Grade 2 • MODULE 2
Addition and Subtraction of Length Units

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Lesson 1: Connect measurement with physical units by using multiple copies of the same physical unit to measure.

Date: 6/26/13

2.A.9

Use centimeter cubes to find the length of each object.

1. The picture of the fork and spoon is about _____ centimeters long.

2. The picture of the hammer is about _____ centimeters long.

3. The length of the picture of the comb is about _____ centimeters.
4. The length of the picture of the shovel is about _____ centimeters.

5. The head of a grasshopper is 2 centimeters long. The rest of the grasshopper’s body is 7 centimeters long. What is the total length of the grasshopper?

6. The length of a screwdriver is 19 centimeters. The handle is 5 centimeters long.
   a. What is the length of the top of the screwdriver?
   
   b. How much shorter is the handle than the top of the screwdriver?
1. Sara lined up her centimeter cubes to find the length of the picture of the paintbrush.

Sarah thinks the picture of the paintbrush is 5 centimeter cubes long.

Is her answer correct? Explain why or why not.

______________________________

______________________________
Lesson 1:
Connect measurement with physical units by using multiple copies of the same physical unit to measure.

Name ___________________________  Date ______________

Count each centimeter cube to find the length of each object.

1. The crayon is ______ centimeter cubes long.

2. The pencil is ______ centimeter cubes long.

3. The clothespin is ________ centimeters.

4. The length of the marker is ______ centimeters.
5. Richard has 43 centimeter cubes. Henry has 36 centimeter cubes. What is the length of their cubes altogether?

6. The length of Marisa’s loaf of bread is 56 centimeters. She cut off of 32 centimeters of bread. What is the length of what she has left?

7. The length of Jimmy’s math book is 19 centimeter cubes. His reading book is 15 centimeter cubes longer. What is the length of his reading book?
Name ________________________________ Date ________________

Find the length of each object using one centimeter cube. Mark the endpoint of each centimeter cube as you measure.

1. The picture of the eraser is about _____ centimeter cubes long.

![Image of a pencil eraser]

2. The picture of the calculator is about _____ centimeter cubes long.

![Image of a calculator]

3. The length of the picture of the envelope is ______ centimeters.

![Image of an envelope]
4. Jayla measured her puppet’s legs to be 23 centimeters long. The stomach was 7 centimeters long and the neck and head together were 10 centimeters long. What was the total length of the puppet?

5. Elijah begins measuring his math book with his centimeter cube. He marks off where each cube ends. After a few times, he decides this process is taking too long and starts to guess where the cube would end and then marks it.

Explain why Elijah’s answer will be incorrect.

____________________________________________________________

____________________________________________________________

____________________________________________________________
Lesson 2 Exit Ticket

Name _______________________________ Date ________________

1. Matt measured his index card using a centimeter cube. He marked the endpoint of the cube as he measured. He thinks the index card is 10 centimeters long.

   a. Is Matt’s work correct? Explain why or why not.

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________

   b. If you were Matt’s teacher what would you tell him?

   ______________________________________________________
   ______________________________________________________
   ______________________________________________________
Name _______________________________  Date ______________

Use the centimeter cube on the next page to measure the length of each object. Mark the endpoint of the cube as you measure.

1. The picture of the glue is about ______ centimeters long.

2. The picture of the lollypop is about _____ centimeters long.

3. The picture of the scissors is about ______ centimeters long.
Lesson 2 Homework

Red Ribbon

Blue Ribbon

Yellow Ribbon

a. How long is the red ribbon? ________ centimeters long.

b. How long is the blue ribbon? ________ centimeters long.

c. How long is the yellow ribbon? ________ centimeters long.

d. Which ribbon is the longest? Red Blue Yellow

e. Which ribbon is the shortest? Red Blue Yellow

f. The total length of all the ribbons is _____ centimeters.

Cut out this centimeter cube to measure the length of the glue, lollypop, and scissors.
Use your centimeter ruler to measure the length of the objects below.
1. The picture of the animal track is about ______ cm long.

2. The picture of the turtle is about ______ cm long.

3. The picture of the sandwich is about _____ cm long.
4. Measure and label the length of each side of the triangle using your ruler.

![Diagram of a triangle with sides labeled A, B, and C.]

- Side A: _______ centimeters
- Side B: _______ centimeters
- Side C: _______ centimeters

a. Which side is the shortest? Side A Side B Side C

b. What is the length of Sides A and B together? _______ centimeters.

c. How much shorter is Side C than Side B? _______ centimeters.
Lesson 3 Exit Ticket

Name _______________________________   Date _______________

1. Use your centimeter ruler. What is the length in centimeters of each line?
   
   a. Line a is ______ cm long.
      
      Line a    _______________________ 
   
   b. Line b is _____ cm long.
      
      Line b    __________________________ 
   
   c. Line c is ______ cm long.
      
      Line c    ______________ 

2. Find the length across the center of the circle.
   
   The length across the circle is _____ cm.
Measure the lengths of the objects with the centimeter ruler you made in class.

1. The picture of the fish is _____ cm long.

2. The picture of the fish tank is _____ cm long.

3. The picture of the fish tank is ____ cm longer than the picture of the fish.
4. Measure the lengths of sides A, B, and C. Write their length on the line.

   Side A
   _____ cm

   Side B
   _____ cm

   Side C
   _____ cm

   a. Which side is the longest?   Side A   Side B   Side C

   b. How much longer is Side B than Side A?   _______ cm longer.

   c. How much shorter is Side A than Side C?   _______ cm shorter.

   d. Sides B and D are the same length. What is the length of Sides B and D together?   _______ cm.

   e. What is the total length of all four sides of this figure?   _______ cm.
1. Measure 5 things in the classroom with a centimeter ruler. List the five things and their length in centimeters.

<table>
<thead>
<tr>
<th>Object Name</th>
<th>Length in centimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
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<tr>
<td>c.</td>
<td></td>
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<tr>
<td>d.</td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
</tr>
</tbody>
</table>

2. Measure 4 things in the classroom with a meter stick or meter tape. List the four things and their length in meters.

<table>
<thead>
<tr>
<th>Object Name</th>
<th>Length in meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
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<tr>
<td>b.</td>
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<tr>
<td>c.</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
</tr>
</tbody>
</table>
3. List 5 things in your house that you would measure with a meter stick or meter tape.

1. ____________________________________________________________________

2. ____________________________________________________________________

3. ____________________________________________________________________

4. ____________________________________________________________________

5. ____________________________________________________________________

Why would you want to measure those five items with a meter stick or meter tape instead of a centimeter ruler?

_________________________________________________________________

_________________________________________________________________

4. The distance from the cafeteria to the gym is 14 meters. The distance from the cafeteria to the playground is double the distance. How many times would you need to use a meter stick to measure the distance from the cafeteria to the playground?
Name ____________________________ Date ______________

1. Circle centimeter or meter to show which measurement you would use to measure the length of each object.

   Length of a train cm or m

   Length of an envelope cm or m

   Length of a house cm or m

2. Would it take more meters or more centimeters to measure the length of playground? Explain your answer.

   __________________________________________________________________________

   __________________________________________________________________________

   __________________________________________________________________________
Lesson 4 Homework

Name __________________________________________ Date _____________

1. Circle cm (centimeter) or m (meter) to show which measurement you would use to measure the length of each object.

   a. Length of a marker cm or m
   b. Length of a school bus cm or m
   c. Length of a laptop computer cm or m
   d. Length of a highlighter marker cm or m
   e. Length of a football field cm or m
   f. Length of a parking lot cm or m
   g. Length of a cell phone cm or m
   h. Length of a lamp cm or m
   i. Length of a supermarket cm or m
   j. Length of a playground cm or m

2. Fill in the blanks with cm or m.

   a. The length of a swimming pool is 25 ____________.

   b. The height of a house is 8 ____________.

   c. Karen is 6 ____________ shorter than her sister.

   d. Eric ran 65 ____________ down the street.

   e. The length of a pencil box is 3 ____________ longer than a pencil.
3. Use a centimeter ruler to find the length (from one hash mark to the next) of each object.

![Diagram of various shapes: triangle, square, semi-circle, hexagon, and rectangle.]

a. Triangle A is ____ cm long.  Square B is ____ cm long.  Semi-circle C is ____ cm long.  Hexagon D is ____ cm long.  Rectangle E is ____ cm long.

b. Explain how the strategy to find the length of each shape above is different than how you would find the length if you used a centimeter cube.

[Blank lines for explanation]
Lesson 5 Problem Set

Name ___________________________ Date ________________

First estimate the length of each line in centimeters using mental benchmarks. Then measure each line with a cm ruler to find the actual length.

1. ___________________________
   a. Estimate: ______ cm
   b. Actual length: ______ cm

2. _______________________________________________________________________
   a. Estimate: ______ cm
   b. Actual length: ______ cm

3. ___________________________
   a. Estimate: ______ cm
   b. Actual length: ______ cm

4. _______________________________________________________________________
   a. Estimate: ______ cm
   b. Actual length: ______ cm
5.

   ____________________

   a. Estimate: ______ cm
   b. Actual length: ______ cm

6. Circle the correct unit of measurement for each length estimation.

   a. The height of a door is about 2 (centimeters/meters) tall.
      What benchmark did you use to estimate? __________________

   b. The length of a pen is about 10 (centimeters/meters) long.
      What benchmark did you use to estimate? __________________

   c. The length of a car is about 4 (centimeters/meters) long.
      What benchmark did you use to estimate? __________________

   d. The length of a bed is about 2 (centimeters/meters) long.
      What benchmark did you use to estimate? __________________

   e. The length of a dinner plate is about 20 (centimeters/meters) long.
      What benchmark did you use to estimate? __________________

7. Use an unsharpened pencil to estimate the length of 3 things in your desk.

   a. ________________________ is about ______ cm long.

   b. ________________________ is about ______ cm long.

   c. ________________________ is about ______ cm long.
Name ___________________________ Date ________________

1. Circle the most reasonable estimate for each object.
   a. Length of a push pin 1 cm or 1 m
   b. Length of classroom door 100 cm or 2 m
   c. Length of a pair of students scissors 17 cm or 42 cm

2. Estimate the length of your desk. (Remember that your pinky is about 1 cm.)
   My desk is about _____ cm long.

3. How does knowing that an unsharpened pencil is about 20 cm long help you estimate the length of your arm from your elbow to your wrist?
   ___________________________________________________________
   ___________________________________________________________
1. Name 5 things in your home that you would measure in meters. Estimate their length. *Remember the length from a doorknob to the floor is about 1 meter.

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
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<tr>
<td>b.</td>
<td></td>
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<tr>
<td>c.</td>
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<td>d.</td>
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<td>e.</td>
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</tbody>
</table>

2. Choose the best length estimate for each object.

a. Whiteboard  3 m or 45 cm
b. Banana  12 cm or 20 cm
c. DVD  25 cm or 17 cm
d. Pen  18 cm or 1 m
e. Swimming pool  50m or 150 cm
3. The width of your pinky finger is about 1 cm. 
Measure the length of the lines using your pinky finger. Write your estimation.

a. Line A ________________________________
   Line A is about _____cm long.

b. Line B ______
   Line B is about _____cm long.

c. Line C __________________________________________________________
   Line C is about _____cm long.

d. Line D ________________________________
   Line D is about _____cm long.

e. Line E _____________________________
   Line E is about _____cm long.
Measure each set of lines in centimeters write the length on the line. Complete the comparison sentence.

1. Line A ____________________________
   Line B ____________________________
   Line A measured about ____ cm.       Line B measured about _____ cm.
   Line A is about _____ cm longer than Line B.

2. Line C ____________________________
   Line D ____________________________
   Line C measured about ____ cm.       Line D measured about _____ cm.
   Line C is about _____ cm shorter than Line D.

3. Line E ______________
   Line F ____________________________
   Line G ____________________________
   Line E measured about ____ cm.       Line F measured about _____ cm.
   Line G measured about ____ cm.       Lines E, F, and G are about ____ cm combined.
   Line E is about ____ cm shorter than Line F.
Line E is about ____ cm shorter than Line G.

Line G is about ____ cm longer than Line F.

Line F doubled is about ____ cm longer than Line G.

4. Daniel measured the heights of some young trees in the orchard. He is trying to find out how many more centimeters are needed to have a height of 1 meter?

   \[ 90 \text{ cm} + _____ \text{ cm} = 1 \text{ m} \]
   \[ 80 \text{ cm} + _____ \text{ cm} = 1 \text{ m} \]
   \[ 85 \text{ cm} + _____ \text{ cm} = 1 \text{ m} \]
   \[ 81 \text{ cm} + _____ \text{ cm} = 1 \text{ m} \]

5. Carol’s ribbon is 76 centimeters long. Alice’s ribbon is 1 meter long. How much longer is Alice’s ribbon than Carol’s?

6. The cricket hopped a distance of 52 centimeters. The grasshopper hopped 19 centimeters farther than the cricket. How far did the grasshopper jump?
Lesson 6 Problem Set

7. The pencil box is 24 centimeters in length and 12 centimeters wide. How many more centimeters is the length than the width? _______ more cm.

Draw the rectangle and label the sides.

What is the total length of all four sides? _______ cm.
1. Measure the length of each line and compare.

____________________________              Line M

____________________________          Line N

____________________________              Line O

Line M is about ____cm longer than Line O.

Line N is about ____cm shorter than Line M.

Line N doubled would be about ____cm (longer/shorter) than Line M.
Compare the lengths and complete each sentence.

1. \underline{_________________________________________} Line A
   \underline{_________________________________________} Line B

   Line A is about ____ cm longer than line B.

   Line A and B are about ____ cm combined.

2. \underline{__________________________} Line X
   \underline{__________________________} Line Y
   \underline{__________________________} Line Z

   Line X measured about ____ cm.

   Line Y measured about ____ cm.

   Line Z measured about ____ cm.

   Lines X, Y, and Z are about ____ cm combined.

   Line Z is about ____ cm shorter than Line X.

   Line X is about ____ cm shorter than Line Y.

   Line Y is about ____ cm longer than Line Z.

   Line X doubled is about ____ cm longer than line Y.
3. Line J is 60 cm long.

   Line K is 85 cm long.

   Line L is 1 m long.

   Line J is ____ cm shorter than line K.

   Line L is ____ cm longer than line K.

   Line J doubled is ____ cm more than line L.

   Lines J, K, and L combined are ____ cm.

4. Katie measured the seat height of four different chairs in her house.

   Here are her results:
   Loveseat height: 51 cm  Bar stool height: 97 cm
   Dining room chair height: 55 cm  Counter stool height: 65 cm

   a. How much shorter is the dining chair than the counter stool? ____ cm

   b. How much taller is the bar stool than the loveseat? ____ cm

   c. What is the difference between the height of tallest chair and the height of the shortest chair? ____ cm

   d. How much taller is a meter stick than the counter stool? ____ cm

   e. How much taller is a meter stick than the loveseat? ____ cm
5. Max ran 15 meters this morning. This afternoon he ran 48 meters.
   a. How many more meters did he run in the afternoon?

   b. How many meters did Max run in all?

6. The length of the tabletop is 2 meters long. If the tablecloth on the table is 256 centimeters, how much longer is the tablecloth than the tabletop?
Name ______________________________ Date ______________

Measure each set of lines with one small paper clip, using mark and move forward. Measure each set of lines in centimeters using a ruler.

1. Line A __________________________

   Line B __________________________

   Line A is _____ paper clips. Line A is _____ cm long.

   Line B is _____ paper clips. Line B is _____ cm long.

   Line B is _____ paper clips shorter than Line A.

   Line A is _____ cm longer than Line B.

2. ___________________________ Line L

   ___________________________ Line M

   Line L is _____ paper clips. Line L is ____ cm long.

   Line M is _____ paper clips. Line M is ____ cm long.

   Line L is _____ paper clips longer than Line M.

   Line M doubled is ____ cm longer than Line L.

3. Draw a line that is 16 cm long and another line below it that is 11 cm long. Label the 16-cm line R and the 11-cm line S.

   Line R measured ______ paper clips.

   Line S measured ______ paper clips.
4. Draw a line that is 8 cm long and another line below it that is 20 cm long.
   Label the 8-cm line C and the 20-cm line D.

Line C is _____ paper clips long.
Line D is _____ paper clips long.
Line D is ____ cm longer than Line C.
Line C is ____ paper clips shorter than Line D.
Lines C and D are ____ paper clips long.
Lines C and D are ____ centimeters long.

5. Christina measured line F with quarters and line G with pennies.

   Line F measured the length of about 6 quarters.
   Line G measured the length of about 8 pennies.
   Christina said line G is longer because 8 is a bigger number than 6.
   Explain why Christina is incorrect.

______________________________________________________________
______________________________________________________________
Measure the lines with small paper clips and answer the questions below.

Line 1 ________________________________

Line 2 ________________________________

Line 3 ________________________________

Line 1 is _____ paper clips. Line 1 is _____ cm long.

Line 2 is _____ paper clips. Line 2 is _____ cm long.

Line 3 is _____ paper clips. Line 3 is _____ cm long.

Explain why each line had more centimeters than paper clips.

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________
Lesson 7 Homework

Name ____________________________ Date ________________

Use a centimeter ruler and paper clips to measure and compare lengths.

1. __________________________ Line Z

   Line Z is _____ paper clips. Line Z is ____ cm long.
   
   Line Z doubled would measure ____ paper clips or ____ cm.

2. __________________________ Line A

   __________________________ Line B

   Line A is _____ paper clips. Line A is ____ cm long.
   
   Line B is _____ paper clips. Line B is ____ cm long.
   
   Line A is _____ paper clips longer than Line B.
   
   Line B doubled is ____ cm longer than Line A.

3. Draw a line that is 8 cm and another line below it that is 12 cm.

   Label the 8-cm line F and the 12-cm line G.
   
   Line F is _____ paper clips long.
   
   Line G is _____ paper clips long.
   
   Line G is ____ cm longer than Line F.
   
   Line F is ____ paper clips shorter than Line G.
   
   Lines F and G are _____ paper clips long.
   
   Lines F and G are _____ centimeters long.
Lesson 7 Homework

4. Line X is 1 meter. Line Y is 89 centimeters.
   Line X is _______ centimeters.
   Which line is longer?  Line X  Line Y  How much longer? _________cm

5. Line P is 2 meters. Line Q is 300 centimeters.
   Line P is _______ centimeters.
   Line Q is _______ meters.
   Which line is longer?  Line P  Line Q
   How much longer? _________________

6. Jordan measured the length of a line with large paper clips. His friend measured
   the length of the same line with small paper clips.

   About how many paper clips did Jordan use? _______ large paper clips.

   About how many small paper clips did his friend use? _____ small paper clips.

   Why did Jordan’s friend need more paper clips to measure the same line as Jordan?
   ________________________________
   ________________________________
1. Line a is _____ cm long.

Line b is _____ cm long.

Together, Lines a and b measure _____ cm.

Line a is _____ cm (longer/shorter) than Line b.

2. A cricket jumped 5 centimeters forward and 9 centimeters back then stopped. If the cricket started at 23 on the ruler, where did the cricket stop? Show your work on the broken centimeter ruler.

3. Marty made a train of red and yellow centimeter cubes that measured 16 centimeters in length. He added 11 more yellow cubes and removed 8 red cubes. What is the length of the train now?
4. Each of the parts of the path below is 4 length units. What is the total length of the path? _______ length units.

5. Ben took two different ways home from school to see which way was the quickest. All streets on Route A are the same length. All streets on Route B are the same length.

   a. How many meters is Route A? ________m.
   b. How many meters is Route B? ________ m.
   c. What is the difference between Route A and Route B? _________ m.
   d. Which route should Ben take if he wants to get home quickly? __________
Name ___________________________________________ Date ________________

1. Using the ruler below draw one line that begins at 2 cm and ends at 12 cm. Label that line R. Draw another line that begins at 5 cm and ends at 11 cm. Label that line S.
   a. Add 3 cm to Line R and 4 cm to Line S.
   b. How long is the new line extended from R? ______ cm
   c. How long is the new line extended from Line S? ______ cm
   d. The new line extended from Line S is _____ cm (shorter/longer) than the new line extended from Line R.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
1. Line c is _____ cm.
   Line d is _____ cm.
   Lines c and d are _____ cm.
   Line c is _____ cm (longer/shorter) than Line d.

   ![Ruler with marks](image)

2. A cardinal flew 12 meters north and then turned around and flew 5 meters south. His starting point is marked on the ruler. Where did is the cardinal now? Show your work on the broken ruler.

   ![Cardinal's path](image)
3. All of the sides of the line below are equal length units.

![Line diagram](image)

a. Fill in the empty boxes with the lengths of each side.

b. The line is _____ length units.

c. How many lines would you need to add for the line to be 21 length units? _____ lines

4. The length of a picture is 67 centimeters. The width of the picture is 48 centimeters. How many more centimeters is the length than the width?
Lesson 9 Problem Set

Name ___________________________ Date _____________

1. Complete the chart by first estimating the measurement around a classmate’s body part. Then find the actual measurement with a meter tape.

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Body Part Measured</th>
<th>Estimated Measurement in Centimeters</th>
<th>Actual Measurement in Centimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrist</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Head</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Which was longer, your estimate or the actual measurement around your classmate’s head? __________

b. Draw a tape diagram to compare two actual lengths from your chart.

2. Use a string to measure all three lines.

Line 1

Line 2

Line 3

Which line is the longest? _____
Which line in the shortest? ______

Draw a tape diagram to compare two of the lengths.

3. Estimate the length of the line below in centimeters.

The line is about ______ cm.

Use your piece of string to measure the length of the line. Then measure the string with your ruler.

The actual length of the line is ______ cm.

Draw a tape diagram to compare your estimation and the actual length of the line.
Name ________________________________ Date ______________

1. Measure the two lines by using your string. Write the length in centimeters.

   Line M is _____ cm long.
   Line N is _____ cm long.

2. Mandy measured the lines and said both lines are the same length.
   Is Mandy’s answer correct? Yes or no. _______

   Explain why or why not.
   __________________________________________________________
   __________________________________________________________

3. Draw a tape diagram to compare the two lengths.
Name ___________________________________ Date ________________

1. Find the measurement around three round objects in your house. Complete the chart below.

<table>
<thead>
<tr>
<th>Object Name</th>
<th>Estimated Measurement in Centimeters</th>
<th>Actual Measurement in Centimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

a. What is the difference between the greatest and shortest measurements? ___________ cm.

b. Draw a tape diagram comparing the estimated measurements.

c. Draw a tape diagram to compare the actual measurements.
2. Measure the two lines below.

\[ \text{line A} \]

\[ \text{line B} \]

a. Line A is ___ cm.

b. Line B is ___ cm.

c. Together, lines A and B measure ____ cm.

d. Line A is _____ cm (shorter/longer) than line B.

3. Kim is decorating a table for a party. Measure the ribbon she is using to decorate.

The ribbon is _____ cm long.

Kim needs 1 meter of ribbon.

How much more ribbon does Kim need than what she has? ____ cm.
4. Shawn and Steven had a contest to see who could jump the furthest. Shawn jumped 75 centimeters. Steven jumped 23 more centimeters than Shawn.

a. How far did Steven jump? __________ centimeters

b. How won the jumping contest? __________

c. Draw a tape diagram to compare the lengths that Shawn and Steven jumped.
Draw a tape diagram for each step.

1. Maura’s ribbon is 26 cm long. Colleen’s ribbon is 14 cm shorter than Maura’s ribbon. What is the total length of both the ribbons?

   Step 1: Find the length of Colleen’s ribbon.

   \[
   \begin{align*}
   &\text{26 cm} \\
   &? \quad \text{14 cm shorter}
   \end{align*}
   \]

   Step 2: Find the length of both ribbons.

   \[
   \begin{align*}
   &\text{26 cm} \\
   &? \quad \text{14 cm shorter}
   \end{align*}
   \]

2. Jesse’s doll is 30 cm tall. Sarah’s doll is 9 cm shorter than Jessie’s doll. What is the total length of both dolls?

   Step 1: Find the length of Sarah’s doll.

   \[
   \begin{align*}
   \end{align*}
   \]

   Step 2: Find the length of both dolls.
3. Steven has a black leather strip that is 13 centimeters long. He cut off 5 centimeters. His teacher gave him a brown leather strip that is 16 centimeters long. What is the total length of both strips?

   Step 1: Find the length of black leather strip after being cut.

   Step 2: Find the length of the black and brown leather strips together.

4. Pam and Mark measured the distance around each other’s wrists. Pam’s measured 10 cm. Mark’s measured 3 cm more than Pam’s. What might be the total length around their wrists (all four wrists).

   Step 1: Find the distance around both Mark’s wrists.

   Step 2: Find the total measurement of all four wrists.
Name _______________________________ Date ______________

The length of a crayon is 9 centimeters. A pencil is 11 centimeters longer than the crayon. What is the total length of both the crayon and the pencil?
Lesson 10 Homework

Name __________________________ Date _______________

Draw a tape diagram for each step.

1. There is 29 cm of green ribbon. A blue ribbon is 9 cm shorter than the green ribbon. How long is the green ribbon?
   
   Step 1: Find the length of blue ribbon.
   
   \[ \text{G} \quad 29\text{cm} \]
   \[ \text{B} \quad 9\text{cm} \]
   
   Step 2: Find the length of both the blue and green ribbons.
   
   \[ \text{G} \quad 29\text{cm} \]
   \[ \text{B} \quad 20\text{cm} \]

2. Joanna and Lisa drew lines. Joanna’s line is 41 cm long. Lisa’s line is 19 cm longer than Joanna’s. How long are Joanna and Lisa’s lines?
   
   Step 1: Find the length of Lisa’s line.
   
   \[ \text{G} \quad 41\text{cm} \]
   \[ \text{B} \quad 50\text{cm} \]

   Step 2: Find the total length of their lines.
Name ________________________________ Date __________________

1. Use your ruler to find the length of the pencil and the crayon.

   a. How long is the crayon? _______ centimeters

   b. How long is the pencil? _______ centimeters

   c. Which is longer?  pencil   crayon

   d. How much longer? ________ centimeters
2. Samantha and Bill are having a bean bag throwing contest and need to measure each of their throws.

   a. Circle the most appropriate tool to measure their throws.
      
      ruler  paper clips   meter stick  centimeter cubes

   b. Explain your choice using pictures or words.

   c. Bill throws his bean bag 5 meters, which was 2 meters farther than Samantha threw her bean bag. How far did Samantha throw her bean bag? Draw a diagram or picture to show the length of their throws.

   d. Sarah threw her bean bag 3 meters farther than Bill. Who won the contest? How do you know?
3. Use the broken centimeter ruler to solve the problem.

A grasshopper jumped 7 centimeters forward and 4 centimeters back and then stopped. If the grasshopper started at 18, where did the grasshopper stop? Show your work.

4. Vanessa’s Ribbons

![Centimeter ruler with markings from 15 to 30.]

Ribbon A

Ribbon B

a. Measure the length of Ribbon A with your centimeter ruler and your paper clip. Write the measurements on the lines below.

______ centimeters

______ paper clips

b. Explain why the number of centimeters is larger than the number of paper clips. Use pictures or words.
c. Estimate the length of Ribbon B in paper clips.

____ paper clips

d. How much longer is Ribbon A than Ribbon B? Give your answer in centimeters.

e. Vanessa is using the ribbons to wrap a gift. If she tapes the ribbons together with no overlap, how many centimeters of ribbon does she have altogether?

f. If Vanessa needs 20 centimeters of ribbon, how much more does she need?
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