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Objective

To order objects by length and compare two objects by using a third object

1 Introduction

Review that length describes how long something is. Review the words *long, longer, longest* and *short, shorter, shortest.* Ask students to explain or demonstrate what the words mean. Point out that the words are used to compare objects by their lengths. Work through the example on the page, and point out that to compare two objects, they must be lined up at one end, so that the difference in length is clearly visible by looking at the other end. Then discuss the example of ordering objects by length, and extend it by asking students to order the forks in reverse order, from longest to shortest.

Think About It

Students should recognize that they can compare objects by lining them up on one end and looking at the other end to see which object extends farther.

Common Core State Standard

1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Vocabulary

length: how long, tall, or wide something is

LESSON
19 Comparing and Ordering by Length

CCSS: 1.MD.1

1 Introduction

Length is how long an object is. It is the measurement from where the object starts to where it ends.

You can compare objects by their lengths.

Which bookmark is longer?

Both bookmarks are lined up at the left. They start at the same place.

Look at both bookmarks.

Bookmark B goes farther to the right.

Bookmark B is longer.

You can order objects by their lengths.

Write the objects in order. Write the shortest first. Write the longest last.

Is fork D shorter than fork C?
Is fork D shorter than fork E?

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Fork D is shorter than fork C.

Fork E is shorter than fork D.

Fork E is also shorter than fork C.

So, fork E is shorter than both fork C and fork D.

The shortest fork is fork E. Then comes fork D. The longest is fork C.

Think About It

How can you compare the lengths of two objects?

_____

_____

2 Focused Instruction

Use a third object to compare the lengths of two objects. Work with a partner.

➤ Look at these rectangles. Compare their lengths.

Rectangle A   Rectangle B

Rectangles will vary but should be longer than B and shorter than A.

Find an object that is longer than rectangle A.

Is it also longer than rectangle B? ___yes___

A pencil is a good object.

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② Focused Instruction   Lesson 19

Find an object that is longer than rectangle B.

Is it also longer than rectangle A? *Answers will vary; check answer in relation to the object.*

Can you have an object that is longer than rectangle A but not rectangle B? _____no_____

Can you have an object that is longer than rectangle B but not rectangle A? _____yes_____

Circle the correct word in each sentence.
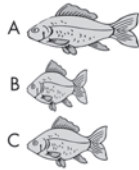
Rectangle A is [(longer)   shorter] than rectangle B.

Rectangle B is [longer   (shorter)] than rectangle A.

> Rectangle C is between the lengths of rectangles A and B.

Draw rectangle C on page 202. Make it longer than rectangle B. Make it shorter than rectangle A.

You can order three objects by length.

➤ Order the three fish below by length. Write the longest first. Write the shortest last.

A

B

C

> Does fish A go farther to the right?
> Does fish A go farther to the left?

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② Focused Instruction   Lesson 19

Is fish A longer than fish B? _____yes_____ How do you know?

Fish A goes farther to the right than fish B.

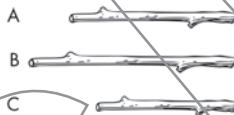Is fish B longer than fish C? _____no_____ How do you know?

Fish C goes farther to the right than fish B.

Is fish A longer than fish C? _____yes_____

Write the fish in order by length. Write the longest first. Write the shortest last.

_____A, C, B_____

Use what you know about length to answer these questions.

A

B

C

1 Which stick is the shortest? _____C_____

2 Which stick is the longest? _____B_____

3 Order the sticks. Write the shortest first. Write the longest last.

_____C, A, B_____

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② Focused Instruction

In the first activity, students compare the lengths of two objects, which are not aligned, by comparing each to a third object of their choosing. Questions guide them to conclude that an object longer than rectangle A must also be longer than B, and an object longer than B may or may not be longer than A. They then draw a third rectangle that is between the lengths of the given rectangles.

Next, students order three fish by length, from longest to shortest. Questions guide them in comparing two fish at a time and ordering them by length.

Conclude the Focused Instruction section by having students answer three questions comparing the lengths of three given sticks.

Connections to Standards of Mathematical Practice

- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Look for and make use of structure.

③ Guided Practice

Students should complete the Guided Practice section on their own. Offer assistance as needed, pointing out the reminder and hint boxes along the right side of the page.

④ Independent Practice Answer Rationales

1 If Chase starts with the shortest chain, then he is putting them in order from shortest to longest. That order is C, A, B; choice B is correct. Choice A is incorrect; this is the order the chains are shown. Choice C is incorrect; this is the reverse order in which the chains are shown. Choice D is incorrect; this is the order of the chains from longest to shortest, not shortest to longest.

2 If the lines have the same length, they are equal and neither is longer than the other; choice A is correct because these lines begin and end at the same points. Choice B is incorrect because the top line is longer than the bottom line. Choice C is incorrect because the bottom line is longer than the top line. Choice D is incorrect; the top line is slightly longer than the bottom line.

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④ Independent Practice   Lesson 19

3 The two rectangles below are the same length. Which arrow is longer?

DOK 3
1.MD.1

A   B

Answer _____ B _____

4 Which key is longer?

DOK 2
1.MD.1

A   B

Answer _____ A _____

5 Look at line X below. Draw a line that is longer. Label it Y. Draw a line that is shorter. Label it Z.

X ———————————

Drawings will vary; line Y should be longer than 8 centimeters and line Z should be shorter than 8 centimeters.

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④ Independent Practice   Lesson 19

6 Dawn has a pencil, a crayon, and a pen.

Pencil

Crayon

Pen

DOK 3
1.MD.1

Part A List the objects in order. Start with the longest object. End with the shortest object.

Answer _____ Pencil, Pen, Crayon _____

Part B Dawn has another pencil. It is shown below.

Is this pencil longer than the first pencil? Tell how you know.

no; It is shorter than the first pencil because it starts as far to the left but does not go as far to the right as the pencil above.

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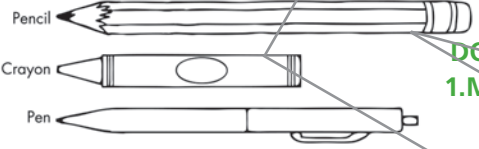
Teacher Notes

3 Since the rectangle under both arrows is the same length, it can be used to judge the relative lengths of the arrows. Arrow A is shorter than the rectangle and arrow B is longer than the rectangle. Therefore, arrow B is also longer than arrow A.

4 To compare the lengths of two objects that are not left aligned, use a third object to compare to each object. A pencil or finger can be used to compare the differences in length. The first key, A, is longer than the second key, B.

5 To draw a line that is longer than line X, start at the same point on the left as line X and extend it farther to the right. To draw a line that is shorter than line X, start at the same point on the left and stop the line before reaching the end of line X.

6 PART A To order three objects from longest to shortest, start with the longest. The pencil is longer than both the crayon and pen, so it is first. The pen is longer than the crayon, so it is second. The crayon is the shortest.

PART B These two objects are not next to each other, but they are aligned on the left end. The student might recognize that the points of the pencils line up with one another, but the erasers do not; therefore, the first pencil is longer.

Extension Activity

As a homework assignment, ask students to take a pencil they use in class and compare its length to six objects in their homes. Direct them to find three objects that are longer than the pencil and three objects that are shorter than the pencil. Ask them to write a comparison statement about each object, for example, "The cellphone is shorter than my pencil."