

Preparing a Lesson

1

The *Objective* sidebar clearly indicates the focus of each lesson.

2

The *Preparation* sidebar identifies materials that need to be obtained and activities that should be performed in advance. Its handprint icon appears beside the components of the lesson that require preparation.

3

The *Safety* and *Alternative* sidebars contain icons that will appear beside headings as needed. These sidebars add caution for the teacher when materials or activities could trigger student allergies or health conditions or they provide ways to expedite or simplify activities.

4

The *Worldview* section connects mathematical concepts to biblical teaching that the teacher can share with students.

5

Introduction Time contains activities or discussions that will elicit students' interest in the topic.

6

Listening Time gives sequential instructions to teach the concepts of the lesson.

7

Activity Time contains a guide for how students should complete their pages and provides additional activities to enhance the lesson.

13.5 Inches

Measurement

1 OBJECTIVE

- Students will use a ruler to measure objects in inches.

2 PREPARATION

- Gather a white paper plate and brown yarn for each student. (*Worldview*)
- Cut a 1 ft piece of yarn for each small group of students. For each group, gather different objects to measure with, such as counting bears, connecting cubes, paper clips, or dominoes. (*Introduction Time*)
- Retrieve measuring-strip bags from Lesson 13.4 and **TM 13.4A Inch Ruler** for display. (*Listening Time*)
- Cut chenille stems into a variety of lengths that are increments of 1 in. (up to 5 in.). Place the stems in a jar. Print **BLM 13.5A Inch Addition** for each student and place the copies with the jar of stems in a learning center. (*Activity Time*)
- Print **BLM 13.5B Nature Hunt** for pairs of students. Plan to take students to an outdoor space. Have several yardsticks available too. (*Activity Time*)

3 SAFETY

- Check student records for students' allergies or health conditions.

4 ALTERNATIVE

- Instead of taking students outside, bring a variety of rocks, leaves, sticks, and other natural items into the classroom for measuring.

Worldview 4

- Read from a children's Bible or retell the account of Samson from the Book of Judges. Reiterate that God gave Samson his great strength. God had Samson not cut his hair as a way of honoring God. Distribute a white paper plate, glue, and brown yarn to each student. Direct students to draw Samson's face on the paper plate and to glue long strands of yarn to the top to represent his long hair. Next, have students use a ruler to measure how long they have made Samson's yarn hair. Direct students to write that number on a sheet of paper. Then, retell how Delilah had Samson's hair cut off while he was sleeping. Have students use scissors to cut Samson's hair short. Afterward, have students measure the new length of Samson's hair and write the number. Ask students how they can use subtraction to figure out how much hair was cut off. (**Subtract the short hair length from the long hair length.**) Guide students to create a subtraction sentence about Samson's hair and to write that sentence on the back of the plate. Encourage students to use their plates to retell the story of Samson to a family member or a friend.

Introduction Time 5

- Distribute a 1 ft length of yarn and a nonstandard unit of measurement to small groups of students. Explain that each group has the task of measuring their piece of yarn to see how long it is. Direct groups to measure their yarn using the nonstandard unit of measurement they have been given. Then, have one student in each group report to the class. Write the measurements on the board, such as *11 bear counters long*. Ask the class if any of the yarn lengths are the same. (**Answers will vary.**)

Next, distribute a ruler to each group and have students measure the length of yarn in inches. Have groups report and record their answers on the board. (**12 inches**) Ask students if any of the yarn lengths are the same. (**Yes, all of them.**) Why were they all the same the second time but not the first? (**The first time, groups used different things to measure the yarn, but all groups used a ruler the second time.**) Reiterate that nonstandard units of measurements, such as counting bears and connecting cubes, can be helpful in measuring, but rulers help with comparing measurements and are the same everywhere. Note that using a ruler can help students see that everyone's yarn piece is the same length because they are all using the same standard measure.

Listening Time 6

- Distribute measuring-strip bags and rulers. Use **TM 13.4A Inch Ruler** to demonstrate for students where to place the leading edge of a strip to measure it. Have students start with the red 1 in. strip they measured in Lesson 13.4. Circulate around the room to check that students have all placed their strips correctly for measuring. Remark that the end of the strip lines up with the first line on the ruler—the one by the number 1. Remind students that this means that the strip is 1 in. long. Direct students to place the rest of their strips one at a time along the ruler's edge and to find those lengths in inches. (**green: 2 in.; orange: 3 in.; yellow: 4 in.; blue: 5 in.**)

Challenge students to place some of the strips end to end so the combination is the same length as the ruler. Allow adequate time for experimentation. (**Possible answers: blue, yellow, and orange; blue, yellow, green, and red**) Reiterate that a foot is made up of inches.

Activity Time 7

- **Student Page 13.5 (front)** Read the directions and distribute a ruler to each student. In Exercises 1–3, have students write how many inches long each strip is. In Exercises 4–5, direct students to measure the total number of inches. Point out in Exercise 4 that 1 in. plus 3 in. equals 4 in. In the last exercise, ask what the two measurements are that make 3 in. (**1 in. and 2 in.**) Assist as needed.
- **Student Page 13.5 (back)** Remind students to measure accurately by placing their rulers between the two red lines. Guide them to measure the objects and to write how many inches long each

one is. Have students name the longest and shortest items on the page. (*longest: stick; shortest: beetle*)

- Draw students' attention to the learning center set up with chenille stems in a jar, rulers, and copies of **BLM 13.5A Inch Addition**. Read the directions on BLM 13.5A. Direct two students to each pull out a chenille stem. Guide them to measure the chenille stems individually and to calculate the combined length. Direct the pair to line up the two pieces together along the ruler to check the answer. Have other pairs do the same activity.
- Distribute rulers and **BLM 13.5B Nature Hunt** to pairs of students. Lead the class to an outdoor space for a scavenger hunt. Bring yardsticks as needed for measuring long items. Direct pairs to find and measure the longest and shortest of the items listed that they can find. For the last exercise, have students choose any outdoor item to compare and measure, such as blades of grass, flowers, or pinecones. Advise students to measure only items they can reach and to not climb or stand on anything to measure. Explain that when students measure, they should not move or take the item they are measuring. Return to the classroom and discuss students' findings. Ask the class which pair found the longest and shortest of each item. (*Answers will vary.*)

Lesson Review 8

- Have students stay with their partner. Guide students to hold their fingers together and to place a hand facedown on a sheet of white paper. Direct students to take turns tracing the hand of their partners. Then, guide them to use a ruler to measure how long their hand is from the bottom of the palm to the top of the tallest finger. Assist students with measuring to the nearest inch. Direct them to write the following sentence on their paper: *My hand is ___ inches long.* Have students fill in the number. For a challenge, have students organize themselves into a line that goes from the shortest hands to the longest.

EXTENSION 9

Materials

- Toy cars, measuring tape

• Take students to a gym or an open space with a smooth floor. Bring along several small toy cars for students to race. Designate a starting line. Have a volunteer pretend to be the race car driver and use one gentle push to make a car go through the starting line. Direct another volunteer to be the official judge and to use a tape measure to measure how far the car went in inches. Guide a third volunteer to be the recorder and to record the distance on a large sheet of paper. Follow the same procedure for all the toy cars. Then, return to the classroom and have the class order the cars by the distance traveled. Ask students questions such as, *Which car went farther, the red car or the blue car? Which car went the farthest? Why do you think that car went the farthest?*

8

Lesson Review offers specific questions or activities to assess students' understanding of lesson content.

9

The *Extension* sidebar offers ideas to enrich certain parts of the lesson. Some of the activities in this sidebar can be used for differentiated learning instruction.

10

Readable reductions of each student textbook page are large enough for the teacher to read the text and the answers to the exercises.

10

Name _____

Inches 13.5



Use a ruler to measure each strip.
Write how many inches.

-  **2** inches
-  **4** inches
-  **3** inches
-  **4** inches
-  **3** inches

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Use a ruler to measure each object. Write how many inches.

-  **2** inches
-  **6** inches
-  **1** inches
-  **4** inches

338 three hundred thirty-eight