# Illustrative <br> Mathematics 

## Grade 3 Unit 4

Lesson 9
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## Unit 4 Lesson 9: Patterns in the Multiplication Table

WU Notice and Wonder: Multiplication Table (Warm up)
Student Task Statement
What do you notice? What do you wonder?

| $\times$ | 1 | 2 | 3 | 4 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 2 | 3 | 4 | 5 |
| 2 | 2 | 4 | 6 | 8 | 10 |
| 3 | 3 | 6 | 9 | 12 | 15 |
| 4 | 4 | 8 | 12 | 16 | 20 |
| 5 | 5 | 10 | 15 | 20 | 25 |

## 1 Products in the Table

Student Task Statement
Here is a partially completed multiplication table.

| $\times$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 2 | 3 | 4 | 5 |  |  |  |  |  |
| 2 | 2 | 4 | 6 | 8 | 10 |  | $A$ |  |  |  |
| 3 | 3 | 6 | 9 | 12 | 15 |  |  |  | $B$ |  |
| 4 | 4 | 8 | 12 | 16 | 20 | C |  |  |  |  |
| 5 | 5 | 10 | 15 | 20 | 25 |  |  | $D$ |  |  |
| 6 | 6 | 12 | 18 | 24 | 30 |  |  |  |  | E |
| 7 | 7 | 14 | 21 | 28 | 35 |  | F |  |  |  |
| 8 | 8 | 16 | 24 | 32 | 40 | 48 |  |  | $G$ |  |
| 9 | 9 | 18 | 27 | 36 | 45 | 54 | 63 |  |  |  |
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |  |  |

1. Use the products in the table to help you find the numbers that should replace letters A-G. Be prepared to explain your reasoning.
2. Find the number that should go in three other empty cells in the table. Use:
a. 7 as a factor
b. 9 as a factor
c. 10 as a factor

Be prepared to explain your reasoning.

## 2 If I Know, Then I Know: Multiplication

## Student Task Statement

1. In each row, write down at least two multiplication facts you can figure out because you know the given multiplication fact in the left column. Be prepared to share your reasoning.

| If I know..., | then I also know... |
| :---: | :---: |
| $2 \times 4$ | $4 \times 2,4 \times 4,2 \times 8$ |
| $3 \times 5$ |  |
| $4 \times 10$ |  |
| $7 \times 2$ |  |
| $5 \times 8$ |  |

2. If time permits, complete the rest of the multiplication table. Use the multiplication facts you know to find those you don't know.
