

Assessment: People in Your Home and Introducing Pictographs

Math Focus Points

- ◆ Describing the shape of ordered, numerical data: where data are spread out or concentrated, where there are few data, highest and lowest values, and outliers
- ◆ Using a pictograph to represent data
- ◆ Interpreting what the symbols on a pictograph mean

Vocabulary

pictograph
key

Today's Plan

Materials

<p>1 ASSESSMENT ACTIVITY Assessment: How Many People Live in Your Home?</p>	  30 MIN  INDIVIDUALS	<ul style="list-style-type: none"> • M14–M15, Assessment: How Many People Live in Your Home? Make copies. (1 per student) • Rulers
<p>2 ACTIVITY Introducing Pictographs</p>	 15 MIN  CLASS	
<p>3 ACTIVITY Making and Interpreting Pictographs</p>	 15 MIN  INDIVIDUALS	<ul style="list-style-type: none"> • <i>Student Activity Book</i>, pp. 31A–31B or C7–C8, Making and Interpreting Pictographs Make copies. (as needed)
<p>4 SESSION FOLLOW-UP Daily Practice</p>		<ul style="list-style-type: none"> • <i>Student Activity Book</i>, p. 31C or C9, Pictographs Make copies. (as needed)

Ten-Minute Math

Today's Number Students create expressions that equal 86. They must use multiples of 10 in each expression they create. For example: $30 + 20 + 20 + 10 + 6 = 86$.

Collect a few expressions to write on the board. Ask:

- How do you know this expression equals 86?
- How did you combine the multiples of 10?

Professional Development

1 **Teacher Note:** Assessment: How Many People Live in Your Home?, Unit 2, p. 171

Name _____ Date _____

Assessment: How Many People Live in Your Home? (page 1 of 2)

The students in Mr. Leung's Grade 3 class did a survey called "How Many People Live in Your Home?" They collected data from their own class and from Ms. G's Grade 5 class.

Here are the numbers they collected from all of the students. They put the numbers in order.

Grade 3: 2, 2, 2, 3, 3, 3, 4, 4, 4, 4, 4, 4, 4, 4, 4, 5, 5, 5, 5, 5, 5, 6, 6, 7, 8

Grade 5: 2, 2, 2, 2, 3, 3, 3, 3, 3, 3, 4, 4, 4, 4, 5, 5, 5, 5, 6, 6, 6, 6, 6, 6, 10

On another sheet of paper, make line plots to show the data. Make one line plot for Grade 3 and one line plot for Grade 5.

When you have finished your line plots, answer the questions on the next page.

M14 Unit 2 Session 2.6

▲ Resource Masters, M14

Name _____ Date _____

Assessment: How Many People Live in Your Home? (page 2 of 2)

Here are some phrases that might help you describe the data:

- The range of the data is . . .
- There is a clump of data . . .
- There are hardly any data points . . .
- More than half the data . . .
- About half the data . . .
- Fewer than half of the data points . . .

1. What can you say about the Grade 3 class?

2. What can you say about the Grade 5 class?

3. What is the same or different about the two classes?

Session 2.6 Unit 2 M15

▲ Resource Masters, M15



1

ASSESSMENT ACTIVITY



Assessment: How Many People Live in Your Home?

On Assessment: How Many People Live in Your Home? (M14–M15), students create line plots to show the data from a third-grade class and a fifth-grade class, describe each data set, and compare the two classrooms.

To help students understand that each number in the Grade 3 list is the number of people in one student's home, you can tell a story to provide the context.

Mr. Leung's class did a survey. They asked every student in the class how many people live in his or her home. Chris lives with his mom in an apartment, so he has 2 people that live in his apartment. His number 2 is in the list here with all of the other students who have 2 people living in their home. How many other people besides Chris have 2 people in their home?

Gina lives with her grandmother, her mother, her father, two brothers, a sister, and one of her cousins. Of everyone in her class, she had the highest number of people living in her home. Do you see which number in the Grade 3 list is Gina's?

Mr. Leung's class then went to a Grade 5 class and asked the same question, "How many people live in your home?" What do you notice about the Grade 5 list?

Make sure that students understand what the numbers in the list mean before they start work on representing the data. 1

ONGOING ASSESSMENT: Observing Students at Work



Students represent and describe data for two groups.

- Can students make a graph to show the data for each class?
- Can students describe the data for each class? Do they notice that many of the students (more than half) in Grade 3 have 4 or 5 people in their homes? Do they notice in the Grade 5 data that the data are spread evenly over the values from 2 to 6 and that there is one unusually large family of 10?
- Are students noticing and describing differences and similarities between the two groups?

2

ACTIVITY

Introducing Pictographs



15 MIN



CLASS

Tell students that today they are going to make a pictograph. Explain that a **pictograph** uses pictures, instead of numbers, to represent data.

Write this table of data on the board:

Python	20 eggs
Sea Turtle	100 eggs
Frog	60 eggs
Salamander	70 eggs

A scientist counted the number of eggs some animals laid. This list shows the scientist's data. We are going to use these data to make a pictograph.

Like other graphs, we need to give the graph a title. What would be a good title for this pictograph?

Accept students' suggestions and come to a consensus on what title should be used.

There are 4 animals, so we need 4 rows in our graph. [Draw a grid with 4 horizontal cells. Add the title and write in the animals' names in the left-hand column.] We will use the same picture for all the animals. An egg would be easy to draw, so let's use eggs. It would be hard to draw the exact number of eggs, so we can let each picture stand for more than one egg. What would be a good number? Why? 🤔

Students might say:

"20 might be a good number because it divides 20 and 100."



"10 might be a good number because it divides 100 and 60."

Teaching Note

- 2 **Choosing a Suitable Key** When choosing how many items each picture should represent, the number chosen must be able to be used to represent all of the data. If the number chosen is a factor of every data value, all the values will be able to be represented by whole pictures. A number can also be chosen that will allow values to be represented by half-pictures.

Name _____ Date _____

Making and Interpreting Pictographs (page 1 of 2)

Use the data to make a pictograph.

Favorite Sports Chosen by Students	
Sport Chosen	Number of Students
Baseball	8
Basketball	4
Football	12
Soccer	6

Title: _____

Key: Each _____ = _____

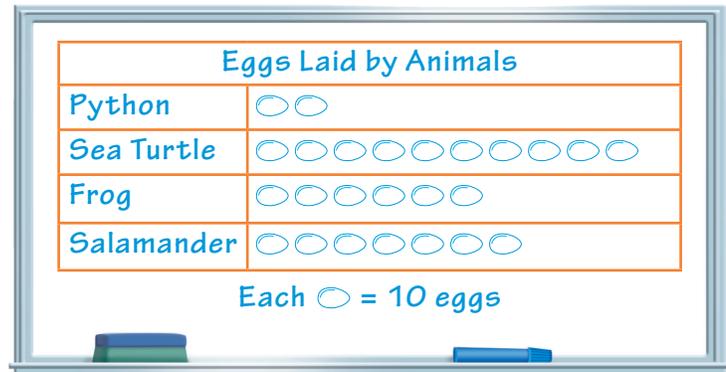
Session 2.3A Unit 2 31A

▲ Student Activity Book, Unit 2, p. 31A; Resource Masters, C7

It's easy to divide with 10, so let's use 10. We have to represent 20 eggs for the python. We draw 2 eggs to represent 20 eggs. [Draw 2 eggs in the row for python.]

Have students figure the number of eggs needed for the other animals and have volunteers draw them in your graph.

We need to add a **key** that tells how many eggs each picture stands for. [Add the key.]



Some students may have difficulty understanding that one picture represents more than one item. Ask these students how many eggs are represented in each row of the graph. Point to each egg in the row and have students count by 10s. Refer back to the chart on page CC7 and compare the numbers on the chart to the total number of eggs students say when they count by 10s.

After completing the pictograph, ask questions such as the following:

- Which animal lays the most eggs? The fewest?
- How many more eggs does a sea turtle lay than a frog?

3

ACTIVITY

Making and Interpreting Pictographs



15 MIN INDIVIDUALS

Students complete *Student Activity Book* pages 31A and 31B or C7 and C8. They make a pictograph using survey data. Then they interpret the pictograph to answer questions.

As students are making the pictograph, encourage them to use a picture that represents more than 1 student. Most students will choose a picture that represents 2 students. For students needing an extra challenge, suggest that they use 4 students for each picture.

ONGOING ASSESSMENT: Observing Students at Work



Students make and interpret a pictograph.

- **Can students make a pictograph to show the data?** Do they make a reasonable choice for the picture and the number each picture represents?
- **Can students interpret the pictograph to answer questions?**

DIFFERENTIATION: Supporting the Range of Learners



Extension Students who understand pictographs can be challenged to explain how the graph on page CC8 would change if each picture represented 2 eggs and/or 5 eggs.

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SESSION FOLLOW-UP

Daily Practice



Daily Practice: For reinforcement of this unit's content, have students complete *Student Activity Book* page 31C or C9.

Name _____ Date _____

Surveys and Line Plots

Making and Interpreting Pictographs (page 2 of 2)

Use your pictograph to answer the questions.

1. Which sport was chosen by the greatest number of students?
2. Which sport was chosen by the fewest number of students?
3. How many more students chose football than basketball?
4. Suppose you added another sport to your graph. How many pictures would you draw if you wanted to show that 10 students chose hockey?

31B Unit 2 Session 2.3A

▲ Student Activity Book, Unit 2, p. 31B; Resource Masters, C8

Name _____ Date _____

Surveys and Line Plots

Daily Practice

Pictographs

Use the pictograph below to answer the problems.

Paper Airplane Contest

Keisha	◀◀◀
Chris	◀◀◀◀◀◀◀◀◀◀◀
Cameron	◀◀◀◀◀◀◀◀◀
Jane	◀◀◀◀◀
Murphy	◀◀

Each ◀ = 4 feet

1. Whose airplane traveled the shortest distance?

2. How far did Jane's airplane travel?
_____ feet
3. How far did Chris's airplane travel?
_____ feet
4. How much farther did Cameron's airplane travel than Keisha's airplane?
_____ feet

31C Unit 2 Session 2.3A

▲ Student Activity Book, Unit 2, p. 31C; Resource Masters, C9

Making and Interpreting Pictographs

 (page 1 of 2)

Use the data to make a pictograph.

Favorite Sports Chosen by Students	
Sport Chosen	Number of Students
Baseball	8
Basketball	4
Football	12
Soccer	6

Title: _____	
_____	_____
_____	_____
_____	_____
_____	_____

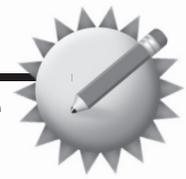
Key: Each _____ = _____

Making and Interpreting Pictographs

(page 2 of 2)

Use your pictograph to answer the questions.

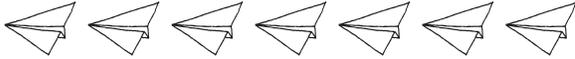
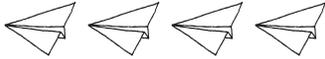
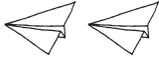
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2. Which sport was chosen by the fewest number of students?
3. How many more students chose football than basketball?
4. Suppose you added another sport to your graph. How many pictures would you draw if you wanted to show that 10 students chose hockey?



Pictographs

Use the pictograph below to answer the problems.

NOTE Students interpret a pictograph.

Paper Airplane Contest	
Keisha	
Chris	
Cameron	
Jane	
Murphy	

Each  = 4 feet

1. Whose airplane traveled the shortest distance?

2. How far did Jane's airplane travel?

_____ feet

3. How far did Chris's airplane travel?

_____ feet

4. How much farther did Cameron's airplane travel than Keisha's airplane?

_____ feet