

Connection

In Section 1 (Teaching the Lesson), students multiply 1 digit numbers by multi digit numbers using a **partial products algorithm**. Setting up equal groups of packed Digi Blocks makes the partial products and their values very easy for students to determine.

Materials for each small group of students

- 3 blocks of 100
- place value mat and digit cards
- **Partial Products to Product** activity sheet (next page)

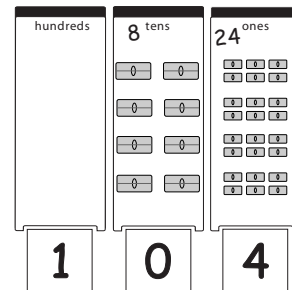
Lesson

- For the whole class activity, ask for a volunteer to set up 4 groups of 26 with packed blocks. Ask: **How many groups of 20 do you see? (4) What is 4 x 2 blocks of 10? (8 blocks of 10 = 80) How many groups of 6 do you see? (4) What is 4 x 6 ones? (24 ones)**

- Have a student record, at the top of the mat, the number of blocks in each place.

- Demonstrate the recording of the vertical partial products algorithm:

$$\begin{array}{r}
 26 \\
 \times 4 \\
 \hline
 80 \\
 24 \\
 \hline
 104
 \end{array}$$



- Ask a volunteer to pack the blocks as much as possible and to set a digit card for each size block. Ask: **Will we get the same answer, or product, that we did by adding the partial products? (yes)**
- Students will set up the equal groups with packed blocks on the **Partial Products to Product** activity sheet, record the partial products in the partial products algorithm, and then pack up the blocks to check their result.

Partial Product to Product

Set up each problem with packed blocks. The 1-digit number represents the number of groups. Record each partial product and add them together to complete the partial-products algorithm. Pack the blocks as much as possible to check.

Example: 26

$$\begin{array}{r} \times 4 \\ \hline 80 \\ 24 \\ \hline 104 \end{array}$$

1.
$$\begin{array}{r} 16 \\ \times 4 \\ \hline \\ \hline \\ \hline \end{array}$$

2.
$$\begin{array}{r} 22 \\ \times 5 \\ \hline \\ \hline \\ \hline \end{array}$$

3.
$$\begin{array}{r} 18 \\ \times 8 \\ \hline \\ \hline \\ \hline \end{array}$$

4.
$$\begin{array}{r} 24 \\ \times 3 \\ \hline \\ \hline \\ \hline \end{array}$$

5.
$$\begin{array}{r} 12 \\ \times 9 \\ \hline \\ \hline \\ \hline \end{array}$$

6.
$$\begin{array}{r} 15 \\ \times 7 \\ \hline \\ \hline \\ \hline \end{array}$$

7.
$$\begin{array}{r} 21 \\ \times 4 \\ \hline \\ \hline \\ \hline \end{array}$$

8.
$$\begin{array}{r} 19 \\ \times 5 \\ \hline \\ \hline \\ \hline \end{array}$$