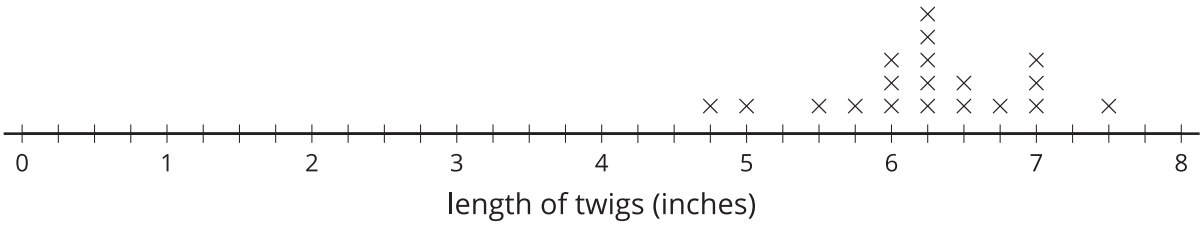


height of seedlings (inches)

1. Write 3 statements about the measurements represented in the line plot.

2. What questions could be answered more easily with the line plot than the list? Write at least 2 questions.

4.2: All About Twigs



1. How many twig lengths are represented in the line plot?

2. How many of the twigs are $6\frac{1}{2}$ inches long?

3. How many of the twigs are less than 6 inches long?

4. How many of the twigs are more than 6 inches long?

5. What is the length of the shortest twig?

6. What is the length of the longest twig?

7. What is the most common twig length?

8. Add an "x" to the line plot that would represent a twig with a length between 3 and 4 inches.

   What is the length of the twig you added to the line plot?

Lesson 5: Represent Measurement Data on Line Plots

- Let's collect measurement data and show them on a line plot.

Warm-up: Number Talk: Multiply Teen Numbers

Find the value of each expression mentally.

- 3×10
- 3×13
- 6×13
- 3×26

5.1: Go for a Measurement Walk

1. What objects will you measure?

2. Record the lengths of the objects in the table (or on another sheet of paper).

object	length (inches)	object	length (inches)

5.2: Let's Make a Line Plot

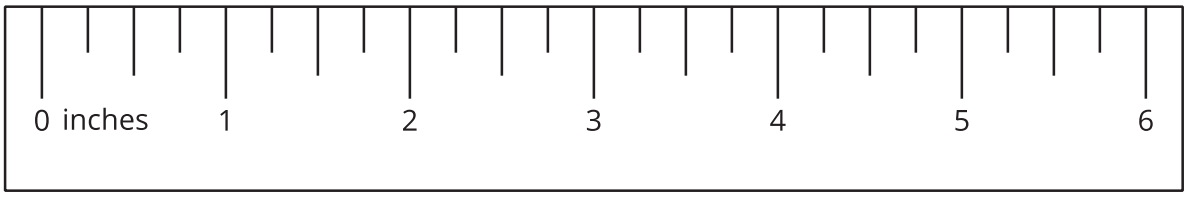
Create a line plot to represent the measurement data you collected. You will display and share your line plot with your class later.

You can use the blank number line here for your draft. Think about:

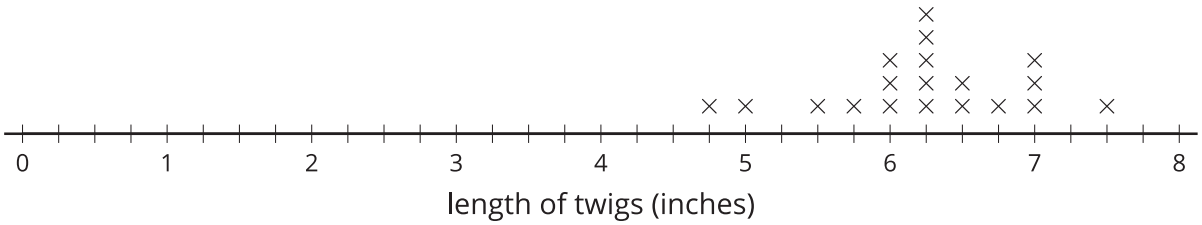
- how to label the tick marks so that all the measurements are included
- details to help others understand the data you collected

Section Summary

Section Summary
In this section, we learned how to measure lengths using rulers marked with halves and quarters of an inch.



We also learned to make line plots to show measurements in half inches or quarter inches.



Lesson 6: Estimate and Measure Weight

- Let's measure and estimate weight.

Warm-up: Notice and Wonder: Produce Stand

What do you notice? What do you wonder?

6.1: Estimate Weight

This paper clip weighs *about* 1 gram.

This basket of apples weighs *about* 1 kilogram.

1. For each weight measurement, find an example of something you think has about the same weight.

   a. 1 gram

   b. 10 grams

   c. 100 grams

   d. 1 kilogram

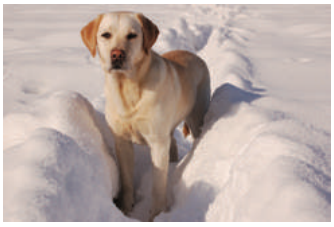
   e. 2 kilograms

2. Find some objects in the room that belong in each column based on their weight.

less than 1 gram	between 1 gram and 100 grams	between 100 grams and 1 kilogram	more than 1 kilogram

6.2: The Weight of Pets

Match each pet to the amount that could be its weight. Explain your reasoning.

pet	weight
1. guinea pig 	A. 20 kilograms
	B. 1 kilogram
	C. 3 kilograms
	D. 3 grams
2. dog 	
3. small fish 	
4. cat 	

Lesson 7: Introduction to Liquid Volume

- Let's learn about liquid volume.

Warm-up: Notice and Wonder: The Bowl and the Jar

What do you notice? What do you wonder?

7.1: Liquid Volume Estimation Exploration

Your teacher will give you two containers labeled “A” and “B,” and another container labeled “unit.”

1. How many units do you think container A will hold?

   Record an estimate that is:

too low	about right	too high

2. How many units do you think container B will hold?

   Record an estimate that is:

too low	about right	too high

3. Use the unit container to compare the liquid volume that containers A and B hold. Which container holds the greater volume? How do you know?

7.2: Liquid Volume in Liters

How many liters of water will fit in the large container?

Record an estimate that is:

too low	about right	too high

Lesson 8: Estimate and Measure Liquid Volume

- Let's measure and estimate liquid volume.

Warm-up: Number Talk: Divide by 3

Find the value of each expression mentally.

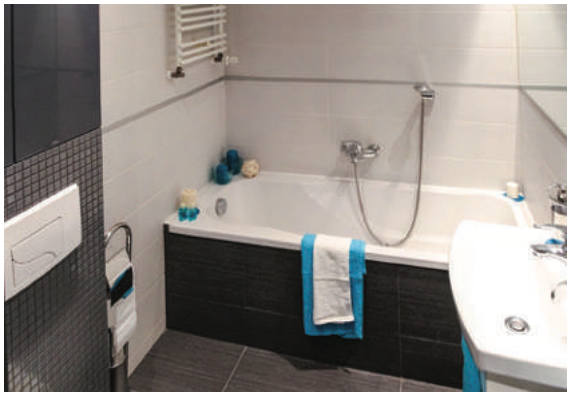
- $30 \div 3$
- $60 \div 3$
- $63 \div 3$
- $54 \div 3$

8.1: Estimate Liquid Volume

1. Clare says the bathtub holds about 2 liters.

   Jada says the bathtub holds about 20 liters.

   Kiran says the bathtub holds about 200 liters.



   Whom do you agree with? Explain or show your reasoning.

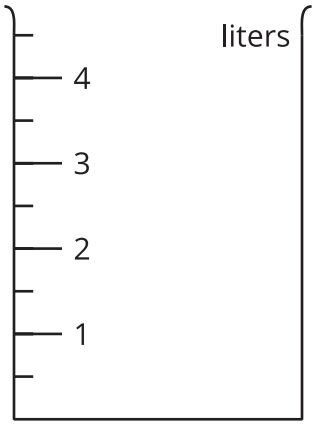
2. Would the bucket and the bottle hold 2 liters, 20 liters, or 200 liters? Explain how you know.

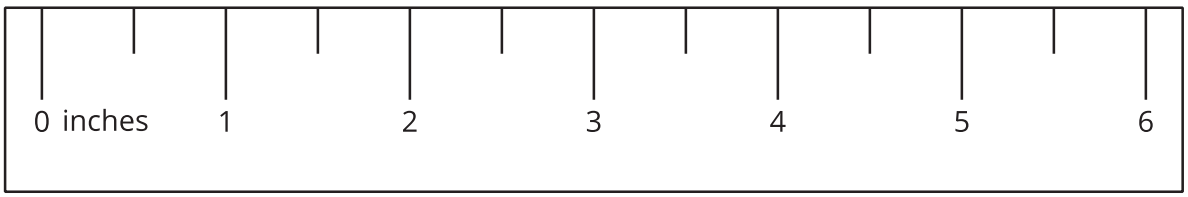
3. Match the containers to the number of liters they could hold. Be ready to explain your reasoning.

item	number of liters
a. sink 	○ 4 liters ○ 6 liters ○ 500 liters ○ 10 liters
b. kiddie pool 	
c. pot 	
d. toilet tank 	

8.2: Measure Liquid Volume

What do you notice? What do you wonder?



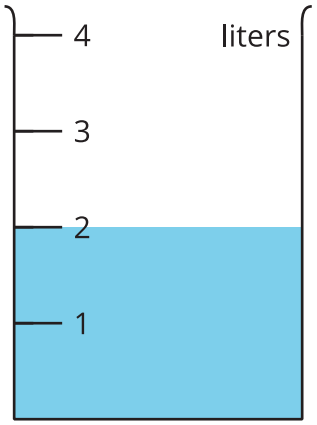


1. The container in each image is marked in liters. Find the volume of the liquid.

A

B

C



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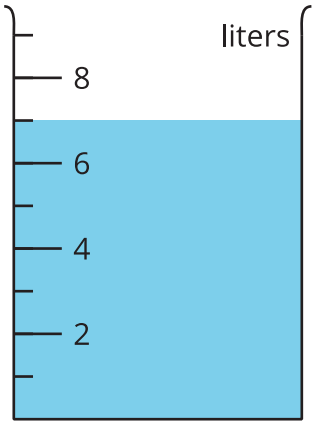

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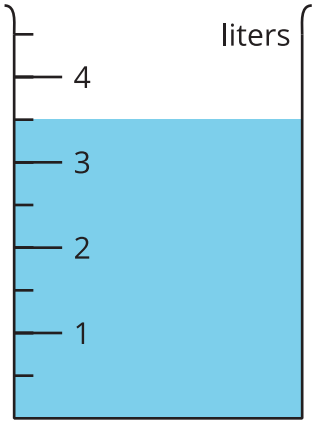

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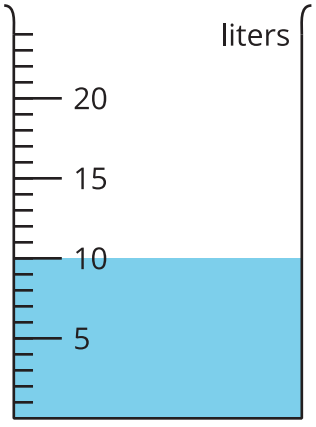

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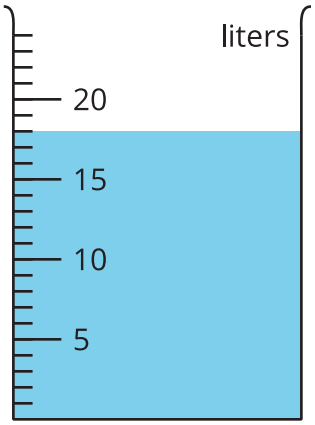

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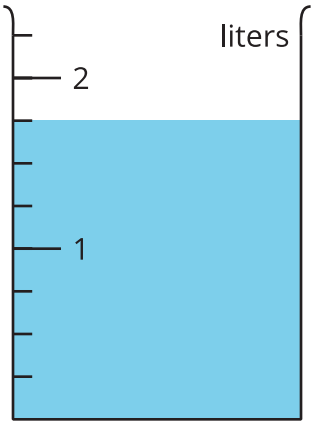
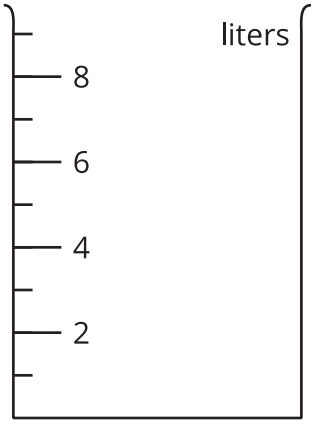
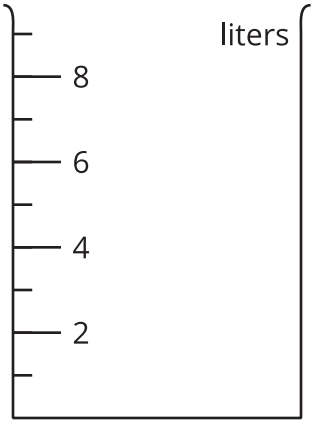


2. Shade the images of the empty containers to show the liquid volume.

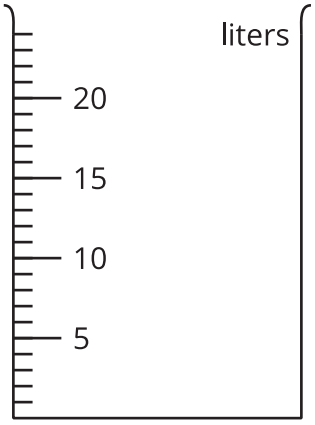
P: 1 liter



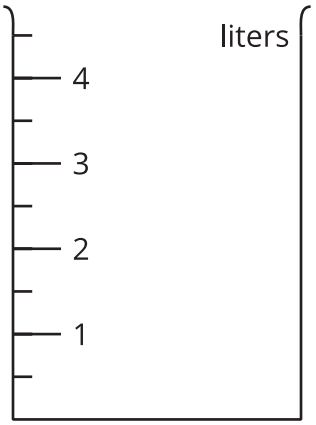
Q: 8 liters



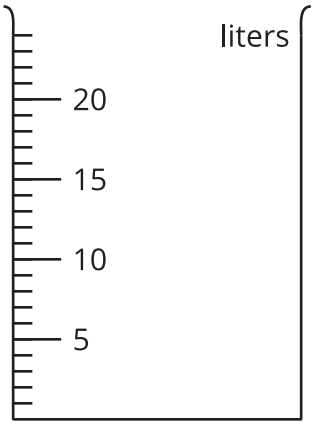
R: 7 liters



S: $2\frac{1}{2}$ liters



T: 23 liters



3. If you have time: Of all the containers in this activity, which two containers have the most liquid? How many liters would you have if you combined the liquid in them? Explain or show your reasoning.

Section Summary

Section Summary
In this section, we learned how to measure and estimate weight in grams and kilograms.

This paper clip weighs *about* 1 gram.

This basket of apples weighs *about* 1 kilogram.

We also learned how to measure and estimate liquid volume in liters.

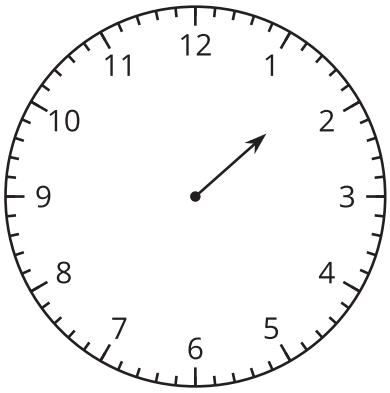
Lesson 9: Time to the Nearest Minute

- Let's tell and write time to the nearest minute.

Warm-up: Estimation Exploration: On the One Hand . . . .

This clock only has an hour hand.

What time could it be?



Record an estimate that is:

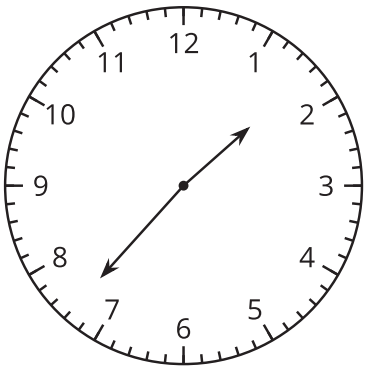
too early	about right	too late

9.1: Just a Clock on the Wall

1. Lin says the time shown on the clock is 1:37 p.m.

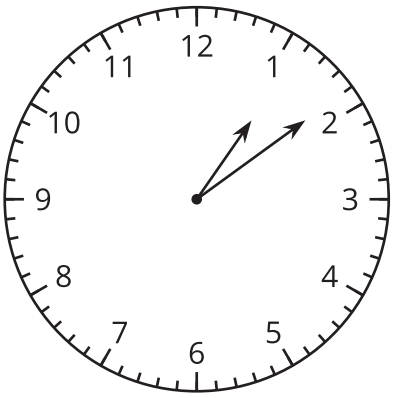
   Diego says the time is 1:35 p.m.

   Who do you agree with? Explain or show your reasoning.



2. What time is shown on each clock?

A



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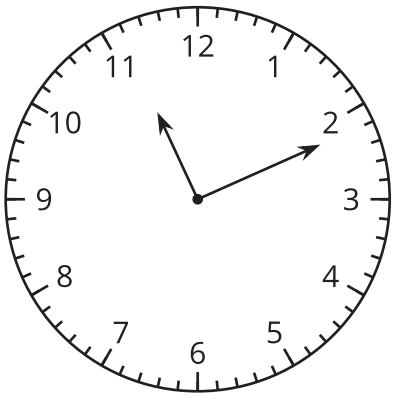

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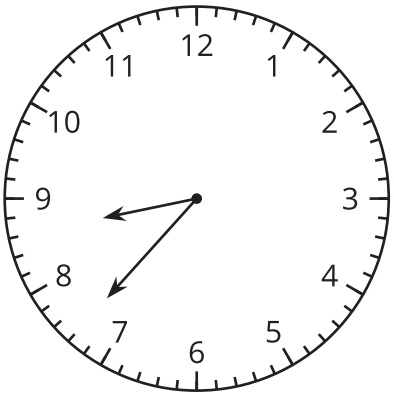

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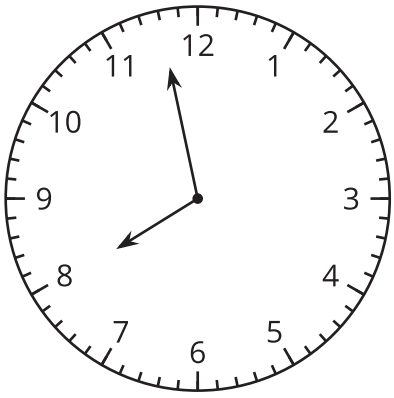
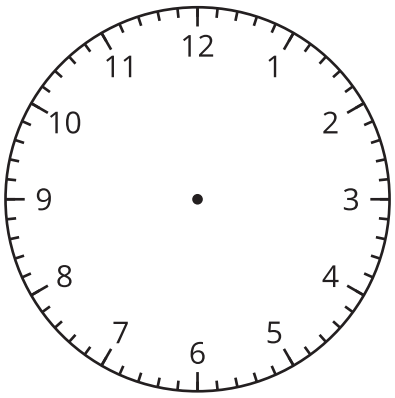


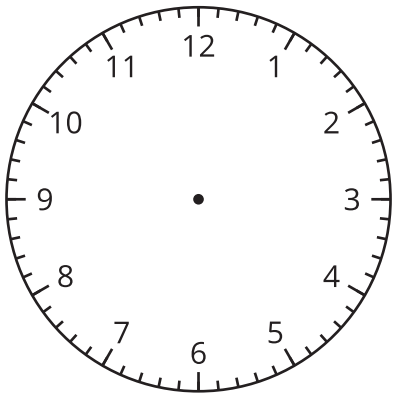
9.2: Show Time

1. Show the time given on each clock.

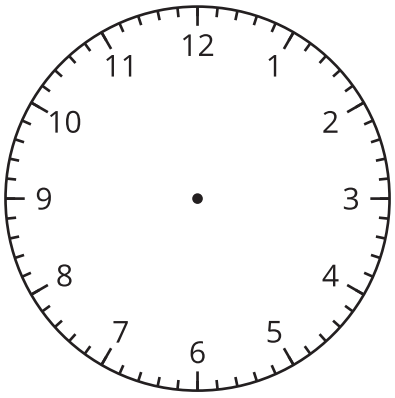
A 2:36 PM



B 3:18 PM



C 12:17 PM



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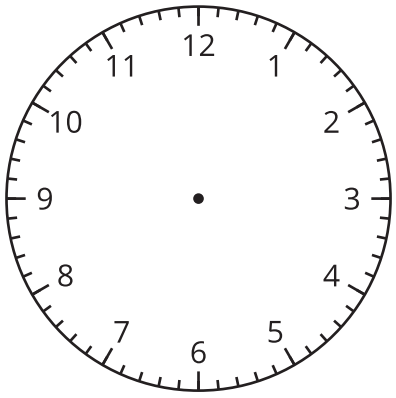
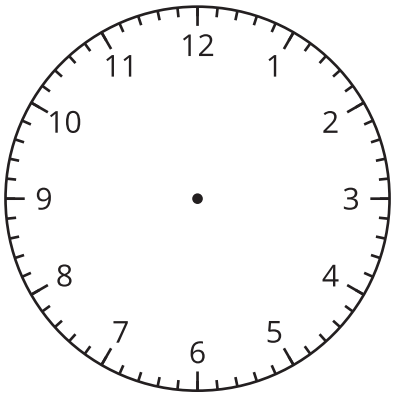
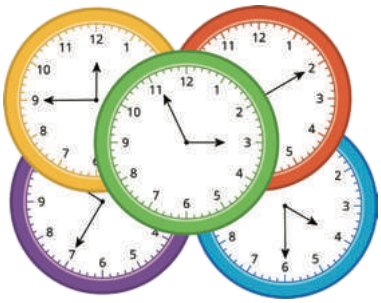


2. Draw a time on this clock. Trade with a partner and tell the time on their clock.





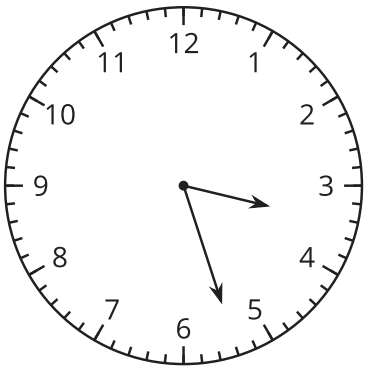
Lesson 10: Solve Problems Involving Time (Part 1)

- Let's solve problems involving time.

10.1: Time at the Bus Stop

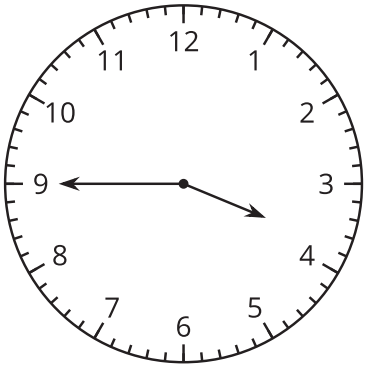
1. Kiran arrived at the bus stop at 3:27 p.m., as shown on this clock. He waited 24 minutes for his bus to arrive.

   What time did his bus arrive? Show your thinking. Organize it so it can be followed by others.



2. Elena arrived at the bus stop at 3:45 p.m. She also waited 24 minutes for her bus to arrive.

   What time did the bus arrive? Show your thinking. Organize it so it can be followed by others.



10.2: Time on the Bus

Here's another problem about time:

> At 6:32 p.m., Elena got on a bus to go home. She got off the bus at 7:10 p.m. How long was her bus ride?

Which strategy or representation would you use when solving a problem like this? Explain your reasoning.

Lesson 11: Solve Problems Involving Time (Part 2)

- Let's solve more problems involving time.

Warm-up: Notice and Wonder: Band Practice

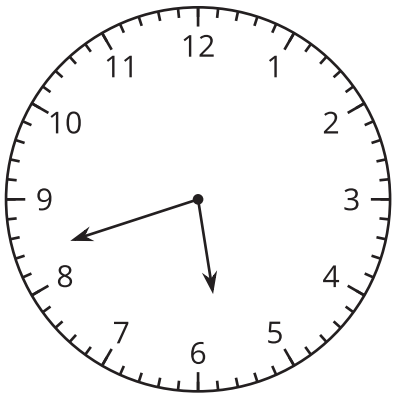
What do you notice? What do you wonder?

Han ate his dinner before he caught a bus.
When he got off the bus, he had to hurry to get to band practice on time.

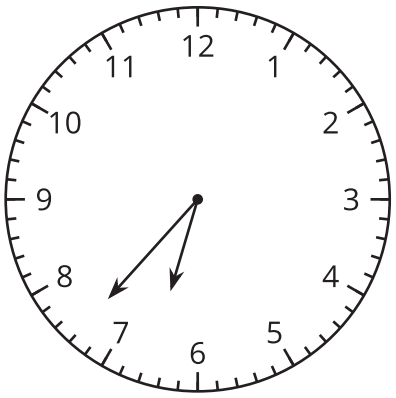
11.1: On the Bus Again

1. For how many minutes was Han on the bus? Explain or show your reasoning.

the time Han got on the bus:

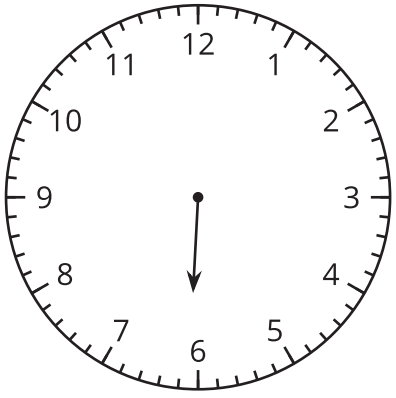


the time Han got off the bus:

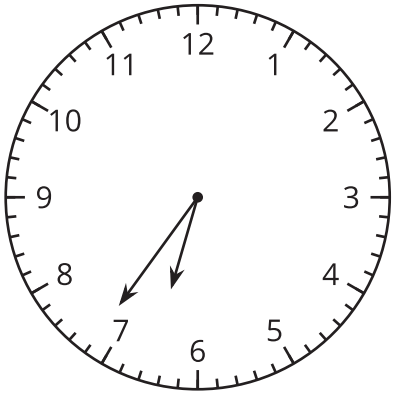


2. Draw the minute hand to show that Elena waited for the bus for 32 minutes.

the time Elena started waiting:



the time Elena got on the bus:



11.2: Math Libs Time

For each problem, fill in a name and an activity, and then solve the problem. Show your thinking. Organize it so it can be followed by others.

1. _____ started _____ at 8:25 a.m. and finished at 8:50 a.m. How much time was spent doing that activity?

2. _____ finished _____ at 5:38 p.m, after spending 20 minutes. What was the start time?

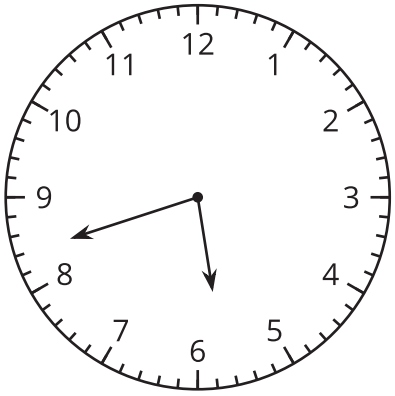
3. _____ started _____ at 10:45 a.m. and finished at 11:18 a.m. How much time was spent on it?

4. _____ started _____ at 3:30 p.m and took 45 minutes to complete it. What was the finish time?

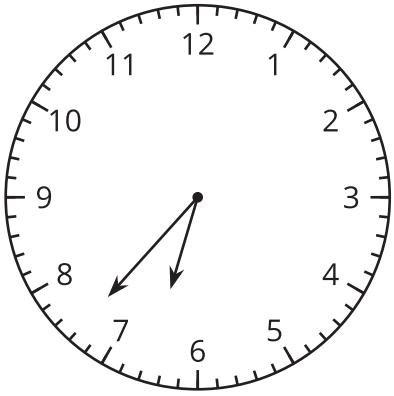
Section Summary

Section Summary
In this section, we learned to tell and write time to the nearest minute. We solved addition and subtraction problems about time.

the time Han got on the bus:



the time Han got off the bus:



Here is one way to find out how much time Han spent on the bus:

- Count up 3 minutes from 5:42 to 5:45, and then 15 minutes from 5:45 to 6:00.
- Count up 30 minutes from 6:00 to 6:30, and then 7 more minutes to 6:37.
- Add the minutes, $3 + 15 + 30 + 7$, to get 55.

Lesson 12: Ways to Represent Measurement Situations

- Let's make sense of and represent measurement situations at the fair.

Warm-up: Notice and Wonder: The Fair

What do you notice? What do you wonder?

12.1: Giant Pumpkin Event

1. Write a list of mathematical questions that could be asked about this image.

2. Work with your partner to solve the problem you were given by your teacher and show your thinking on a poster. Be sure to write down on your poster the problem you are solving.

12.2: Card Sort: Giant Pumpkins

Your teacher will give you a set of cards with descriptions and diagrams.

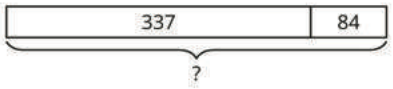
Match each description with a diagram that represents the same situation.

Giant Pumpkins

A. Giant pumpkins grow from seedlings. A farmer used 84 liters to water their seedlings with 12 liters each. How many seedlings were there?

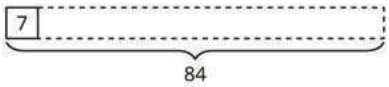
Giant Pumpkins

B.



Giant Pumpkins

C.



Giant Pumpkins

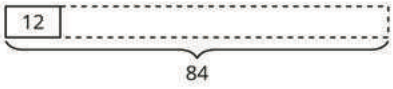
D. One farmer says he used 337 liters per day to water his giant pumpkin. Another farmer used 84 liters less per day. How much water did she use a day?

Giant Pumpkins

E. A father and a daughter use 337 liters per day to water their pumpkin and 84 liters a day to water their watermelon. How much water do they use all together per day?

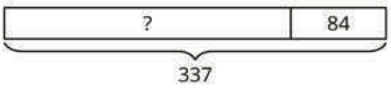
Giant Pumpkins

F.



Giant Pumpkins

G.



Giant Pumpkins

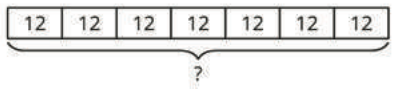
H. A giant pumpkin gained 12 kilograms per day for 7 days. How much weight did the pumpkin gain during that week?

Giant Pumpkins

I. A pack of giant pumpkin seeds weighs 7 grams. A farmer has 84 grams of seeds. How many packs does she have?

Giant Pumpkins

J.



Lesson 13: Problems with Missing Information

- Let's find out what information is needed to solve problems about measurements at the fair.

Warm-up: Estimation Exploration: Giant Cantaloupe

A regular cantaloupe weighs between 1 and 5 kilograms.

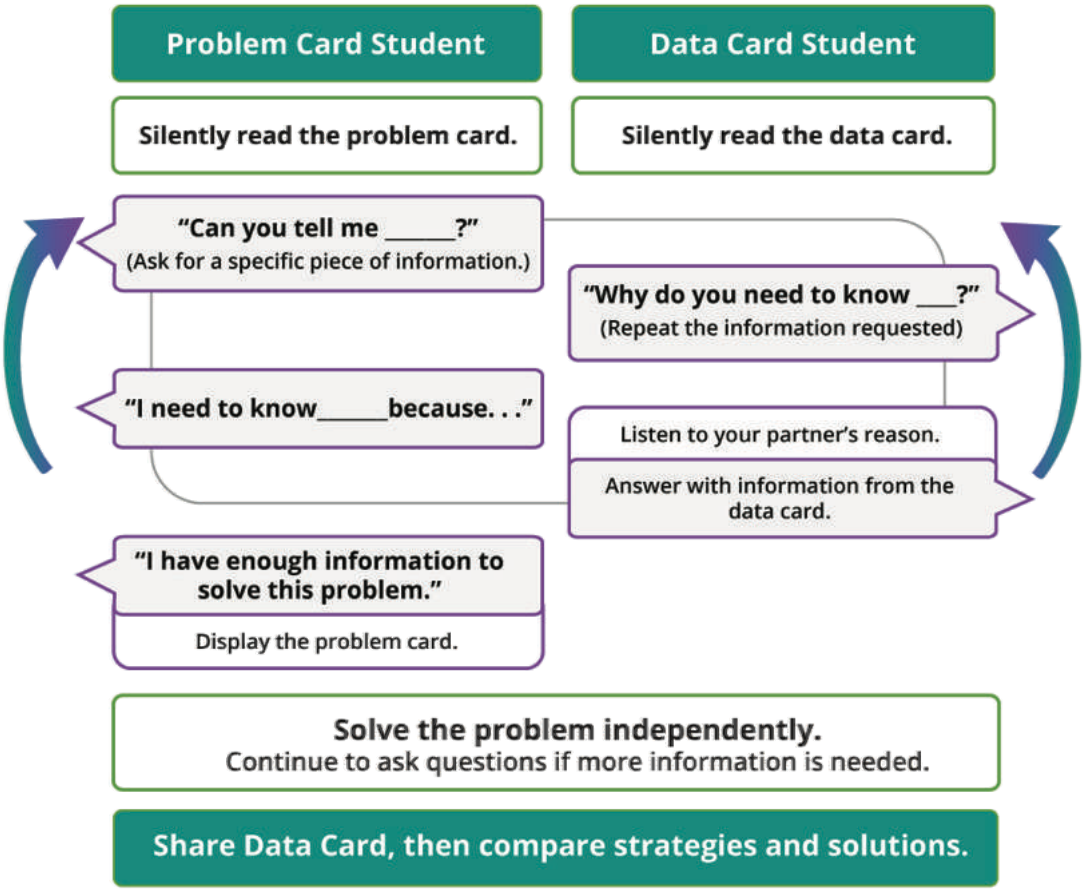
This cantaloupe melon was a winner at the 2010 Alaska State Fair. How many kilograms do you think it weighs?

Record an estimate that is:

too low	about right	too high

13.1: Info Gap: Pumpkin Weigh-Off

Your teacher will give you either a problem card or a data card. Do not show or read your card to your partner.



Pause here so your teacher can review your work.

Ask your teacher for a new set of cards and repeat the activity, trading roles with your partner.

13.2: Info Gap: Pig Weigh-Off

Your teacher will give you a new problem card or data card. Do not show or read your card to your partner.

Use the same information gap routine to solve the problem. Then, pause so your teacher can review your work.

Ask your teacher for a new set of cards and repeat the activity, trading roles with your partner.

Lesson 14: What Makes Sense in the Problem?

- Let's think about what numbers and questions make sense in problems.

Warm-up: Number Talk: Give and Take

Find the value of each expression mentally.

- $306 + 199$

- $318 + 297$

- $275 + 325$

- $275 + 329$

14.1: Carnival Time Number Choice

Here are three problems about time at the carnival. They are missing some information.

1. In the blanks, write numbers or times that make sense for the situation in the problem assigned to you.

    a. Clare waited for Tyler to ride the Ferris wheel. Tyler left at _____ and got back at _____. How long did Clare wait for Tyler?

    b. When Tyler got back, he and Clare got in line to ride the roller coaster. They waited _____ minutes. At _____, they got on the ride. What time did they get in line?

    c. Clare and Tyler got to the carnival at _____. After _____ minutes, they took a break to buy lemonade. What time did they take their lemonade break?

2. Share the numbers and times you chose with your group and explain why they make sense.

3. Work with your group to solve each problem. Be prepared to explain your reasoning.

14.2: Lemonade Break

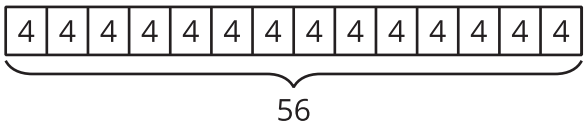
A lemonade stand at the fair makes 132 liters of lemonade a day. When Clare and Tyler stopped by the stand, there were 90 liters left.

At the end of the day, there were 56 liters of lemonade left, which the vendor put on sale in 4-liter jugs.

Use the information about the lemonade stand to write a question that could be answered with the mathematical work shown.

1. $132 - 90 = 42$

   Question:

2. 

   Question:

Lesson 15: Ways to Solve Problems and Show Solutions

- Let's solve problems about spending a day at the fair and think about how to best show our solutions.

Warm-up: Number Talk: Divide by 8

Find the value of each expression mentally.

- $80 \div 8$
- $72 \div 8$
- $96 \div 8$
- $96 \div 4$

15.1: A Day at the Fair

You spent a day at the fair. Solve four problems about your day and create a poster to show your reasoning and solutions.

1. You arrived at the fair!

   Entry to the fair is $9 a person. You went there with 6 other people. How much did it cost your group to enter the fair?

2. How did you start your day? (Choose one.)

You arrived at the giant pumpkin weigh-off at 11:12 a.m. and left at 12:25 p.m. How long were you there?

You spent 48 minutes at the carnival and left at 12:10 p.m. What time did you get to the carnival?

3. What was next? (Choose one.)

You visited a barn with 7 sheep. The sheep drink 91 liters of water a day, each sheep drinking about the same amount. How much does each sheep drink a day?

You visited a life-size sculpture of a cow made of butter. The butter cow weighs 273 kilograms, which is 277 kilograms less than the actual cow. How much does the actual cow weigh?

4. Before you went home . . .

You stopped for some grilled corn on the cob. On the grill, there were 54 ears of corn arranged in 9 equal rows. How many ears of corn were in each row?

15.2: A Day at the Fair Gallery Walk

As you visit the posters with your partner:

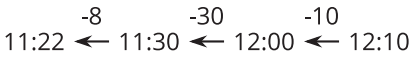
1. Look for a problem that was solved using a strategy that is different from yours. What made it different? Describe the strategy.

2. Look for ways that your classmates made their thinking and the math work clear to you. Describe at least three things they did or showed on the posters.

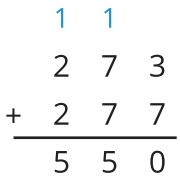
Section Summary

Section Summary
In this section, we solved all kinds of problems about time, weight, and liquid volume. We did so using addition, subtraction, multiplication, and division, as well as different reasoning strategies.

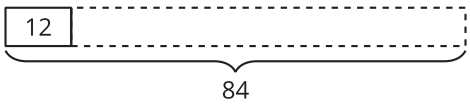
Clare spent 48 minutes at the carnival. She left the carnival at 12:10 p.m. What time did she get to the carnival?



A cow made of butter weighs 273 kilograms. That is 277 kilograms less that the actual cow. How much does the actual cow weigh?



A grower used 84 liters to water their pumpkin seedlings. Each seedling gets 12 liters. How many seedlings were there?

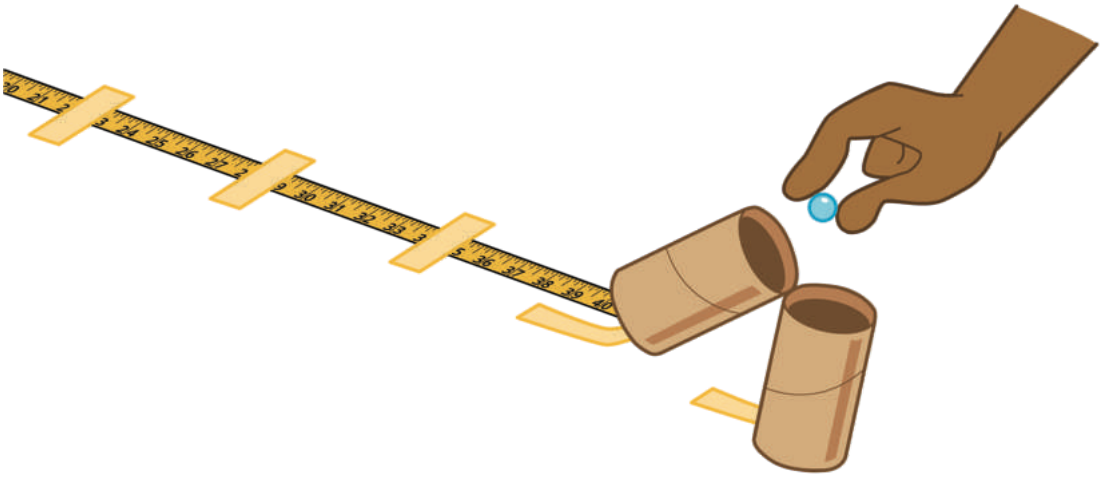


Lesson 16: Design a Carnival Game

- Let's design a carnival game.

Warm-up: Notice and Wonder: Carnival Games

What do you notice? What do you wonder?



16.1: Create Your Own Carnival Game

1. Use the materials to design your own carnival game.

    a. What are the rules of your game?

    b. How does someone win the game?

2. Test out your game at least one time.

3. Redesign your game to include at least 2 of the following:

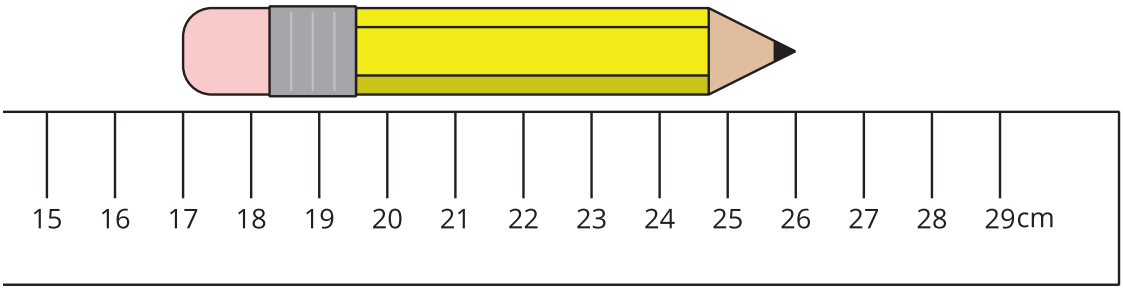
    - length or distance measurement in inches
    - time that has passed
    - multiplication and division within 100
    - addition and subtraction within 1,000

If you have time, play the new and improved game.

Section A: Practice Problems

1. **Pre-unit**

   What is the length of the pencil in centimeters? Show your reasoning.



2. **Pre-unit**

   Here are the lengths of some snakes at the pet store in inches. Use the data to create a line plot.

8	10	13	13	13
15	15	18	21	22

3. **Pre-unit**

Find the value of each sum or difference.

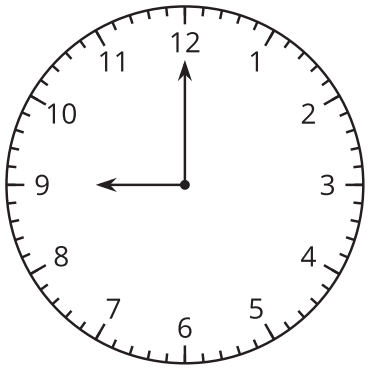
a. $374 + 455$

b. $259 - 186$

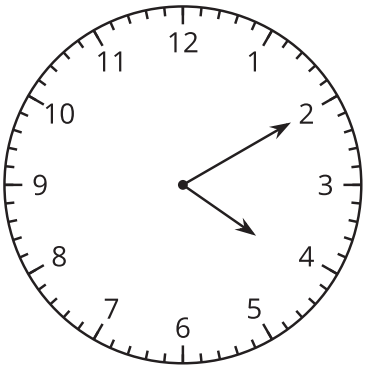
4. **Pre-unit**

Write the time shown on each clock.

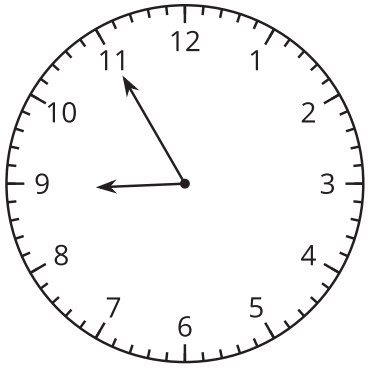
a



b



c



a. _____

b. _____

c. _____

5. **Pre-unit**

Find the value of each expression.

a. 8×9

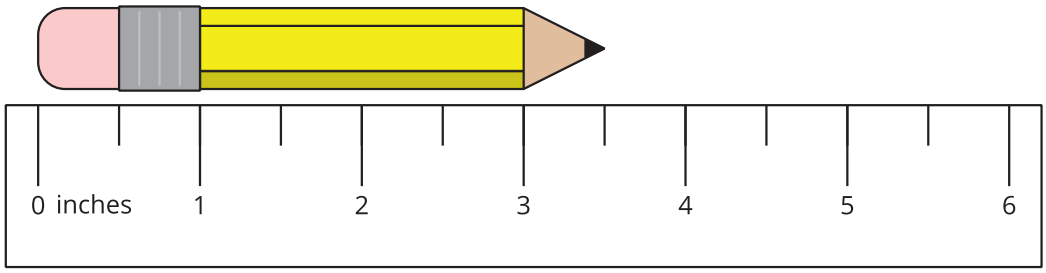
b. 16×6

c. $72 \div 8$

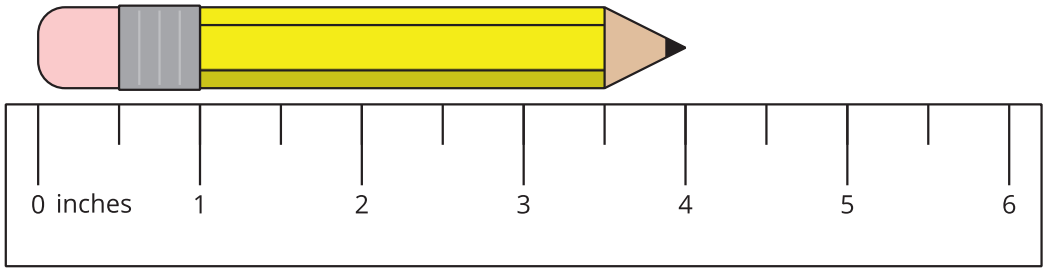
d. $92 \div 4$

6. Find the length of each pencil.

a.

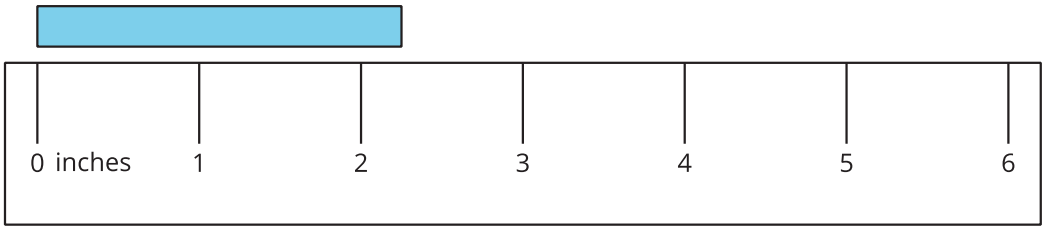


b.



(From Unit 6, Lesson 1.)

7. a. Partition the ruler into halves of an inch and then quarters of an inch.



b. What is the length of the rectangle? Explain or show your reasoning.

(From Unit 6, Lesson 2.)

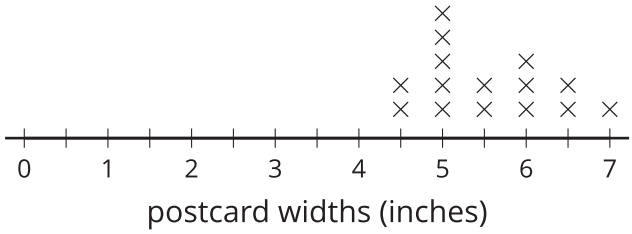
8. Here are the lengths of some pieces of pasta in inches.

Which lengths are the same? Explain or show your reasoning.

$3\frac{2}{4}$ 2 $3\frac{1}{2}$ $\frac{4}{2}$

(From Unit 6, Lesson 3.)

9. The line plot shows the width of some postcards in inches.



a. How many postcards measured $5\frac{1}{2}$ inches?

b. How many postcards measured 6 inches or more?

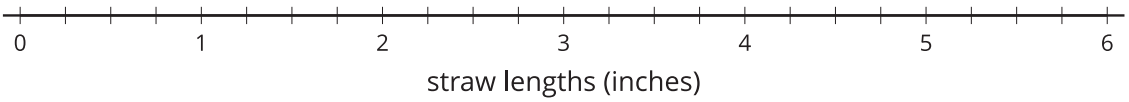
c. How many postcards were measured for the line plot?

(From Unit 6, Lesson 4.)

10. Here are the lengths of some straws in inches. Represent the data on a line plot.

$4\frac{3}{4}$ $5\frac{1}{2}$ $4\frac{1}{4}$ $5\frac{2}{4}$ $4\frac{1}{2}$ $3\frac{3}{4}$

$5\frac{1}{4}$ $4\frac{2}{4}$ 5 $4\frac{1}{4}$ $4\frac{1}{2}$



straw lengths (inches)

(From Unit 6, Lesson 5.)

11. **Exploration**

You will need a ruler marked in $\frac{1}{4}$ inches for this problem.

a. For each length, pick an object in the classroom or at home that you think will be close to that length.

- $1\frac{1}{2}$ inches
- 7 inches
- 33 inches

b. Measure each object using a ruler marked in $\frac{1}{4}$ inches. Was each estimate too high, too low, or just right?

12. **Exploration**

Choose a collection of objects to measure at school or at home. Make a line plot of the length of the objects.

Section B: Practice Problems

1. a. Circle the items that might weigh about 1 gram.

a piece of gum	a turtle	a dollar bill	a chair	a pen

b. Circle the items that might weigh about 1 kilogram.

a giant tortoise	a pencil	a pineapple	a large book	a full lunchbox

(From Unit 6, Lesson 6.)

2. For each item, decide whether it holds more than a liter, less than a liter, or about a liter.

a. a bathtub _____

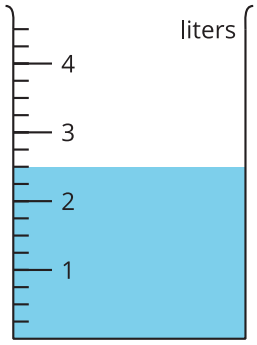
b. a cup _____

c. a swimming pool _____

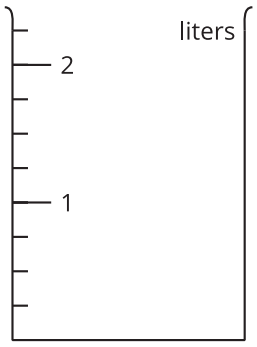
d. a small pot for a plant _____

(From Unit 6, Lesson 7.)

3. a. What is the volume of liquid shown in the container?



b. Shade the image of the empty container to show $1\frac{3}{4}$ liters of water.



(From Unit 6, Lesson 8.)

4. **Exploration**

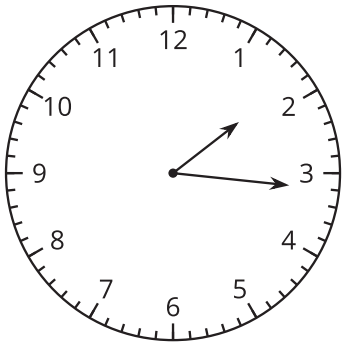
Kiran thinks that weight and volume go together. The bigger something is, the heavier it is and the heavier something is the bigger it is. Do you agree with Kiran? Give some examples to explain your thinking.

5. **Exploration**

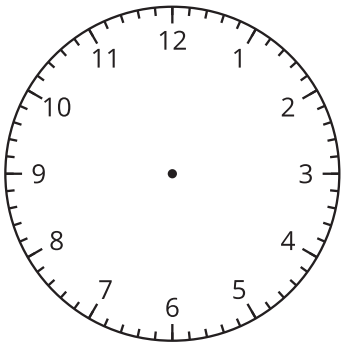
You have a 3 liter jug of water and a 5 liter jug of water. How can you measure out 4 liters of water precisely using these two jugs?

Section C: Practice Problems

1. a. Han drew this clock and says it shows 2:16 p.m. Do you agree with Han? Explain your reasoning.



b. Draw the hands on this clock to show 5:55 p.m.



(From Unit 6, Lesson 9.)

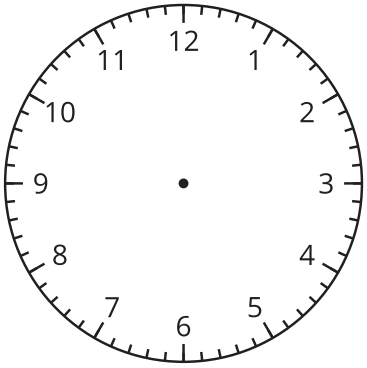
2. Mai left to walk the dog at 6:50 a.m. and she returned at 7:44 a.m. How much time did Mai spend walking the dog?

(From Unit 6, Lesson 10.)

3. Andre started soccer practice at 3:45 p.m. He left school 75 minutes earlier.

   a. Show the time Andre left school on the clock.

   b. Andre was at soccer practice for 110 minutes. What time did soccer practice end? Explain or show your reasoning.



(From Unit 6, Lesson 11.)

4. **Exploration**

   a. What time do you usually go to bed at night?

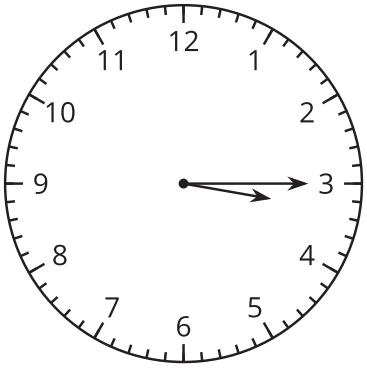
   b. What time do you usually get up in the morning?

   c. How many minutes do you spend in bed? Explain or show your reasoning.

5. **Exploration**

   Priya drew this clockface to show 3:15.

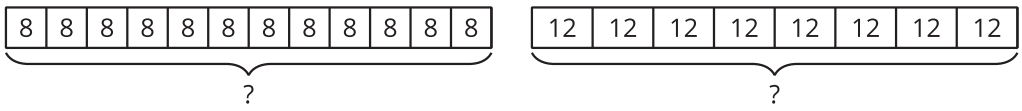
   Do you think Priya's clock face is accurate? Explain or show your reasoning.



Section D: Practice Problems

1. Lin's class got 8 pumpkins for a pumpkin carving contest. Each pumpkin weighed 12 pounds.

   a. Which tape diagram represents the situation?



   b. How many pounds did the pumpkins weigh altogether? Explain or show your reasoning.

(From Unit 6, Lesson 12.)

2. A family brought two pigs to the fair. The first pig weighed 153 kg. The second pig weighed 66 kg less. How much did the second pig weigh?

(From Unit 6, Lesson 13.)

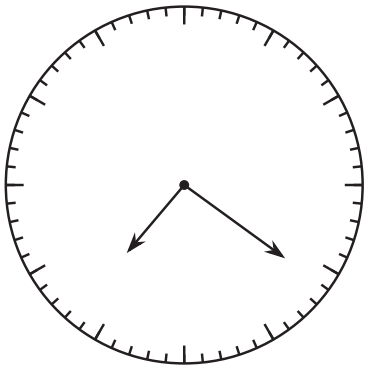
3. One day, a lemonade stand at the fair sold 56 liters of lemonade in 4-liter packs. How many 4-liter packs did they sell?

(From Unit 6, Lesson 14.)

4. Jada arrived at the fair at 10:15 a.m. She left the fair at 11:47 a.m. How many minutes did Jada spend at the fair? Explain or show your reasoning.

(From Unit 6, Lesson 15.)

5. **Exploration**



Jada sees this image of a clock in a mirror. What time is it? Explain your reasoning.

6. **Exploration**

Three pumpkins at the fair weigh a total of 1,000 kg.

a. What is one possibility for the 3 pumpkin weights?

b. The lightest of the 3 pumpkins is 255 kg. What is a possibility now for the 3 pumpkin weights?

c. The heaviest of the 3 pumpkins is 428 kg. How much does the 3rd pumpkin weigh?

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