 Third Grade

Mathematics

Unit: 08

Lesson: 01

Duration: 7 Days

Measuring Length, Perimeter, and Area

Lesson Synopsis:

Students select the standard units: customary and metric/SI, to measure classroom items. The focus of this lesson is on

linear measurement, including estimation. Students will use standard units of measure to continue their investigations of

perimeter and area.

TEKS

3.11

Measurement. The student directly compares the attributes of length, area, weight/mass, and

capacity, and uses comparative language, to solve problems and answer questions. The

student selects and uses standard units to describe length, area, capacity/volume, and

weight/mass. The student is expected to:

Use linear measurement tools to estimate and measure lengths using standard units.

Use standard units to find the perimeter of a shape.

Use concrete and pictorial models of square units to determine the area of two-dimensional

surfaces.

3.11A

3.11B

3.11C

Process TEKS

3.14 Underlying processes and mathematical tools. The student applies Grade 3 mathematics to

solve problems connected to everyday experiences and activities in and outside of school.

The student is expected to:

3.14A Identify the mathematics in everyday situations.

3.14D Use tools such as real objects, manipulatives, and technology to solve problems.

3.15 Underlying processes and mathematical tools. The student communicates about Grade 3

mathematics using informal language. The student is expected to:

3.15A

3.15B

3.16

3.16A

3.16B

Explain and record observations using objects, words, pictures, numbers, and technology.

Relate informal language to mathematical language and symbols.

Underlying processes and mathematical tools. The student uses logical reasoning. The

student is expected to:

Make generalizations from patterns or sets of examples and non-examples.

Justify why an answer is reasonable and explain the solution process.

GETTING READY FOR INSTRUCTION

Performance Indicator(s):

* Use the appropriate tools to estimate and measure to find the length, perimeter and area of various figures.

(3.11A, 3.11B, 3.11C)

ELPS: 1E, 2E, 2I, 3D, 4E, 5B

KEY Understandings and Guiding Questions:

* Linear measurement tools can be used to estimate and measure length.
  + Why is it important to estimate before measuring?
  + How can estimation be useful in real-world activities?
  + What is the relationship between a measurement tool and the object being measured?
  + What are the tools of linear measurement?
  + How do you determine the correct measurement tool to use?
* Standard units can be used to find the perimeter of a shape.
  + How can you use standard units to find the perimeter of a shape?
* Concrete and pictorial models of square units can be used to determine the area of two-dimensional surfaces.
  + How is area measured?

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Vocabulary of Instruction:

* half
* fourth
* inch
* foot
* yard
* mile
* centimeter
* decimeter
* millimeter
* meter
* height
* width
* length
* customary
* metric/SI
* linear
* area
* perimeter

Materials:

* math journal (1 per student)
* construction paper (9 x 12) (3

sheets per student group)

* standard ruler with both

customary and metric units

(1 per student)

* yardstick (1 per student group)

scissors

* tape
* bulletin board paper (2 sheets

per class)

* construction paper (9 x 12) (or

blank paper) (6 sheets per

student)

* magazines/newspapers

(optional) (2-3 per student)

* unsharpened pencil (1 per

student)

* index card (1 per student)
* marker (1 per student)
* centimeter cubes (1 per

student)

* base-ten blocks (twelve 10-

longs per group)

* meter stick (1 per student

group)

* small bag or box of

miscellaneous objects

between 1 and 5

centimeters long (1 per

group)

* math books (or any same-

size book) (1 per student)

* marker (1 per station)
* 2 identical sets of crayons

(16, 24 and 48 to a box) (1

set at each Station 2)

* 4 identical sets of crayons

(48 to a box) (2 at Station 3

and 2 at Station 4)

* blank sheets of paper (1 per

student)

* color tiles (30 per student)

Resources:

* SPIRALING REVIEW

Each day will begin with a short spiraling review which is designed to revisit previously introduced concepts and

act as a quick student assessment. It is recommended that students be given 5 – 6 minutes to complete the daily

question(s) recording all entries in their math journals. Approximately 4 minutes should be used for discussion.

Two days of each week are called “Fact Time” and should be devoted to developing quick recognition (recall) of

basic facts or focused intervention according to student needs. Teachers should use classroom supplementary

materials such as flashcards, textbook supplements, district programs, etc. based on student needs in the

classroom. All spiraling reviews will be found as a separate attachment in the developer with the first unit of each

six weeks. Incorporate more games and partner activities into warm ups. Teachers should note to the students the

grading criteria for each lesson and homework. How tests will be given and graded should be addressed. Feedback

on homework and assignments should be given on a daily basis to allow for better understanding of the unit material.

STATE RESOURCES

— MTC K-3: Square Numbers

http://www.tea.state.tx.us/math/index.html

— MTR 3-5: Line It Up!

http://www.tea.state.tx.us/math/index.html

— Mathematics TEKS Toolkit: TEKS Clarifying Activity/Lesson/Assessment

http://www.utdanacenter.org/mathtoolkit/index.php

TEXTEAMS: Rethinking Elementary Mathematics Part I: Making Evidence Clear to Students; How Long?

How Many?

TEXTEAMS: Rethinking Elementary Mathematics Part II: Making Rectangles; Measuring Area with

Rectangles; Area with Tiles

* TAKS Mathematics Charts: http://www.tea.state.tx.us/student.assessment/taks/math

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Advance Preparation:

1.

2.

Yardstick/meter stick: If combination yard/meter sticks are only available for classroom use, use a red

permanent marker and draw a line on both edges/widths to indicate the end of the yardstick.

Bulletin Board Paper - Cut two sheets of white bulletin board paper about 24” x 40” to use for Customary and

Metric/SI Charts. These charts will be placed in a Measurement Corner on the wall in the classroom. Another

chart for Weight/Mass and Capacity and Volume will be completed in Lesson 04 and added to the

Measurement Corner.

Handout: Grade 3 TAKS Mathematics Chart (1 per student downloaded from website)

Transparency: Grade 3 TAKS Mathematics Chart (1 per teacher)

Graphic: Visuals for Customary Length (1 per class chart)

Graphic: Customary Units (1 per class chart)

Handout: Tri-Fold Flip Book Directions (1 per student)

Transparency: Customary Ruler (1 per teacher)

Transparency: Customary Ruler (1 per student)

Transparency: Customary Broken Ruler (1 per teacher)

Handout: Customary Broken Ruler (1 per student)

Transparency: Read that Ruler! Customary (1 per teacher)

Handout: Read that Ruler! Customary (1 per student)

Transparency: Which Answer is Correct and Why? (1 per teacher)

Handout (optional): Customary Length Notes/Practice (1 per student as needed)

Handout (optional): Customary Ruler Practice (1 per student as needed)

Graphic: Visuals for Metric Length (1 per class)

Graphic: Metric Units (1 per class)

Handout: Tri-Fold Flip Book Directions (1 per student from Day 1)

Transparency: Metric Ruler (1 per teacher)

Handout: To the Nearest—Metric Recording Sheet (1 per student)

Handout: Read that Ruler! Metric (1 per student)

Handout (optional): Metric Length Notes/Practice (1 per student as needed)

Handout (optional): Metric Ruler Practice (1 per student as needed)

Handout (optional): Additional Combined Measures Practice (1 per student as needed)

Transparency: Textbook Perimeter (1 per teacher)

Handout: Textbook Perimeter (1 per student)

Handout: Perimeter Scavenger Hunt (1 per student)

Handout: Estimate and Measure Perimeter Practice (1 per student)

Transparency: Dot Paper (1 per teacher)

Handout: Dot Paper (1 per student)

Transparency: Finding Area – Notes and Practice (1 per teacher)

Handout: Finding Area – Notes and Practice (1 per student)

Handout: Finding Area Practice (1 per student)

Transparency: Broken Ruler 2 (1 per teacher)

Card Set: Measurement Station Task Cards (run on cardstock) (1 per station)

Handout: Measurement Stations Recording Sheet (1 per student)

Handout: Crayon Box Perimeter Mat (1 per student)

Handout: Crayon Box Area Mat (1 per student)

Handout: Measurement Evaluation (1 per student)

Handout: Grading criteria for measurement unit (1 per student)

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Background Information:

In second grade, students measure with non-standard units only. Third grade is the first grade to use the ruler as a

measuring tool. In the previous unit, students were taught to link the ruler, “handmade ruler”, to the number line with whole

numbers and fractions, using inches. Third grade students are to select and use standard units to describe length which

includes both customary units, such as inches, feet, and yards, and metric/ SI units, such as millimeters, centimeters, and

meters. The term “SI” comes from a French phrase, Systeme International (SI) d'unites, meaning International System of

Units; it is a part of the TEKS refinements and is to accompany the term “metric”.

GETTING READY FOR INSTRUCTION SUPPLEMENTAL PLANNING DOCUMENT

Instructors are encouraged to supplement, differentiate and substitute resources, materials, and activities to address the needs of learners. The

Exemplar Lessons are one approach to teaching and reaching the Performance Indicators and Specificity in the Instructional Focus Document for this

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unit. A Microsoft Word template for this Planning document is located at www.cscope.us/sup\_plan\_temp.doc. If a supplement is created electronically,

users are encouraged to upload the document to their Lesson Plans as a Lesson Plan Resource for future reference.

INSTRUCTIONAL PROCEDURES

**Instructional Procedures**

**ENGAGE**

**Revision: Prior to start of this unit: Teacher/Instructor will conduct a mini-lesson for**

**direct teaching of measurement concepts through demonstrations and other visuals.**

**Pre-exposure of standard ruler and yardstick for struggling learners.**

1. Select 4 student volunteers (with varying foot sizes) to come to the front of

the classroom and have each one walk heel-to-toe along a well-defined

classroom length. As each student walks this length, have the whole class

count the steps aloud. Record each student’s total number of steps on the

board or overhead. Prompt students to use their math journals to record

these measures as well. **Revision: Partner struggling learner with an on grade-level**

**student to provide guidance.**

 Since these are rough measurements, what kinds of words

should we use to describe each total? Answers may vary but could

include: About, estimated, almost, a little more than, a little less than,

between \_\_\_\_ and \_\_\_\_, etc.

 Why weren’t all these measurements the same? (The feet of each

student were different sizes.)

2. Explain to students that using body measures, or non-standard units of

measure, is a problem because the measures are different for different

people. By using standard units of measure, the problem is solved

because standard units never change. They are the same for everyone. If

two people used standard units of measure to measure the same object,

the measurements would be the same or almost the same. **(Provide visual representations)**

Notes for Teacher

NOTE: 1 Day = 50 minutes

Suggested Day 1

SPIRALING REVIEW

MATERIALS

 math journal (1 per student)

VOCABULARY

Standard unit –a unit of measure that

has been defined by a recognized

authority, such as a government or

standards organization. For example,

inches, meters, seconds, liters, pounds

and grams are all standard units

**EXPLORE/EXPLAIN** 1

**While explaining, incorporate multiple representations where needed for struggling**

**learners.**

1. Explain to students that one system of standard units that has developed

over time is the customary system of measurement. In this system, the

basic unit of length is the inch. (See vocabulary note at right.)

2. Let students know that you can use your finger to estimate “one inch”.

Demonstrate how to do this by bending your finger and aligning the ruler

with zero starting at one joint and measuring to the other joint.

Explain that although the space between the joints is not an exact

measurement, it is a good estimate or approximation of an inch.

 What are some other objects that might be about 1-inch long?

Answers may vary but could include: The length of a small paper clip, a

color tile, etc.

Remind students that even though these are nonstandard units of

measure, they are still good “estimates” of standard measures.

3. Direct students to discuss what they would do to measure distances in a

sunflower seed-spitting contest.

 Which customary unit of length would you choose? Answers may

vary but could include: inches or feet.

 What other customary units of length do you know? Answers may

vary but could include: yards or miles.

 Why are these units not as appropriate for measuring the

distances in the contest? Answers may vary but could include: With

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Suggested Day 1 Continued

MATERIALS

 construction paper (9” x 12”) (3

sheets per student group)

 standard ruler with both customary

and metric units (1 per student)

 yardstick (1 per student group)

 scissors

 tape

 Handout: Grade 3 TAKS

Mathematics Chart (1 per student)

 Transparency: Grade 3 TAKS

Mathematics Chart (1 per teacher)

 bulletin board paper (1 sheet per

class)

 Graphic: Visuals for Customary

Length (1 per class chart)

 Graphic: Customary Units (1 per

class chart)

 Handout: Tri-Fold Flip Book

Directions (1 per student)

 construction paper (9” x 12”) (or

blank paper) (2 sheets per student)

 magazines/newspapers (optional)

(2-3 per student)

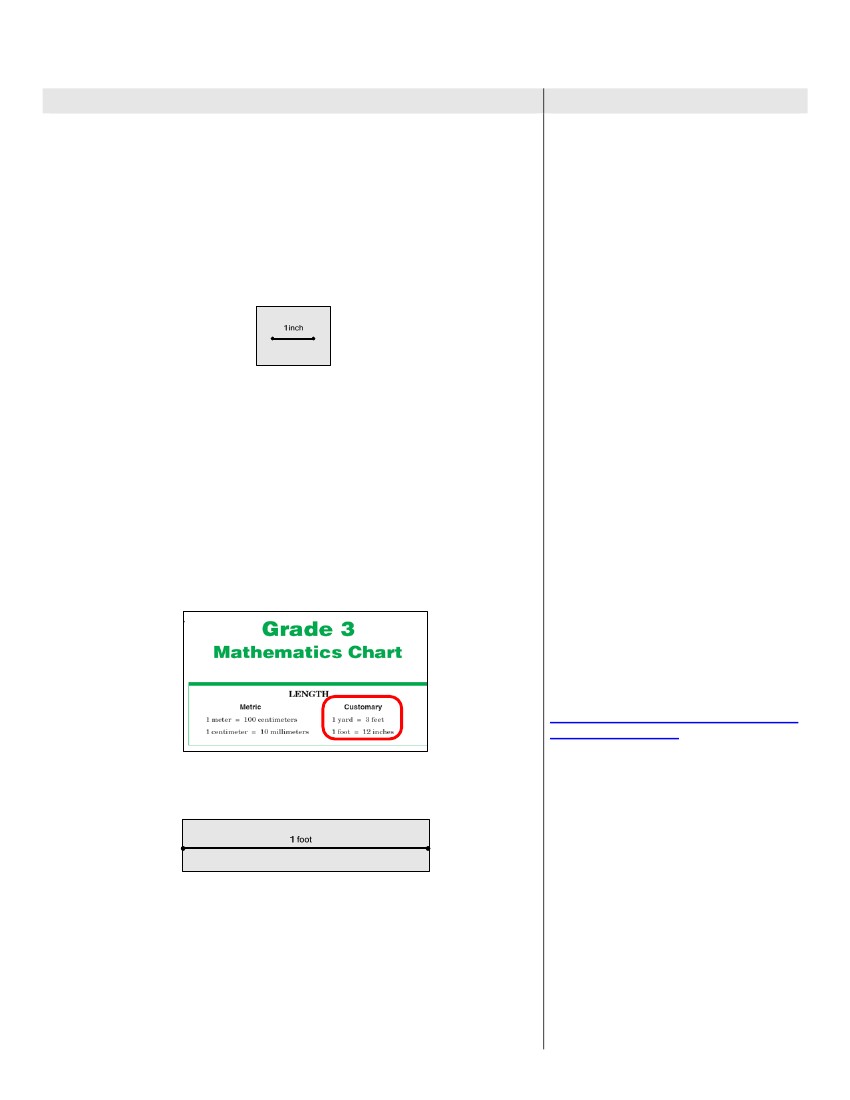
VOCABULARY

customary measurement: the system

of measurement used in the United

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Instructional Procedures

larger units, it is harder to get precise measurements of shorter

distances.

4. Have students sit in groups of 3-4 per group, and distribute 3 sheets of

construction paper to each group. **Revision: Mixed-ability grouping to benefit**

**struggling learners.**

Make sure each group has at least 1 ruler. Model **(may need to partner struggling learners**

**with a peer partner)**for the whole class the following process:

Prompt one student from each group to fold a sheet of construction paper in half

lengthwise (hot-dog fold) and then cut along that fold. Next, have another student in

the group take one of the half-sheets of paper and use the ruler to draw a

horizontal one-inch line segment on it with a marker. Instruct another

student in the group to label the line segment “1 inch”, and then trim the

remaining pieces of construction paper from the drawing. Example:

Notes for Teacher

States for measuring length, volume

and weight. Make sure you give direction on

what instrument to use and how the groups will be graded and how much time they will have to complete the task. Allow some time for group feedback

5. Have students look at the other half piece of construction paper.

 About how many inches long is this sheet of construction paper?

How do you know? Answers may vary. Estimates could include using

the 1-inch line segment drawn previously to determine the approximate

length.

Direct students to measure the length of the other half of construction

paper using their rulers. **(Demonstrate as directing)**

 How long was the length of construction paper? (12 inches)

 What is another name for 12 inches? How do you know? (a foot)

Answers may vary but could include: It’s on the Grade 3 TAKS

Mathematics Chart.

Have students look at handout: Grade 3 TAKS Mathematics Chart to find

the relationships modeled by their paper strips, and display a transparency

of the same on the overhead. Example:

TEACHER NOTE

According to the Publication Manual of

the American Psychological Association

(5th ed.), periods (.) are not used after

abbreviations for units of measure.

However, when using inches, a period is

used (in.) because it could be misread.

The same is true for gallons – a period

is used (gal.) to distinguish it from the

word “gal”.

TEACHER NOTE

The customary ruler on the Grade 3

TAKS Mathematics Chart can be used

in place of a ruler to acclimate students

to its use during the TAKS test. TAKS

Mathematics Charts can be found at the

following TEA website:

http://www.tea.state.tx.us/student.ass

essment/taks/math/

Prompt students in each group to draw a horizontal line segment along the

middle of this sheet of construction paper and label it “1 foot”. Example:

NOTE: When printing the revised TAKS

Mathematics Charts, please make sure

that your Print Menu is set to print the

pages at 100%. Be sure to check printer

settings as well to ensure that rulers

print to scale.

**Explicit modeling will provide clear understanding of instructions.**  
6. Instruct students to fold and cut the remaining 2 sheets of construction

paper the same way as the first sheet to create 4 pieces of paper. Explain

that sometimes large objects need to be measured. Although multiple

standard rulers can be used, it can be difficult. Tell students that if you

measure more than one “foot”, you call them “feet”. Distribute one

yardstick to each group.

 How many feet or standard rulers will fit end to end to equal the

length of one yard? How do you know? (3 feet) Answers may vary

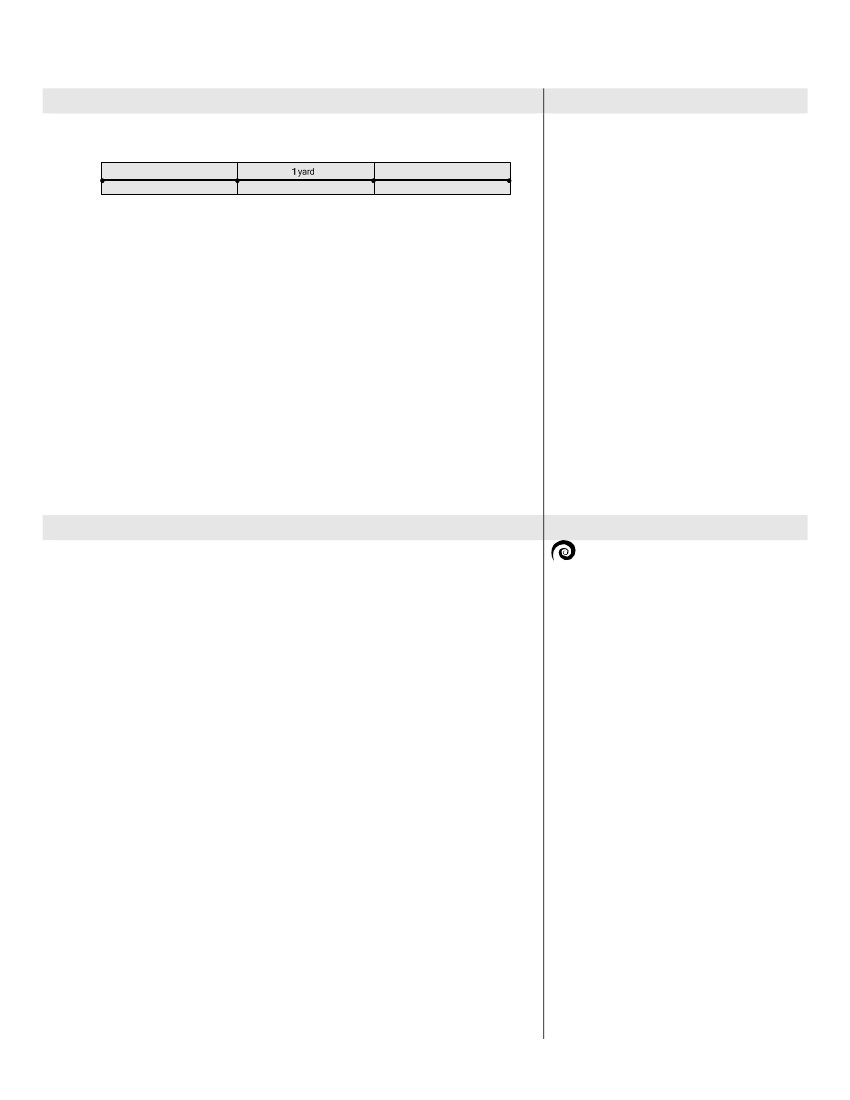
but could include: It’s on the Grade 3 TAKS Mathematics Chart.

Prompt students to lay their strips end-to-end until they have 1 yard. Next,

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have them tape these strips together and turn the large strip they created

over onto the “non-taped” side. Label this strip “1 yard”. Example:

Notes for Teacher

TEACHER NOTE

Although 3rd graders are not

responsible for converting measurement

units, it is important that they have

experience with models that

demonstrate the relationships among

different units of measurement. Grade 3

students should also be able to realize

that it will take more “feet” to measure

an item than a “yard”. (VanDeWalle,

2006)

Instruct students to lay each paper strip so that the 1-inch strip is above

the 1-foot strip etc. Have them compare and contrast each customary

measurement length in their groups. Some students may be able to see

that there are 36 inches in the yard after comparing the inch measure with

the foot and then with the yard. Other students may realize that it would

take more of the inch strips to measure an item than the foot strip etc.

Display one set of these strips on a large sheet of bulletin board paper

somewhere in the room for students to use as a reference for later

measurement activities. Use the graphics: Visuals for Customary Length

and Customary Units to title the poster paper with the strips.

7. Distribute handout: Tri-Fold Flip Book Directions and 1 sheet of

construction or blank paper to individual students. Use the directions to

model with students how to make a tri-fold book. (Students made a tri-fold

book in Unit 03, Lesson 02.) Instruct students to label the cover of each

flap as follows: (1) Inches, (2) Feet, and (3) Yards. When students have

finished labeling their books, tell them they are to complete their books by

writing at least 3 items under each flap that would most appropriately be

measured with that unit. If time allows, have students use the back of their

booklets to list 3 items that could be measured in miles.

TEACHER NOTE

If time allows, students may search for 3

magazine or newspaper pictures for

each appropriate unit of measure. They

should cut and glue each picture under

each flap of their booklets.

Suggested Day 2

SPIRALING REVIEW

MATERIALS

 standard ruler with both customary

and metric units (1 per student)

 unsharpened pencil (1 per student)

 Transparency: Customary Ruler

(1 per teacher)

 Transparency: Customary Broken

Ruler (1 per teacher)

 Handout: Customary Broken

Ruler (1 per student)

 Handout: Read that Ruler!

Customary (1 per student)

 index card (1 per student)

 marker (1 per student)

 Transparency: Read that Ruler!

Customary (1 per teacher)

 Transparency: Which Answer is

Correct and Why? (1 per teacher)

 Handout (optional): Customary

Length Notes/Practice (1 per

student as needed)

 Handout (optional): Customary

Ruler Practice (1 per student as

needed)

EXPLORE/EXPLAIN 2

**(More representations and modeling needed)**

1. Debrief and discuss the items students placed in each category of their flip

books created yesterday.

2. Distribute a new unsharpened pencil (to ensure the same length) and

customary rulers to individual students. Display transparency: Customary

Ruler on overhead and have students work with a partner to estimate the

pencil length before actually measuring it.

About how long is the pencil in inches? Answers may vary.

Demonstrate on the overhead with the customary ruler how to measure an

object to the nearest inch. Prompt students to locate 0, or the line that

represents zero, on the customary side of the ruler and remind them that it

is important to pay attention to the numbers when aligning the ruler with

the object being measured.

 To the nearest inch, how long is this pencil? Answers may vary.

(About 8 inches.)

3. Explain to the students that when reporting a measurement, it is essential

to name the unit of measure as well as the numerical value. Remind

students that the abbreviation for the word “inch” is “in.”

4. Display transparency: Customary Broken Ruler on overhead and

distribute handout of same to individual students.

 How is this ruler different than your standard ruler? Answers may

vary but could include: It does not begin with zero; part of the ruler is

broken off.

Explain that their ruler is also broken. Have students measure the length of

their pencil with the broken ruler.

 What would the measure of the pencil be if you measure the

pencil beginning with the number 3 on the customary side of the

ruler? (About 8 inches) Some students may say it is the same size,

while others may think it is 3 inches longer.

On the overhead, model measuring the pencil with the broken ruler by

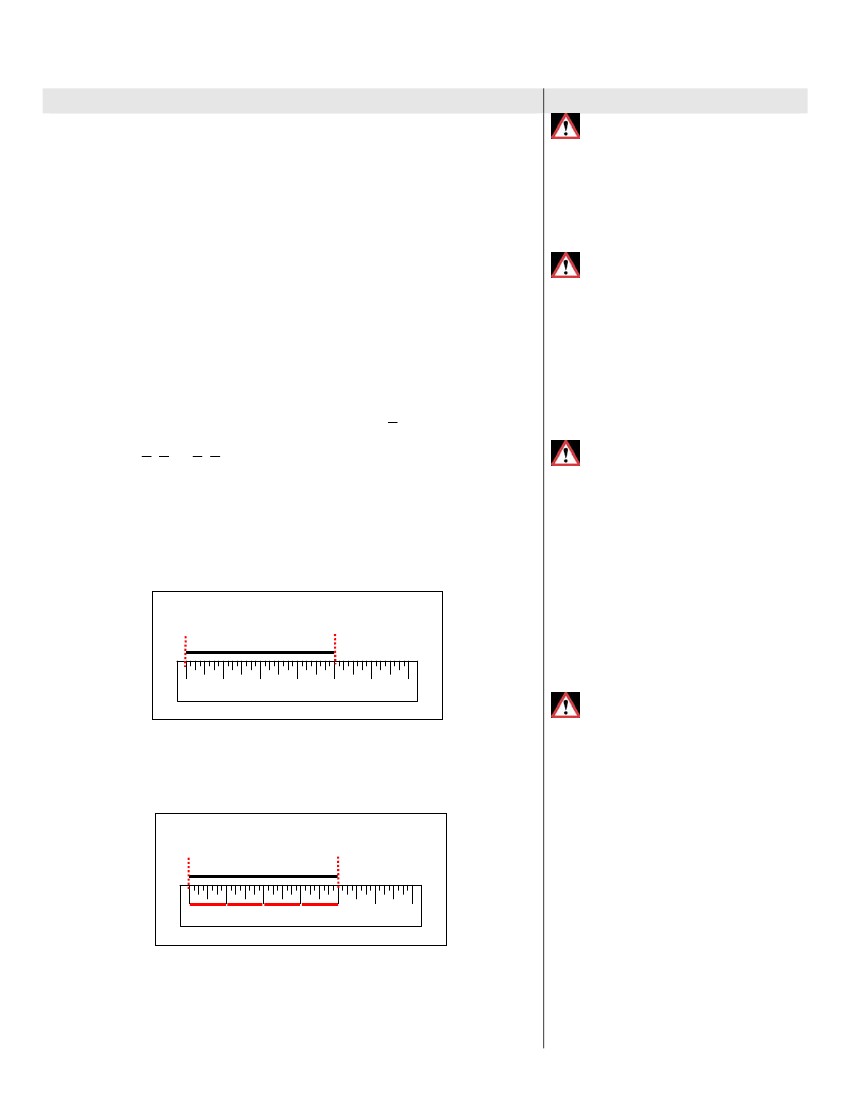
placing one end of the pencil on 3 to determine the actual length. Students

should follow along with the teacher while measuring.

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The pencil appears to be how long? (About 11 inches)

Is the pencil 8 inches in length or 11 inches in length? Answers

may vary but could include: 8 inches because we need to subtract the

3 inches from the 11 inches; we started measuring at 3 inches.

If time allows, give students other places to begin measuring the pencil on

the ruler to determine the length.

5. Distribute handout: Read that Ruler! Customary, one index card, and a

marker to each student. Display the transparency: Read that Ruler!

Customary and direct students to look at problem 1 on page 1 of the

above handout.

Explain that in second grade they were expected to find fractions closer to

zero, closer to one-half or closer to one. This year they will be using

fractional measurements to determine length. In order to measure to the

nearest fourth or half, more tic marks are needed (eighths) for more

precise measuring. **(Guided instructional review of second grade fraction concepts**

**for struggling learners).**

6. Before beginning the measuring activity on handout: Read that Ruler!

Customary, have volunteer students demonstrate on the overhead ruler

how to read the following while sliding their finger as they count: inch

markings (1 inch, 2 inch, etc), half-inch marking (0, 1 , 1), and quarter-inch





Notes for Teacher

MISCONCEPTION

Some students may think that when

measuring linear length, that you place

the edge of the ruler at the starting point

instead of the zero marking on the ruler

at the starting point.

2

MISCONCEPTION

Some students may think when

measuring length to the closest whole

number, that the 1/2 marking is another

whole number marking. If students are

unsure about reading to halves, remind

them of their handmade ruler and that

the extra tic mark between 0 and 1/2 is

used to help determine if the line

segment is closer to 0 or closer to1/2.

MISCONCEPTION

Some students may think that the “value

1/2” can be located between any two

whole numbers on the ruler. For

example, if a student places the “value

1/2” between 1 and 2 inches instead of

between 0 and 1 inch, place your finger

on 0 and slide your finger across the

ruler to 1 reading the length is 1 inch,

and then continue sliding your finger

half way between 1 and 2 reading the

length is 1 1/2 inches to clarify the

placement of 1/2 on the ruler.

markings ( 1 , 2 or 1 , 3 ) similar to the handmade rulers they made in

4 4

2 4

Unit 07. Have all students follow along in the sliding of their finger as the

class counts chorally.

7. Tell students there are specific steps they should follow each time they

measure.

Step 1: Using the index card as a straight edge, mark the beginning

and end of the line segment being measured by drawing a vertical line

segment extending to the ruler. Paper rulers can be printed from the Internet so that

students can construct their own rulers so that they will have a better understanding of ¼.

½, ¾

.

Measure Markings

0

Inches

1

2

3

4

5

6

Step 2: Identify the beginning and ending points on the ruler. Ex: 0

inches and 4 inches.

Step 3: Mark each whole space by drawing a horizontal line segment

between each number to determine the measure. Ex: 0 to 1, 1 to 2, 2

to 3, and 3 to 4.

Measure Markings

MISCONCEPTION

Some students may think when creating

a ruler, that fractional markings have the

same value and become confused

about the markings. For example, when

marking 1/4, 2/4, 3/4, 4/4, they read the

fourth markings all 1/4. After marking

fourths, remind students how to

measure length sliding your finger along

the ruler and reading length of1/4,

length of 2/4, etc.

0

Inches

1

2

3

4

5

6

 How long is the line segment? (4 inches)

Allow the students to complete problems 2, 3, and 4 on the handout.

Monitor and assist students as needed. When all students have completed

page 1, ask students to share their measurements to check for accuracy. **(Peer-**

**partner can provide guidance for struggling learners)**

 How did you determine the length of the line segment when it did

not begin at the zero point? Answers may vary but should include:

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Instructional Procedures

Counting whole unit segments (as shown in Step 3.)

Direct students to look at problem #4.

 What are the ways you could determine the length of 3 of these

line segments?? Answers may vary but could include that we could

add up each measure the number of times indicated, or we could

multiply the measure the number of times necessary.

**Instructor can vary use of delivery by using Interactive Smartboard (if accessible)**

**to elicit student participation. Smartboard allows larger text and fun interaction.**

8. Display the transparency: Which Answer is Correct and Why? on the

overhead. Have the students decide on the correct measurement and why

it is the better answer.

* To the nearest inch, how long is this crayon? How do you know?

(4 inches long, because the tip of the crayon is closer to the 4-inch

mark than it is to the 5-inch mark.)

* To the nearest half-inch how long is the crayon? Explain. (4 1/2

inches long) Answers may vary but could include: Because the tip of

the crayon is closer to the half-inch mark than the 4-inch mark.)

* When is it useful to measure to the nearest half inch instead of to

the nearest inch? Answers may vary but should include: When you

want a more accurate measurement and/or the object you are

measuring does not end exactly at an inch mark.

* How is measuring to the nearest half inch similar to and different

from measuring to the nearest inch? Answers may vary but could

include: They are similar in that you line up the object to the left side or

0; they are different in that you identify the nearest half inch mark on

the other side of the object, not the nearest inch mark.

Allow the students to complete problems 5, 6, 7, and 8 on the handout.

Monitor and assist students as needed. **(Great time to walk around and conduct**

**CFU(s)**. When all students have completed page 2, ask students to share their

measurements to check for accuracy. **(Peer –Partner** **for struggling learners).**

* How did you find the length to the nearest inch when the line segment did not line-up

exactly with the inch mark? Answers may vary but should include: Finding the inch mark

that is closest to the end of the line segment.

9. Direct students to problem 9 on page 3 of the handout.

* What is the first step when measuring? (Mark the beginning and

ending of each line segment.)

Have students mark the beginning and end of the line segment in problem

* What is Step 2? (Identify the beginning and ending points).
* What are the beginning and end points of this line segment? (0

and 2 1 /3

Notes for Teacher

TEACHER NOTE

In handout: Read that Ruler!

Customary some problems show the

line segment not aligned with zero.

Students should still count the units in

between. Some students may verify with

subtraction, others may count up, and

still others may count individually. Both

national and state assessments have

developed questions about

measurement where one end of the

item to be measured is not aligned with

0 on the ruler.

* What do you notice? (There is a part of an inch that is not a whole

inch.)

* What is Step 3? (Mark the whole spaces.)
* What is the fractional part of the inch? ( 1/2 )
* How many whole inches did you count? (2 inches)
* How long is the line segment? (2 1/3 inches)

ADDITIONAL PRACTICE

Optional handout: Customary Length

Notes/Practice, and Customary Ruler

Practice are available for students who

need more practice with measuring to

the nearest inch or half-inch.

Provide more enrichment activities beyond handouts that students with diverse learning styles can relate to.

Also provide additional enrichment activities for students who mastered the objective.

10. Instruct students to complete the remaining pages of the handout for

homework.

EXPLORE/EXPLAIN 3

1. Debrief and discuss yesterday’s handout: Read that Ruler! Customary as

a class.

2. Explain that in the United States, two measurement systems are used.

One system is called the customary system and uses units such as the

inch, foot, yard, and mile to measure. ( provide visual representations for each)

The other system is called the

metric/SI system and uses units such as millimeter, centimeter, meter, and

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Suggested Day 3

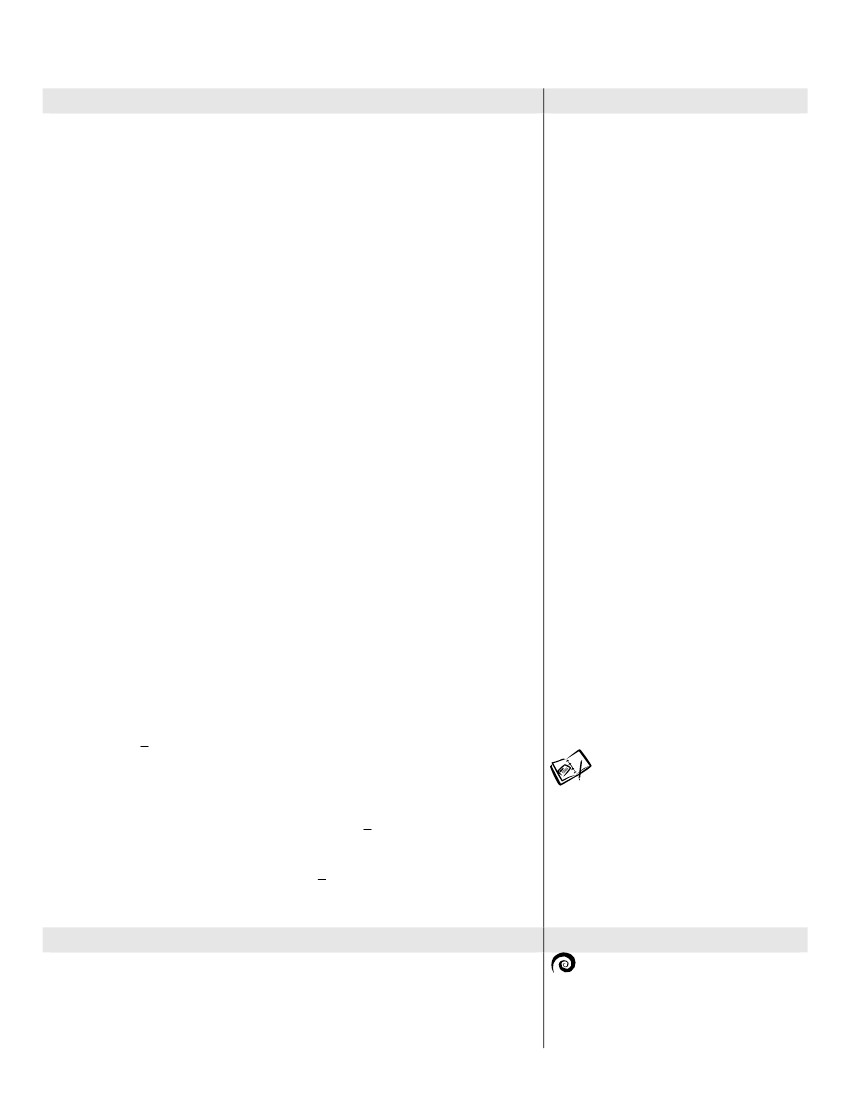
SPIRALING REVIEW

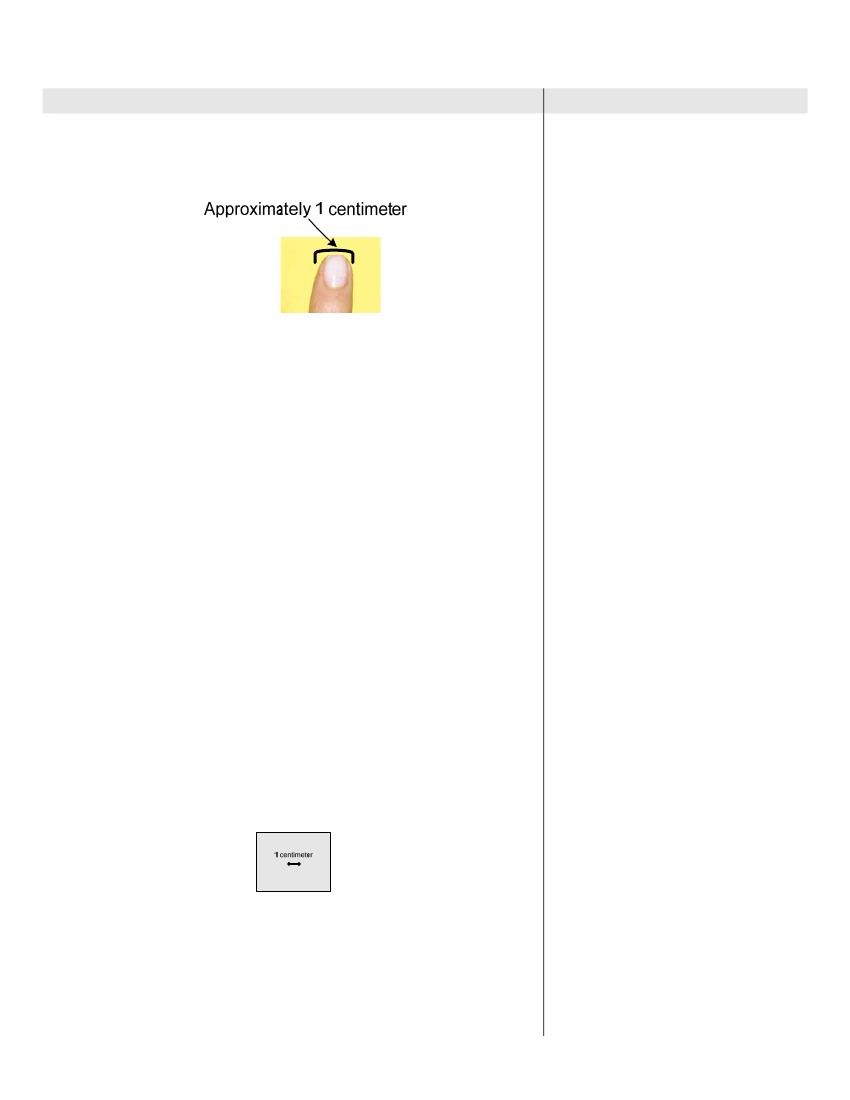
MATERIALS

 standard rulers with both customary

and metric units (1 per student)

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Instructional Procedures

kilometer to measure length (see vocabulary note at right.) (provide visual

representations for each)

3. Let students know that you can use the width of your finger to estimate

“one centimeter”. Demonstrate how to do this by bending your finger and

aligning the ruler with zero starting at one side of your finger and ending at

the other side of your finger. Example:





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





Notes for Teacher

centimeter cubes (1 per student)

base ten blocks (twelve 10-longs

per group)

construction paper (9” x 12”) (3-4

sheets per student group)

scissors

tape

Handout: Grade 3 TAKS

Mathematics Chart (1 per student

from Day 1)

Transparency: Grade 3 TAKS

Mathematics Chart (1 per teacher

from Day 1)

meter stick (1 per student group)

bulletin board paper (1 per class)

Graphic: Visuals for Metric Length

(1 per class)

Graphic: Metric Units (1 per class)

Handout: Tri-Fold Flip Book

Directions (1 per student from Day

1)

construction paper (or blank paper)

(2 sheets per student)

Explain that although the space between the sides of the finger is not an

exact measurement, it is a good estimate or approximation of a centimeter.

 What are some other objects that might be about 1 centimeter

long? Answers may vary but could include: The width of a large paper

clip, unit cubes, etc.

Remind students that even though these are nonstandard units of

measure, they are still good “estimates” of standard measures.

4. Have students discuss what they would do to measure distances in a

beetle-crawling contest.

 Which metric unit of length would you choose? Answers may vary

but could include: centimeters or millimeters.

 What other metric units of length do you know? Answers may vary

but could include: meters or kilometers.

 Why are these units not as appropriate for measuring the

distances in the contest? Answers may vary but could include: With

larger units, it is harder to get precise measurements of shorter

distances.

5. Distribute rulers and centimeter cubes to individual students. Have

students look at the centimeter side of the standard ruler. Have students

use the metric side of the ruler and measure all sides of the centimeter

cube.

 What is the length of a centimeter cube? (one centimeter on each

side)

6. Have students sit in groups of 3-4 students per group, and distribute 3-4

sheets of construction paper to each group. **(Mixed –ability grouping)**

Make sure each group has at least 1 ruler. Model for the whole class the same paper-

folding process used for customary measures. **(Allow student guidance for struggling**

**learners)**. Have a student in the group take one of the half-sheets of paper and use the

ruler to draw a horizontal one-centimeter line segment on it with a marker. Instruct

another student in the group to label the line segment “1 centimeter”, and then trim the

remaining pieces of construction paper from the drawing. Example:

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









VOCABULARY

metric measurement: the system of

international measure (SI) for length,

volume and mass based on the powers

of ten

Is a centimeter larger or smaller than an inch? (smaller than an

inch)

7. Have students look at each centimeter on the metric side of the ruler and

point out that each centimeter has been divided into equal parts or pieces.

 How has the centimeter been divided? (into 10 equal parts)

Explain to students that the centimeter is divided into ten equal parts which

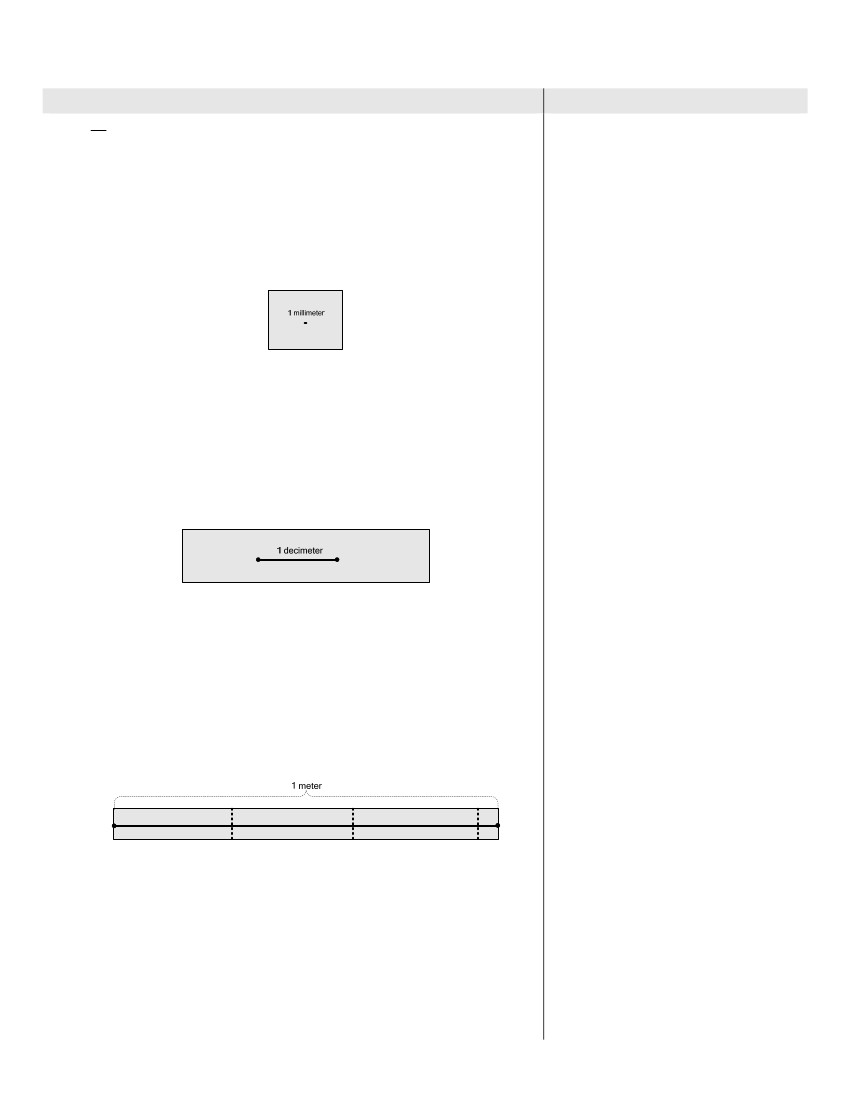
are called “millimeters”. A “millimeter” is a fractional part of a centimeter; it



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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Instructional Procedures

is 1 of a centimeter. Direct students to look at the space between the

10

millimeter marks.

 How many tic marks do you see within one centimeter? (9) Teachers may need to

refer to skip counting charts so that students will be reminded to start counting at the

next tic mark.

 How many spaces do you see within one centimeter? (10)

Remind students that when measuring, you count the number of spaces

and not the number of tic marks. Have a student volunteer use the metric

side of the ruler to draw a horizontal line segment one millimeter long with

a marker on one of the trimmed pieces of construction paper (this will end

up looking like a dot on the paper). Label this line segment “one

millimeter”. Example:

Notes for Teacher

What objects can you think of that would measure one

millimeter? Answers may vary but could include: The thickness of a

paper clip or the thickness of a dime.

8. Distribute twelve 10-longs to each group of students. Have each group

place one 10-long on the metric ruler.

 How long is one 10-long? (10 centimeters)

Explain that 10 centimeters is known as a decimeter in the metric system.

Have each student group use the metric side of the ruler to draw a

horizontal line segment one decimeter long with a marker on one piece of

construction paper. Label this line segment “one decimeter”. Example:



9. Distribute one meter stick to each group.

 How many decimeters or 10-longs (placed end-to-end) do you

think it will take to equal the length of one meter stick? (ten

decimeters or ten 10-longs)

Prompt students to lay their strips end-to-end until they have 1 meter. At

this point, they will discover that they need more than three strips (36

inches.) Make sure they use an additional small strip to make the meter.

Next, have them tape these strips together and turn the large strip they

created over onto the “non-taped” side. Have student groups use the meter

stick to draw a horizontal line segment “one meter” long on the

construction paper strips provided. Label this line segment “one meter”.

Example:



How many centimeters are in 1 meter? How do you know? (100)

Answers may vary but could include: It takes ten 10-longs to make a

meter; OR, It’s on the Grade 3 TAKS Mathematics Chart.

Have students look at handout: Grade 3 TAKS Mathematics Chart to find

the relationships modeled by their paper strips, and display a transparency

of the same on the overhead. Example:

TEACHER NOTE

Many purchased standard rulers do not

label the metric side of the ruler in the

same way. Some rulers are labeled

centimeters and others are labeled

millimeters. Check the rulers that are

used by the students to avoid confusion.

If both types of rulers will be used, it will

be necessary to explain that both

indicate metric units of measure.

TEACHER NOTE

Although 3rd graders are not

responsible for knowing the relationship

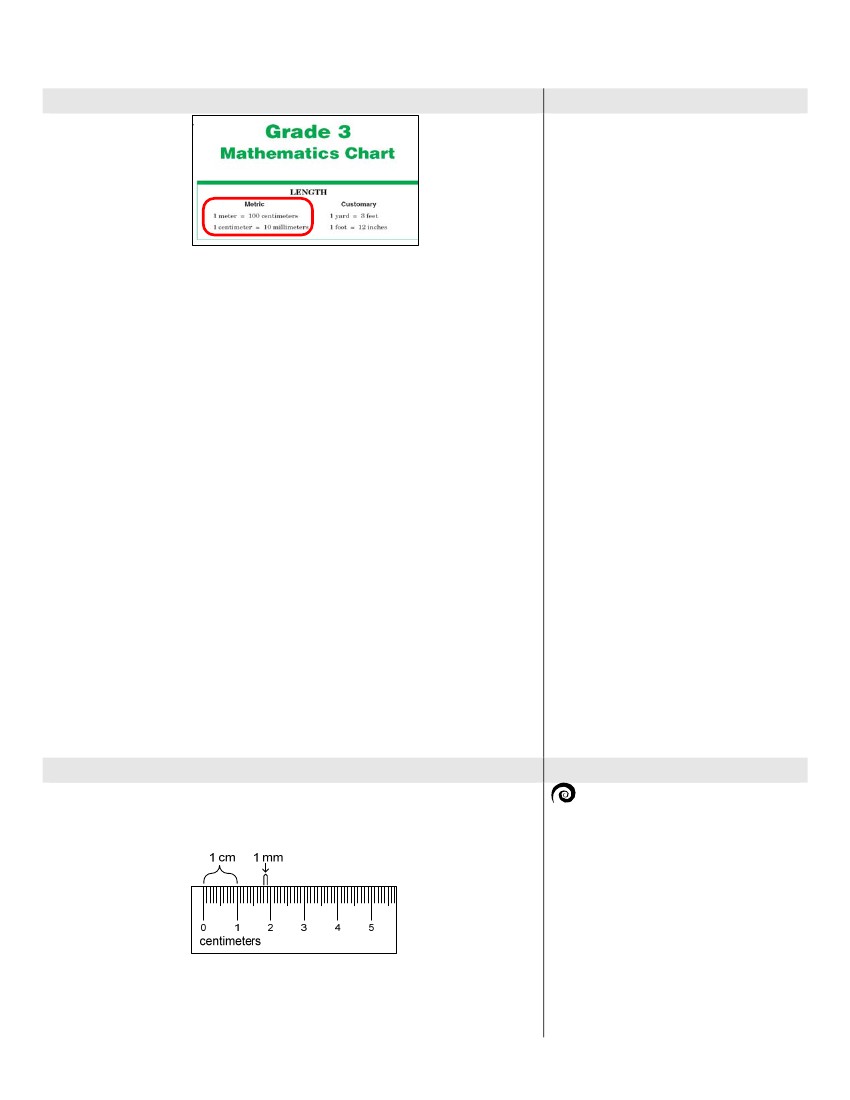
between a decimeter and a meter, the

decimeter is used to connect metric

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Instructional Procedures

Notes for Teacher

measure to a “known unit”. In this case,

the known unit is the 10-long.

Place one set of metric strips on bulletin board paper to create a poster

similar to the one created for customary measure. Place the metric poster

next to the poster of customary strips already displayed in the classroom,

and have students make observations about each set of standard

measure. Students should see that although the visuals are the same for

both the customary and metric systems, the unit names to identify

measures of length are different.

 What customary tool does the meter stick remind you of?

(yardstick)

Let students know that a meter stick is slightly longer than a yardstick

(approximately 3 inches longer). **Visual: have both sticks on hand to provide visual**

**representations.**

One way to remember the difference is

kinesthetically. Have students face forward, place their right hand on their

nose and extend their left hand out to the side of their body. Tell students

that this is the approximate measure of a yard. Then, with the students

keeping their hands in place, tell them to turn their heads to the right. This

is the approximate measure of a meter. By doing this, students get the

idea of the difference between a yard and a meter (which is that the meter

is slightly longer than the yard).

 How is the meter different? Answers may vary but could include: It is

numbered in centimeters, instead of inches.

Use the graphics: Visuals for Metric Length and Metric Units to title the

poster paper with the strips.

10. Distribute handout: Tri-Fold Flip Book Directions and 1 sheet of

construction or blank paper to individual students. Use the directions to

model with students how to make a tri-fold book. (Students made a tri-fold

book on day 1.) Instruct students to label the cover of each flap as follows:

(1) Millimeters, (2) Centimeters, and (3) Meters. When students have

finished labeling their books, tell them they are to complete their books by

writing at least 3 items under each flap that would most appropriately be

measured with that unit. If time allows, have students use the back of their

booklets to list 3 items that could be measured in Kilometers.

TEACHER NOTE

If time allows, students may search for 3

magazine or newspaper pictures for

each appropriate unit of measure. They

should cut and glue each picture under

each flap of their booklets.

EXPLORE/EXPLAIN 4

1. Distribute rulers to each student. Have them examine the metric-side of

their rulers. Display transparency: Metric Ruler on overhead. Draw the

following on the overhead to demonstrate the two units of measure shown

on the ruler:

Suggested Day 4

SPIRALING REVIEW

MATERIALS

 standard rulers with both customary

and metric units (1 per student)

 Transparency: Metric Ruler (1 per

teacher)

 small bag or box of miscellaneous

objects between 1 and 5

centimeters long (1 per group)

 index card (1 per student)

 Handout: To the Nearest—Metric

Recording Sheet (1 per student)

 Handout: Read that Ruler! Metric

(1 per student)

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



Which metric unit of measure is smaller? (millimeters)

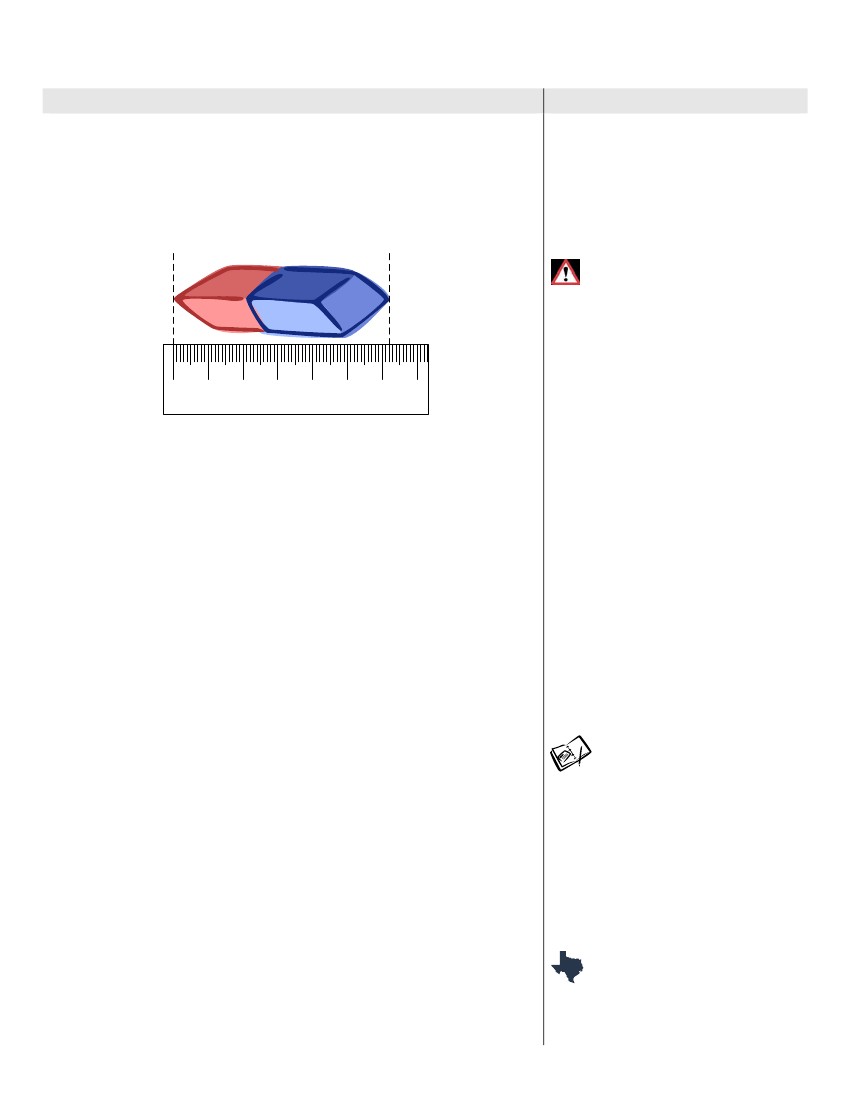
How many millimeters are in 1 centimeter? How do you know? (10

millimeters) Answers may vary but could include: We counted the

spaces from 0 to 1.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Instructional Procedures

On this ruler, which unit of measure would be more precise?

Explain. (millimeters) Answers may vary but could include: The

increments are smaller and the smaller the increment, the more

precise the measure.

2. Distribute miscellaneous small objects to student groups. Have students

select an object to measure. Demonstrate on the overhead how to

measure the object chosen to the nearest centimeter. Example:



Notes for Teacher







Handout (optional): Metric Length

Notes/Practice (1 per student as

needed)

Handout (optional): Metric Ruler

Practice (1 per student as needed)

Handout (optional): Additional

Combined Measures Practice (1

per student as needed)

MISCONCEPTION

Some students may think that 30

centimeters is equal to12 inches

because of the way standard rulers are

produced.

0

1

2

3

4

5

6

7

centimeters

3.

4.

5.

6.

Tell students to place their ruler against one edge of the object and to

follow the same steps they used with the index card to find the beginning

point and the end point for measuring.

Have students find the centimeter mark closest to the other end.

 To the nearest centimeter, how long is this eraser? (6 cm)

 Which marks on the ruler am I using to determine whether the

eraser is closer to the 6 cm mark or the 7 cm mark? (the millimeter

marks)

 How do you round a length that is not a whole number of

centimeters to the nearest centimeter? Answers may vary but could

include: If the length is halfway or more between the two whole

numbers, round up. If the length is less than halfway between the two

whole numbers, round to the smaller of the two numbers.

 What should you do if the length looks like it falls exactly

between two whole centimeters? Answers may vary but should

include: You round up to the next whole centimeter.

To measure to the nearest centimeter, students may need to round up if an

object measures greater than halfway between the two whole centimeters,

or down if the object measures less than halfway between the two whole

centimeters.

Distribute handout: To the Nearest—Metric Recording Sheet, to each

student.

What is the difference between an estimate and a measurement?

Answers may vary but could include: An estimate is what you think the

measurement will be; the measurement is the actual number you get

when you measure.

Instruct student to look at the directions for numbers 3 and 4.

 What are the ways you could determine the length of 2 or 3 or

more of the objects you chose to measure? Answers may vary but

could include that we could add up each measure the number of times

indicated, or we could multiply the measure the number of time

necessary.

Prompt students to select 4 different objects from the bag or box at their

table and estimate the length of each object. Then have them measure the

actual length of the object in centimeters and millimeters and record the

measure on the recording sheet.

Distribute handout: Read that Ruler! Metric to individual students and

allow students to work in pairs to determine each measure. Debrief and

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TEACHER NOTE

It is important to examine the rulers

students use. Some rulers start with 0

for customary and metric at the same

end of the ruler. Other rulers start with 0

for customary at one end of the ruler

and 0 for metric at the opposite end of

the ruler.

ADDITIONAL PRACTICE

Optional handouts: Metric Length

Notes/Practice and Metric Ruler

Practice are available for students who

need more practice with measuring to

the nearest centimeter.

Also, for additional practice with both

customary and metric measure, the

optional handout (optional): Additional

Combined Measures Practice is

available.

STATE RESOURCES

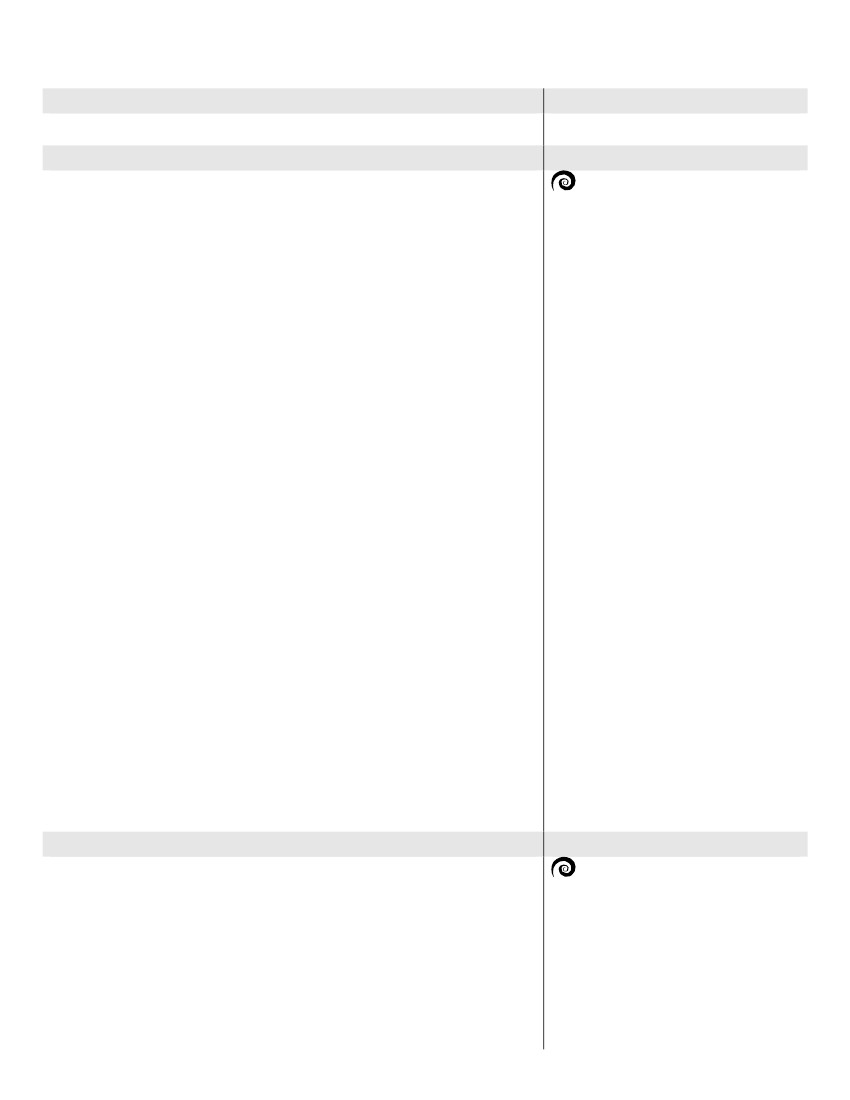
MTR 3-5: Line It Up!

TEXTEAMS: Rethinking Elementary

Mathematics Part I: Making Evidence

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Instructional Procedures

discuss answers as a class.

Notes for Teacher

Clear to Students; How Long? How

Many?

Suggested Day 5

SPIRALING REVIEW

MATERIALS

 math books (or any same-size

book) (1 per student)

 standard rulers with both customary

and metric units (1 per student)

 Transparency: Textbook Perimeter

(1 per teacher)

 Handout: Textbook Perimeter (1

per student)

 Handout: Perimeter Scavenger

Hunt (1 per student)

 Handout: Estimate and Measure

Perimeter Practice (1 per student)

EXPLORE/EXPLAIN 5

1. Remind students that they have found the perimeter of a shape by

counting units or by adding the side lengths (Unit 04, Lesson 01). Today,

they will find the perimeter of a shape by measuring the side lengths.

2. Direct students take out their math book and a ruler.

 How would you use a ruler to find the perimeter of your book in

inches? (Find the length of each side in inches and then add the

lengths of the sides.)

 Would your method change if you measure the perimeter in

centimeters? (No; you still add the lengths of the sides.)

 What if you measured the perimeter of your math book in

centimeters? Would you use more centimeters or inches? How

do you know? (You would use more centimeters because 1

centimeter is smaller than 1 inch.)

3. Display transparency: Textbook Perimeter on the overhead and distribute

handout of the same to individual students. Direct students to first estimate

the length and width of their book to the nearest inch and record these

amounts in their table. Estimate the perimeter. Then have students use a

ruler to measure the length and width of the book in inches. Have them

record the measurements and calculate the actual perimeter.

 How many side lengths will you need to add to determine the

perimeter of the book? Explain. (4 sides; there are 2 lengths and 2

widths.)

 What side lengths did you add to find the perimeter of this figure?

Answers may vary.

 What is the perimeter of your textbook to the nearest inch?

Answers may vary.

 Could you measure only one length and one width and still find

the perimeter of your book? How do you know? (Yes, because our

book is a rectangle and opposite sides of a rectangle are the same

length.)

4. Direct students to complete the next table by estimating and then

measuring the lengths and widths of their book to the nearest centimeter.

Debrief and discuss answers using the same questions as above only with

metric measure.

5. Distribute handout: Perimeter Scavenger Hunt to individual students.

They will work with a partner to select 4 objects in the room to measure

and find the perimeter. Monitor students as they work. Debrief and discuss

findings as a class.

6. Distribute handout: Estimate and Measure Perimeter Practice to

individual students and have them complete independently in class or for

homework.

EXPLORE/EXPLAIN 6

1. Debrief and discuss yesterday’s handout: Estimate and Measure

Perimeter Practice as a class,

2. Tell students they have found the perimeter of common figures and that

today they will be investigating how to measure the region inside a figure,

or the area of a figure. Remind students that they have already worked

with area when they were multiplying (Unit 05, Lesson 03.) Display

transparency: Dot Paper on the overhead. Outline a 3 x 3 figure on the

grid.

 How can you use dot paper to find the area of this figure?

Answers may vary – accept reasonable responses.

Have students work with a partner to draw the same figure on their dot

paper and then connect the dots to make squares that they can count.

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Suggested Day 6

SPIRALING REVIEW

MATERIALS

 Transparency: Dot Paper (1 per

teacher)

 Handout: Dot Paper (1 per student)

 Transparency: Finding Area –

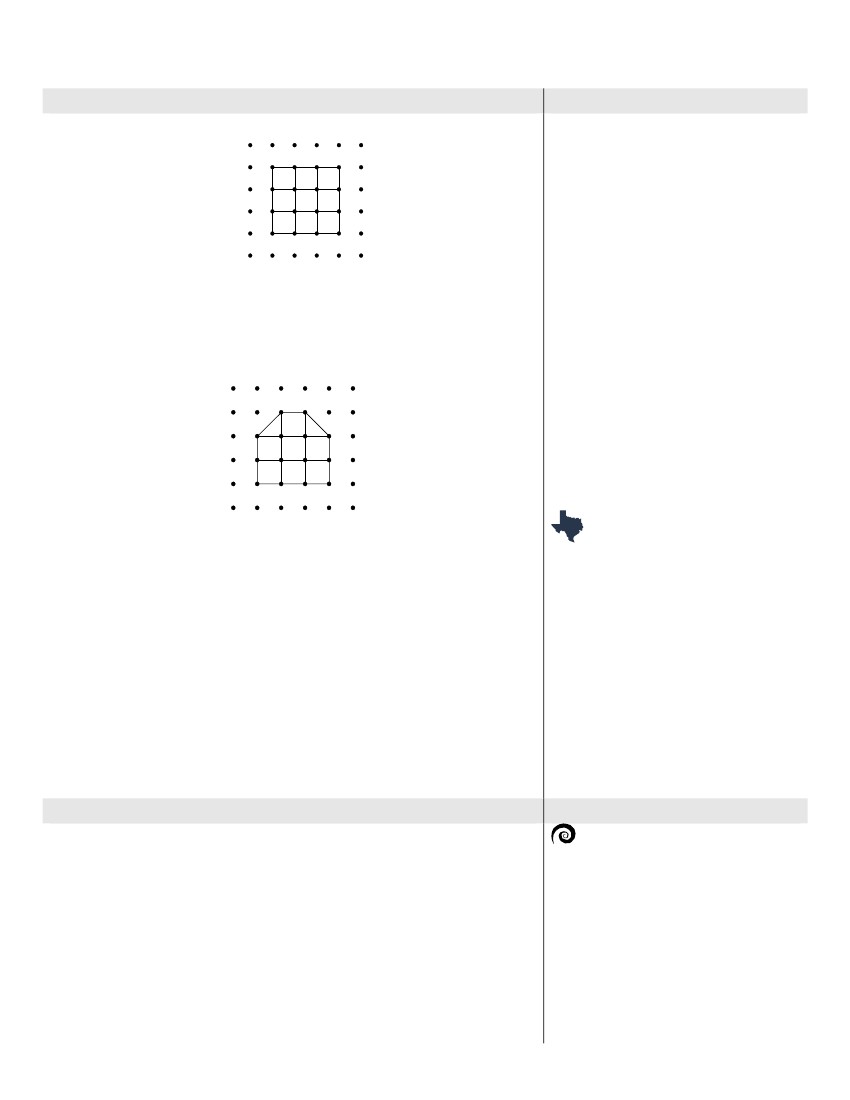
Notes and Practice (1 per teacher)

 Handout: Finding Area – Notes

and Practice (1 per student)

 Handout: Finding Area Practice

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Instructional Procedures

Model the same on the overhead. **Use smart board to utilize technology to apply appealing colors**. Example:

Notes for Teacher

(1 per student)

Can you multiply to find the area of this figure? Explain. (Yes; you

can multiply the number of rows by the number in each row.)

 Can you use multiplication to find the area of all figures? Explain.

(No, you can use multiplication to find the area of rectangles, but not

irregular figures.)

3. Change the figure on the transparency: Dot Grid to show the following:



Can you multiply units to find the area of this figure? Explain (No,

the figure is not a rectangle.)

 How could you find the area of a figure where there are half

square units? Answers may vary but could include: Count the whole

squares and then add the half squares.

Prompt students to work with a partner to draw this figure on their dot

paper and to find the area of the figure. Debrief and discuss answer as a

class; (8 square units)

 How can a figure with half units have an area that is a whole

number? Answers may vary but should include: If there is an even

number of half units; two half square units equal 1 whole square.

4. Let students know that they can find the area of figures by counting.

Display transparency: Finding Area – Notes and Practice on the

overhead and distribute handout of the same to individual students to

discuss the steps for finding the area of a figure with half units.

5. Distribute handout: Finding Area Practice to individual students and have

them complete independently.



STATE RESOURCES

MTC K-3: Square Numbers

TEXTEAMS: Rethinking Elementary

Mathematics Part II: Making

Rectangles; Measuring Area with

Rectangles; Area with Tiles

ELABORATE

1. Discuss the handout: Finding Area Practice with the class.

2. Set up measurement stations in the classroom as follows:

 Measurement Task 1 at two tables, marker, several copies of

handout: Measurement Stations Recording Sheet

 Measurement Task 2 at two tables; crayon boxes (16, 24 and 48);

and several copies of handout: Measurement Stations Recording

Sheet

 Measurement Task 3 at two tables; crayon box (48), several blank

sheets of paper, several copies of handout: Measurement Stations

Recording Sheet, handout: Crayon Box Perimeter Mat

 Measurement Task 4 at two tables, crayon box (48), color tiles,

several blank sheets of paper, several copies of handout:

Measurement Stations Recording Sheet and handout: Crayon Box

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Suggested Day 7

SPIRALING REVIEW

MATERIALS

 Transparency: Broken Ruler 2 (1

per teacher)

 Card Set: Measurement Station

Task Cards (run on cardstock) (1

per station)

 Handout: Measurement Stations

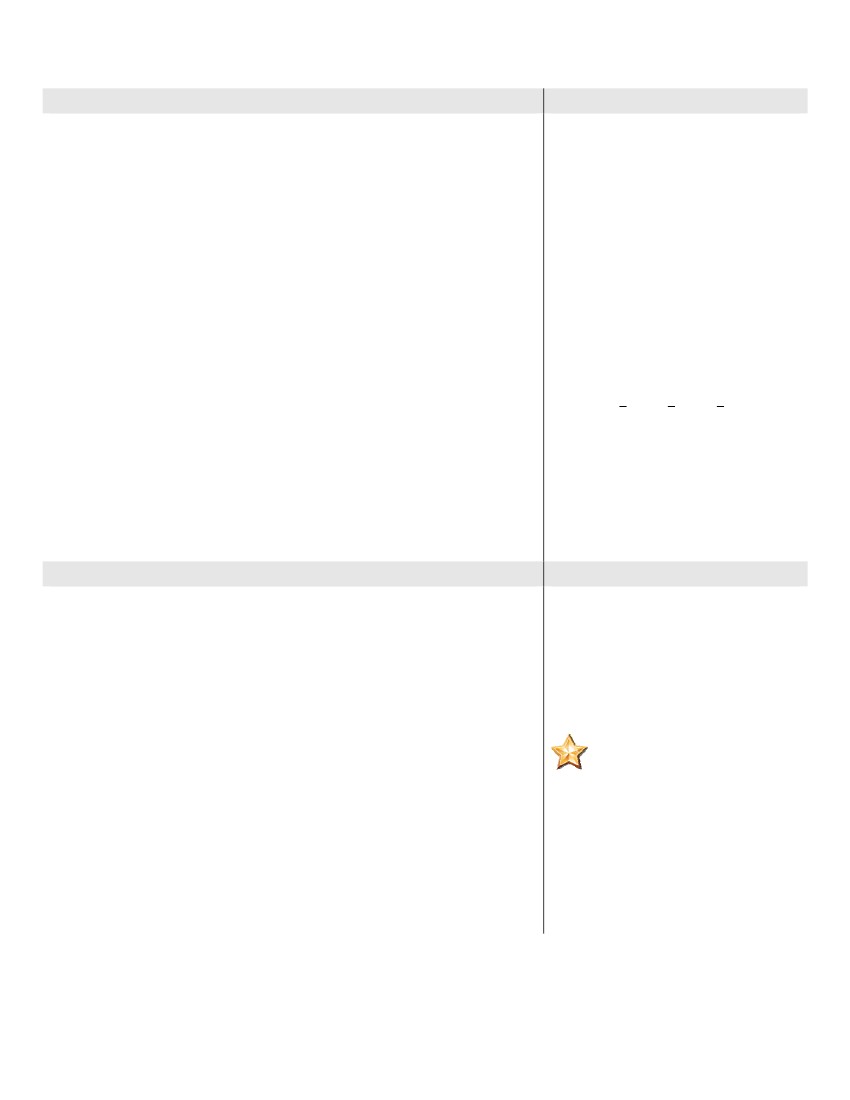
Recording Sheet (1 per student)

 Handout: Crayon Box Perimeter

Mat (1 per student)

 Handout: Crayon Box Area Mat (1

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Instructional Procedures

Area Mat

 Measurement Task 5 at two tables and several copies of handout:

Measurement Stations Recording Sheet

Student pairs will rotate through centers, which have been set up prior to

the lesson. In order to have small groups, set up two of each of the centers

to keep the rotations moving. Have students sit in 5 groups of two or three

students. While students are rotating, conduct CFU(s) to ensure understanding of content delivery.

Display transparency: Broken Ruler 2 and explain that in some of the

rotations they will be using the broken ruler. Model measuring the length of

a crayon using the transparency: Broken Ruler 2. Ask the students to

determine where to place the crayon on the ruler and how to determine the

correct length.

Tell students that they will begin working with the Measurement Task at

their assigned table. Keep the expectations high for the groups and challenge them

to be precise on the measurements. Each student is to get the handout: Measurement

Stations Recording Sheet from their table. Explain that they will be taking

their handout: Measurement Stations Recording Sheet with them to use

at each rotation station. Caution them to check the number of the station to

be sure the answer is placed in the correct area on the sheet. (Ex: Some

students may be starting at station 4 and will rotate to 5.) Allow five to

seven minutes for the students to complete the task and record their

results. Each student will be responsible for recording the task results on

his/her own recording sheet.

When the seven minutes are up, students will rotate to the next station to

complete the task. Each group will complete all 5 measurement tasks.

When students have completed the activity, discuss observations that the

students have made using the ruler that did not begin at 0.

Discuss the terms: length, width, and height. Review the difference

between perimeter and area.

Notes for Teacher

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









per student)

marker (1 at Station 1)

2 identical sets of crayons (16, 24

and 48 to a box) (1 set at each

Station 2)

4 identical sets of crayons (48 to a

box) (2 at Station 3 and 2 at Station

4)

blank sheets of paper (1 per

student)

color tiles (30 per student)

Handout: Grade 3 TAKS

Mathematics Chart (1 per student

from Day 1)

3.

4.

5.

TEACHER NOTE

Crayon boxes which have 16 or 24

measure 2 4 ” by 3 4 ” and

3

3

1

2

” (16) and 1

6.

“ (24) from front to back. The box of 48

is approximately 3 inches by 5 inches,

which would allow students to use

whole numbers to find perimeter and

area. 3 by 5 index cards could be

substituted.

EVALUATE

1. Distribute the handout: Measurement Evaluation to individual students.

Place Grade 3 TAKS Mathematics Charts, a yardstick, and a meter stick

on each table. Have students use the yardsticks and meter sticks to

estimate and then record the measure for their desks and chairs. Assign

the reminder of the handout for homework. Explain how the homework will be graded.

Suggested Day 7 Continued

MATERIALS

 Handout: Measurement

Evaluation (1 per student)

 Handout: Grade 3 TAKS

Mathematics Chart (1 per student

from Day 1)

 yardstick

 meter stick

TAKS CONNECTION

TAKS 2003 Release Question #13, #5,

#35

TAKS 2004 Release Question #31, #15,

#37

TAKS 2006 Release Question #27, #8,

#12

SDAA II 2005 Release Question #10,

#34

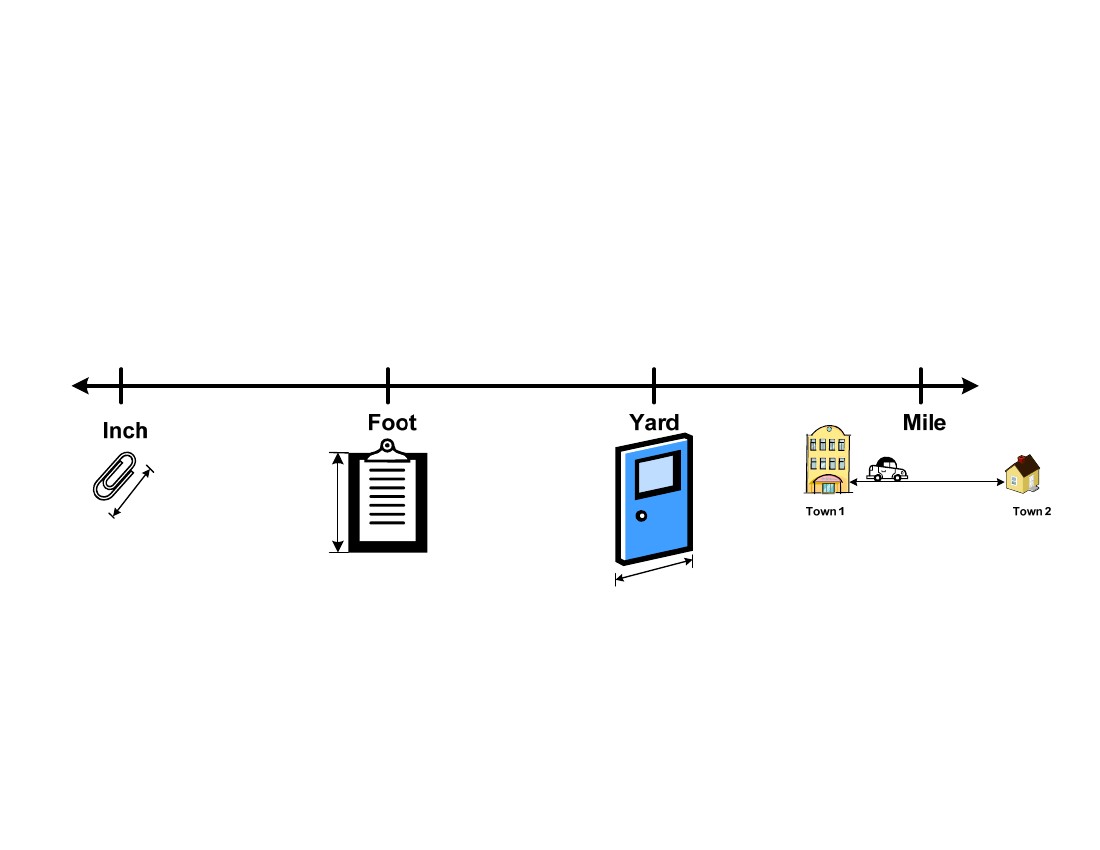
SDAA II 2007 Release Question #11,

#24

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Visuals for

Customary

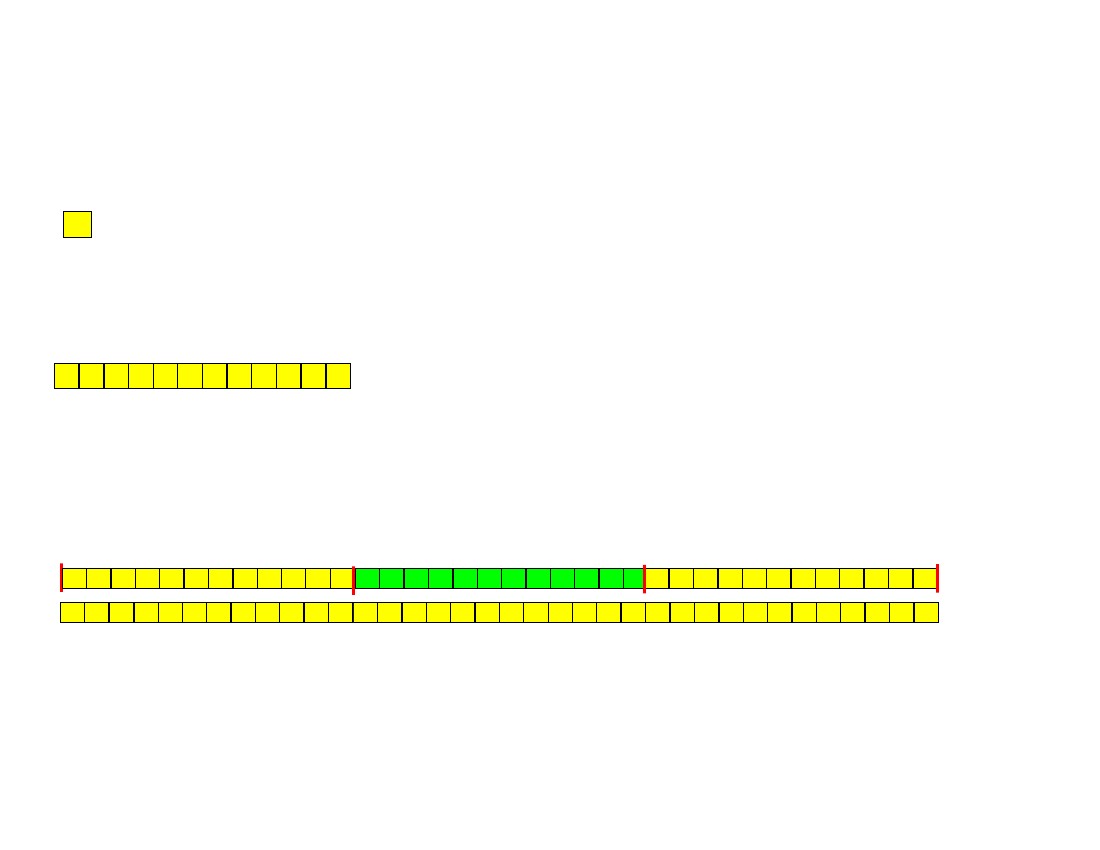
Length

Inch (in.), Feet (ft), Yard (yd), Mile

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Units

(Not to scale)

1 inch (in.) = length of 1 color tile

1 foot (ft) = 12 inches (in.)

1 yard (yd) = 3 feet (ft)

1 foot

1 foot

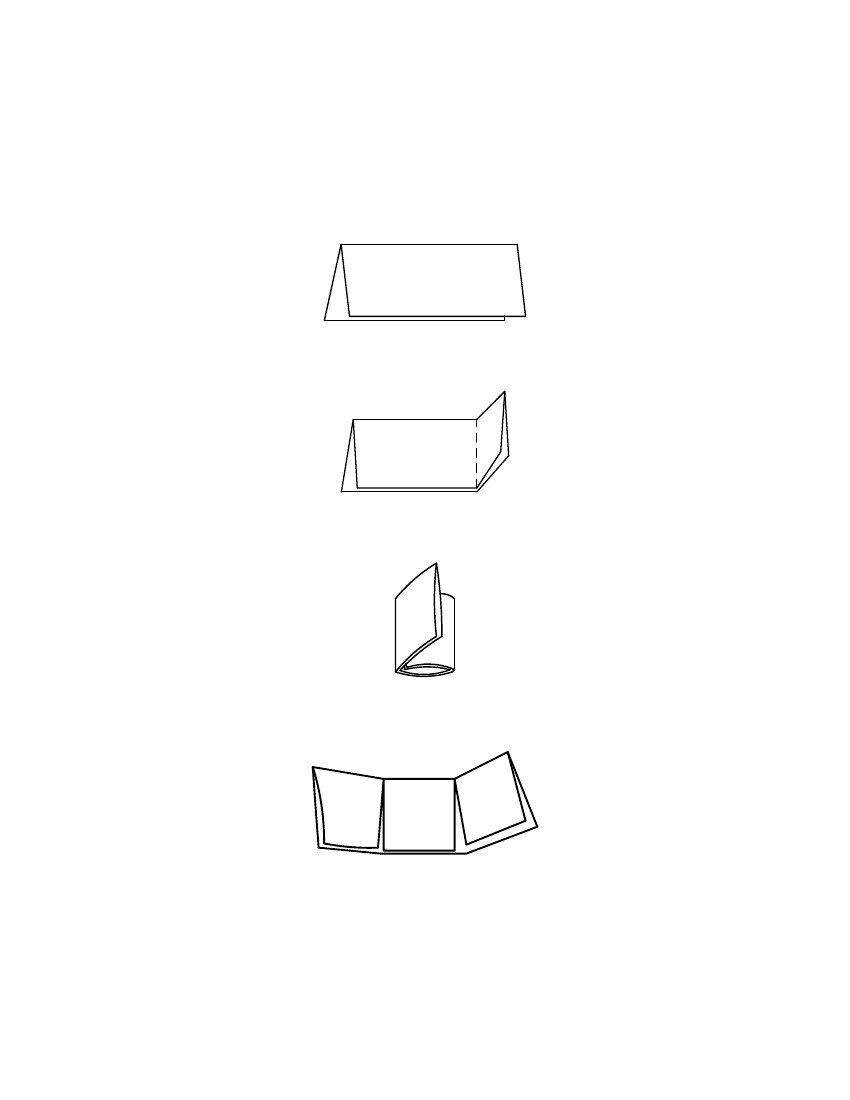
1 foot

1 yard

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Tri-Fold Flip Book Directions

(1) Stack the two sheets of paper and fold them in half lengthwise. (Note: Only one

sheet of paper is shown in the drawings. However, these directions will work for

two or more sheets of paper.)

(2) With the paper still folded, fold the right side toward the center, trying to cover

about one-half of the paper.

(3) Fold the left side over the right side to make a book with three folds.

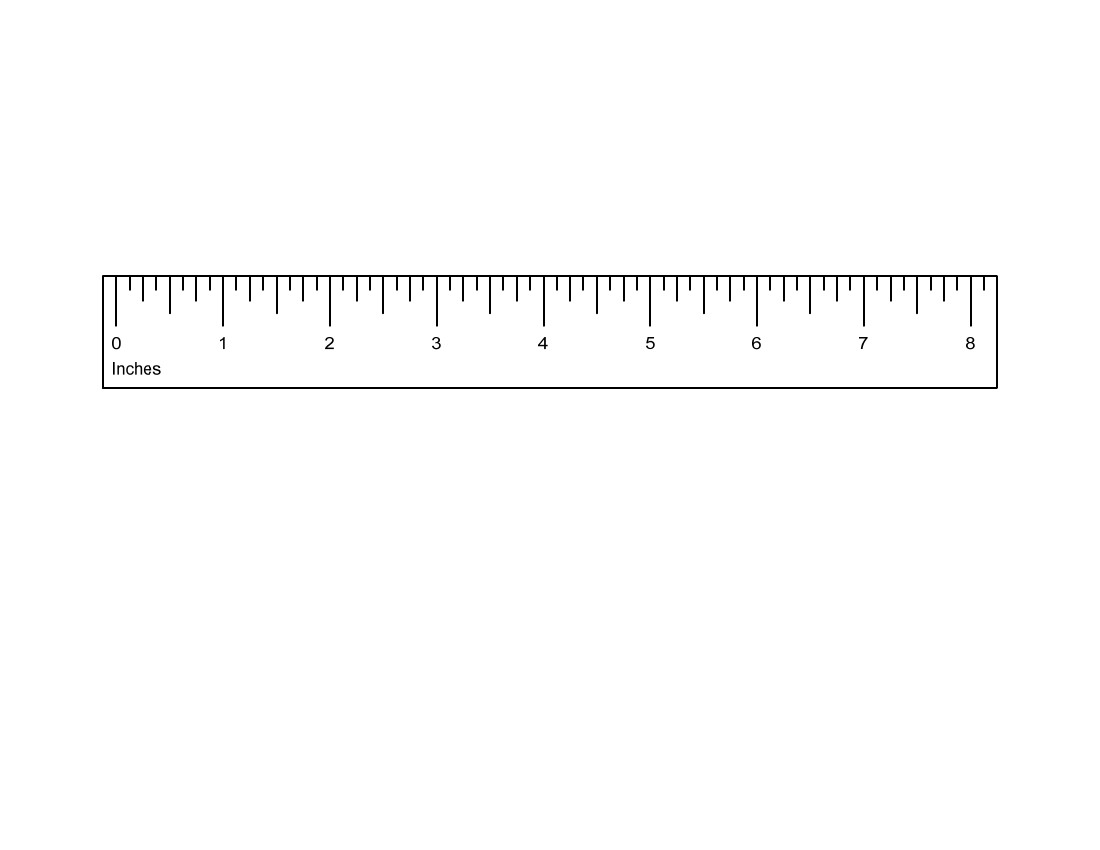
(4) Open the folded book. Cut the first page only along the folds just to the edge of

the original fold. This should form three tabs.

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 3rd Grade

Mathematics

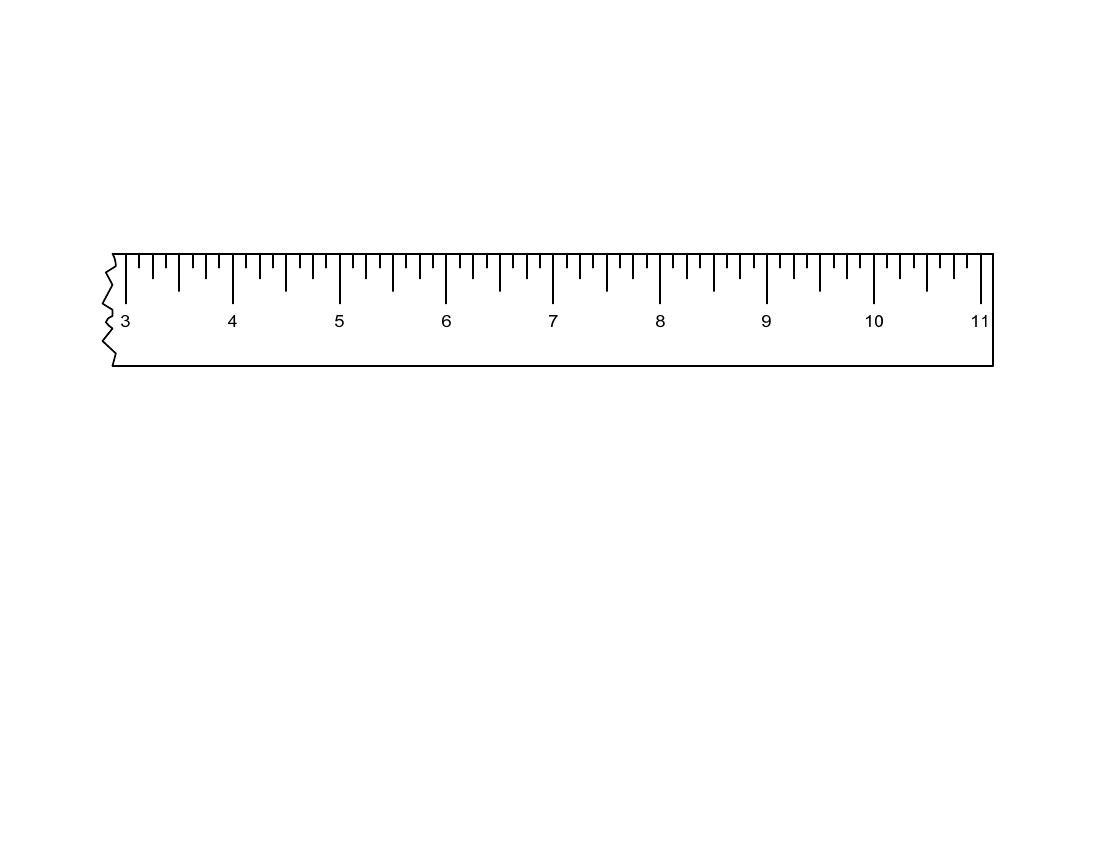
Unit: 08 Lesson: 01

Customary Ruler

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 3rd Grade

Mathematics

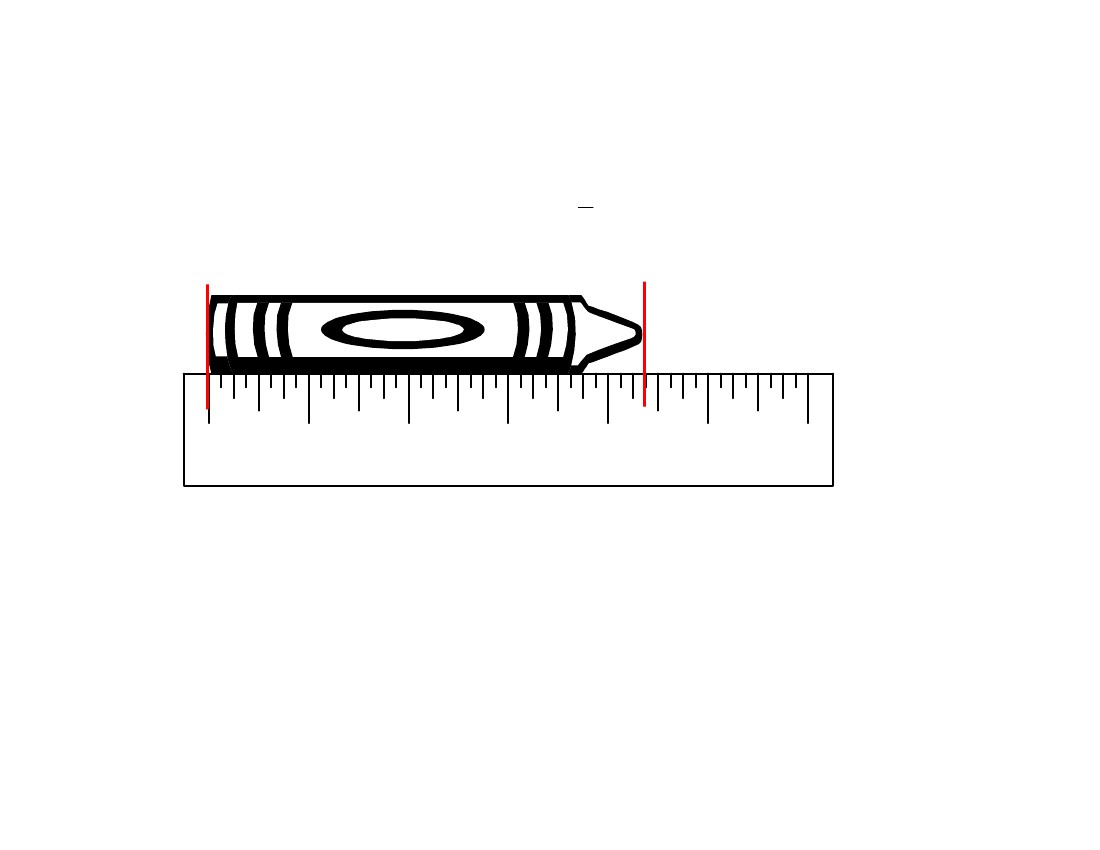
Unit: 08 Lesson: 01

Customary Broken Ruler

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Which Answer is Correct and Why?

1

4 inches or 4 2 inches?

0

Inches

1

2

3

4

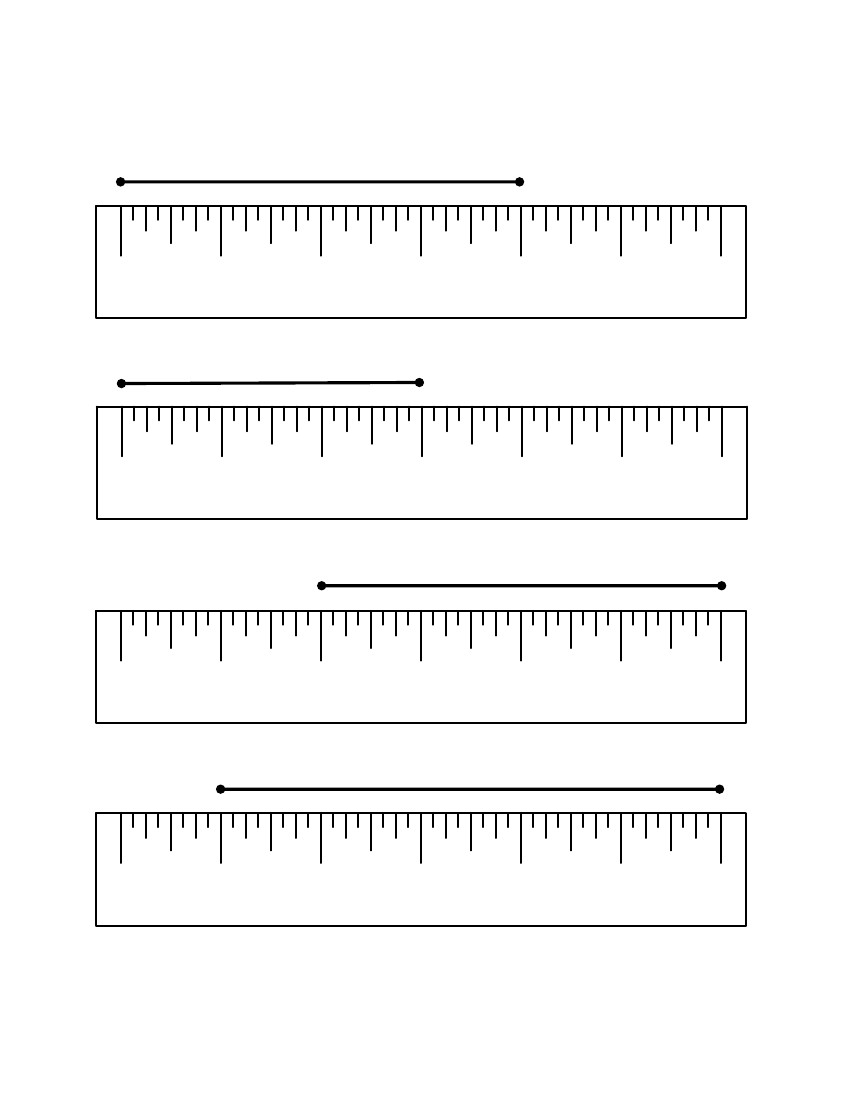
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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary (pp. 1 of 4) KEY

Find the length of each line segment to the nearest inch.

1. Length = 4 inches

0

Inches

1

2

3

4

5

6

2. Length = 3 inches

0

Inches

1

2

3

4

5

6

3. Length = 4 inches

0

Inches

1

2

3

4

5

6

4. Length = 5 inches

0

Inches

1

2

3

4

5

6

If 3 of these line segments were laid end-to-end, what would be the total length of

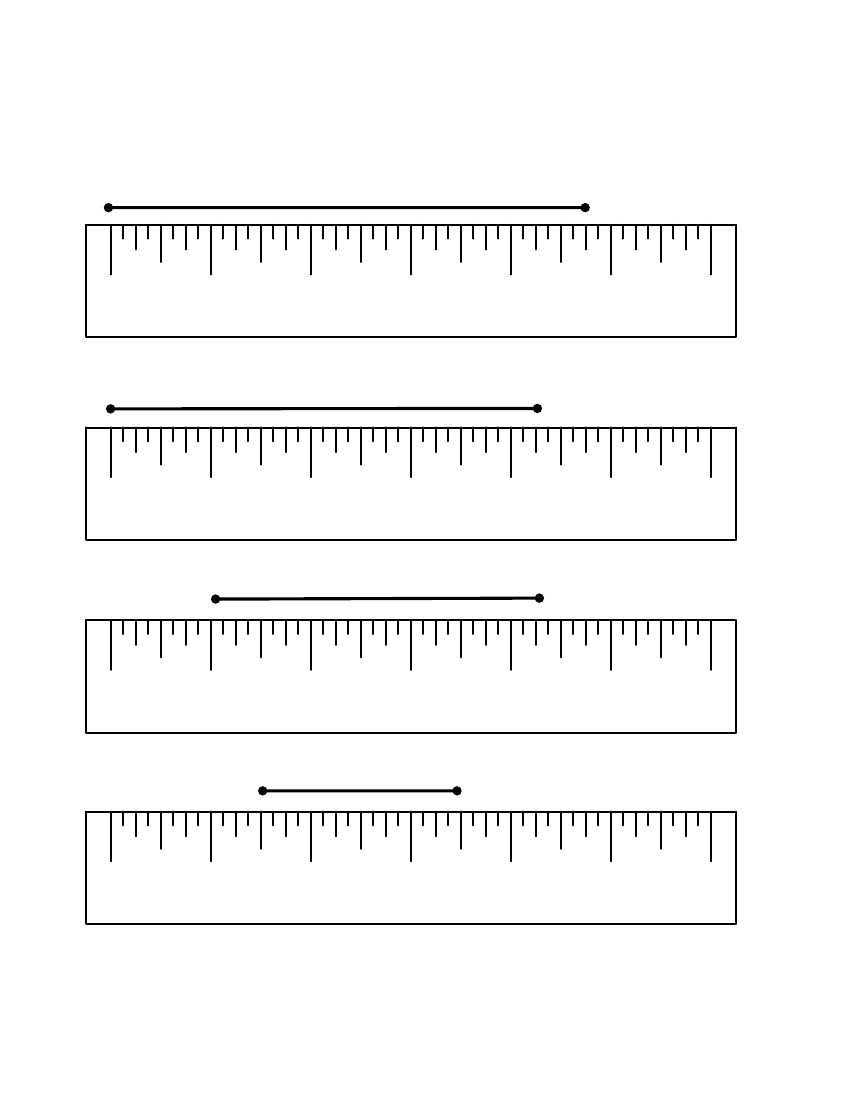
the line segments? How do you know? 15 inches; Answers may vary but

could include 5 + 5 + 5 = 15 or 5 x 3 = 15 inches.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary

Find the length of each line segment to the nearest inch.

(pp. 2 of 4)

KEY

5. Length = 5 inches

0

Inches

1

2

3

4

5

6

6. Length = 4 inches

0

Inches

1

2

3

4

5

6

7. Length = 3 inches

0

Inches

1

2

3

4

5

6

8. Length = 2 inches

0

Inches

1

2

3

4

5

6

If 6 of these line segments were laid end-to-end, what would be the total length of

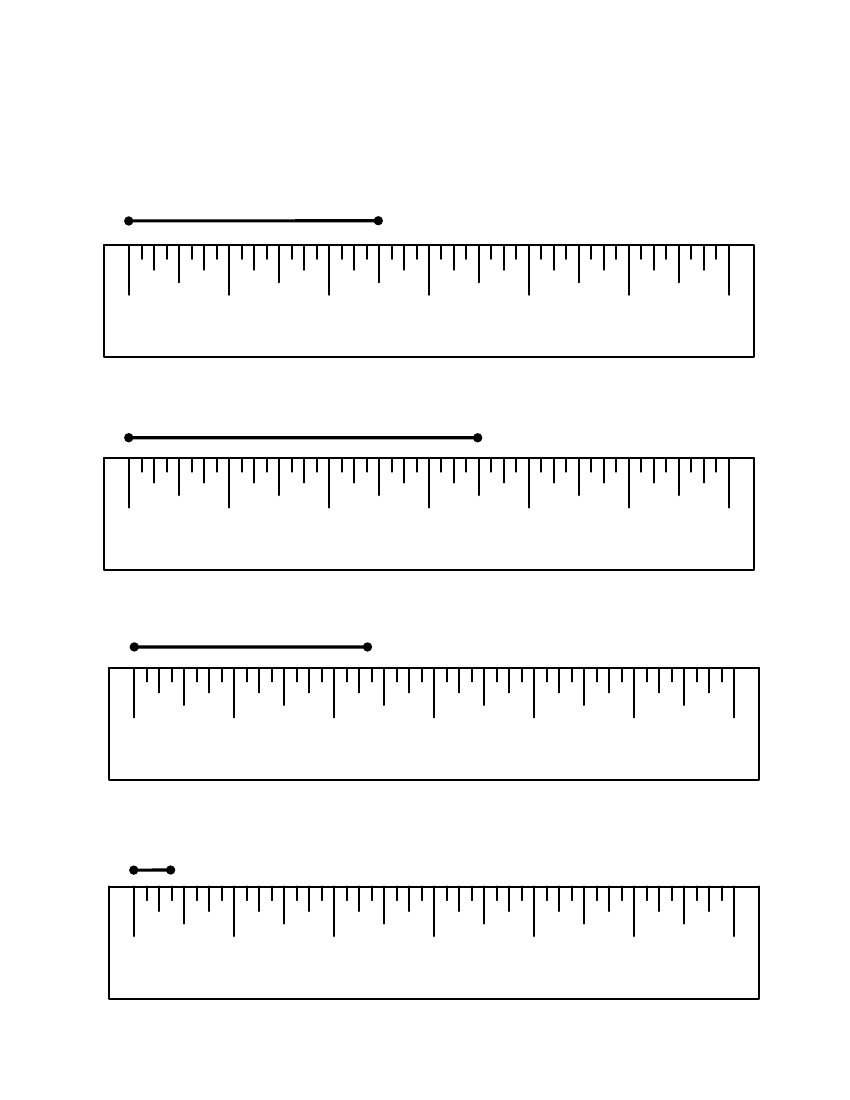
the line segments? How do you know? 12 inches; Answers may vary but

could include 2 + 2 + 2 + 2 + 2 + 2 = 12 or 6 x 2 = 12 inches.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary

(pp. 3 of 4)

KEY

Find the length of each line segment to the nearest half inch.

9. Length = 2 1/2 inches

0

Inches

1

2

3

4

5

6

10. Length = 3 1/2 inches

0

Inches

1

2

3

4

5

6

11. Length = 2 1/2 inches

0

Inches

1

2

3

4

5

6

12. Length = 1/2 inch

0

Inches

1

2

3

4

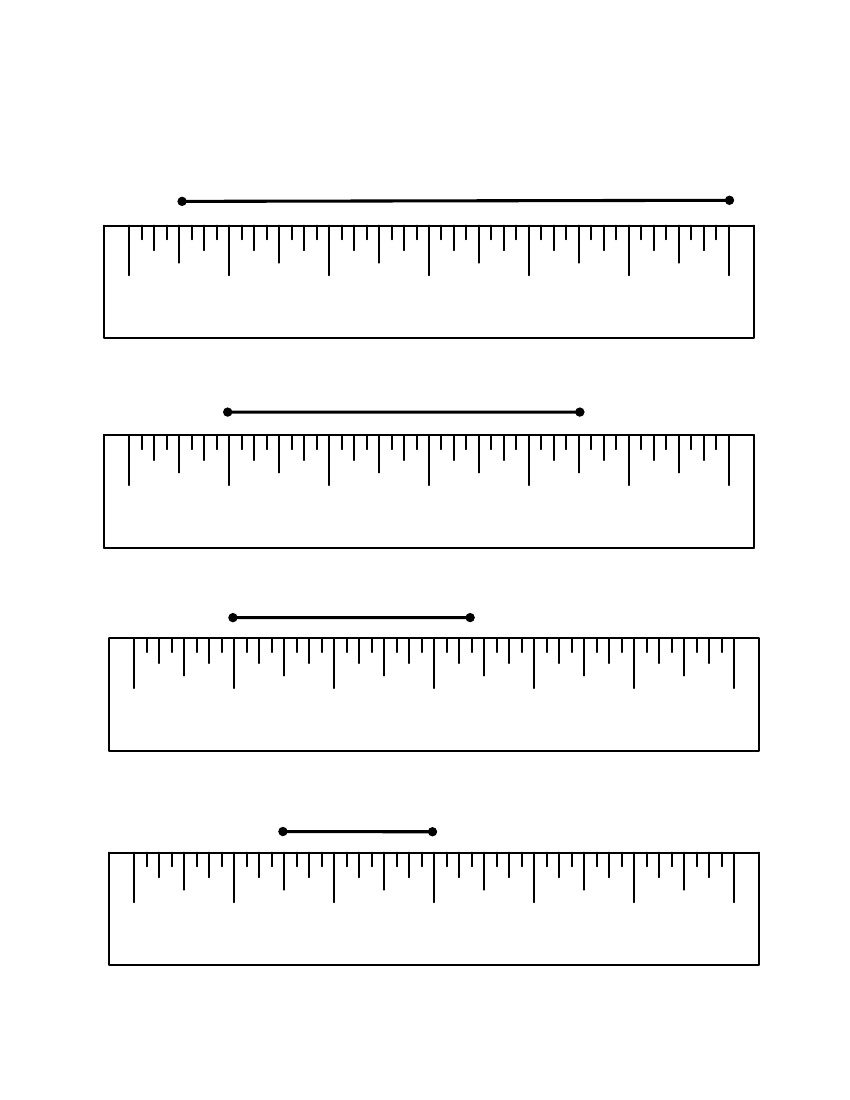
5

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary

(pp. 4 of 4)

KEY

Find the length of each line segment to the nearest half inch.

13. Length = 5 1/2 inches

0

Inches

1

2

3

4

5

6

14. Length = 3 1/2 inches

0

Inches

1

2

3

4

5

6

15. Length = 2 1/2 inches

0

Inches

1

2

3

4

5

6

16. Length = 1 1/2 inches

0

Inches

1

2

3

4

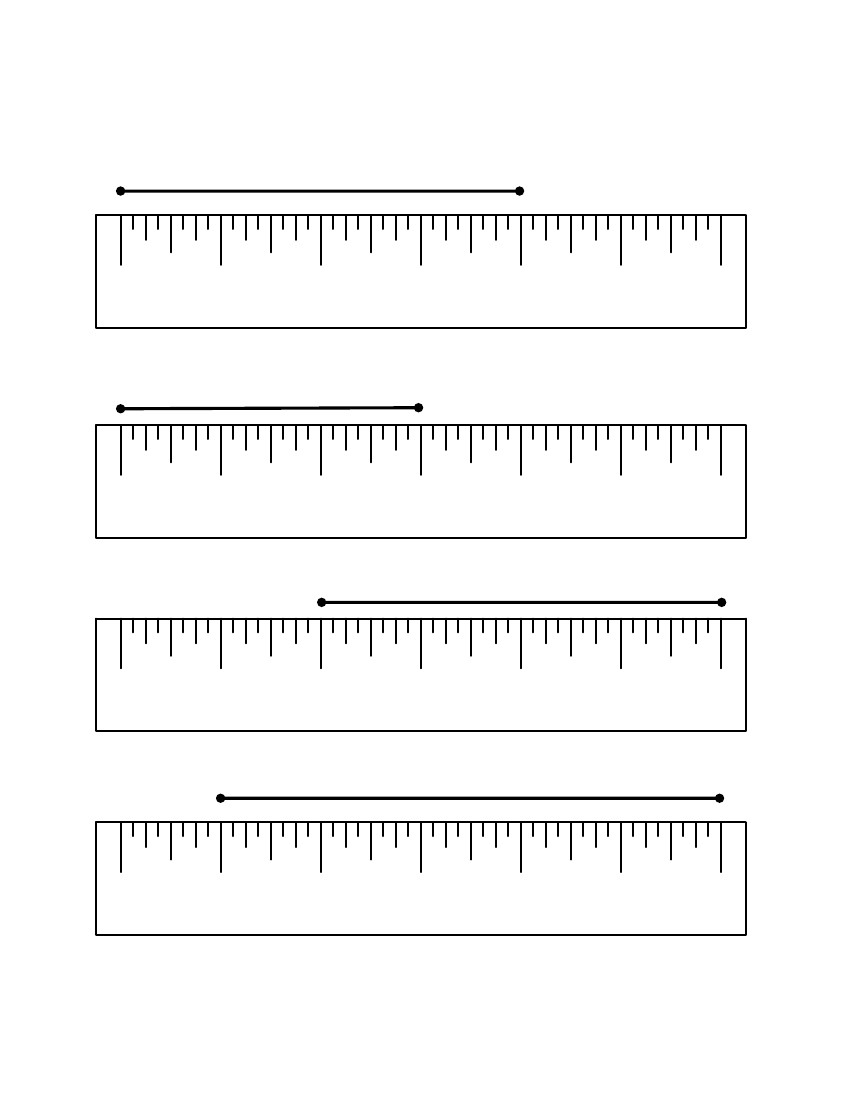
5

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary

Graded by peers.

Find the length of each line segment to the nearest inch.

(pp. 1 of 4)

1. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

2. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

3. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

4. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

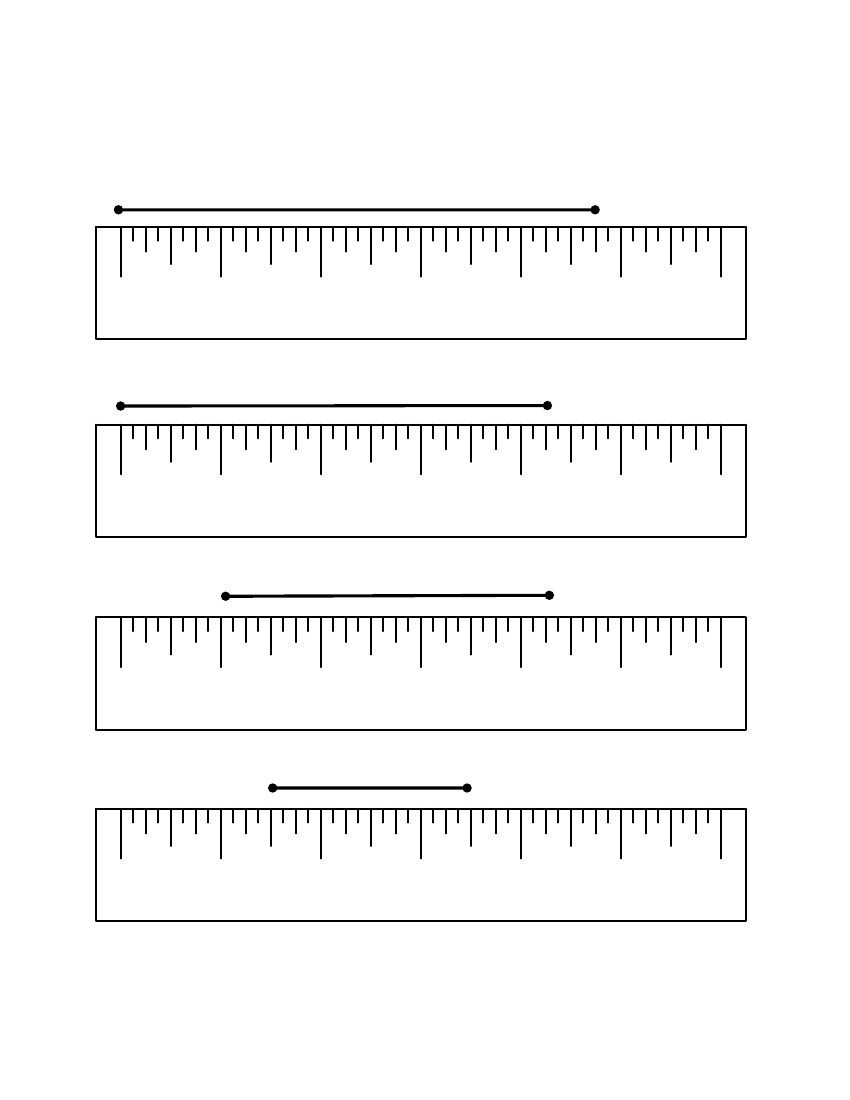
If 3 of these line segments were laid end-to-end, what would be the total length of

the line segments? How do you know?

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary

Find the length of each line segment to the nearest inch.

(pp. 2 of 4)

5. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

6. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

7. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

8. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

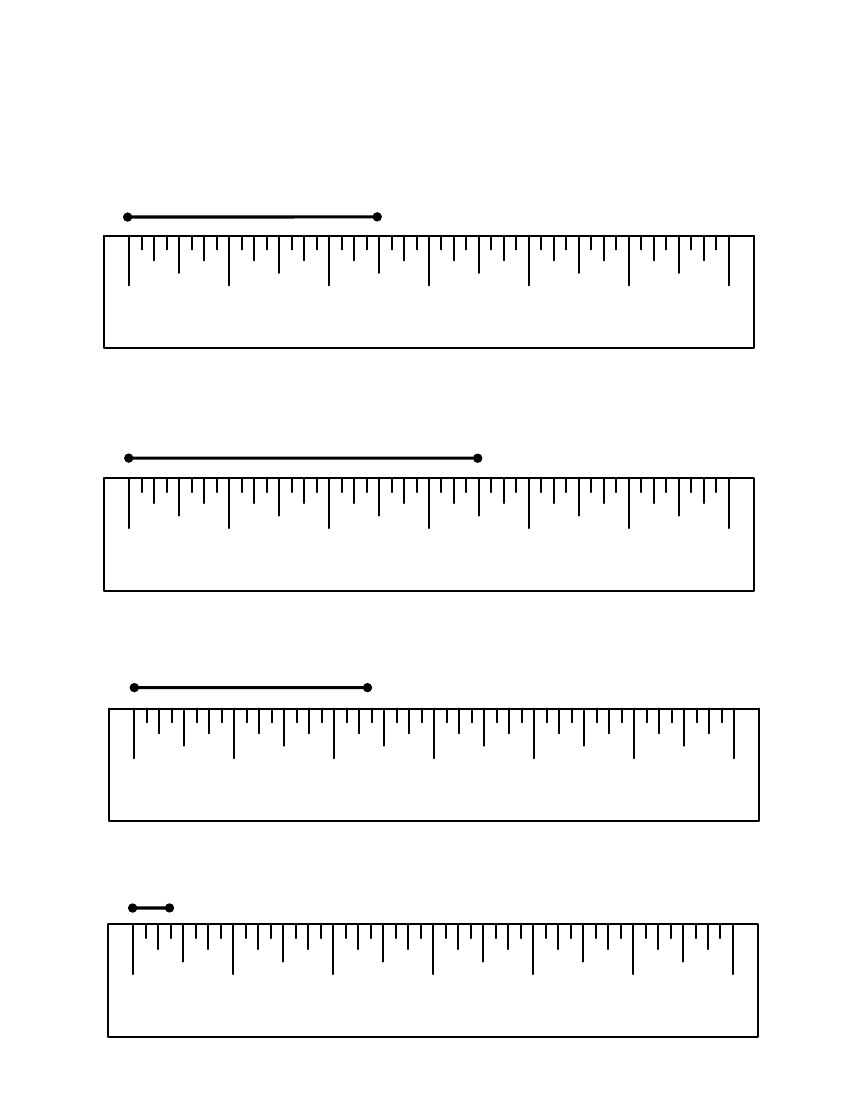
If 6 of these line segments were laid end-to-end, what would be the total length of

the line segments? How do you know?

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary (pp. 3 of 4)

Find the length of each line segment to the nearest half inch.

9. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

10. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

11. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

12. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

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1

2

3

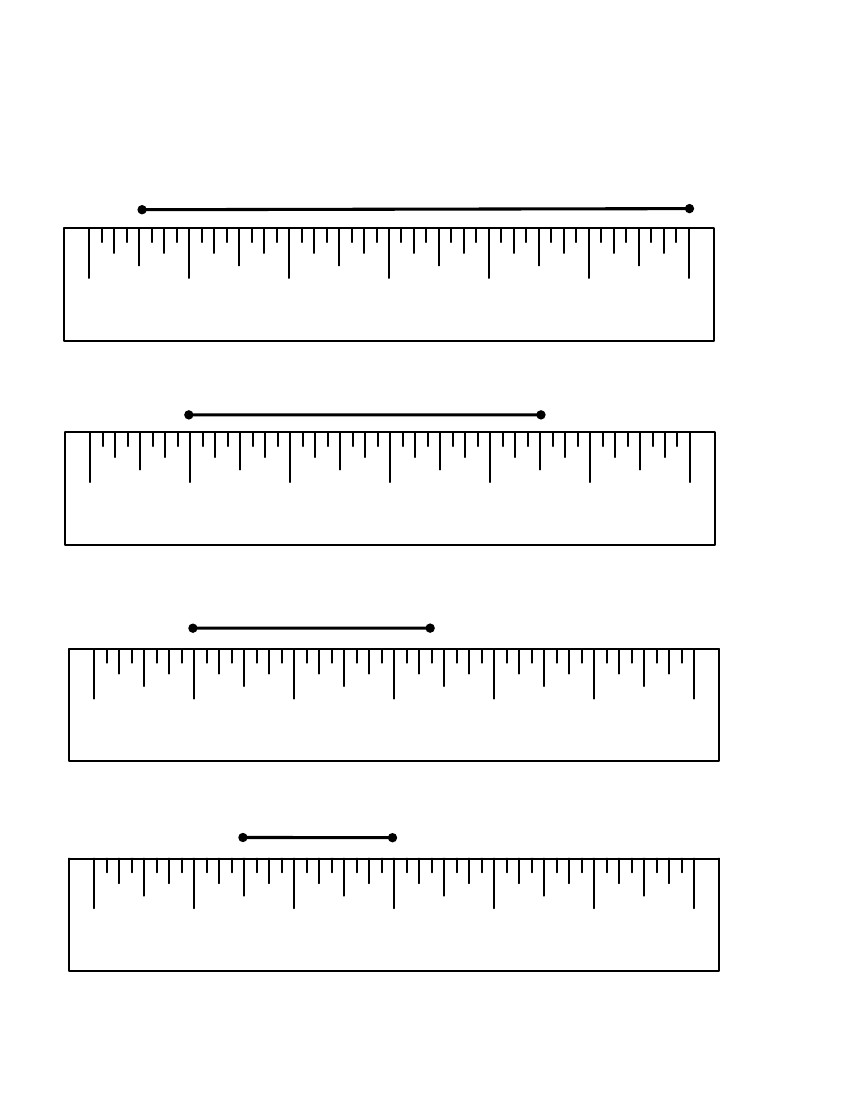
4

5

6

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Customary (pp. 4 of 4)

Find the length of each line segment to the nearest half inch.

13. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

14. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

15. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

16. Length = \_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

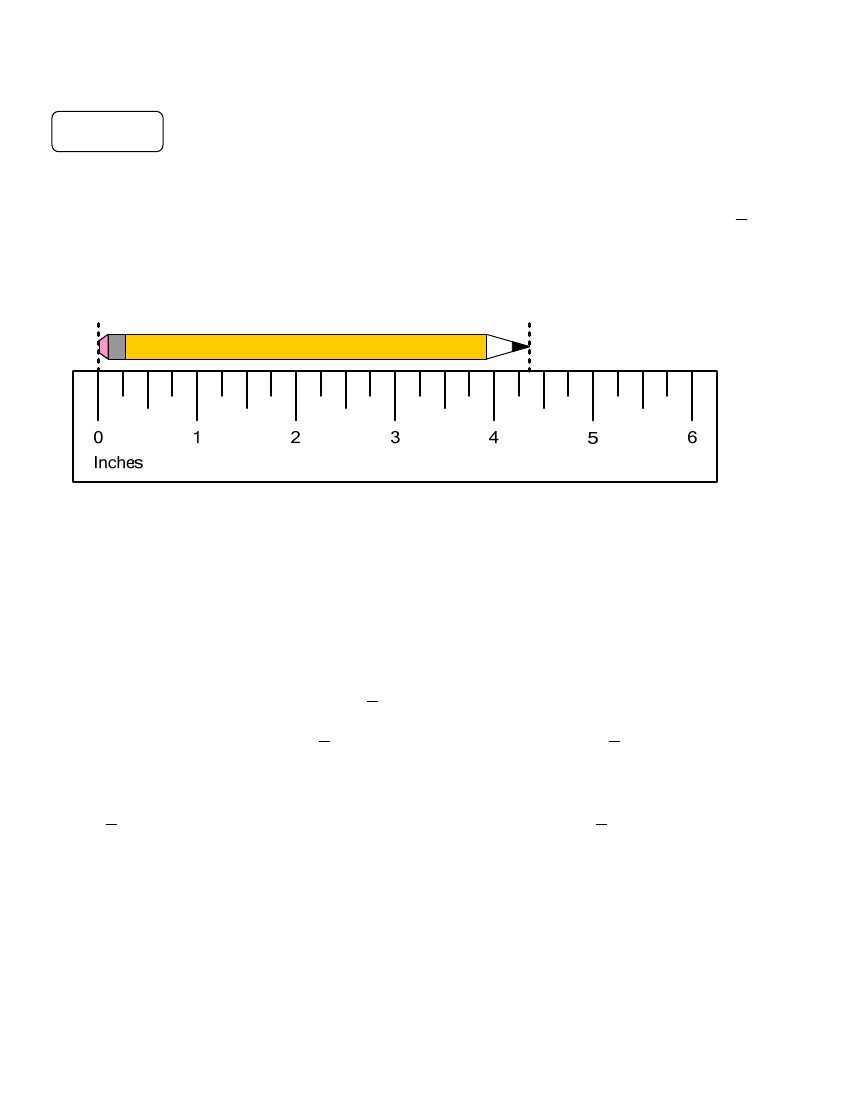
5

6

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Length Notes/Practice (pp. 1 of 2) KEY

Notes

Remember that the precision of a measurement is related to the unit of measure you use.

The smaller the unit, the more precise the measurement will be. Measuring to the nearest

inch is more precise than measuring to the nearest inch.

Example:

1

2

How long is this pencil, to the nearest inch?

Step 1: Align the left side of the pencil with the zero mark of the ruler as shown above.

Step 2: Notice where the pencil ends on the ruler. The pencil is between 4 and 5 inches long.

Step 3: Decide whether 4 or 5 is the nearest inch. The length of this pencil is closer to 4

inches than 5 inches.

— To the nearest inch, the pencil is 4 inches long.

How long is the pencil to the nearest

— The pencil is between 4 and 4

1

inch?

2

11

inches long. The pencil is closer to 4 inches long.

22

Which measure is more precise? Why?

11

inch measure is more precise than the inch measure because 4 inches is closerThe

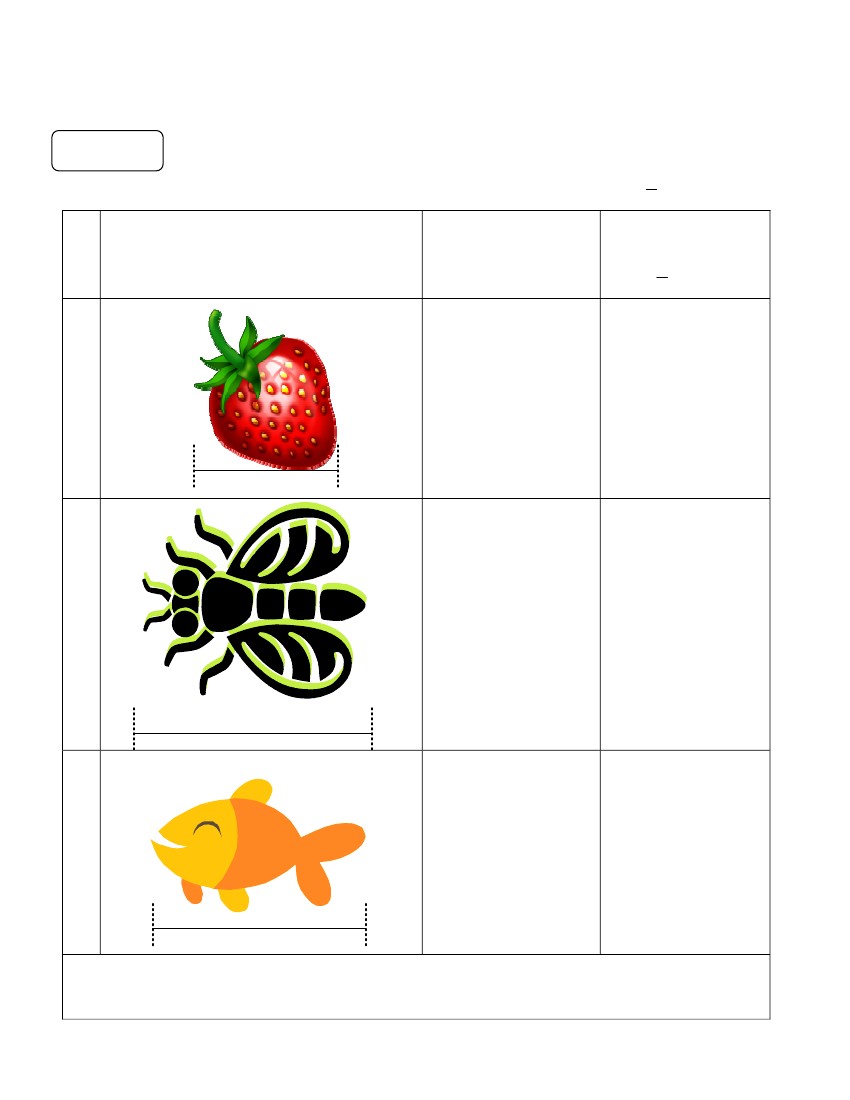
22

than 4 inches to the pencil’s actual length.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Length Notes/Practice (pp. 2 of 2) KEY

Practice

Estimate the length in inches. Then measure the length to the nearest inch or

1

inch.

2

Object

Estimate

(in inches)

Measure to the

nearest inch or

1

inch

2

(1)

Answers may

vary

1 1/2 inches

(2)

Answers may

vary

2 1/2 inches

(3)

Answers may

vary

2 inches

If 3 of these fish were laid end-to-end, what would be the length, to the nearest inch? How do

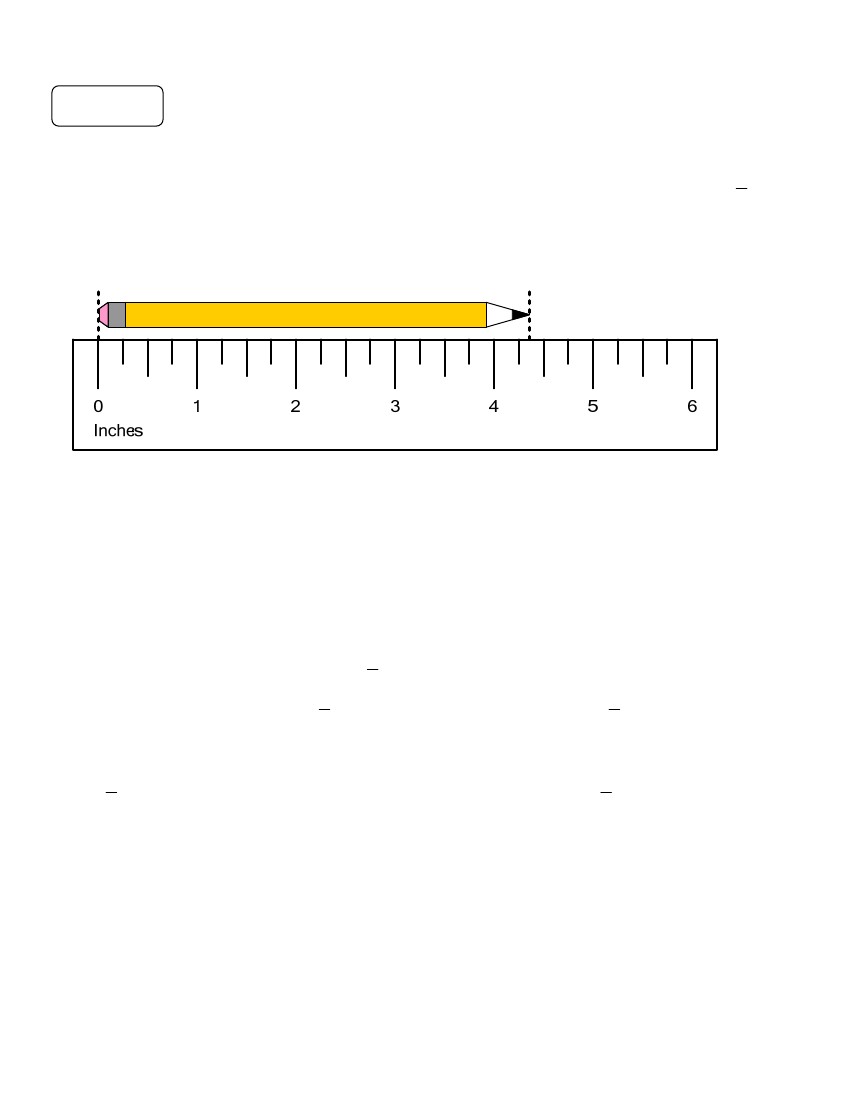
you know? 6 inches; Answers may vary but should include: 2 + 2 + 2 = 6 or 3

x 2 = 6 inches.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Length Notes/Practice (pp. 1 of 2)

Notes

Remember that the precision of a measurement is related to the unit of measure you use.

The smaller the unit, the more precise the measurement will be. Measuring to the nearest

inch is more precise than measuring to the nearest inch. Higher pressure practice.

Example:

1

2

How long is this pencil, to the nearest inch?

Step 1: Align the left side of the pencil with the zero mark of the ruler as shown above.

Step 2: Notice where the pencil ends on the ruler. The pencil is between 4 and 5 inches long.

Step 3: Decide whether 4 or 5 is the nearest inch. The length of this pencil is closer to 4

inches than 5 inches.

— To the nearest inch, the pencil is 4 inches long.

How long is the pencil to the nearest

— The pencil is between 4 and 4

1

inch?

2

11

inches long. The pencil is closer to 4 inches long.

22

Which measure is more precise? Why?

11

Theinch measure is more precise than the inch measure because 4 inches is closer

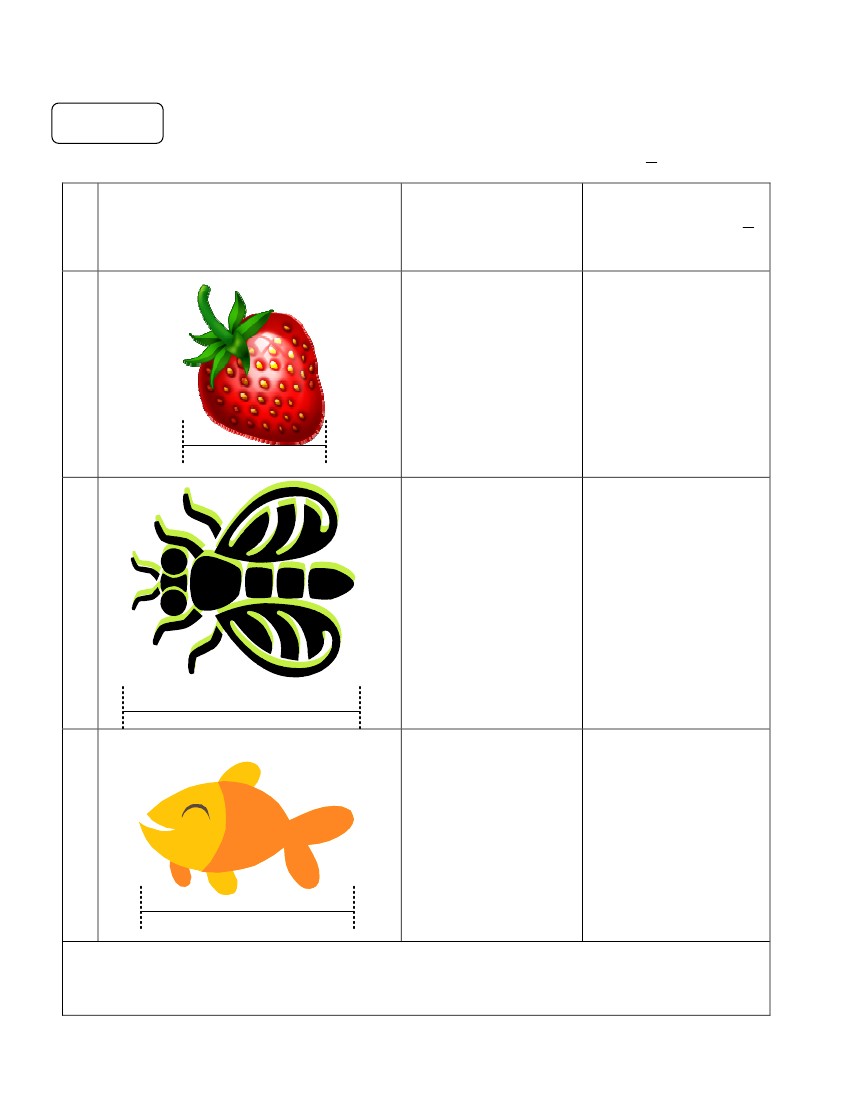
22

than 4 inches to the pencil’s actual length.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Length Notes/Practice (pp. 2 of 2)

Practice

Estimate the length in inches. Then measure the length to the nearest inch or

1

inch.

2

Measure to the

Object

Estimate

(in inches)

nearest inch or

inch

1

2

(1)

(2)

(3)

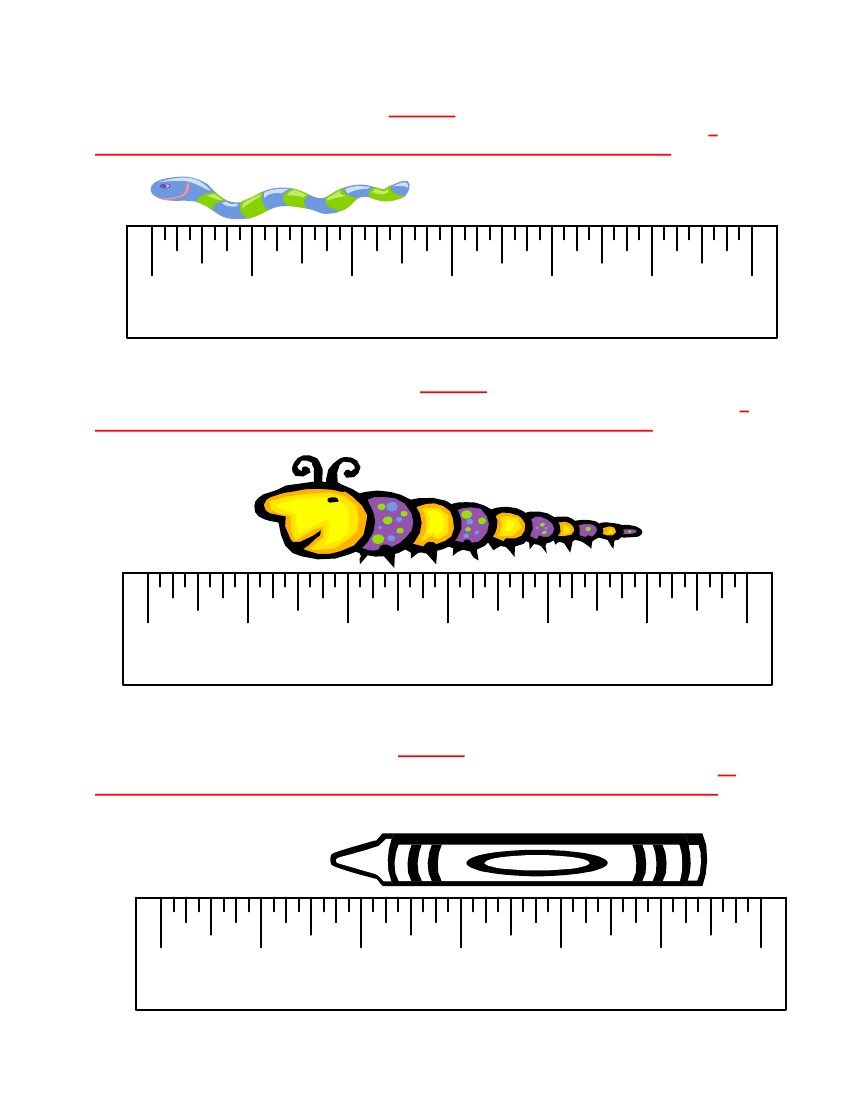
If 3 of these fish were laid end-to-end, what would be the length, to the nearest inch? How do

you know?

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Ruler Practice (pp. 1 of 2) KEY

1. Length of the worm to the nearest inch: 3 inches

2. What would be the length of 3 of these worms laid end-to-end? How do you know? 9

inches; Explanations may vary but could include 3 + 3 + 3 = 9 or 3 x 3 = 9

0

Inches

1

2

3

4

5

6

3. Length of the caterpillar to the nearest inch: 4 inches

4. What would be the length of 2 of these caterpillars laid end-to-end? How do you know? 8

inches; Explanations may vary but could include 4 + 4 = 8bor 2 x 4 = 8

0

Inches

1

2

3

4

5

6

5. Length of the crayon to the nearest inch: 4 inches

6. What would be the length of 4 of these crayons laid end-to-end? How do you know? 16

inches; Explanations may vary but could include 4 + 4 + 4 + 4 = 16 or 4 x 4 = 16

0

Inches

1

2

3

4

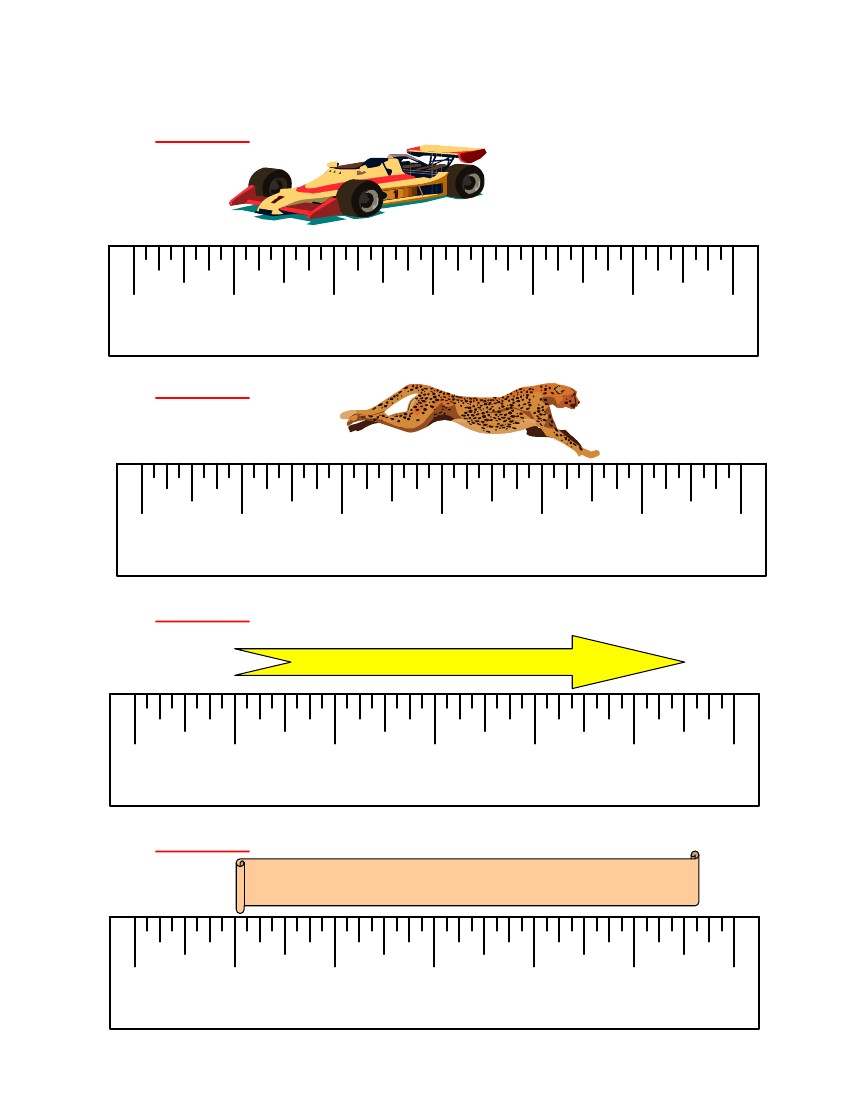
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6

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Ruler Practice (pp. 2 of 2) KEY

Measure each object to the nearest half inch.

7. Length: 2 1/2 inches

0

Inches

1

2

3

4

5

6

8. Length: 2 1/2 inches

0

Inches

1

2

3

4

5

6

9. Length: 4 1/2 inches

0

Inches

1

2

3

4

5

6

10. Length: 4 1/2 inches

0

Inches

1

2

3

4

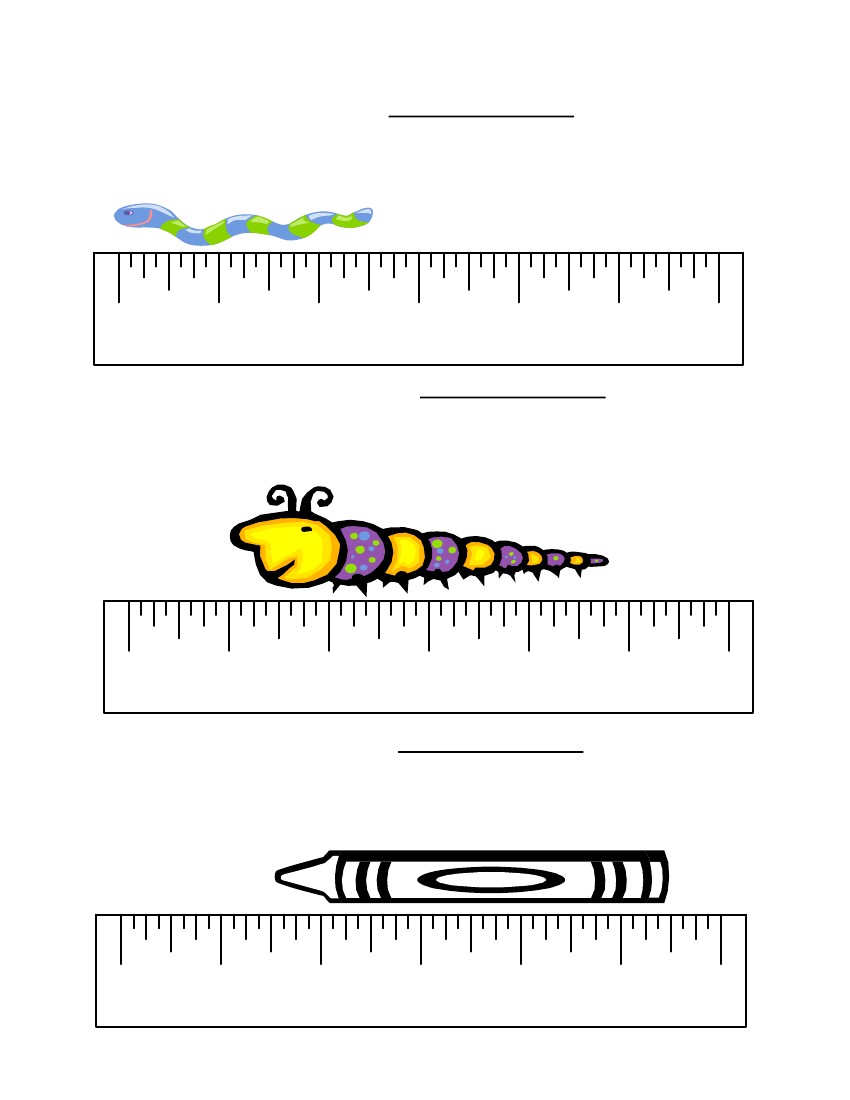
5

6

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Ruler Practice (pp. 1 of 2)

List grading scale.

1. Length of the worm to the nearest inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What would be the length of 3 of these worms laid end-to-end? How do you know?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

3. Length of the caterpillar to the nearest inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. What would be the length of 2 of these caterpillars laid end-to-end? How do you know?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

5. Length of the crayon to the nearest inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. What would be the length of 4 of these crayons laid end-to-end? How do you know?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

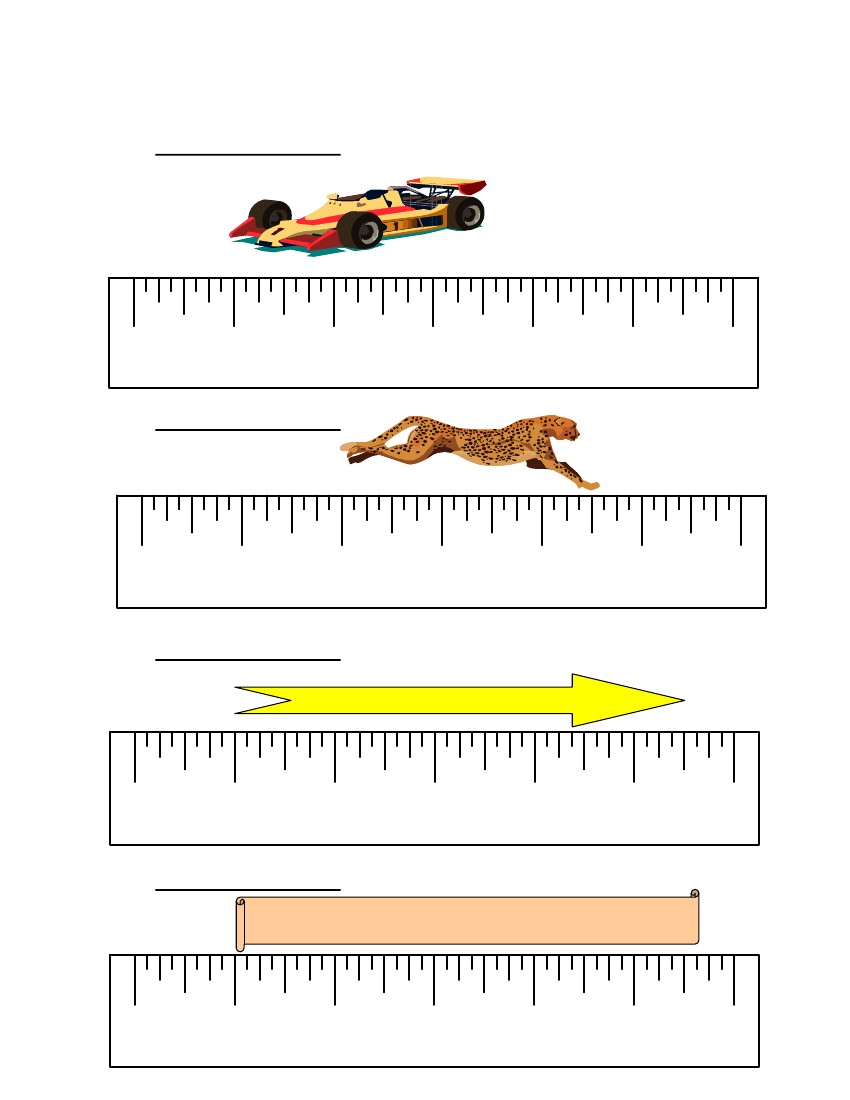
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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Customary Ruler Practice (pp. 2 of 2)

Measure each object to the nearest half inch.

7. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

8. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

9. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

1

2

3

4

5

6

10. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

Inches

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1

2

3

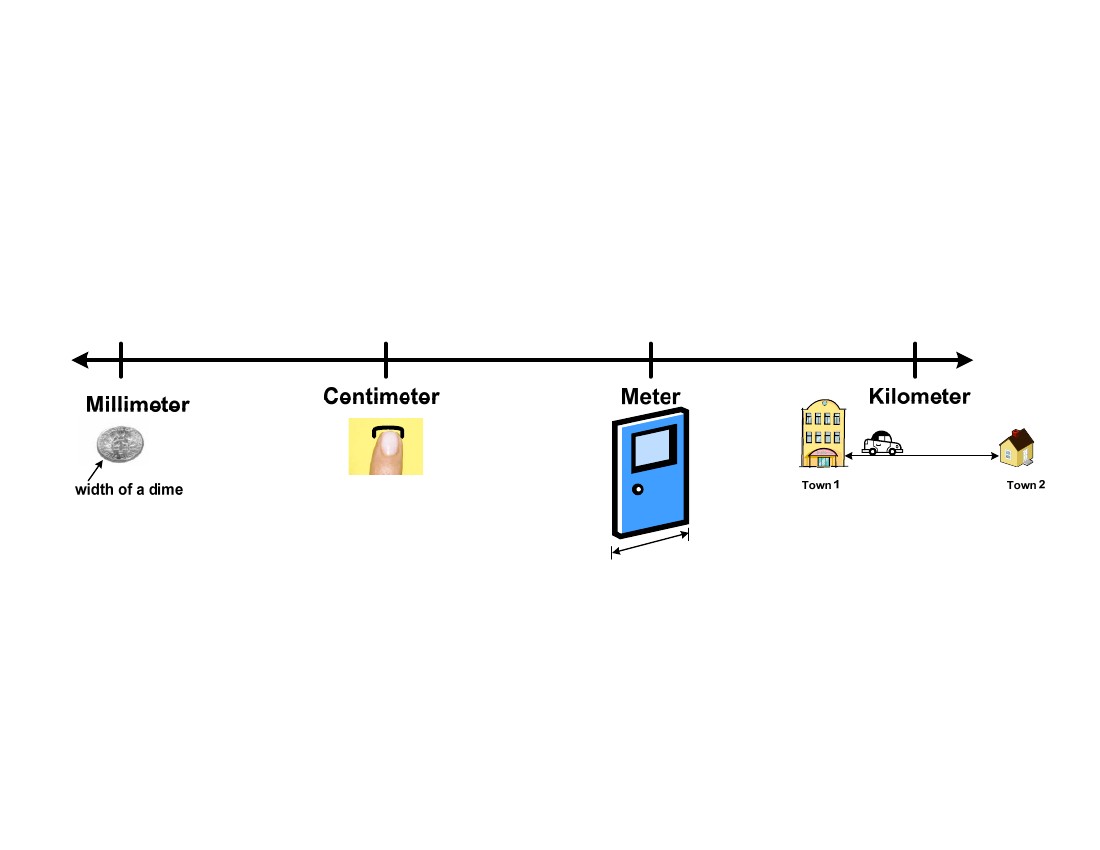
12/29/10

4

5

6

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Visuals for

Metric

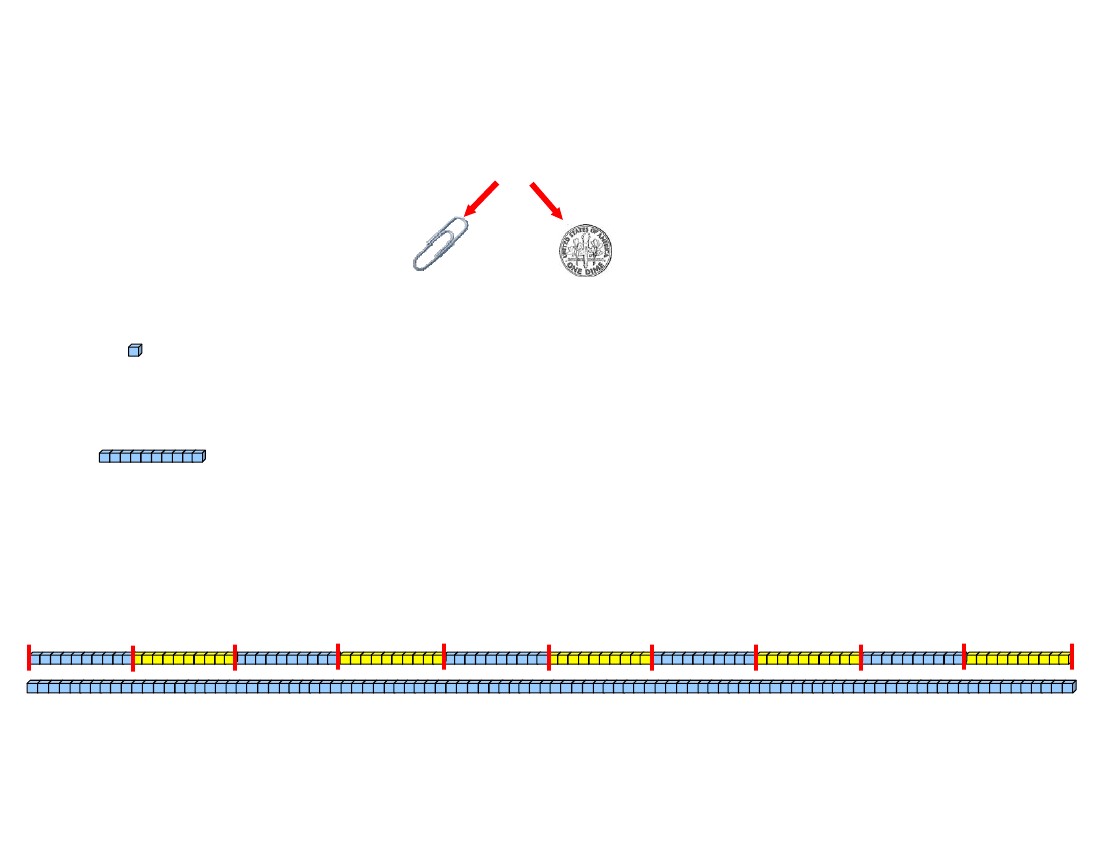
Length

Millimeter (mm), Centimeter (cm), Meter (m), Kilometer (km)

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Metric Units

(Not to scale)

1 millimeter (mm) = the “thickness” of one small paperclip or dime

1 centimeter (cm) = 10 millimeters (mm) or 1 centimeter cube

1 decimeter (dm) = 10 centimeters (cm) or one 10-long

1 meter (m) = 100 centimeters or 100 centimeter cubes end to end

or ten 10-longs

decimeter

decimeter

decimeter

decimeter

decimeter

decimeter

decimeter

decimeter

decimeter

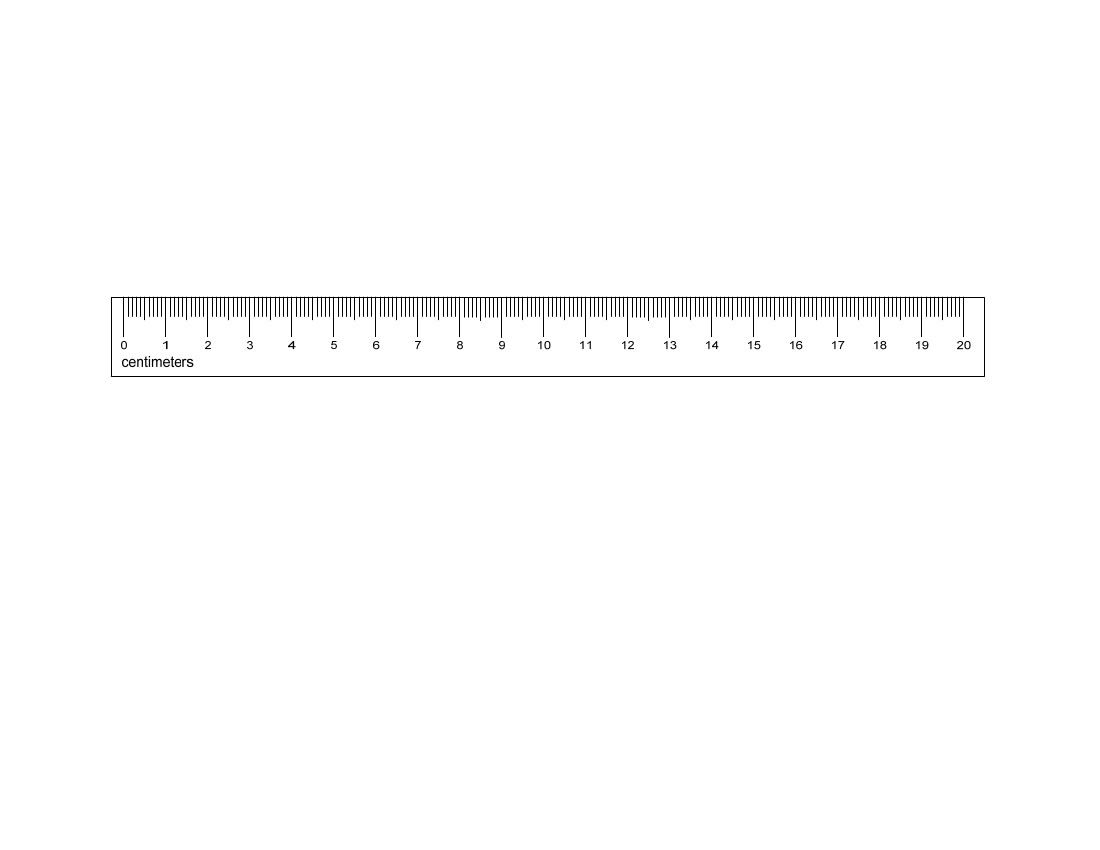
decimeter

meter

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 3rd Grade

Mathematics

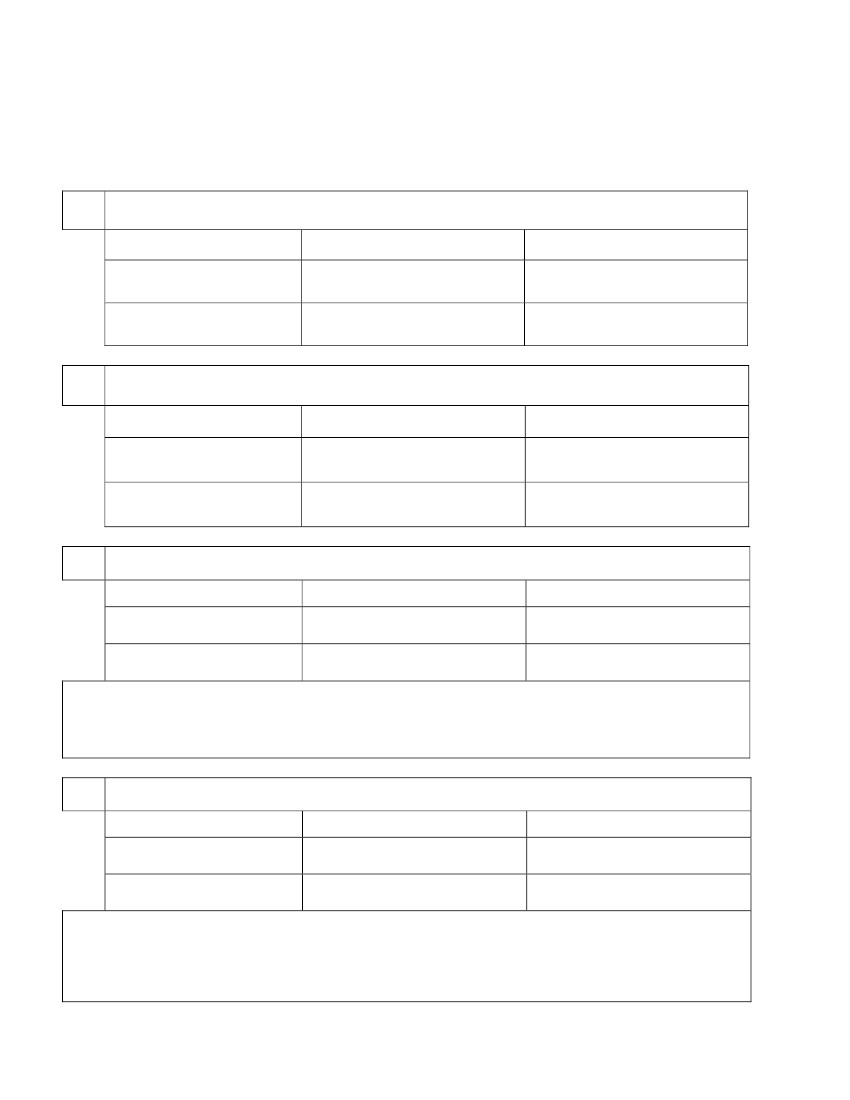
Unit: 08 Lesson: 01

Metric Ruler

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

To the Nearest—Metric Recording Sheet

Complete the table by estimating the measure of each object and record the actual measure of

the object in centimeters and millimeters.

(1) Object:

Centimeters

Estimate

Actual

Millimeters

(2) Object:

Centimeters

Estimate

Actual

Millimeters

(3) Object:

Centimeters

Estimate

Actual

If 2 of these objects were laid end-to-end, how long would they be? Explain.

Millimeters

(4) Object:

Centimeters

Estimate

Actual

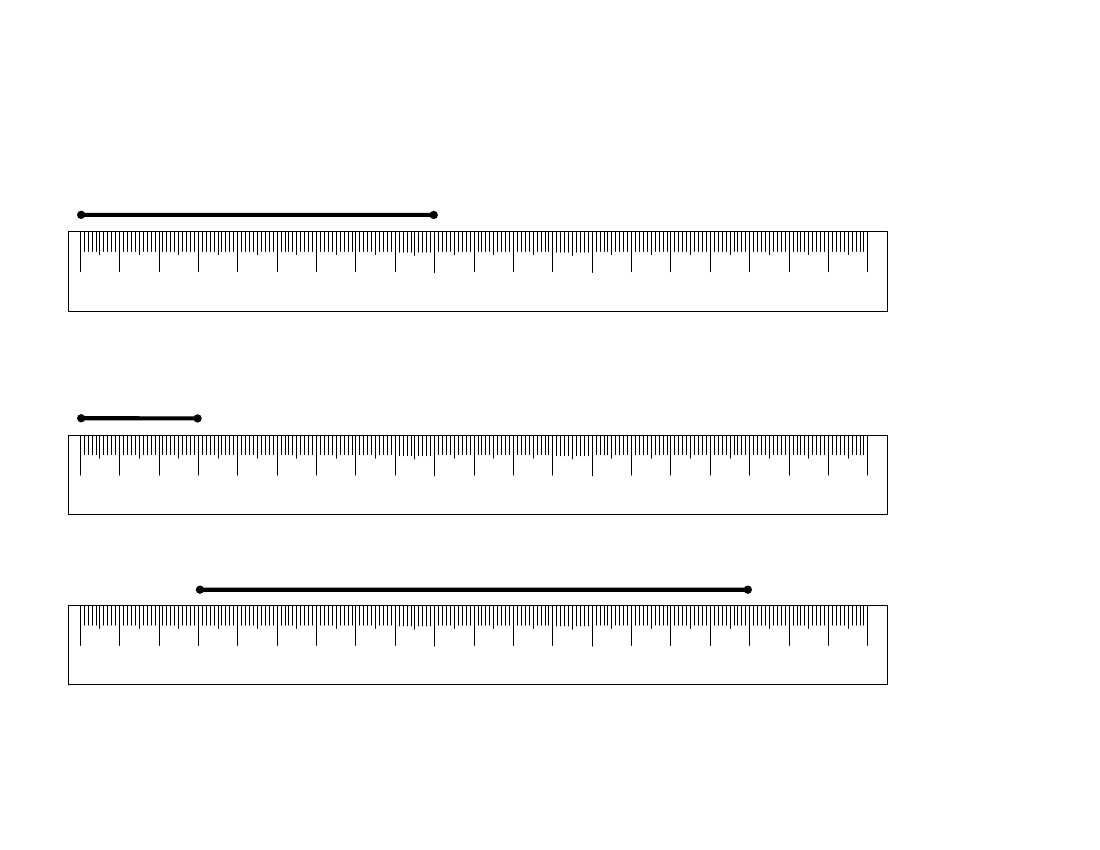
If 3 of these objects were laid end-to-end, how long would they be? Explain.

Millimeters

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Metric (pp. 1 of 3) KEY

Find the length of each line segment to the nearest centimeter.

1. Length: 9 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

2. Length: 3 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

3. Length: 14 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

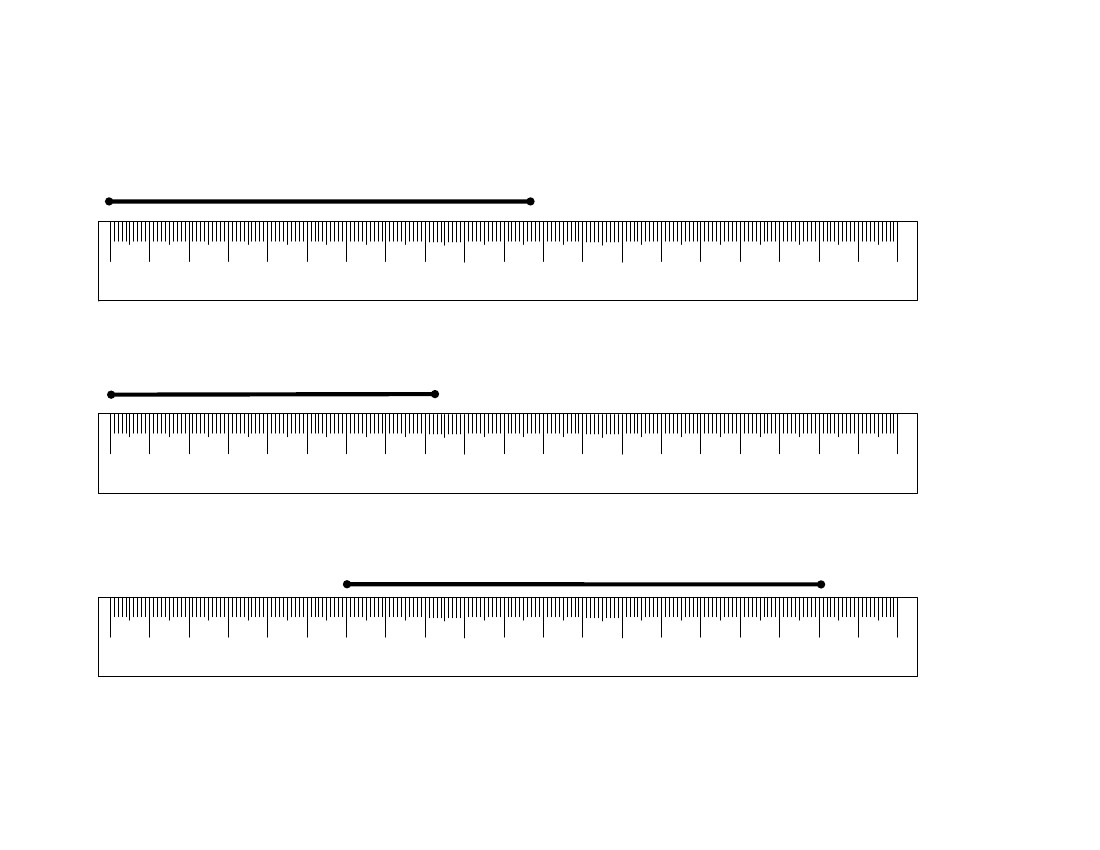
If two of these line segments were laid end-to-end, what would be the total length? Explain. 28 centimeters;

Answers may vary but should include 14 + 14 = 28 or 2 x 14 = 28 centimeters.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Metric (pp. 2 of 3) KEY

Find the length of each line segment to the nearest centimeter.

4. Length: 11 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

5. Length: 8 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

6. Length: 12 centimeter

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

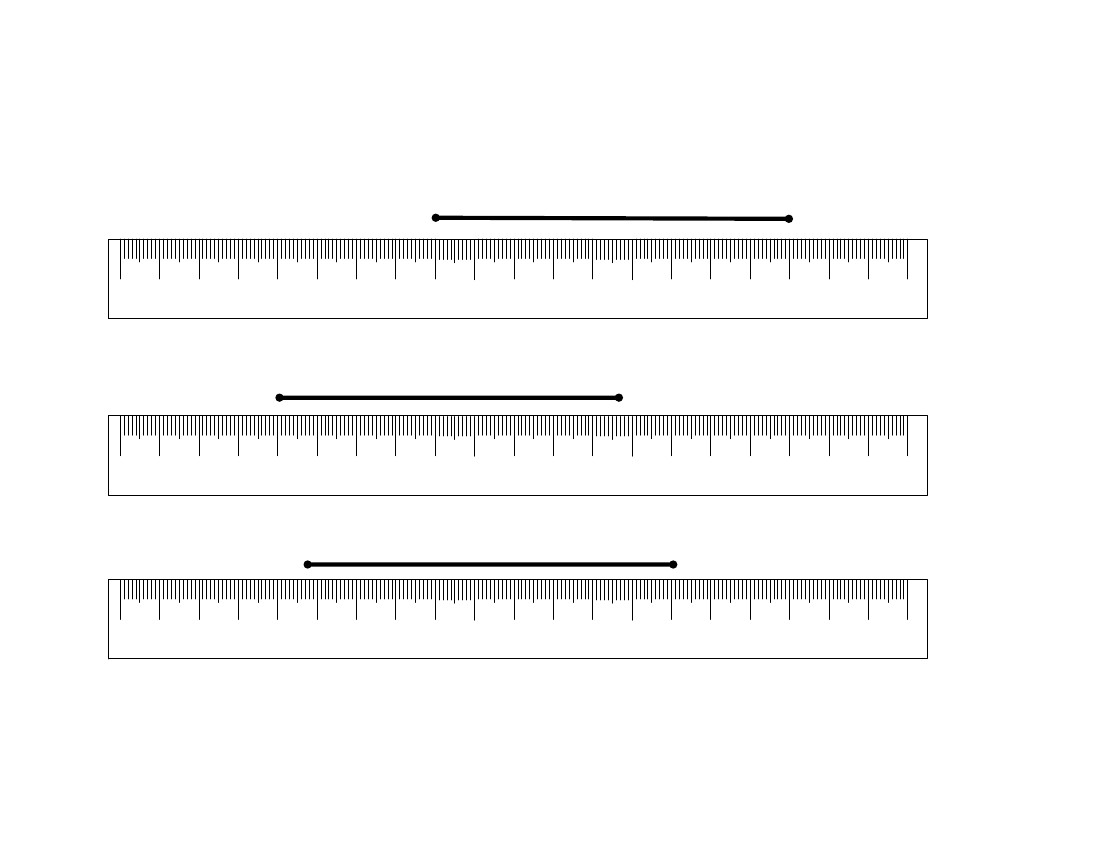
If 2 of these line segments were laid end-to-end, what would be the total length? Explain. 24 centimeters;

Answers may vary but should include 12 + 12 = 24 or 2 x 12 = 24 centimeters.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Metric (pp. 3 of 3) KEY

Find the length of each line segment to the nearest centimeter.

7. Length: 9 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

8. Length: 9 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

9. Length: 9 centimeters

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

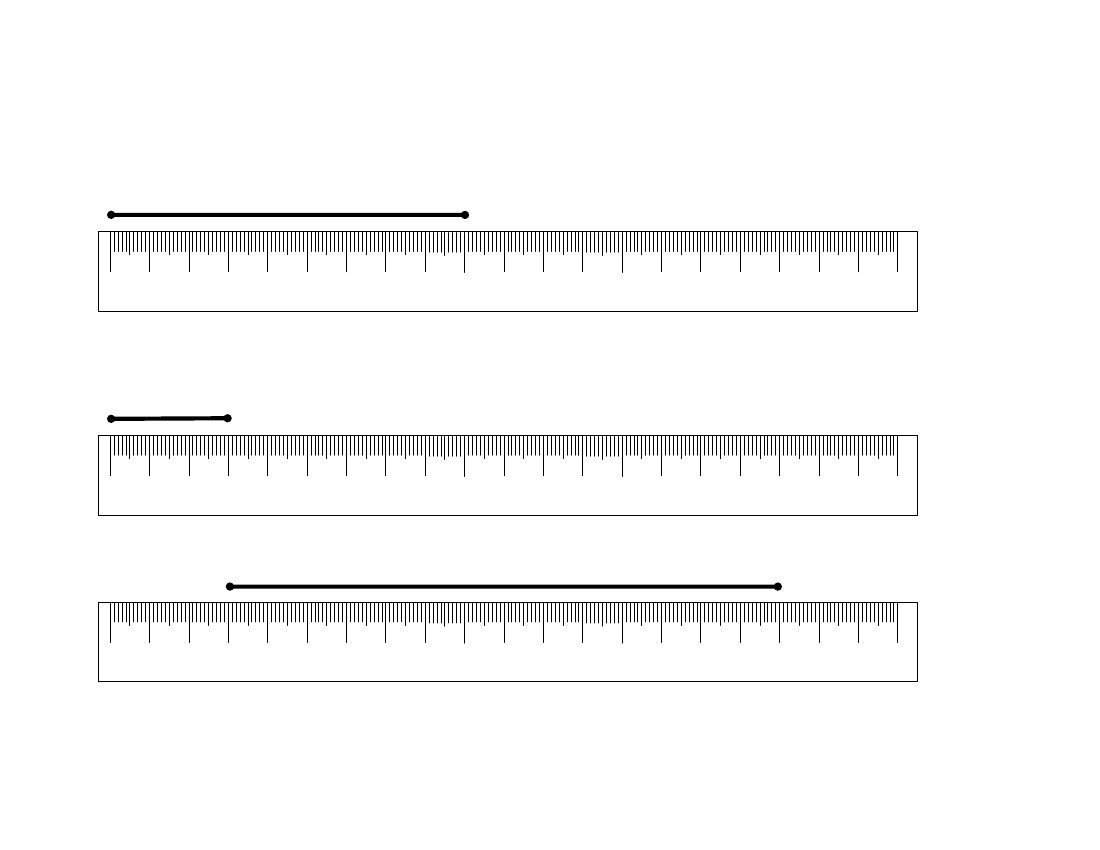
If 3 of these line segments were laid end-to-end, what would be the total length? Explain. 27 centimeters;

Answers may vary but should include 9 + 9 + 9 = 27 or 3 x 9 = 27 centimeters.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Metric

Find the length of each line segment to the nearest centimeter.

(pp. 1 of 3)

1. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

2. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

3. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

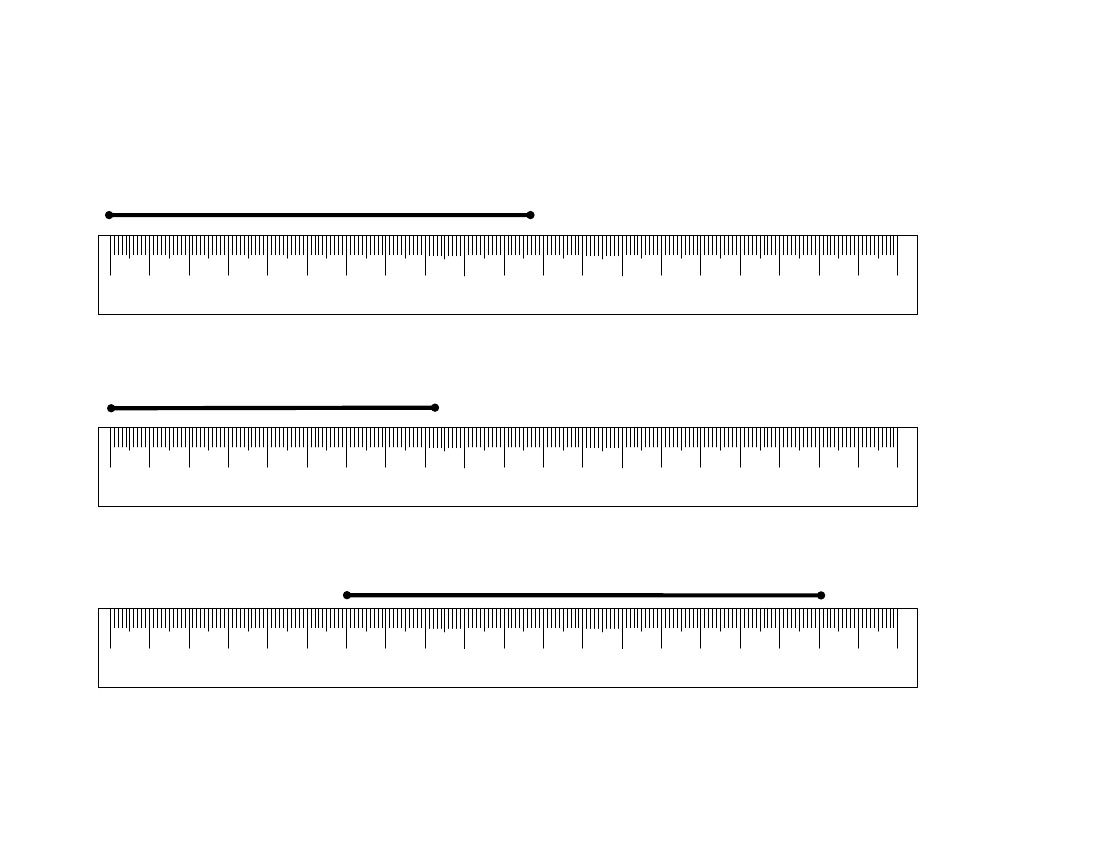
centimeters

If two of these line segments were laid end-to-end, what would be the total length? Explain.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Metric

Find the length of each line segment to the nearest centimeter.

(pp. 2 of 3)

4. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

5. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

6. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

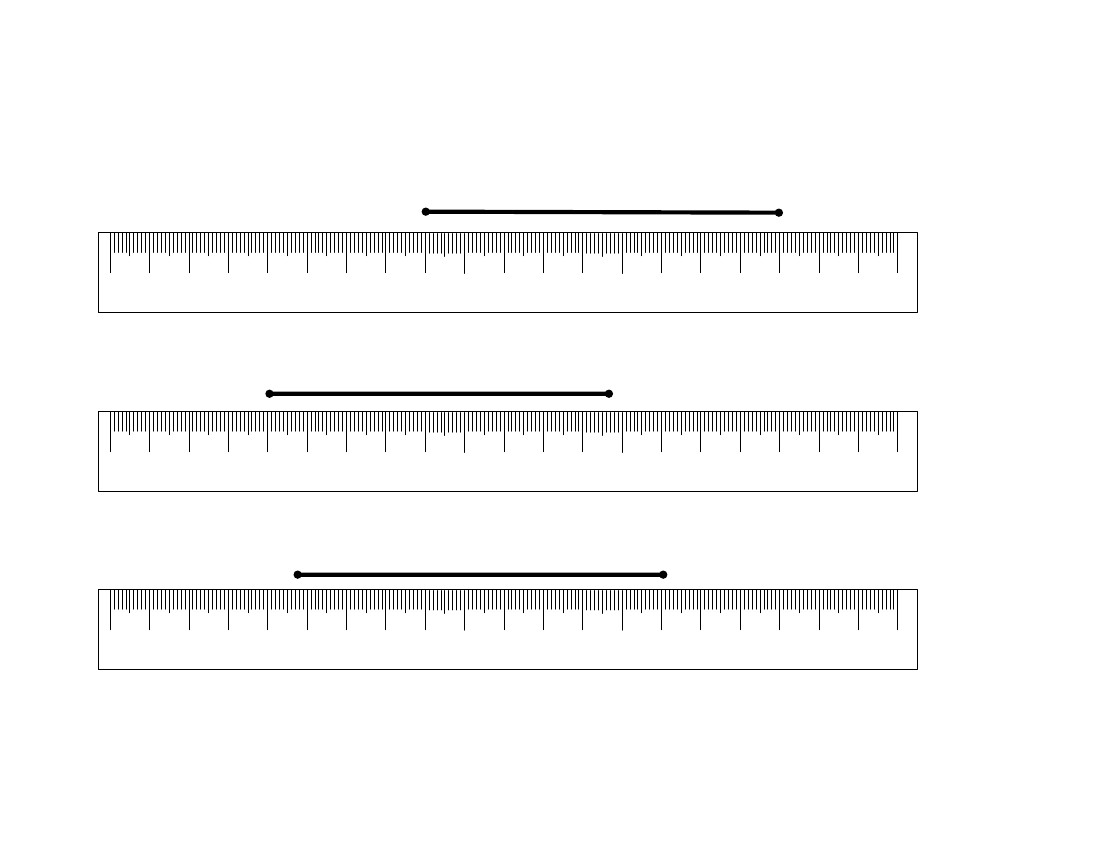
centimeters

If 2 of these line segments were laid end-to-end, what would be the total length? Explain.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Read That Ruler! Metric

Find the length of each line segment to the nearest centimeter.

(pp. 3 of 3)

7. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

8. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

9. Length: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

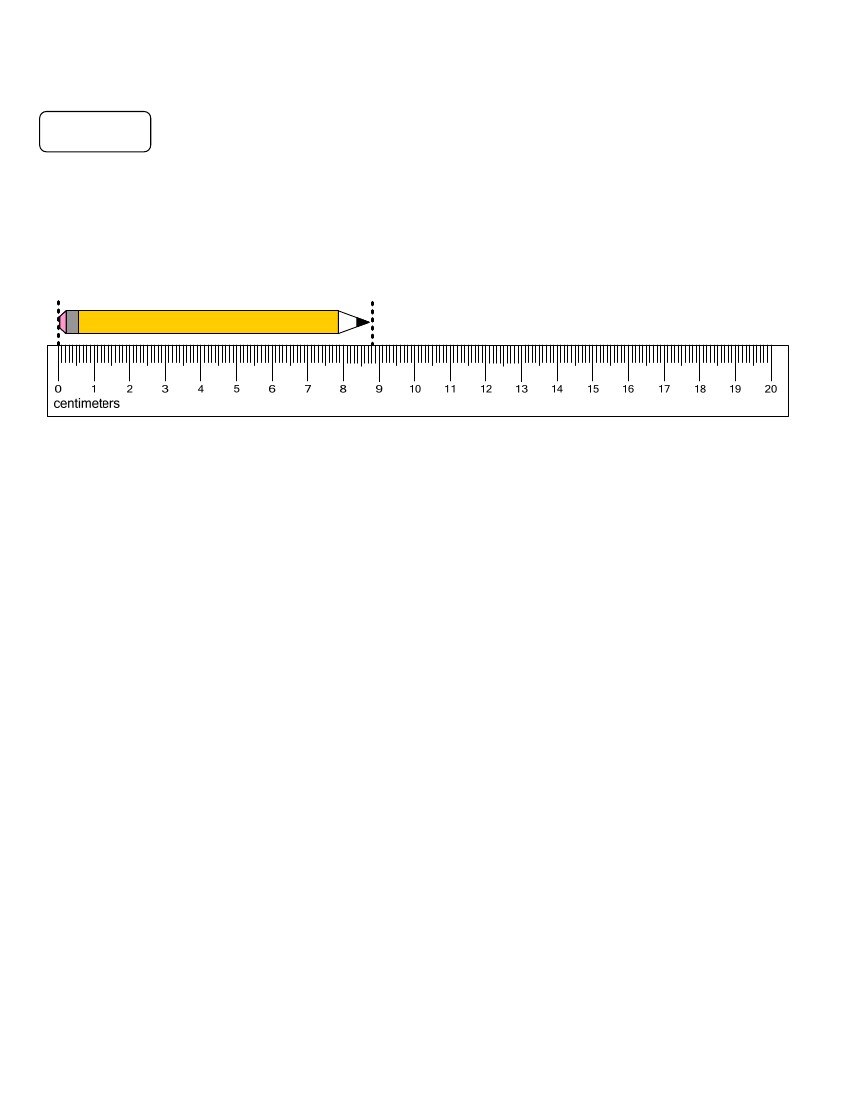
centimeters

If 3 of these line segments were laid end-to-end, what would be the total length? Explain.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Metric Length Notes/Practice (pp. 1 of 2) KEY

Notes

Remember that the precision of a measurement is related to the unit of measure you use. The smaller

the unit, the more precise the measurement will be. Measuring to the nearest millimeter is more precise

than measuring to the nearest centimeter.

Example:

How long is this pencil, to the nearest centimeter?

Step 1: Align the left side of the pencil with the zero mark of the ruler as shown above.

Step 2: Notice where the pencil ends on the ruler. The pencil is between 8 and 9 centimeters long.

Step 3: Decide whether 8 or 9 is the nearest centimeter. The end of this pencil is more than halfway

between the 8 and 9. So, the length of this pencil is closer to 9 centimeters than 8 centimeters.

— To the nearest centimeter, the pencil is 9 centimeters long.

How long is the pencil in millimeters?

— Each centimeter is equal to 10 millimeters. So, we can count by tens to 80 and then add the 8

millimeters to get 80 + 8 = 88. So, the pencil is 88 mm long.

Which measure is more precise? Why?

— To the nearest millimeter, the pencil is 88 mm long. This measure is more precise than the measure

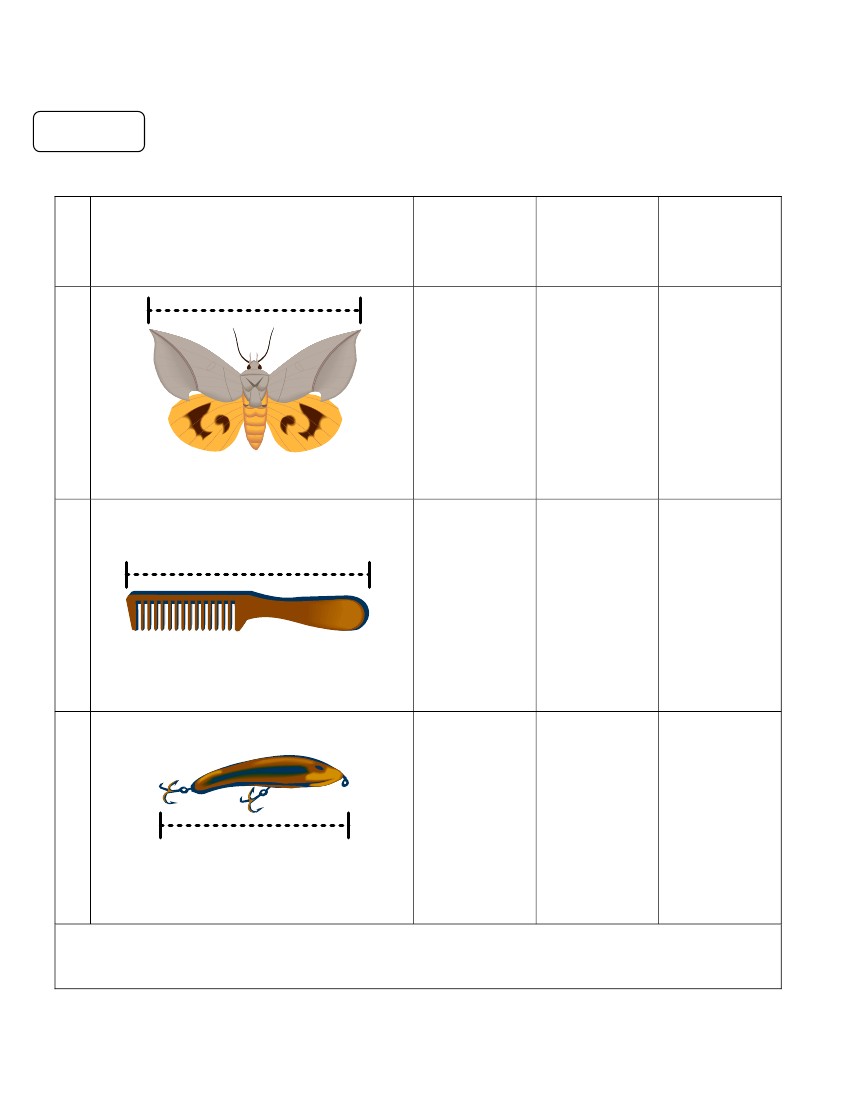
to the nearest centimeter because millimeters are smaller units and 88 mm is closer to the actual

pencil length than 9 cm.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Metric Length Notes/Practice (pp. 2 of 2) KEY

Practice

Estimate each object length in centimeters and then measure each.

Object

Estimate

(in cm)

Measure

To the

Nearest

Centimeter

Measure in

Millimeters

(1)

Answers

will vary

5 cm

54 mm

(2)

Answers

will vary

6 cm

62 mm

(3)

Answers

will vary

5 cm

48 mm

If 2 of these fishing lures were laid end-to-end, what would be the length, to the nearest

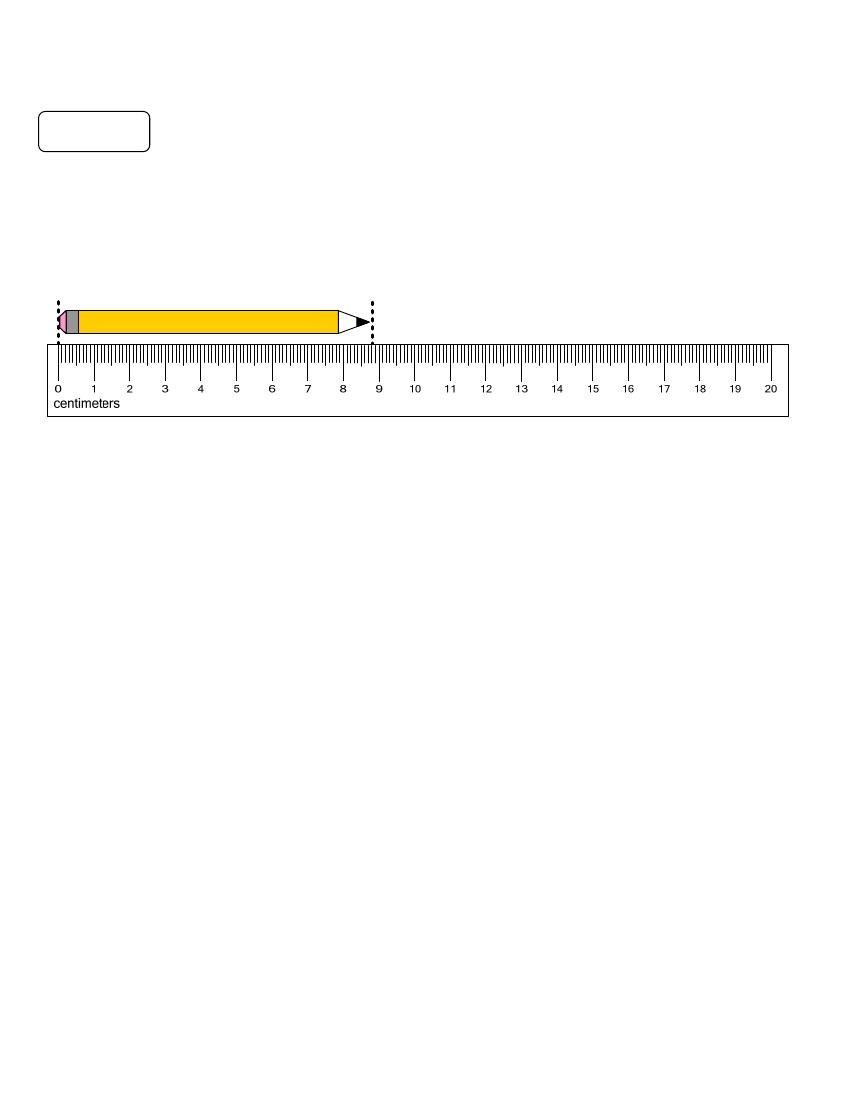
millimeter? How do you know? 96 millimeters; Answers may vary but should

include: 48 + 48 = 96 or 2 x 48 = 96 millimeters.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Metric Length Notes/Practice (pp. 1 of 2)

Note grading scale.

Notes

Remember that the precision of a measurement is related to the unit of measure you use. The smaller

the unit, the more precise the measurement will be. Measuring to the nearest millimeter is more precise

than measuring to the nearest centimeter.

Example:

How long is this pencil, to the nearest centimeter?

Step 1: Align the left side of the pencil with the zero mark of the ruler as shown above.

Step 2: Notice where the pencil ends on the ruler. The pencil is between 8 and 9 centimeters long.

Step 3: Decide whether 8 or 9 is the nearest centimeter. The end of this pencil is more than halfway

between the 8 and 9. So, the length of this pencil is closer to 9 centimeters than 8 centimeters.

— To the nearest centimeter, the pencil is 9 centimeters long.

How long is the pencil in millimeters?

— Each centimeter is equal to 10 millimeters. So, we can count by tens to 80 and then add the 8

millimeters to get 80 + 8 = 88. So, the pencil is 88 mm long.

Which measure is more precise? Why?

— To the nearest millimeter, the pencil is 88 mm long. This measure is more precise than the measure

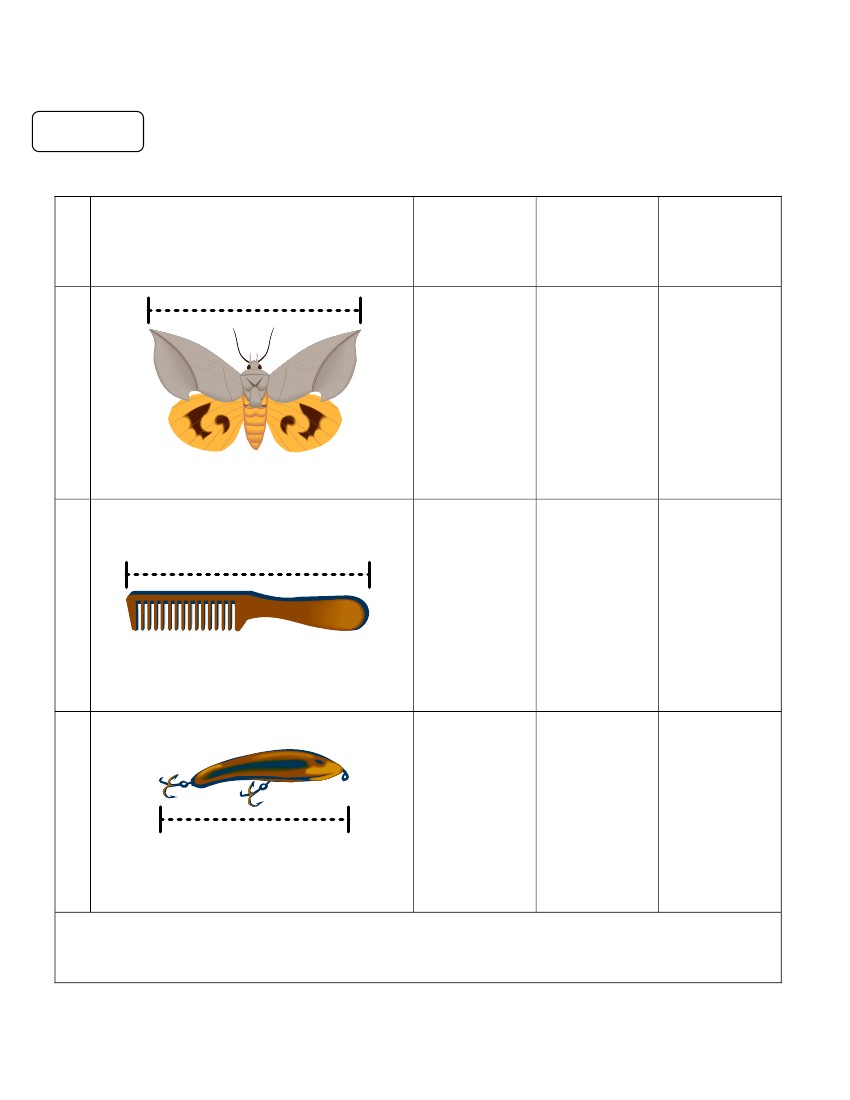
to the nearest centimeter because millimeters are smaller units and 88 mm is closer to the actual

pencil length than 9 cm.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Metric Length Notes/Practice (pp. 2 of 2)

Practice

Estimate each object length in centimeters and then measure each.

Object

Estimate

(in cm)

Measure

To the

Nearest

Centimeter

Measure in

Millimeters

(1)

(2)

(3)

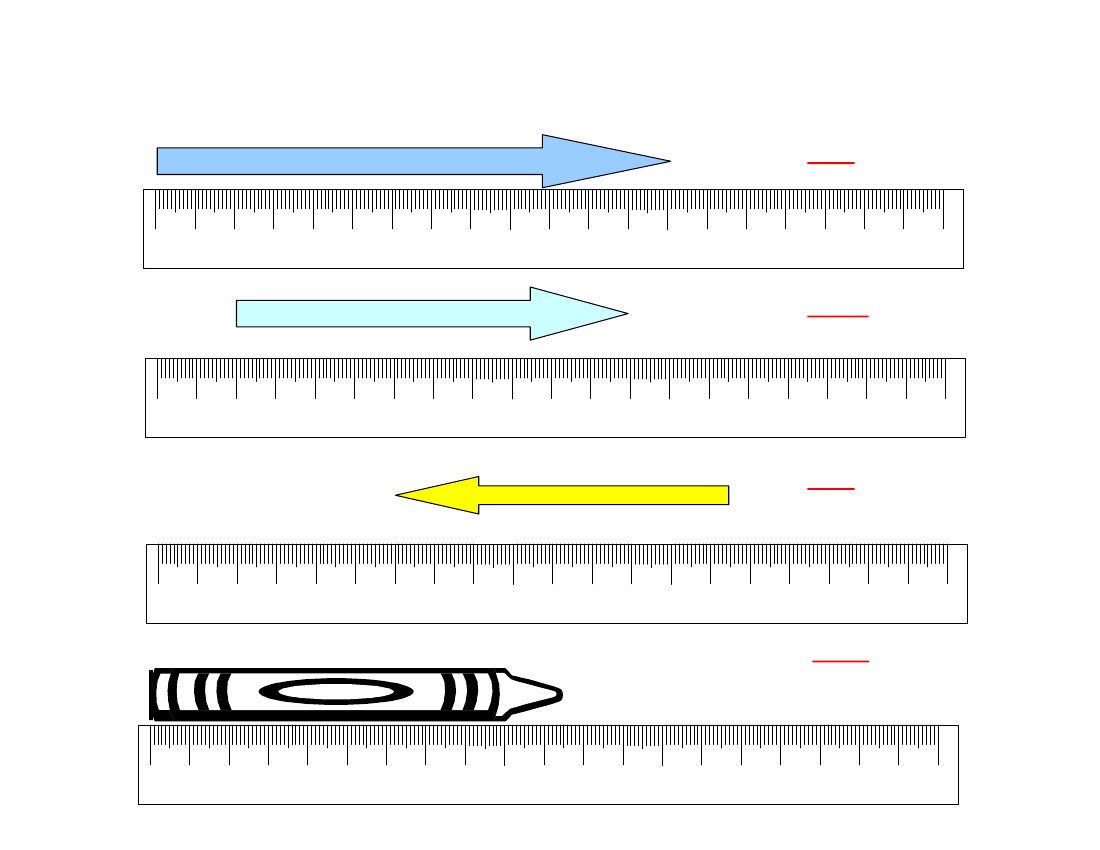
If 2 of these fishing lures were laid end-to-end, what would be the length, to the nearest

millimeter? How do you know?

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Metric Ruler Practice KEY

Find the length of each object to the nearest centimeter

13 cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

\_10\_cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

\_9 cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

11\_ cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

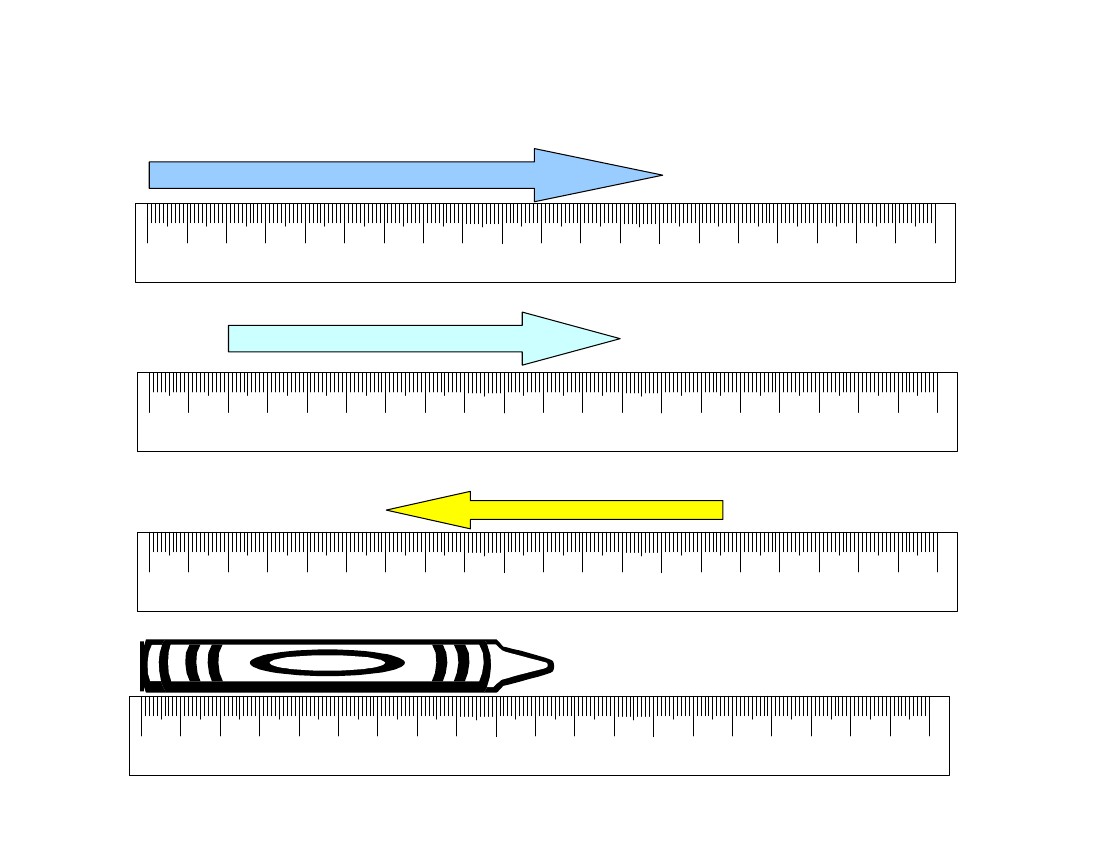
20

centimeters

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Metric Ruler Practice

Find the length of each object to the nearest centimeter.

\_\_\_\_\_\_\_\_\_\_ cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

\_\_\_\_\_\_\_\_\_\_ cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

\_\_\_\_\_\_\_\_\_\_ cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

centimeters

\_\_\_\_\_\_\_\_\_\_ cm

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

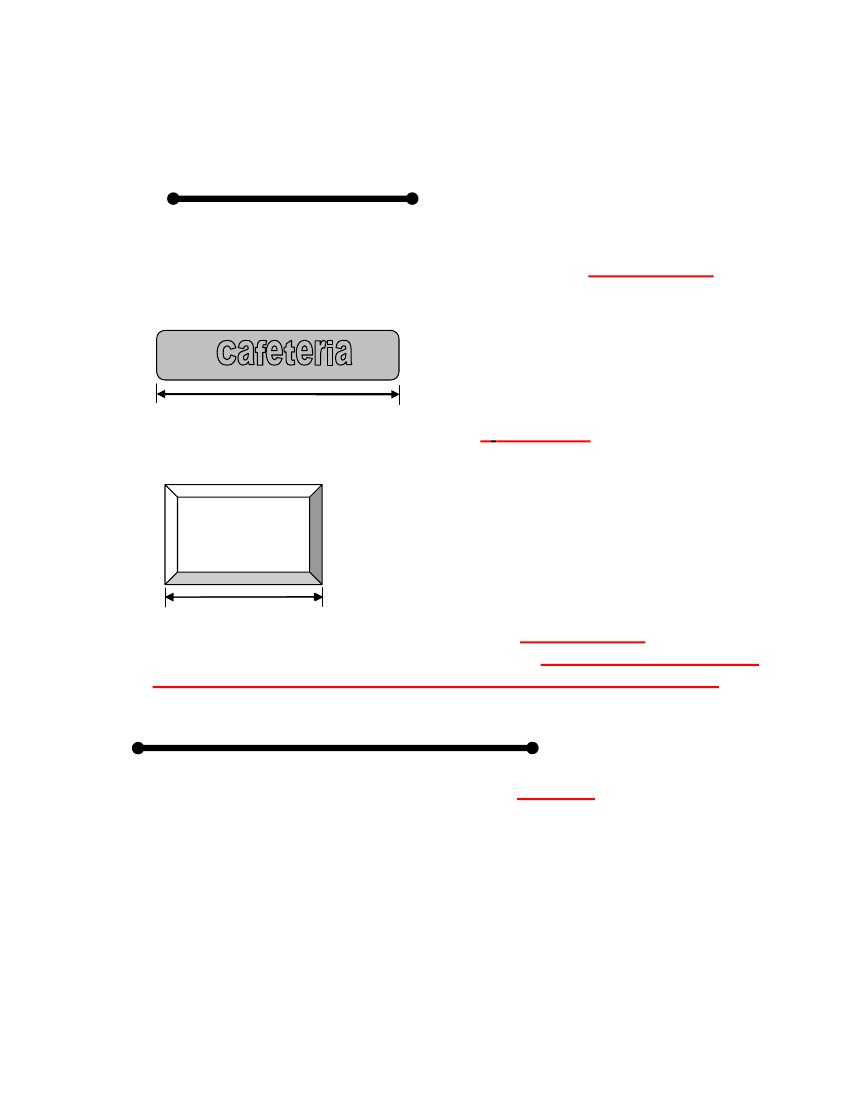
20

centimeters

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Mathematics

Unit: 08 Lesson: 01

Additional Combined Measures Practice (pp. 1 of 2) KEY

1.

Length of line segment to the nearest centimeter: 6 centimeters

2.

Length of sign to the nearest half-inch: 2 1/2 inches

3.

Length of frame to the nearest centimeter: 4 centimeters

Length of 3 frames laid end-to-end. Explain: 4 centimeters; Answers

may vary but could include 4 + 4 + 4 = 12 cm or 4 x 3 = 12 cm.

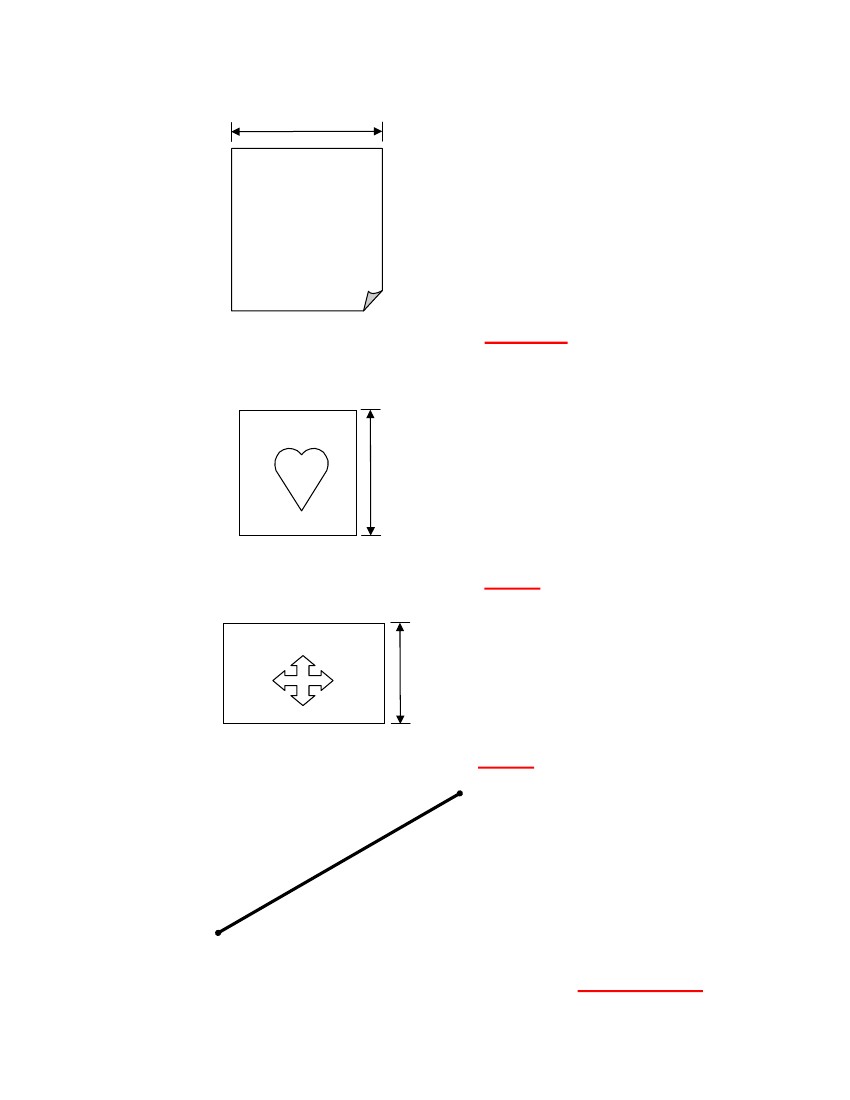
4.

Length of line segment to the nearest inch: 4 inches

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Additional Combined Measures Practice (pp. 2 of 2) KEY

5.

Width of paper to the nearest inch: 2 inches

6.

Be Mine

Length of card to the nearest inch: 1 inch

Flag

7.

Height of flag to the nearest inch: 1 inch

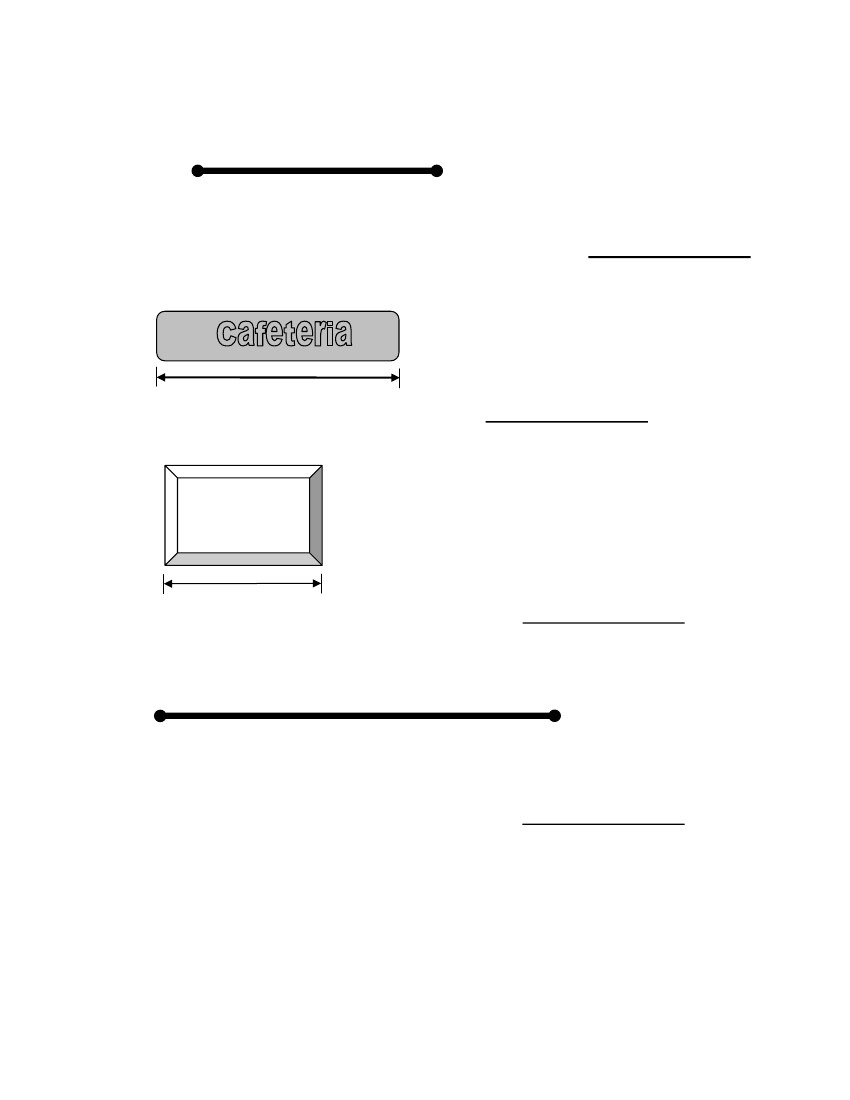
8.

Length of line segment to the nearest centimeter: 7 centimeters

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Mathematics

Unit: 08 Lesson: 01

Additional Combined Measures Practice (pp. 1 of 2)

Note grading scale.

1.

Length of line segment to the nearest centimeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.

Length of sign to the nearest half-inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.

Length of frame to the nearest centimeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

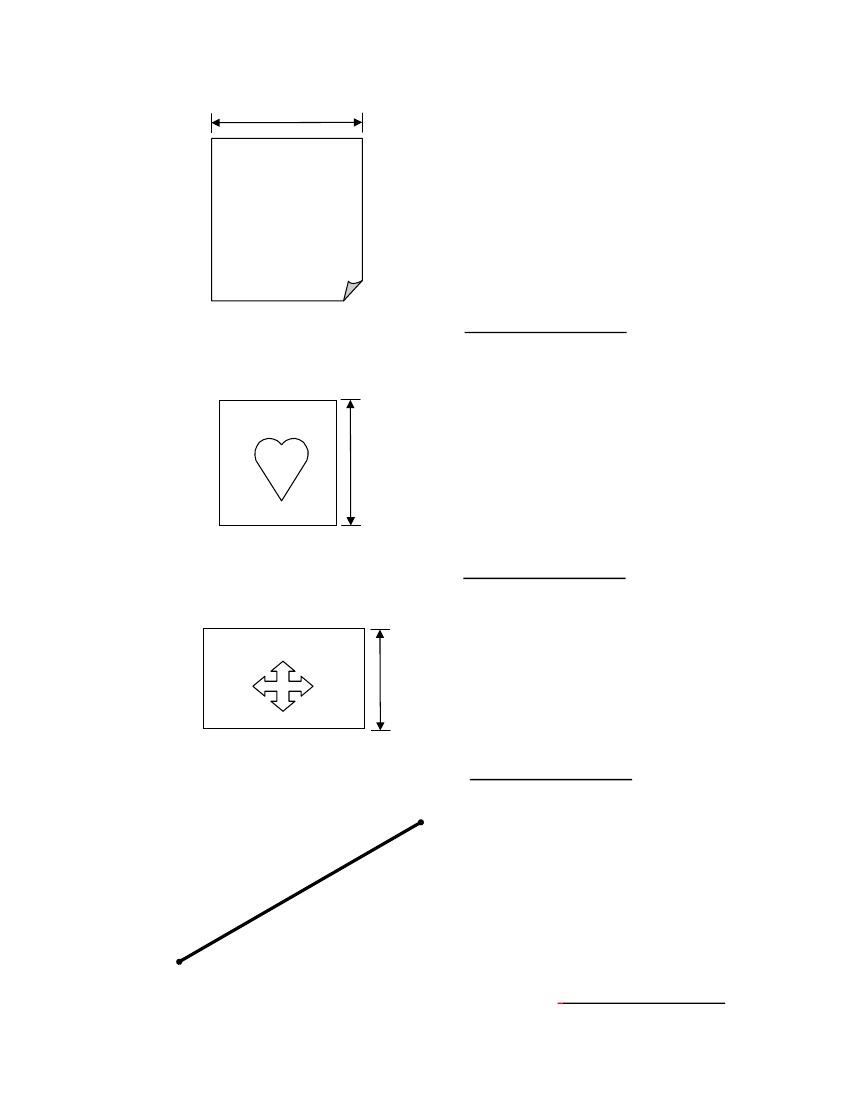
4.

Length of line segment to the nearest inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Mathematics

Unit: 08 Lesson: 01

Additional Combined Measures Practice (pp. 2 of 2)

5.

Width of paper to the nearest inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6.

Be Mine

Length of card to the nearest inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Flag

7.

Height of Flag to the nearest inch: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

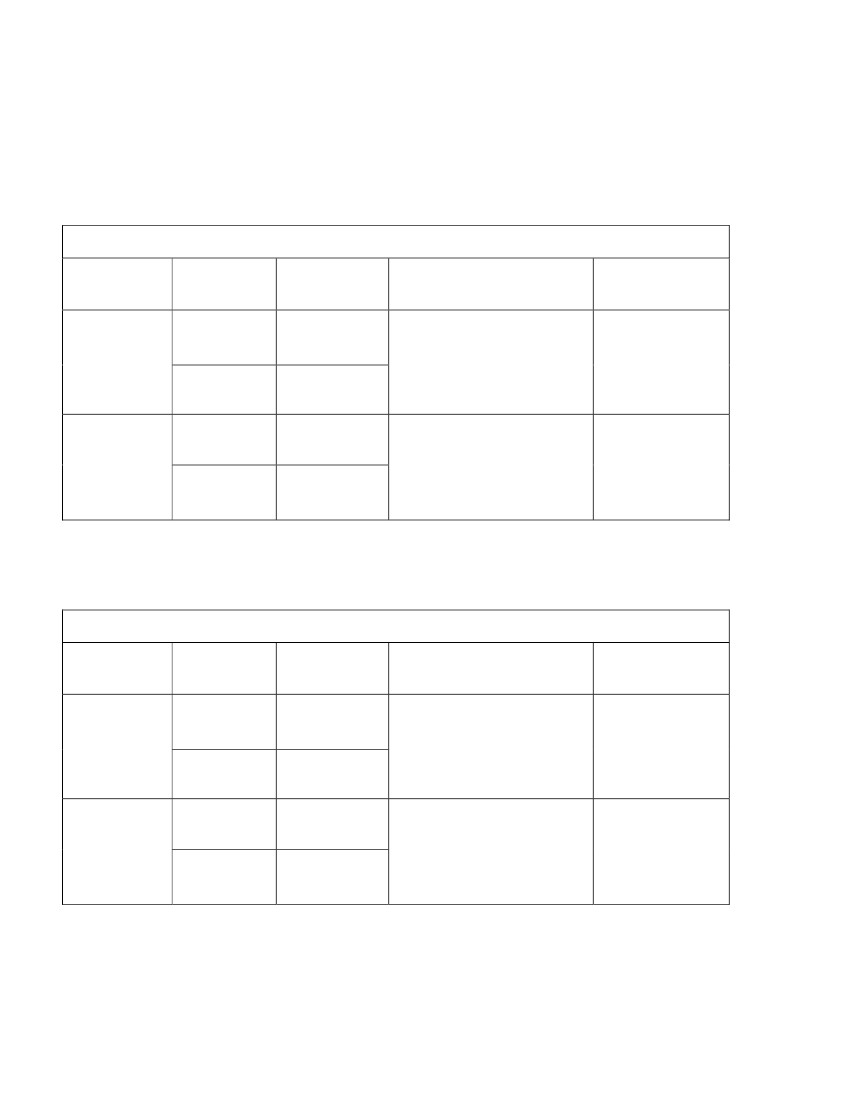
8.

Length of line segment to the nearest centimeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Textbook Perimeter

Note grading scale.

Complete the table by estimating the length and width of the book. Estimate the perimeter.

Use a ruler to measure the length and width of the book. Record the measurements and calculate

the perimeter.

To the nearest inch

Book:

Lengths

1.

Estimate

Widths

1.

2.

1.

2.

Perimeter

Calculation

Perimeter

2.

1.

Actual

2.

To the nearest centimeter

Book:

Lengths

1.

Estimate

Widths

1.

2.

1.

2.

Perimeter

Calculation

Perimeter

2.

1.

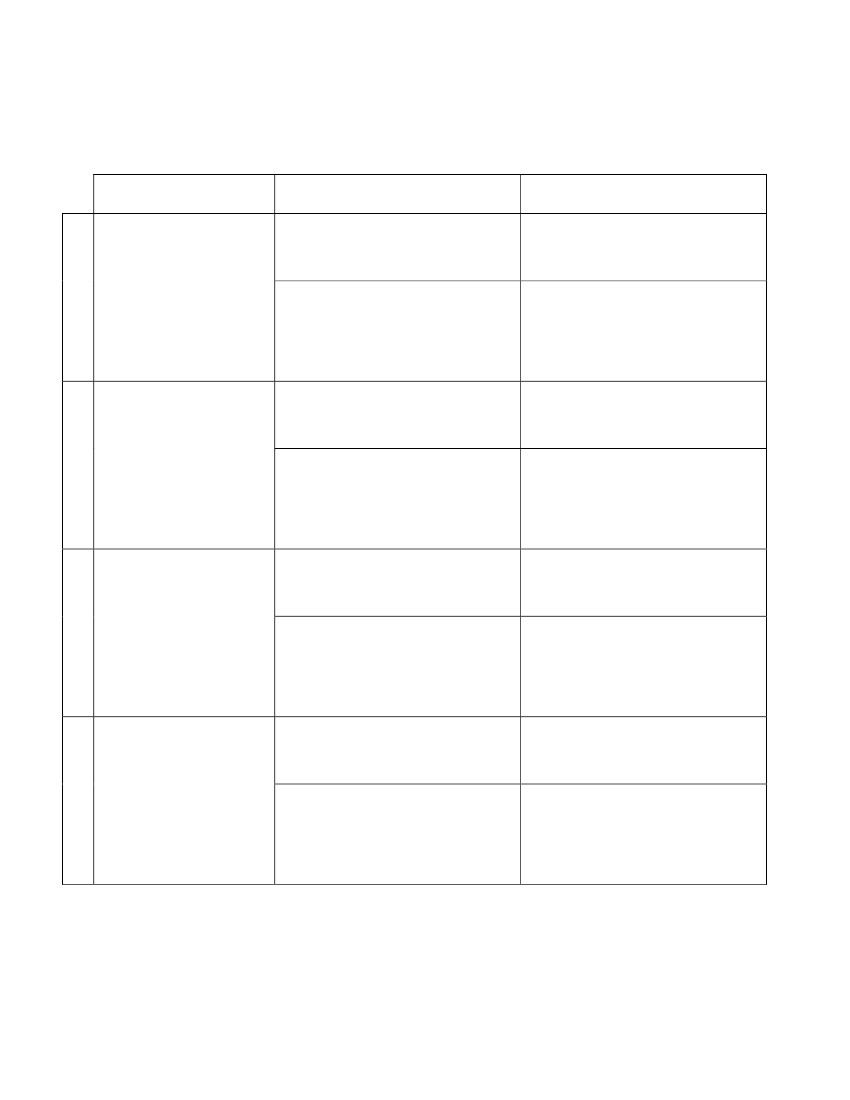
Actual

2.

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Mathematics

Unit: 08 Lesson: 01

Perimeter Scavenger Hunt

Complete the table below by finding 4 objects in the classroom. Measure the perimeter of each

object to the nearest inch and then to the nearest centimeter. Be sure to show your calculations.

Object

Perimeter to the Nearest

Inch

Calculation:

Perimeter to the Nearest

Centimeter

Calculation:

1.

Perimeter:

Perimeter:

Calculation:

Calculation:

2.

Perimeter:

Perimeter:

Calculation:

Calculation:

3.

Perimeter:

Perimeter:

Calculation:

Calculation:

4.

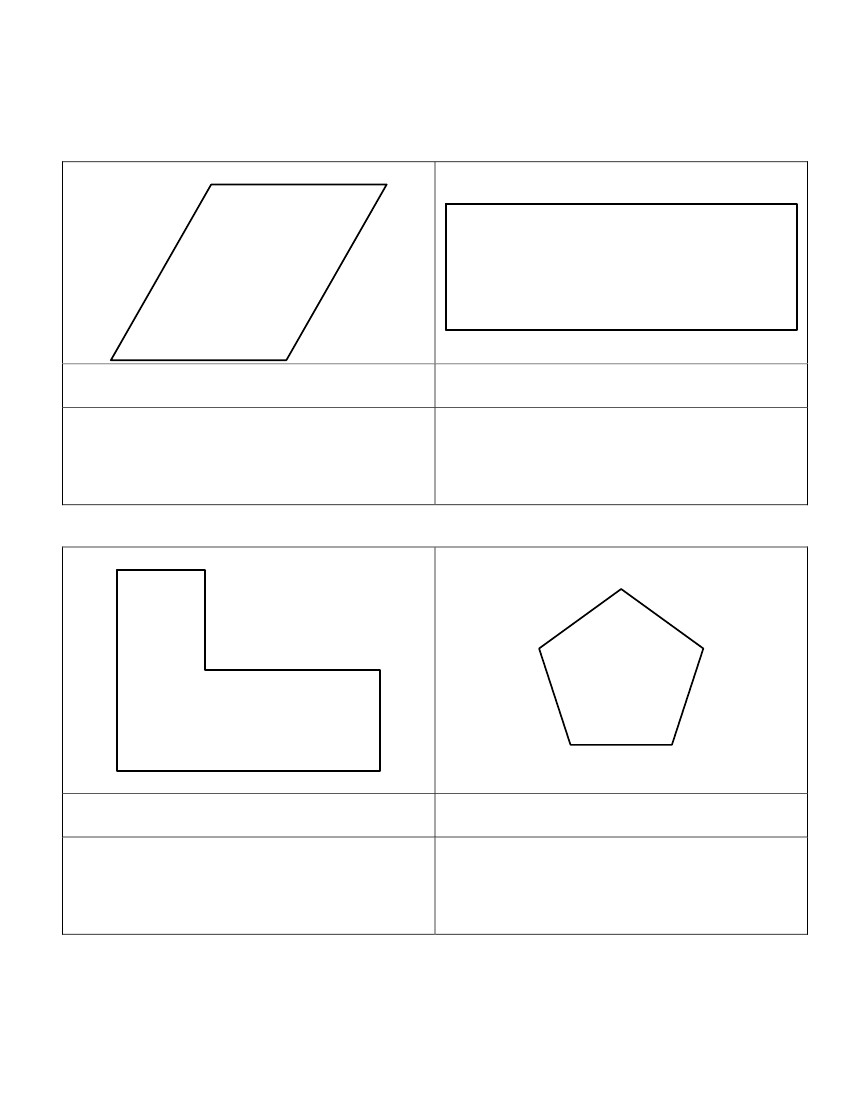
Perimeter:

Perimeter:

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Estimate and Measure Perimeter Practice

(pp. 1 of 2)

KEY

Estimate and then use a customary ruler to find the perimeter of each figure to the nearest inch.

(1)

(2)

Perimeter Estimate:

Answers may vary

Perimeter Calculation:

2 + 2 + 2 + 2 = 8 inches

Perimeter Estimate:

Answers may vary

Perimeter Calculation:

4 + 4 + 1 + 1 = 10 inches

(3)

(4)

Perimeter Estimate:

Answers may vary

Perimeter Calculation:

3 + 2 + 1 + 1 + 2 + 1 = 10 inches

Perimeter Estimate:

Answers may vary

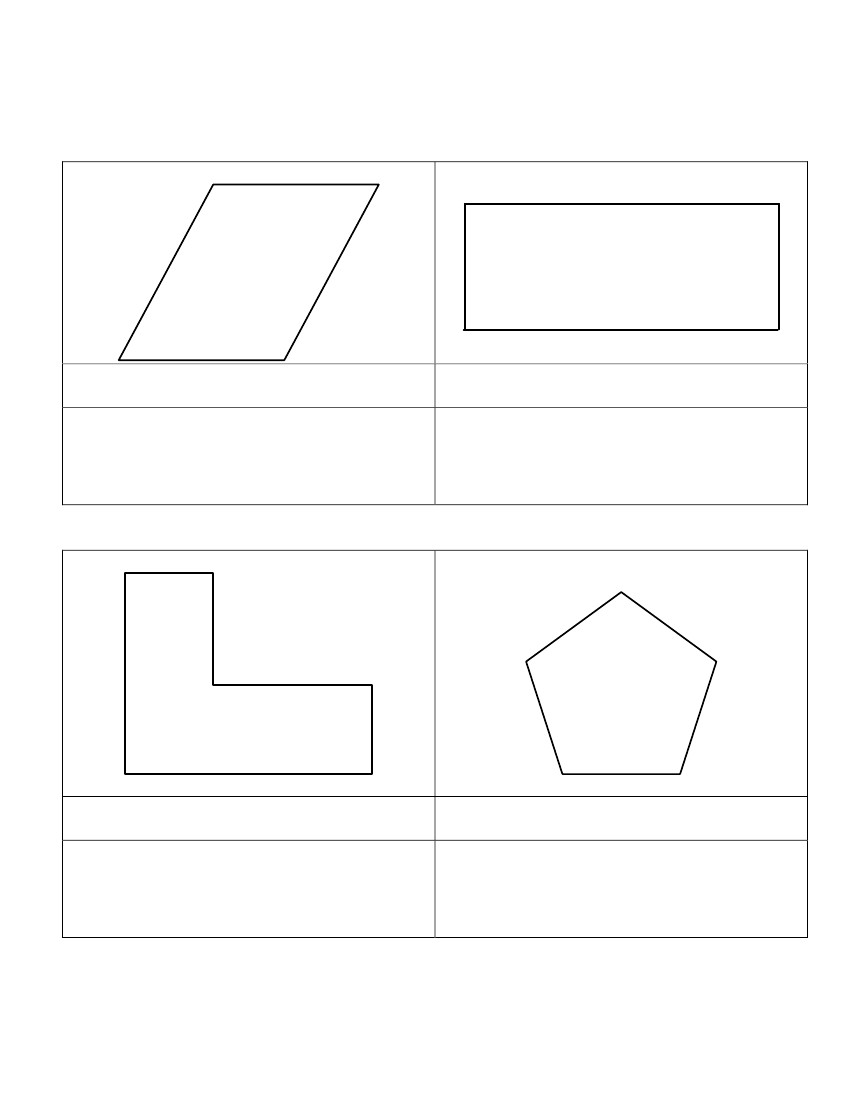
Perimeter Calculation:

1+ 1 + 1 + 1 + 1 = 5 inches

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Mathematics

Unit: 08 Lesson: 01

Estimate and Measure Perimeter Practice

(pp. 2 of 2)

KEY

Estimate and then use a metric ruler to find the perimeter of each figure to the nearest centimeter.

(5)

(6)

Perimeter Estimate:

Answers may vary

Perimeter Calculation:

4 + 4 + 5 + 5 = 18 centimeters

Perimeter Estimate:

Answers may vary

Perimeter Calculation:

8 + 8 + 3 + 3 = 22 centimeters

(7)

(8)

Perimeter Estimate:

Answers may vary

Perimeter Calculation:

5 + 2 + 3 + 4 + 2 + 6 = 22 centimeters

Perimeter Estimate:

Answers may vary

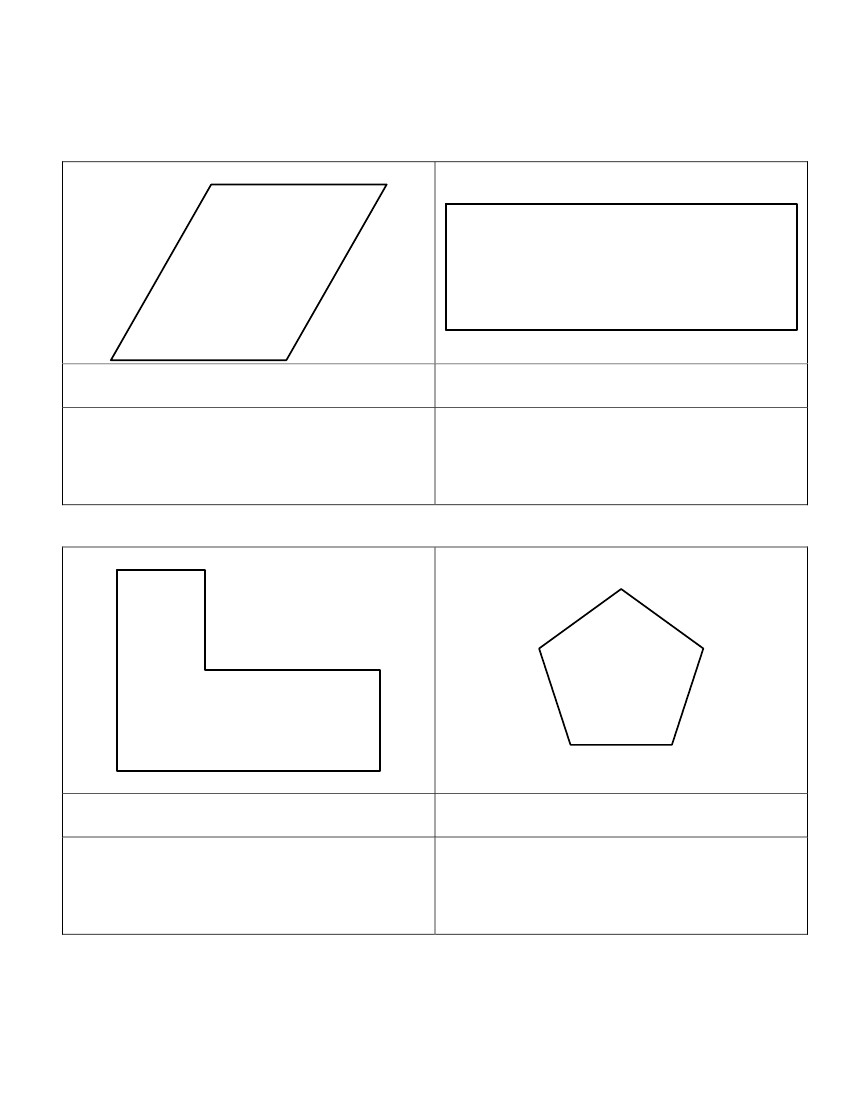
Perimeter Calculation:

3+ 3 + 3 + 3 + 3 = 15 centimeters

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Estimate and Measure Perimeter Practice

(pp. 1 of 2)

Estimate and then use a customary ruler to find the perimeter of each figure to the nearest inch. Note grading scale.

(1)

(2)

Perimeter Estimate:

Perimeter Calculation:

Perimeter Estimate:

Perimeter Calculation:

(3)

(4)

Perimeter Estimate:

Perimeter Calculation:

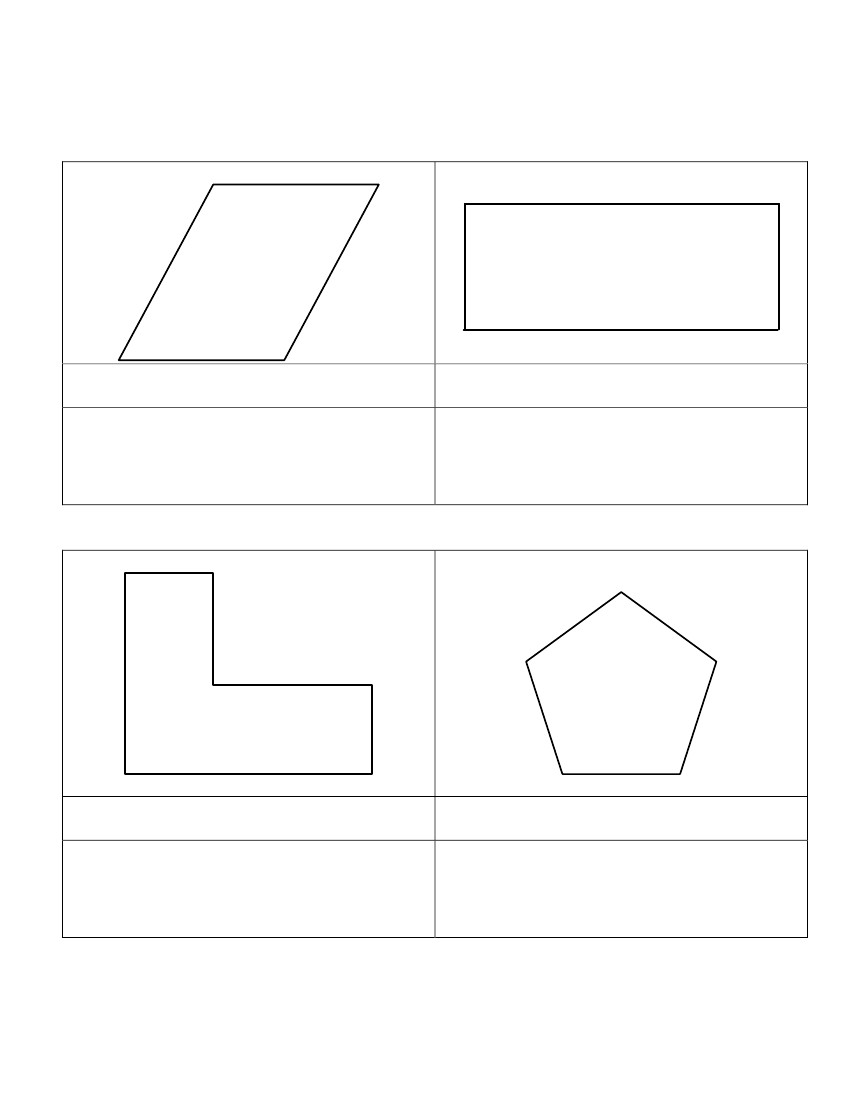
Perimeter Estimate:

Perimeter Calculation:

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Mathematics

Unit: 08 Lesson: 01

Estimate and Measure Perimeter Practice

(pp. 2 of 2)

Estimate and then use a metric ruler to find the perimeter of each figure to the nearest centimeter.

(5)

(6)

Perimeter Estimate:

Perimeter Calculation:

Perimeter Estimate:

Perimeter Calculation:

(7)

(8)

Perimeter Estimate:

Perimeter Calculation:

Perimeter Estimate:

Perimeter Calculation:

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3rd Grade

Mathematics

Unit: 08 Lesson: 01

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Finding Area – Notes and Practice KEY

You can find the area of a figure by counting units.

Step 1: Count the number of whole squares.

Step 2: Count the number of half squares.

Step 3: Change the half square units to whole square units.

2

1

4

3

4 half squares = 2 whole squares

1

2

Step 4: Add the number of whole square units.

8 + 2 = 10 square units.

Find the area of each figure. Write the answer in square units.

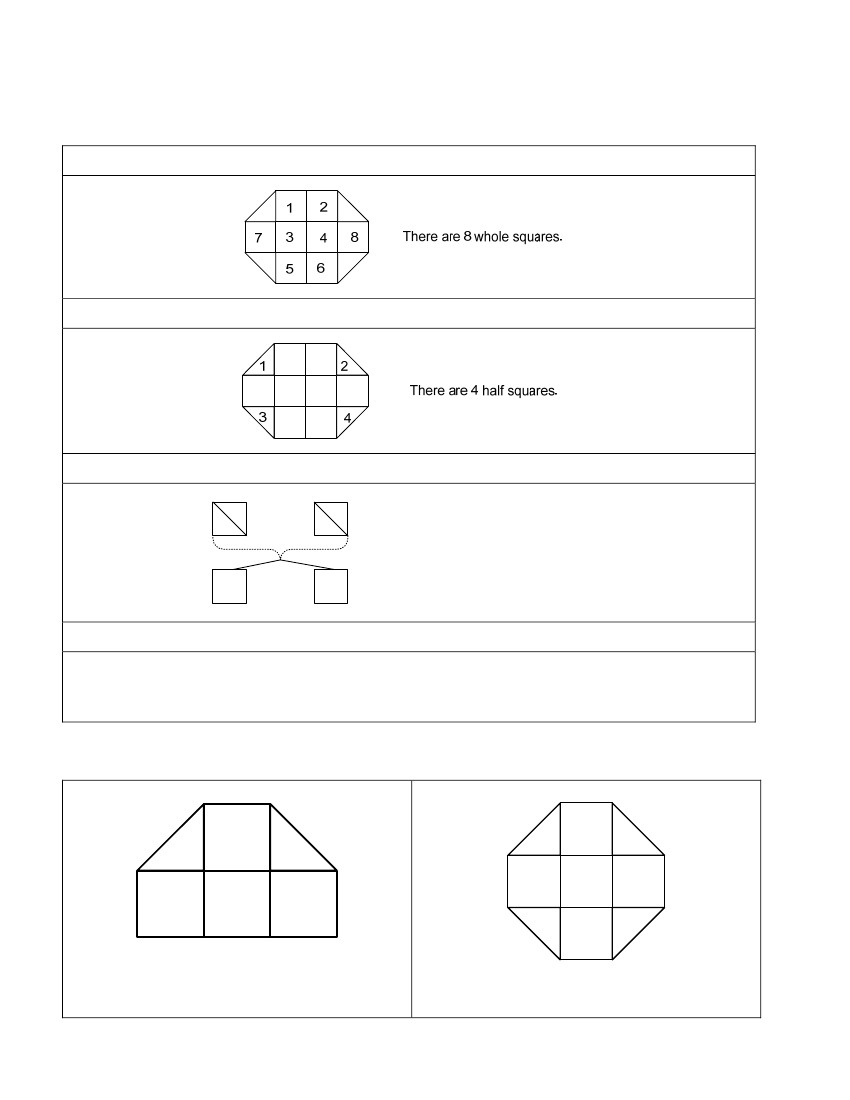
5 square units

7 square units

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Finding Area – Notes and Practice

Note grading scale.

You can find the area of a figure by counting units.

Step 1: Count the number of whole squares.

Step 2: Count the number of half squares.

Step 3: Change the half square units to whole square units.

2

1

4

3

4 half squares = 2 whole squares

1

2

Step 4: Add the number of whole square units.

8 + 2 = 10 square units.

Find the area of each figure. Write the answer in square units.

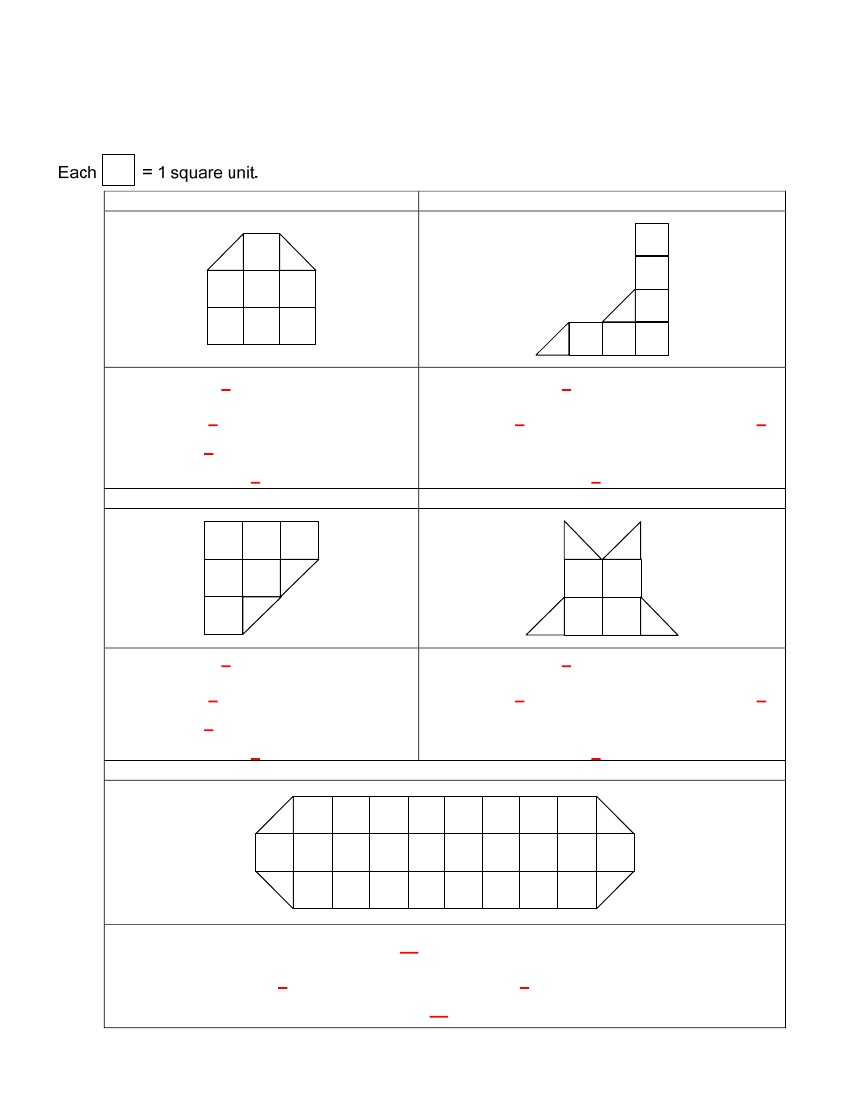
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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Finding Area Practice (pp. 1 of 2) KEY

You can count the number of square units in a figure to determine the area. Find the area for each

figure below.

1.

2.

There are 7 whole square units.

There are 2 half square units which

equals 1 whole square unit(s).

The area is 8 square units.

3.

4.

There are 6 whole square units.

There are 2 half square units which equals 1

whole square unit(s).

The area is 7 square units.

There are 6 whole square units.

There are 2 half square units which

equals 1 whole square unit(s).

The area is 7 square units.

5.

There are 4 whole square units.

There are 4 half square units which equals 2

whole square unit(s).

The area is 6 square units.

There are 26 whole square units.

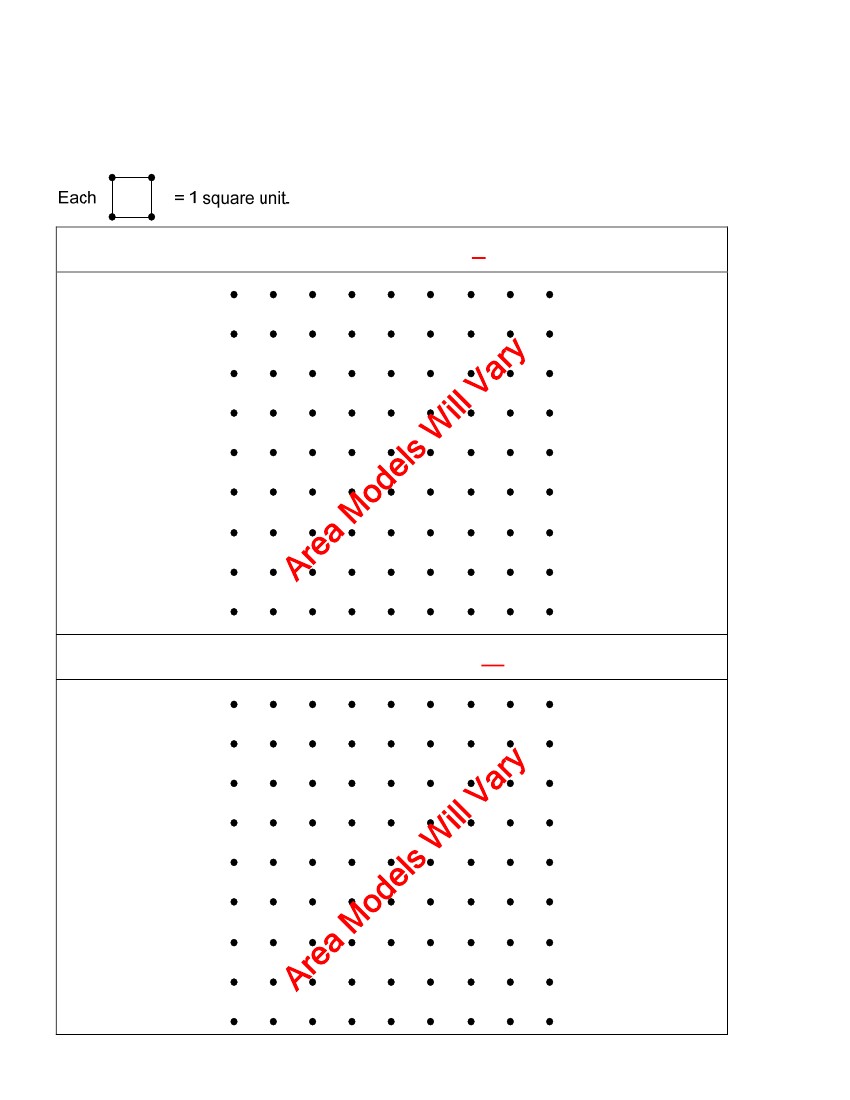
There are 4 half square units which equals 2 whole square unit(s).

The area is 28 square units.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Finding Area Practice (pp. 2 of 2)

Use the grids below to create a figure with the given number of whole square units, and half square

units. Find the area of your figures.

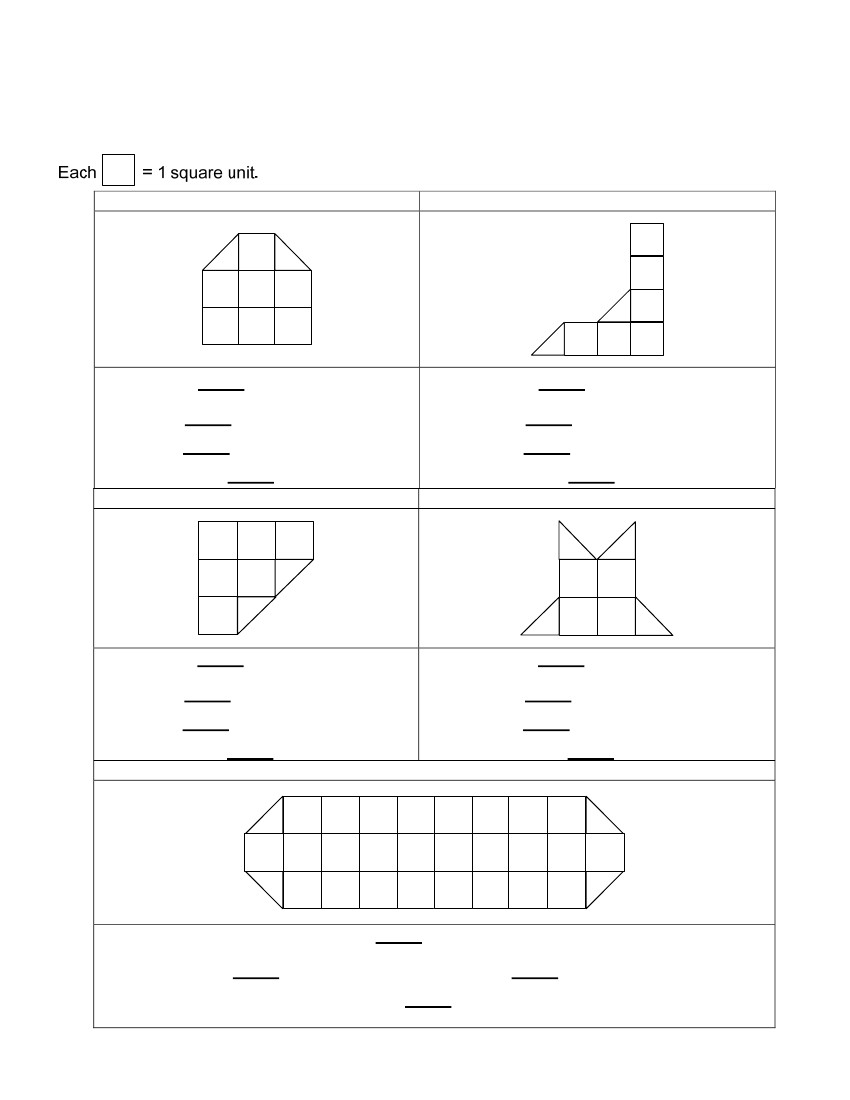
1. 7 whole square units and 4 half square units. Area = 9 square units

2. 18 whole square units and 2 half square units. Area = 19 square units

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Finding Area Practice (pp. 1 of 2)

Note grading scale and expectations.

You can count the number of square units in a figure to determine the area. Find the area for each

figure below.

1.

2.

There are \_\_\_\_\_ whole square units.

There are \_\_\_\_\_ half square units which

equals \_\_\_\_\_whole square unit(s).

The area is \_\_\_\_\_ square units.

3.

4.

There are \_\_\_\_\_ whole square units.

There are \_\_\_\_\_ half square units which

equals \_\_\_\_\_whole square unit(s).

The area is \_\_\_\_\_ square units.

There are \_\_\_\_\_ whole square units.

There are \_\_\_\_\_ half square units which

equals \_\_\_\_\_whole square unit(s).

The area is \_\_\_\_\_ square units.

5.

There are \_\_\_\_\_ whole square units.

There are \_\_\_\_\_ half square units which

equals \_\_\_\_\_whole square unit(s).

The area is \_\_\_\_\_ square units.

There are \_\_\_\_\_ whole square units.

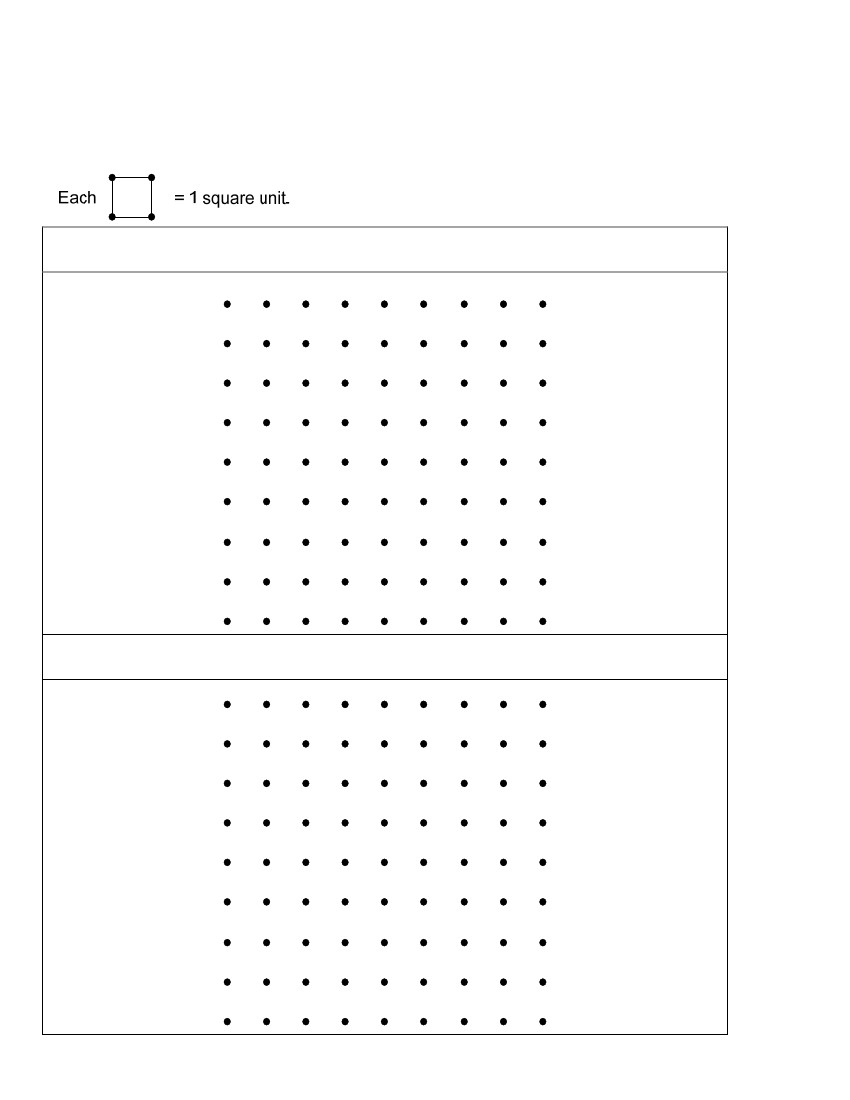
There are \_\_\_\_\_ half square units which equals \_\_\_\_\_whole square unit(s).

The area is \_\_\_\_\_ square units.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Finding Area Practice (pp. 2 of 2)

Use the grids below to create a figure with the given number of whole square units, and half square

units. Find the area of your figures.

1. 7 whole square units and 4 half square units. Area = \_\_\_\_\_\_\_\_\_\_\_\_square units

2. 18 whole square units and 2 half square units. Area = \_\_\_\_\_\_\_\_\_\_\_\_square units

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Broken Ruler 2

3

6

7

8

9

10

4

11

12

5

13

14

15

6

16

17

7

18

19

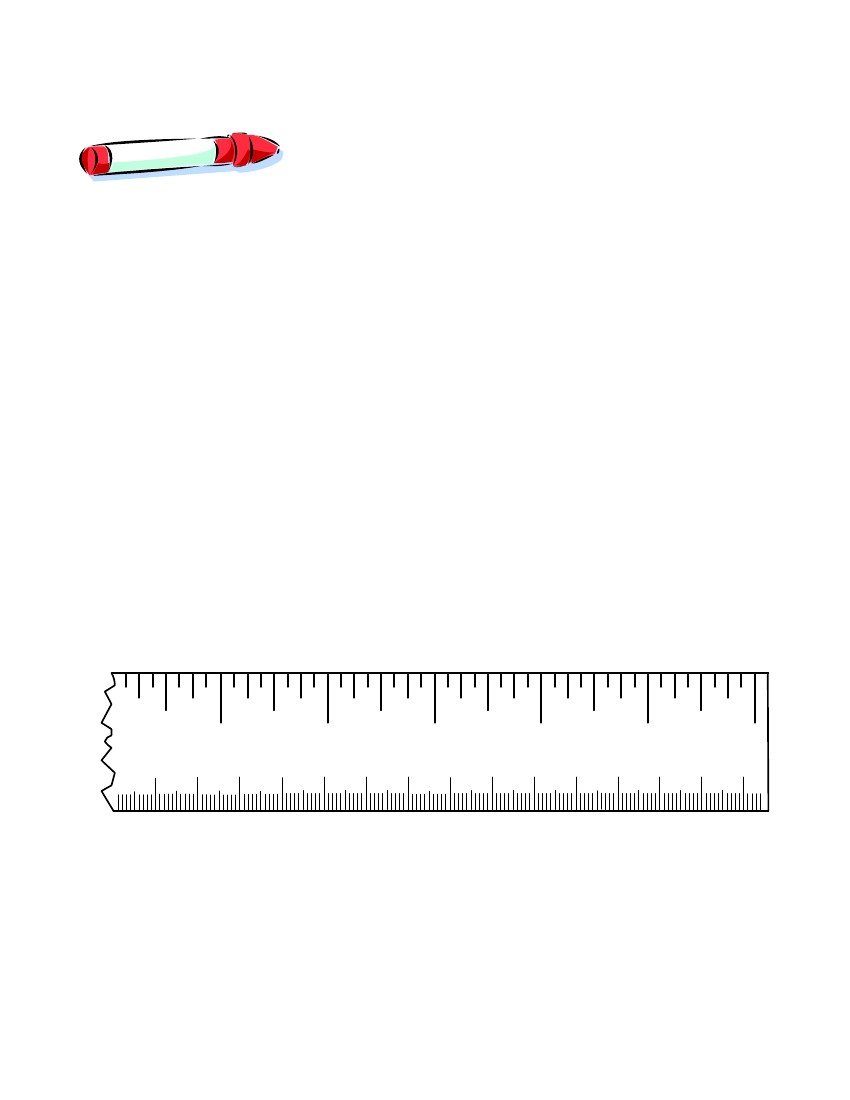
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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

MEASUREMENT TASK CARD 1

MATERIALS: marker, ruler at bottom of this card

TASK:

Estimate the length and measure the marker in inches

and centimeters at this station using the ruler at the

bottom of this card. Record your measurements on the

Measurement Stations Recording Sheet.

3

6

7

8

9

10

4

11

12

5

13

14

15

6

16

17

7

18

19

20

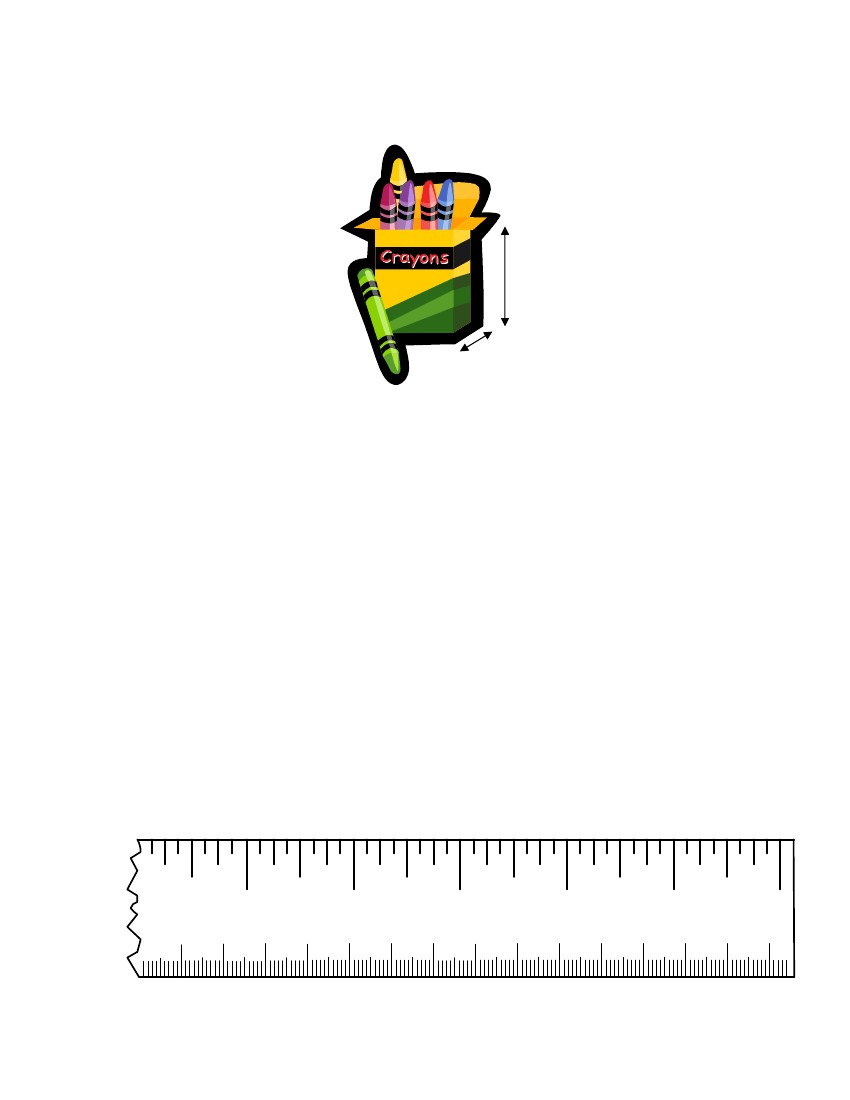
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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

MEASUREMENT TASK CARD 2

Height

Bottom

(front to back)

MATERIALS: Boxes of crayons (16, 24, and 48), ruler at bottom of this

card

TASK: A.

Use the ruler at the bottom of this card to measure the

height of the box from the bottom to the top. Record the

measurement on the Measurement Stations Recording

Sheet.

Use the ruler at the bottom of this card to measure the

width of the box from the front to the back. Record the

measurement on the Measurement Stations Recording

Sheet.

B.

3

6

7

8

9

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4

11

12

5

13

14

15

6

16

17

7

18

19

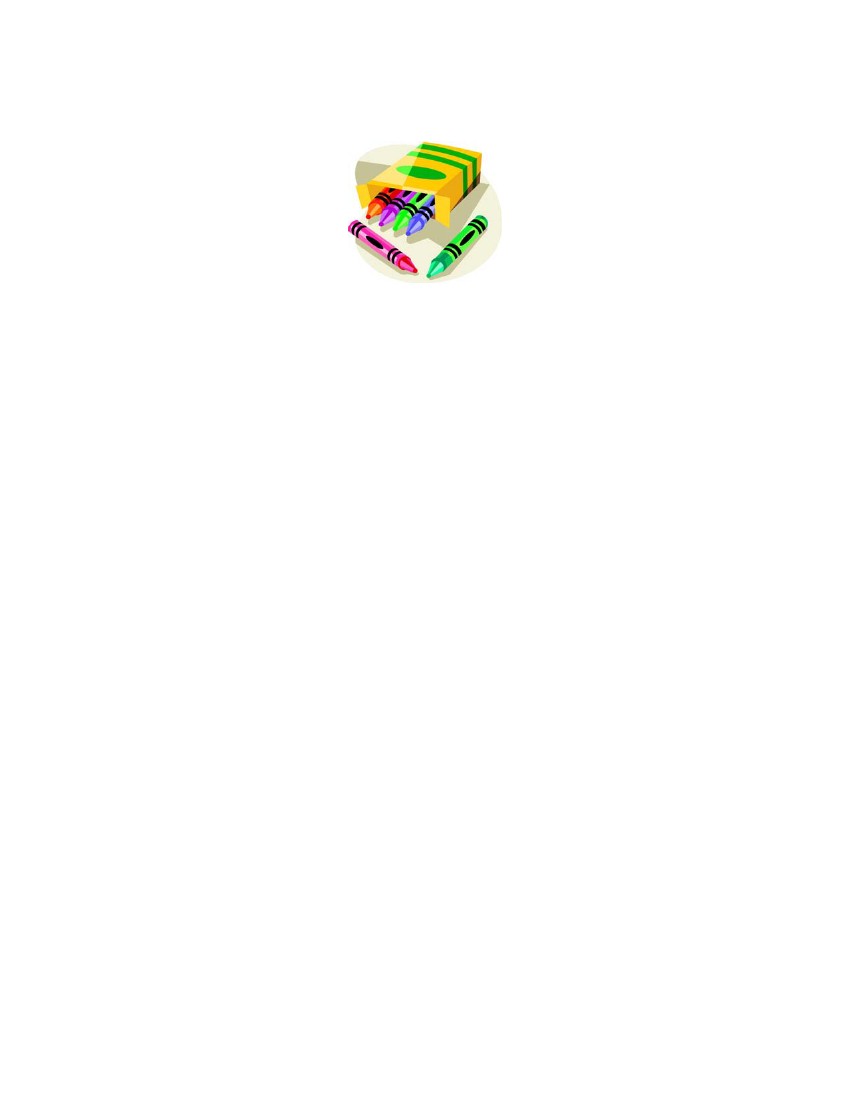
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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

MEASUREMENT TASK CARD 3

MATERIALS: Box of 48 crayons, blank sheets of paper, Handout:

Crayon Box Perimeter Mat, Grade 3 TAKS Mathematics

Chart

TASK: A. Lay the box of crayons on a blank sheet of paper and

trace around the box. (If you have completed Station 4,

you will have this drawing.)

B. Estimate the length and width of the drawing. Use

The Grade 3 TAKS Mathematics Chart to measure the

length and width in inches. Record the measurement on

the Measurement Stations Recording Sheet. Complete the

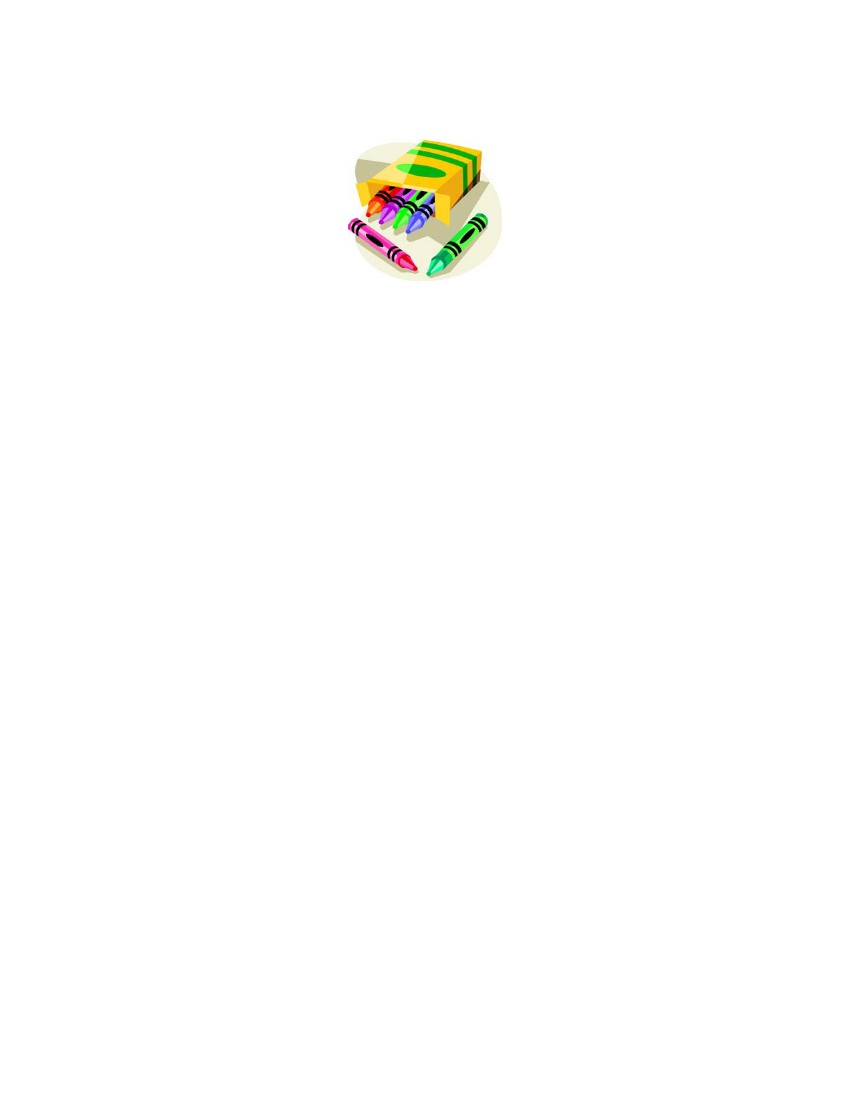
Crayon Box Perimeter Mat handout to find the perimeter of

the drawing.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

MEASUREMENT TASK CARD 4

MATERIALS: box of crayons, blank sheets of paper, color tiles,

Handout: Crayon Box Area Mat

TASK: A.

Lay the box of crayons on a blank sheet of paper and

trace around the box. (If you have completed Station 3,

you will have this drawing.)

Use the color tiles to cover your drawing. Record the

area on the Measurement Stations Recording Sheet.

Complete the Crayon Box Area Mat handout to find the

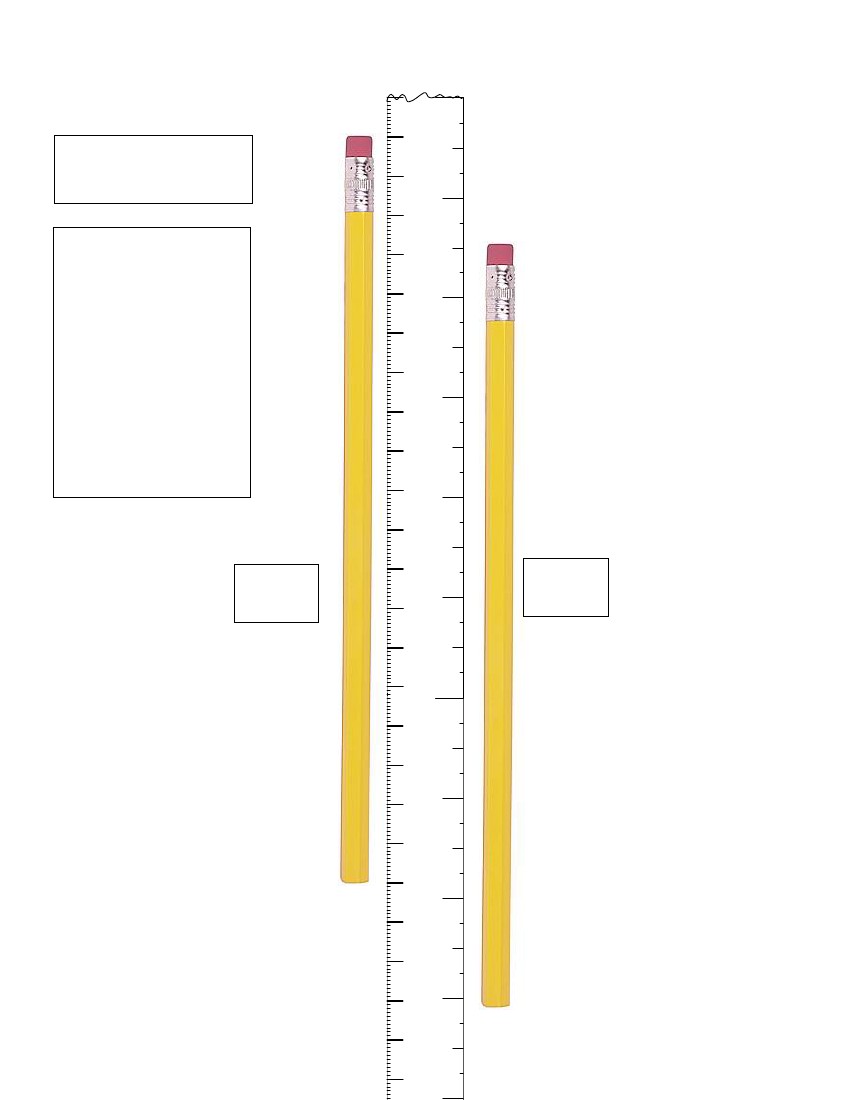
area of the front of the box.

B.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

6

MEASUREMENT

TASK CARD 5

7

3

8

TASK: Compare

the pencil to the

ruler and write the

measurement on

the Elaborate

Recording Sheet.

Measure to the

nearest centimeter

for pencil #1 and

nearest half inch

for pencil #2.

9

10

11

12

13

14

15

16

17

4

5

6

Pencil

#1

Pencil

#2

7

18

19

20

21

22

23

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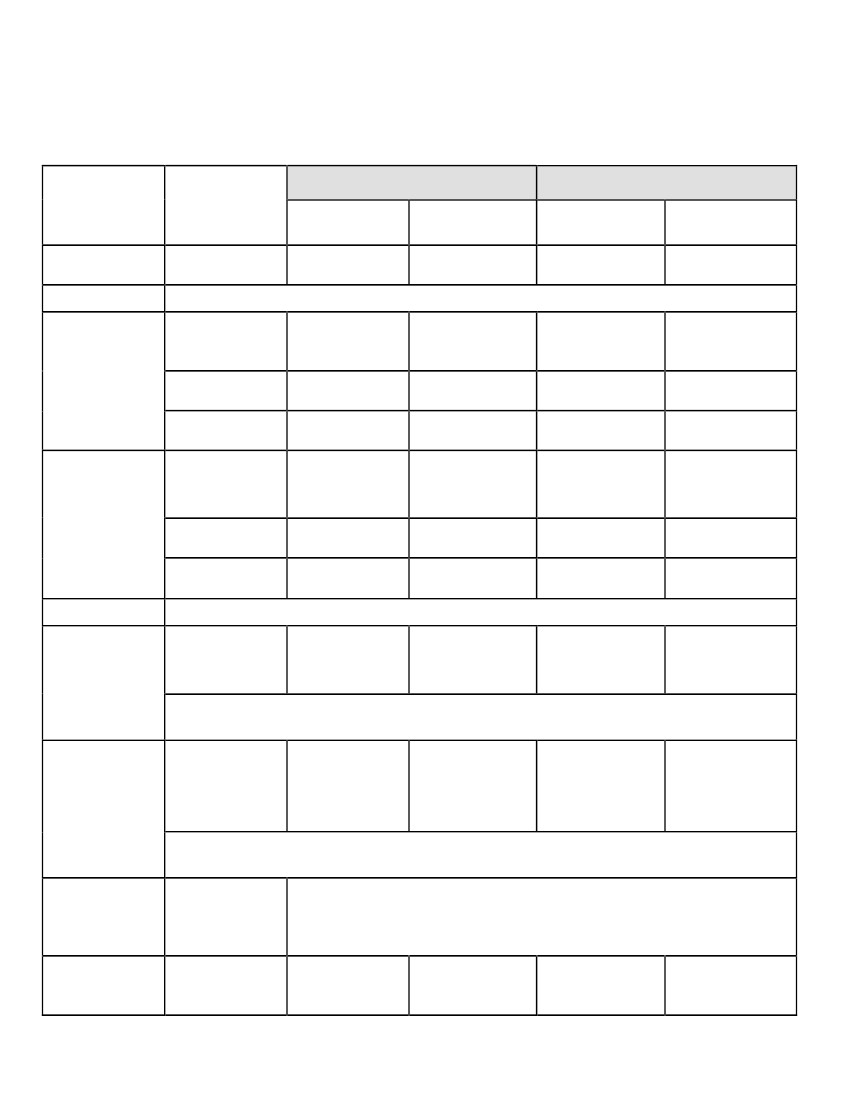
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12

 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Stations Recording Sheet KEY

Metric measurements are to the nearest whole centimeter. Customary measurements are to

the nearest 1/2 inch.

Customary

Item

Station 1

Station 2

Crayons

Height

Box of 16

Box of 24

Box of 48

Estimate

Measurement

Estimate

Metric

Measurement

Marker

Answers

may vary

Answers

may vary

Answers

may vary

Answers

may vary

Answers

may vary

Answers

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Crayon box sizes may vary

4 inches

4 inches

1/2 inch

1 inch

1 inch

2 inches

10

centimeters

10

centimeters

13

centimeters

1 centimeter

2 centimeters

6-7

centimeters

Crayons

Box of 16

Box of 24

Width

Station 3

Box of 48

Crayon

Length

Box of 48

If 3 of these boxes were laid end-to-end, what would be the total

length? 39 centimeters

Crayon

Answers

may vary

3 inches

Answers may

vary

Answers

may vary

5 inches

Answers may

vary

13

centimeters

8 centimeters

Width

Box of 48

If 3 of these boxes were laid side-by-side, what would be the total

length? 24 centimeters

Station 4

Station 5

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Area:

Crayon

Box (48)

Pencil

15 square units (or 15 color tiles)

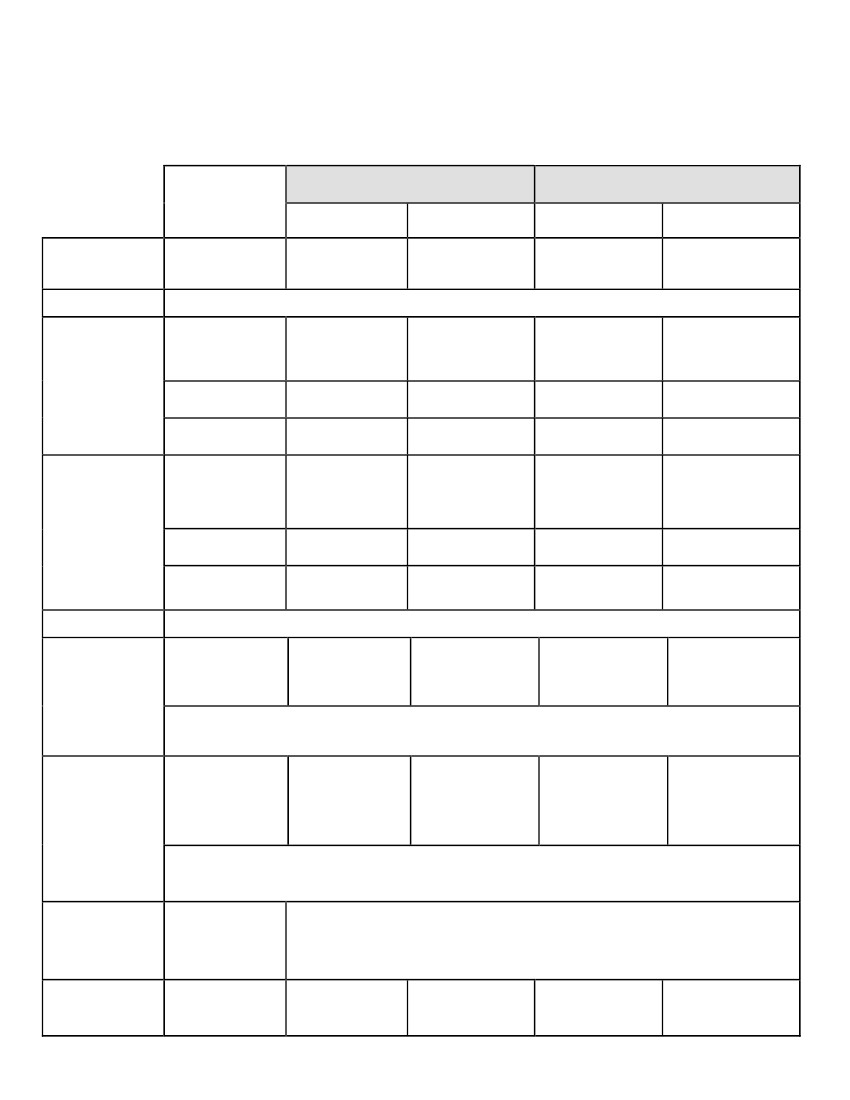
19

centimeters

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7 1/2 inches

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Stations Recording Sheet

Metric measurements are to the nearest whole centimeter. Customary measurements are to

the nearest 1/2 inch.

Item

Station 1

Station 2

Crayons

Height

Box of 16

Box of 24

Box of 48

Customary

Estimate

Measurement

Estimate

Metric

Measurement

Marker

Crayons

Box of 16

Box of 24

Width

Station 3

Box of 48

Crayon

Length

Box of 48

If 3 of these boxes were laid end-to-end, what would be the total length?

Crayon

Width

Box of 48

If 3 of these boxes were laid side-by-side, what would be the total

length?

Station 4

Station 5

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Area:

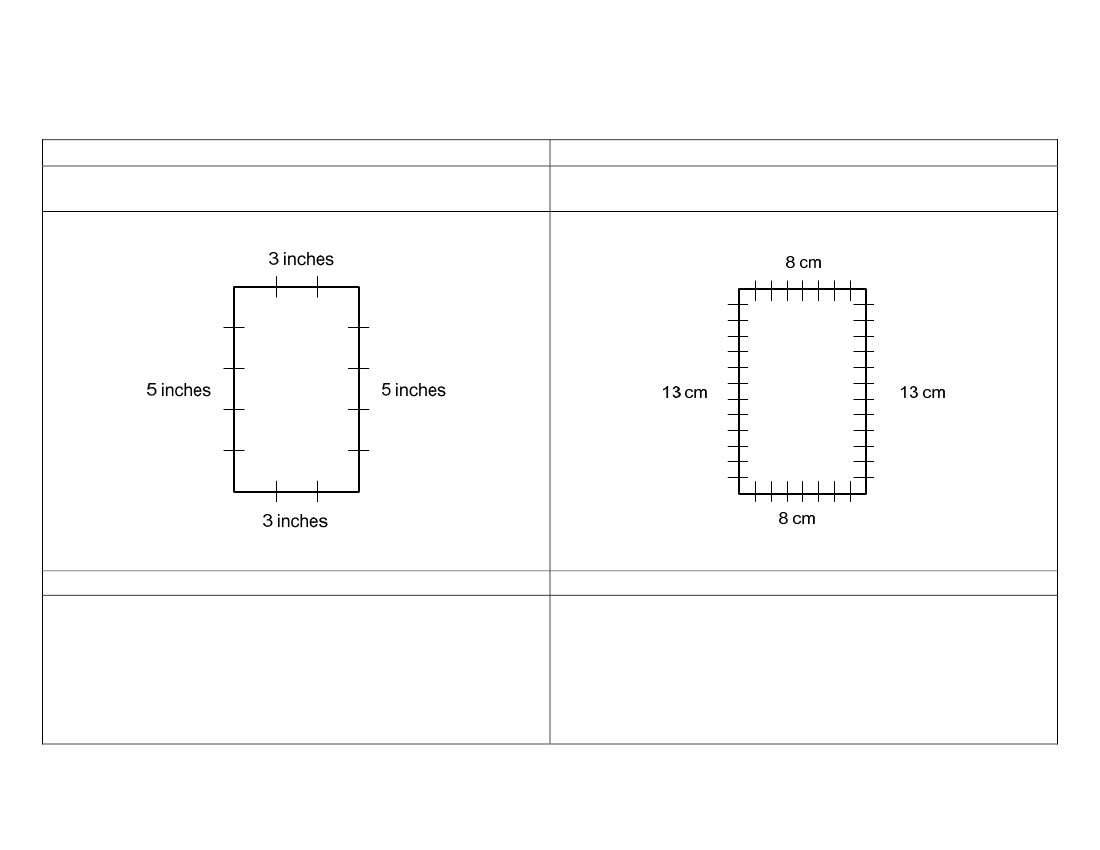
Crayon

Box (48)

Pencil

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Crayon Box Perimeter Mat SAMPLE KEY

Customary

Drawing: Draw a picture of your crayon box below

showing the measurements of each side.

Metric

Drawing: Draw a picture of your crayon box below

showing the measurements of each side.

Calculation: Determine the perimeter.

Calculation: Determine the perimeter.

3 + 5 + 3 + 5 = 16 inches

8 + 13 + 8 + 13 = 42 centimeters

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Crayon Box Perimeter Mat

Customary

Drawing: Draw a picture of your crayon box below

showing the measurements of each side.

Metric

Drawing: Draw a picture of your crayon box below

showing the measurements of each side.

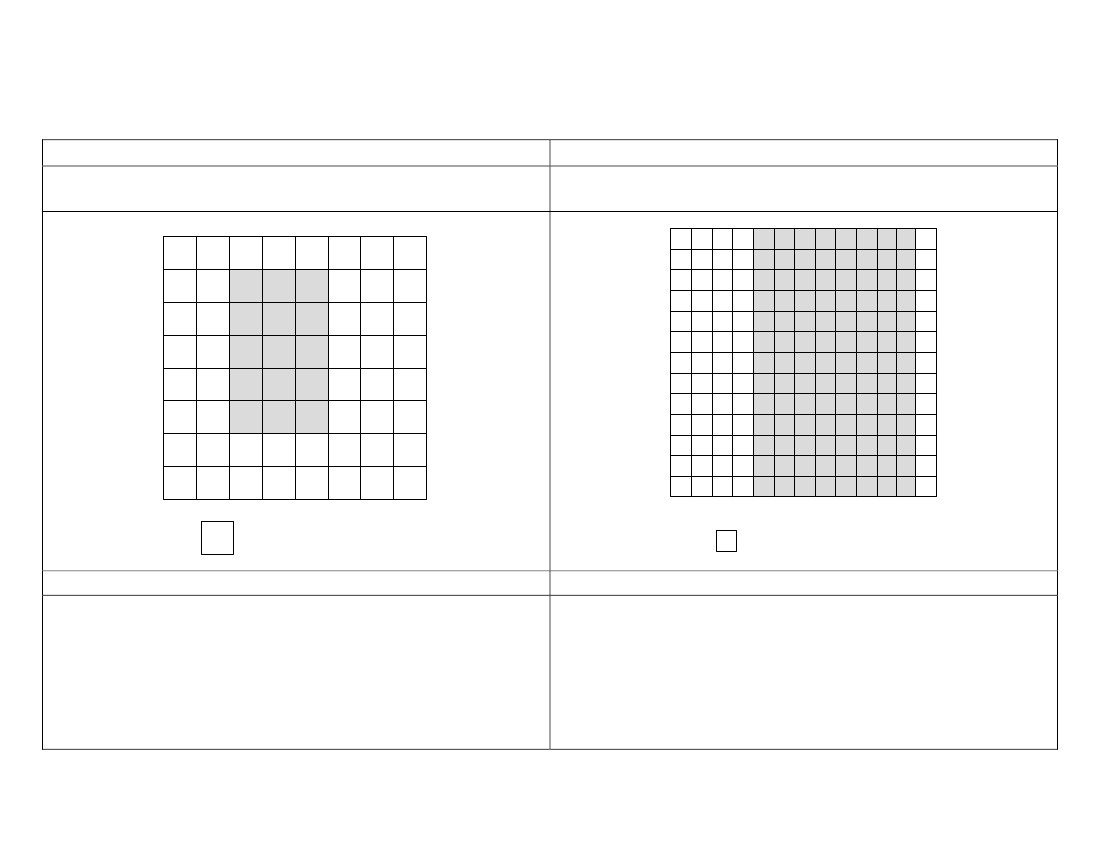
Calculation: Determine the perimeter.

Calculation: Determine the perimeter.

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Crayon Box Area Mat SAMPLE KEY

Customary

Drawing: Use the grid below to sketch the cover of your

box.

Metric

Drawing: Use the grid below to sketch the cover of your

box.

= 1 square inch

= 1 square centimeter

Calculation

Calculation

Calculations may vary.Sample Answers:

5 groups of 3 = 15 or

3 + 3 +3 + 3 + 3 = 15 or

5 x 3 = 15

Calculations may vary. Sample Answers:

13 groups of 8 = 104 or

8+8+8+8+8+8+8+8+8+8+8+8+8=

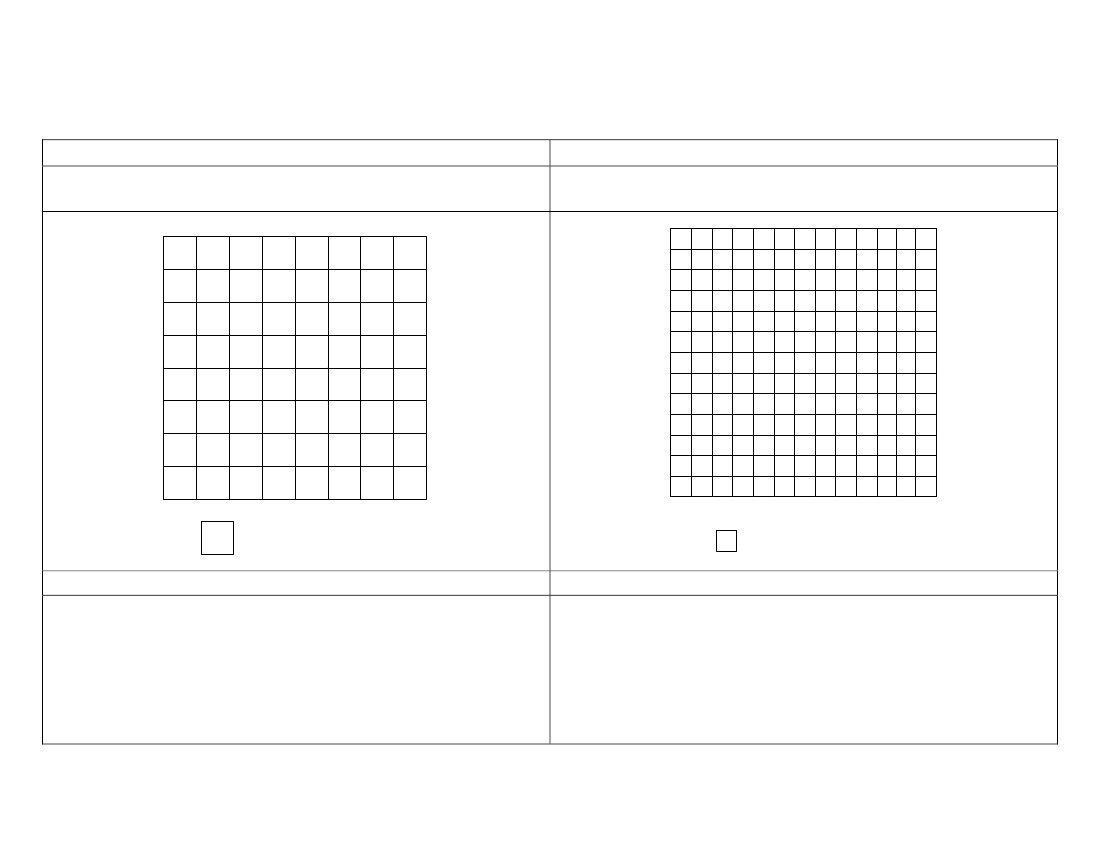
104 or

13 x 8 = 104

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Crayon Box Area Mat

Customary

Drawing: Use the grid below to sketch the cover of your

box.

Metric

Drawing: Use the grid below to sketch the cover of your

box.

= 1 square inch

= 1 square centimeter

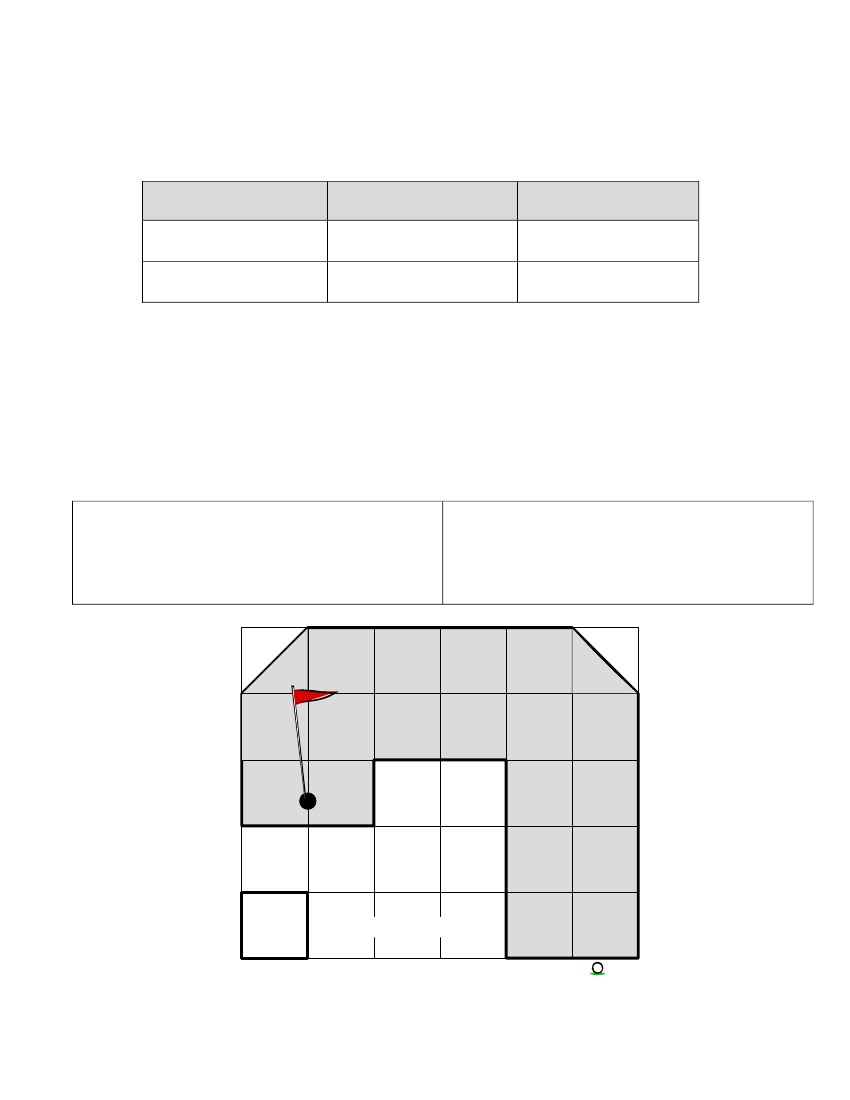
Calculation

Calculation

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Evaluation (pp. 1 of 3) KEY

1. Estimate and measure the length of the top of your desk.

Estimate

Customary Units

Metric Units

Answers may vary

Answers may vary

Measurement

Answers may vary

Answers may vary

2. Estimate and measure the height of your chair using centimeters and label your answer.

Estimate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Answers may vary

Actual: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Answers may vary

Find and record the perimeter and area (in inches) of one hole of a putt-putt golf course shaded

below. Explain how you found each measure.

Perimeter:

22 inches; Answers may vary but should

include counting sides to find the perimeter

Area:

19 square inches; Answers may vary but

should include counting whole units and

half units to find the area

= 1 square inch

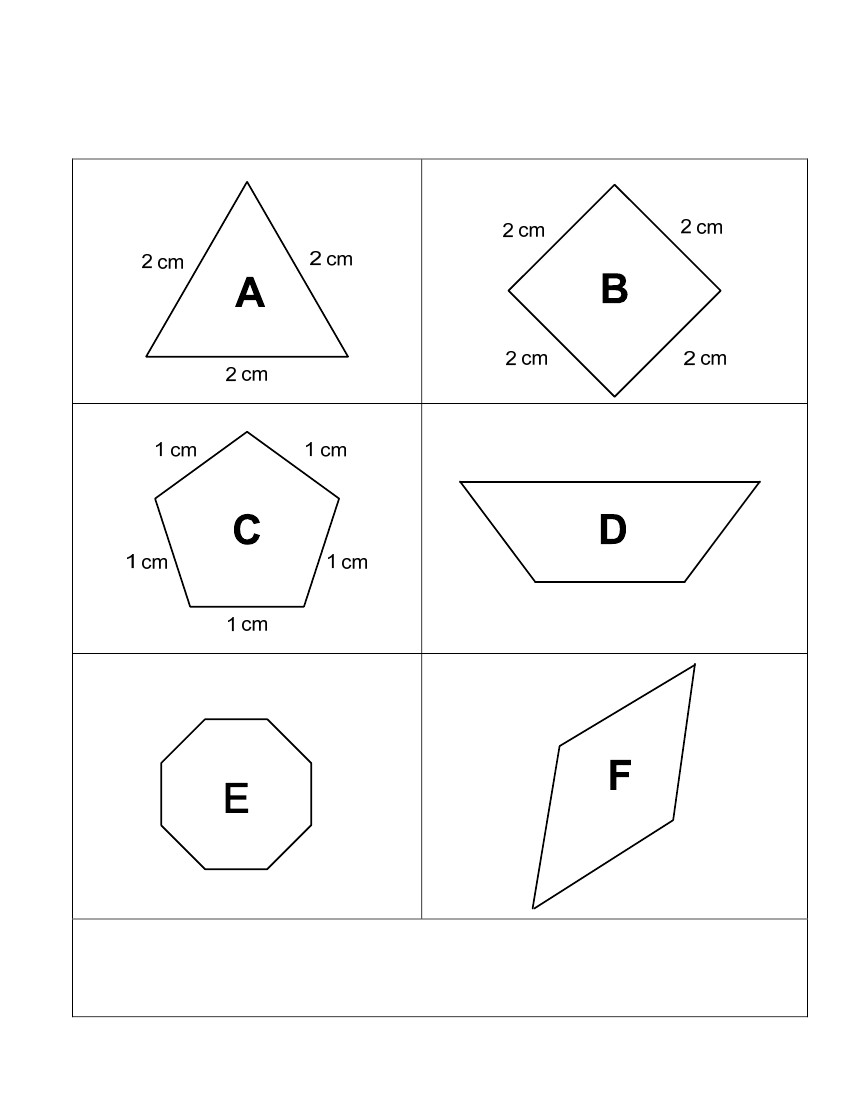
Putt-putt

Start

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Evaluation (pp. 2 of 3) KEY

Look at the figures below. The dimensions are given in centimeters.

4 cm

1 cm

2 cm

1 cm

1 cm

1 cm

1 cm

1 cm

1 cm

Which figures have the same perimeter? How do you know?

3 cm

1 cm

3 cm

1 cm

3 cm

1 cm

3 cm

Figures B, D, and E; Because each perimeter totals 8 centimeters

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Evaluation (pp. 3 of 3) KEY

Use Grade 3 Mathematics Chart to measure the pictures below (along the line segments given)

to the nearest half inch or nearest centimeter.

1. Customary: 2 1/2 inches

2. Metric: 5 centimeters

If 3 of these rectangles were laid

end-to-end, what would be the total

length? 15 centimeters

3. Customary: 2 inches

4. Metric: 1 centimeter

If 7 of these pencils were laid side-

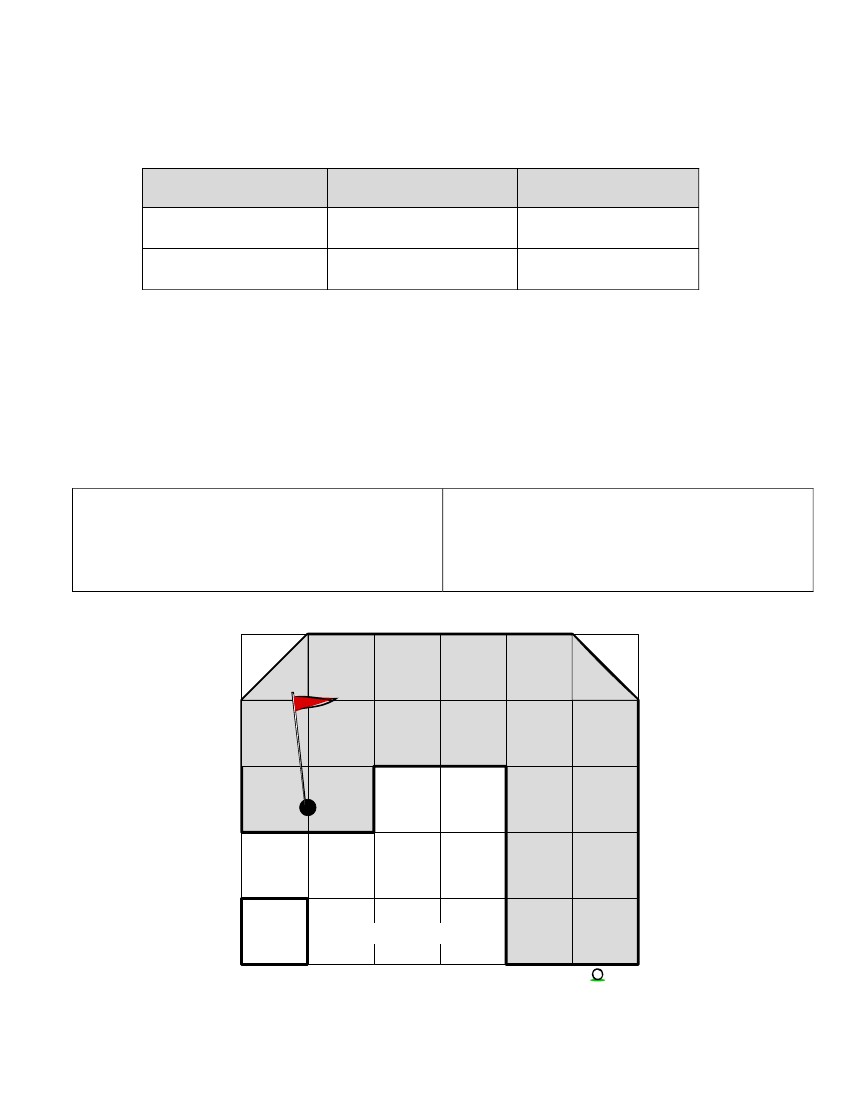
by-side, what would be the total

length? 7 centimeters

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Evaluation (pp. 1 of 3)

Include more forms of assessment ( possibly visual or kinesthetic)

1. Estimate and measure the length of the top of your desk.

Estimate

Customary Units

Metric Units

2. Estimate and measure the height of your chair using centimeters and label your answer.

Estimate: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Actual: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Find and record the perimeter and area (in inches) of one hole of a putt-putt golf course shaded

below. Explain how you found each measure.

Perimeter:

Area:

Measurement

= 1 square inch

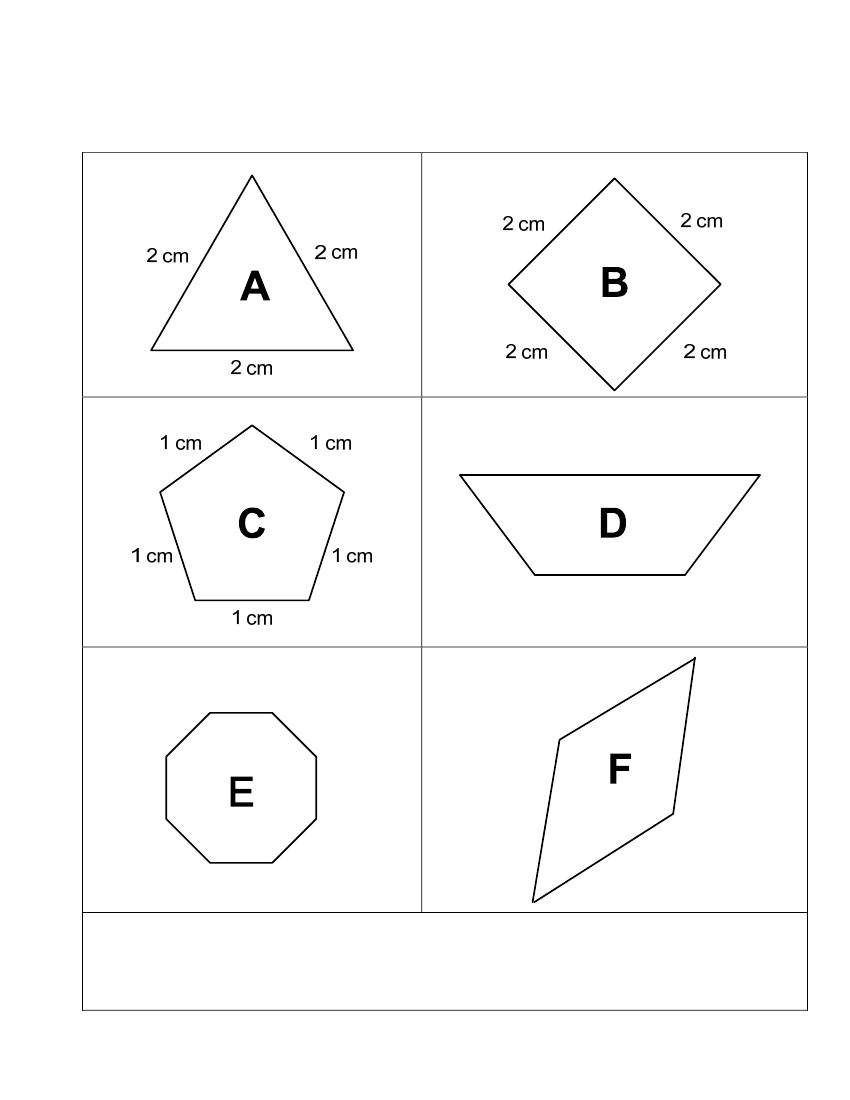
Putt-putt

Start

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Evaluation (pp. 2 of 3)

Look at the figures below. The dimensions are given in centimeters.

4 cm

1 cm

2 cm

1 cm

1 cm

1 cm

1 cm

1 cm

1 cm

Which figures have the same perimeter? How do you know?

3 cm

1 cm

3 cm

1 cm

3 cm

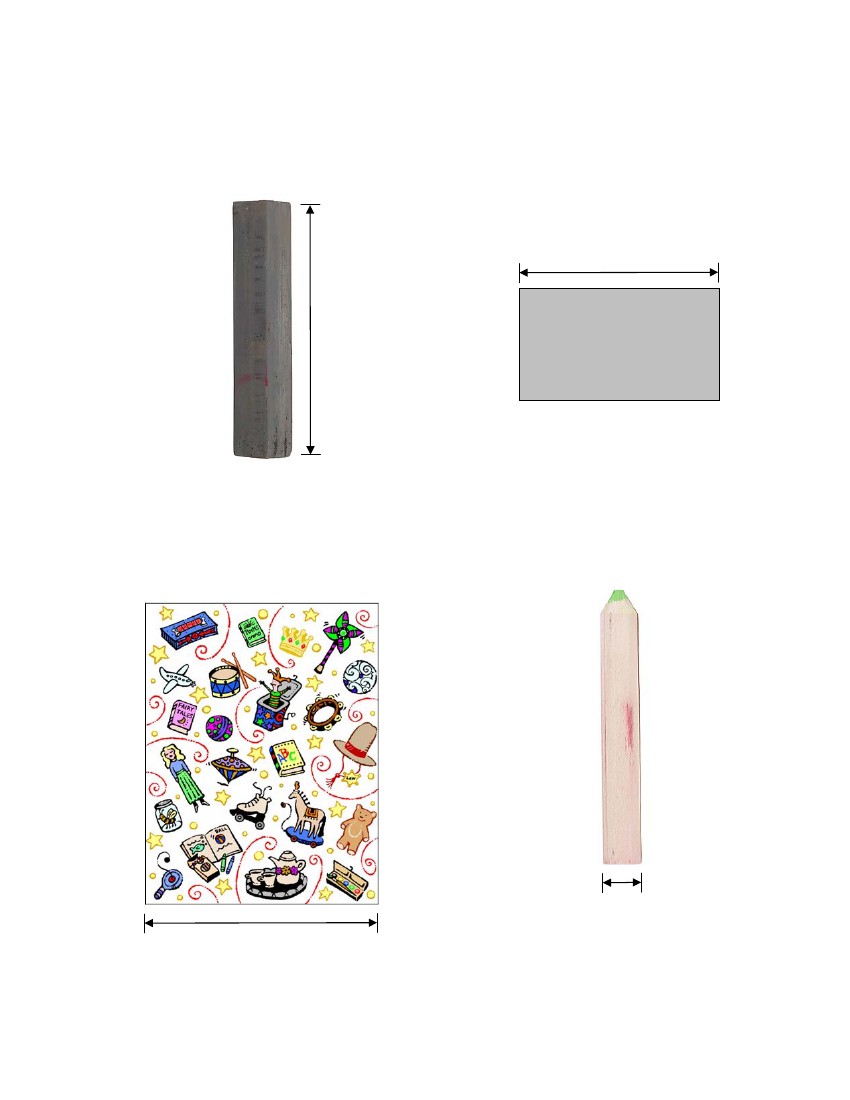
1 cm

3 cm

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 3rd Grade

Mathematics

Unit: 08 Lesson: 01

Measurement Evaluation (pp. 3 of 3)

Use Grade 3 Mathematics Chart to measure the pictures below (along the line segments given)

to the nearest half inch or nearest centimeter.

2. Metric: \_\_\_\_\_\_\_\_\_\_\_\_\_

1. Customary: \_\_\_\_\_\_\_\_\_\_\_\_\_

If 3 of these rectangles were laid

end-to-end, what would be the total

length? \_\_\_\_\_\_\_\_\_\_\_\_\_

3. Customary: \_\_\_\_\_\_\_\_\_\_\_\_\_

4. Metric: \_\_\_\_\_\_\_\_\_\_\_\_\_

If 7 of these pencils were laid side-

by-side, what would be the total

length? \_\_\_\_\_\_\_\_\_\_\_\_\_

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3rd Grade

Mathematics

Unit: 08 Lesson: 01

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