Mathematical Background

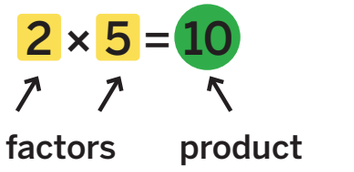
Here is an overview of the content your students will learn in this unit.

Introducing Multiplication

Understanding the Structure and Representations of Multiplication

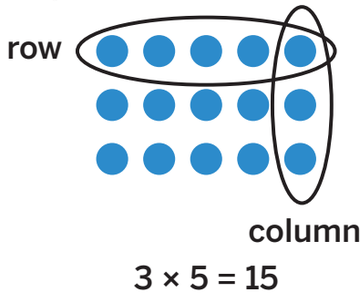
TEKS 3.4.D, 3.4.E, 3.4.F, 3.4.K, 3.5.B, 3.5.C

- Multiplication is an arithmetic operation that involves combining equal groups of numbers to determine a total.
  - » A multiplication equation is made up of **factors**, the numbers being multiplied, and a **product**, the total.
- Multiplication can be visually represented in different ways, including equal groups, **arrays**, diagrams, expressions, equations, and scaled graphs.



Equal Groups

Array

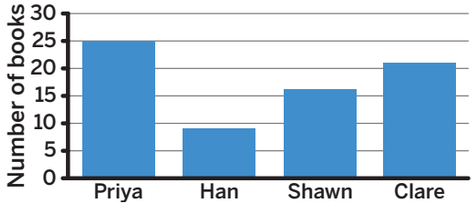


Relating Data to Multiplication

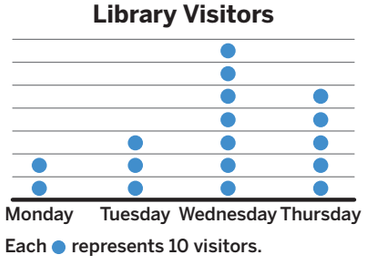
TEKS 3.8.A, 3.8.B

- Multiplication can be used to interpret data on scaled graphs
  - » A **scaled bar graph** is a bar graph where the scale is marked in intervals other than 1.
  - » A **scaled pictograph** is a pictograph where symbols are used to represent quantities other than 1.
  - » A **frequency table** shows how often a category or number occurs using tally marks.
  - » A **dot plot** shows symbols, such as Xs or dots, above a number line to represent the frequency of each value.

Scaled Bar Graph



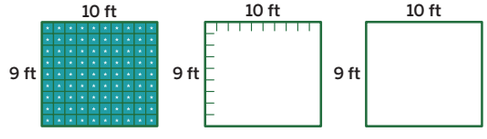
Scaled Pictograph



Relating Area to Multiplication

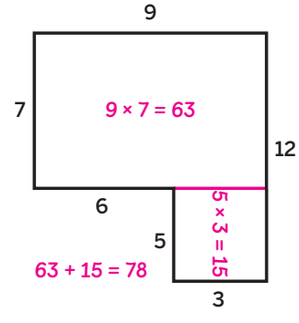
TEKS 3.6.C, 3.6.D

- The area of a rectangle can be determined by:
  - » Multiplying the number of rows and the number of square units in each row.
  - » Multiplying the length and width.
- A figure composed of 2 or more rectangles is a type of rectilinear figure. To determine the area, you can decompose the figure into non-overlapping rectangles, determine the area of each rectangle, and then determine the sum of the areas.



9 × 10 = 90

90 square feet



Unit Investigation

Lesson 1 is the Unit Investigation. Students recognize and represent examples of equal groups in the school community to build curiosity and apply their own knowledge in a variety of ways. Use the **Caregiver Connection** to help students continue to explore the math they will see in the unit.

Caregiver Connection

Students may enjoy searching for examples of equal groups in books, at home, or around other communities they are a part of. You can ask:

- "Where do you see equal groups?"
- "How would you describe the equal groups?"
- "How could you represent the equal groups?"