Family Support Materials

Introducing Multiplication

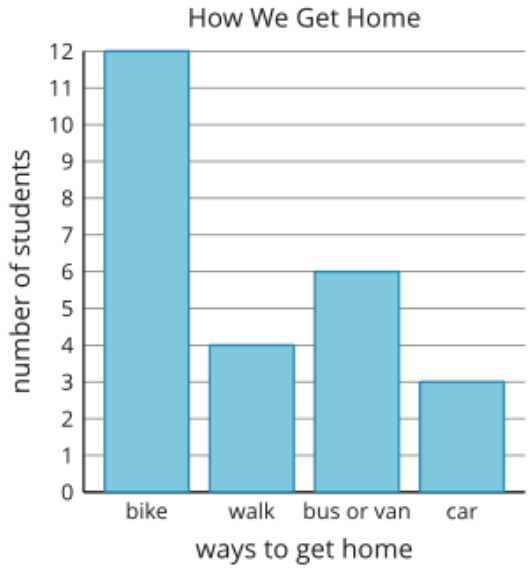
In this unit, students represent and interpret data on scaled bar graphs and picture graphs. Then, they are introduced to the concept of multiplication.

Section A: Interpret and Represent Data on Scaled Graphs

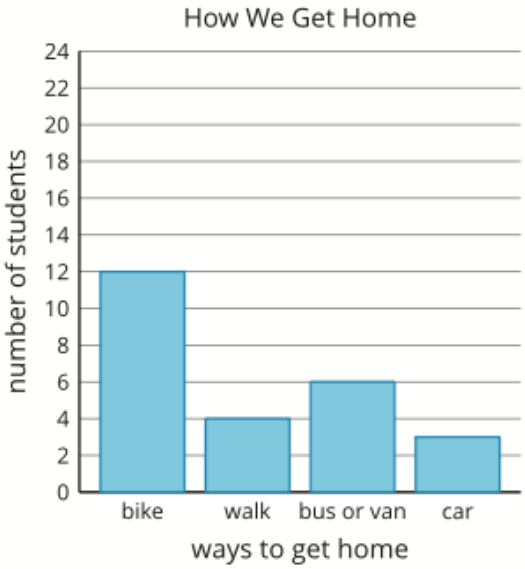
In this section, students make sense of and draw picture graphs and bar graphs. They see that each picture in a picture graph, or each step on a bar graph, can represent more than one object. They work with scales of 2, 5, and 10 (where each picture or step represents 2 objects, 5 objects, or 10 objects).

Students use the scaled bar graphs to solve "how many more" and "how many fewer" problems where the numbers are within 100.

bar graph



scaled bar graph



Section B: From Graphs to Multiplication

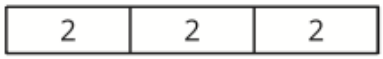
In this section, students use the idea of "each picture representing multiple objects" to think about equal-size groups and learn about multiplication. They create drawings and tape diagrams to represent situations that involve equal-size groups.

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drawing of equal groups



tape diagram



Students learn that we can write 3×2 to represent these drawings and interpret the expression to mean "3 groups of 2." Later, they write equations to represent multiplication situations. They also find unknown factors and products in equations (for example, $4 \times ? = 12$ and $5 \times 4 = ?$).

Section C: Represent Multiplication with Arrays and the Commutative Property

In this section, students connect the equal-group representations to arrays. An array is a set of objects organized in rows and columns. Students look for equal-size groups in arrays like in these diagrams:



Students write expressions to represent arrays. For example, in the shown arrays, we can write 2×5 (or 2 groups of 5) and 5×2 (or 5 groups of 2).

Section D: Solve Two-Step Problems

In this section, students apply their work with addition, subtraction, and multiplication to solve problems that require two steps, such as:

Mai had 104 beads. She bought two packs of beads and now she has 124 beads.
How many beads were in each pack?

Try it at home!

Near the end of the unit, ask your student to find examples of equal-size groups or arrays at home, or use household objects to make such groups or arrays.

Questions that may be helpful as they work:

- How many groups are there?
- How many are in each group?
- Represent the objects with a drawing, a diagram, and an expression. How does your drawing and diagram match the expression?

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