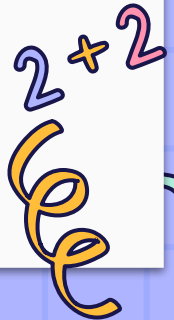
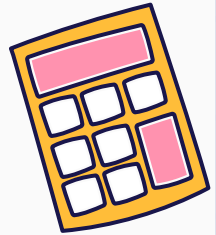
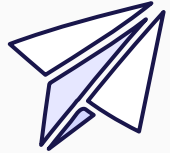


Flex Day

Mr. Axel

Wednesday, September 6

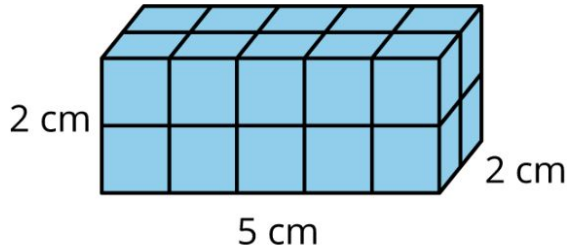


Do Now

5:00



A rectangular prism has dimensions of 2 cm by 2 cm by 5 cm. What is its surface area and volume? Explain or show your reasoning.



Practice Page: Writing Four Partial Products



Writing Four Partial Products Version A

- 1 Solve each of the 2-digit multiplication problems below. Multiply to get four partial products and add them up.

ex

$$\begin{array}{r} 68 \\ \times 24 \\ \hline \end{array}$$

$$20 \times 60 = 1,200$$

$$20 \times 8 = 160$$

$$4 \times 60 = 240$$

$$4 \times 8 = 32$$

$$\hline 1,632$$

a

$$\begin{array}{r} 46 \\ \times 34 \\ \hline \end{array}$$

$$30 \times 40 = \underline{\hspace{2cm}}$$

$$30 \times 6 = \underline{\hspace{2cm}}$$

$$4 \times 40 = \underline{\hspace{2cm}}$$

$$4 \times 6 = + \underline{\hspace{2cm}}$$

b

$$\begin{array}{r} 35 \\ \times 29 \\ \hline \end{array}$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} = + \underline{\hspace{2cm}}$$

c

$$\begin{array}{r} 38 \\ \times 36 \\ \hline \end{array}$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} = + \underline{\hspace{2cm}}$$



Product Four in A Row

What Do You Notice?
What Do You Wonder?

- The team that goes first places both game markers on numbers in the factors row at the top of the sheet. Markers can go on two different factors, like 30 and 40, or on the same factor, like 50 and 50.
- The team multiplies the two factors and captures the product on the grid below the factor row by marking it with an X.
- The other team moves just one of the markers, multiplies the factors, and captures the product on the grid by marking it with an O.
- Teams continue taking turns moving one marker, multiplying the factors, and marking the products until one team captures four products in a row, horizontally, vertically, or diagonally.

Multipliers								
10	20	30	40	50	60	70	80	90

Game Grid					
100	200	300	400	500	600
700	800	900	1,000	1,200	1,400
1,500	1,600	1,800	2,000	2,100	2,400
2,500	2,700	2,800	3,000	3,200	3,500
3,600	4,000	4,200	4,500	4,800	4,900
5,400	5,600	6,300	6,400	7,200	8,100

Capturing Multiples

MULTIPLE: The multiples of a number are the products of that number and any whole number.

Let's read aloud and mark in blue the multiples of 30.

Let's read aloud and mark in red the multiples of 40.

If a number is marked both in blue and red it's a both a multiple of 30 and 40.

- Multiples are captured by rolling a 1–6 die, spinning a 10–60 spinner, and multiplying the two numbers. If the product is a multiple of 20 that hasn't yet been captured, students circle it on their grids—in blue if it was your turn, and red if it was their turn.
- If the product is not a multiple of 20, or is a multiple that's already been captured, play passes to the other team.
- Each team gets 10 turns. The team that captures the most multiples wins.

Exploring Algorithms

Algorithm

- An algorithm is a step-by-step procedure for solving a problem
- **Do you know any algorithms?**

Exploring Algorithms

$$38 \times 46$$

Partial Products Algorithm

$$38 \times 46$$

Standard Algorithm

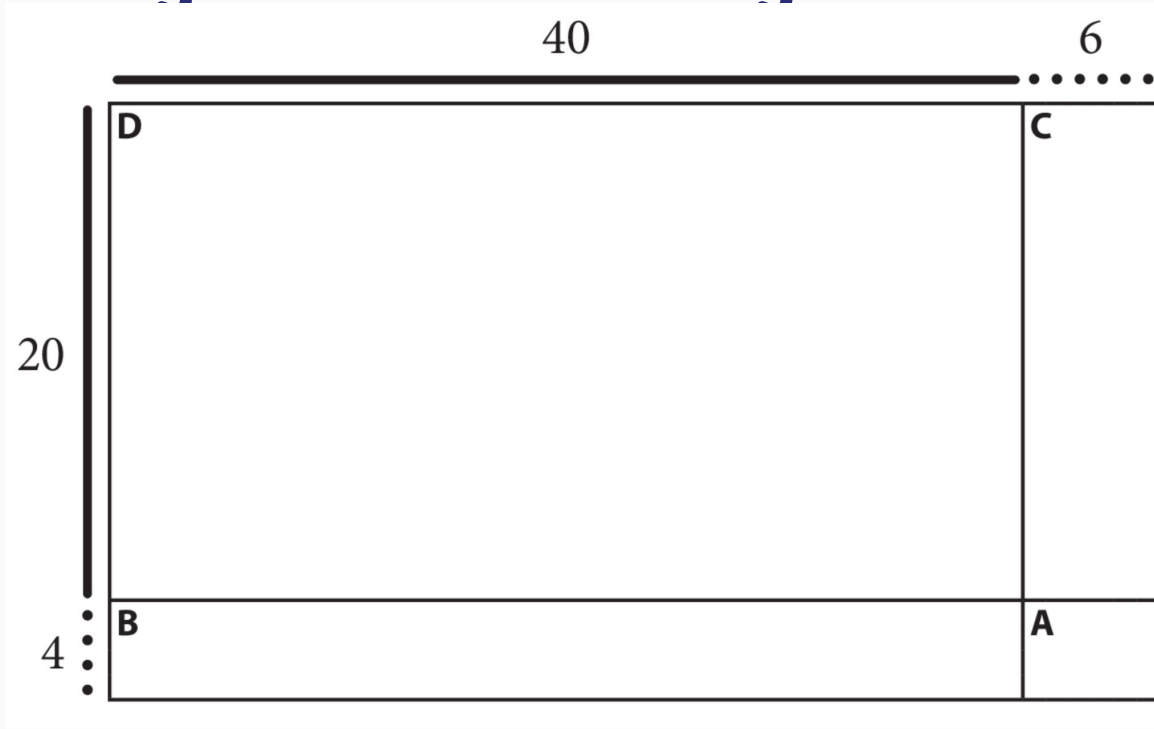
- How are they alike?
- How are they different?
- Does one seem easier to do or understand?
- Why?

Moving toward the standard algorithm

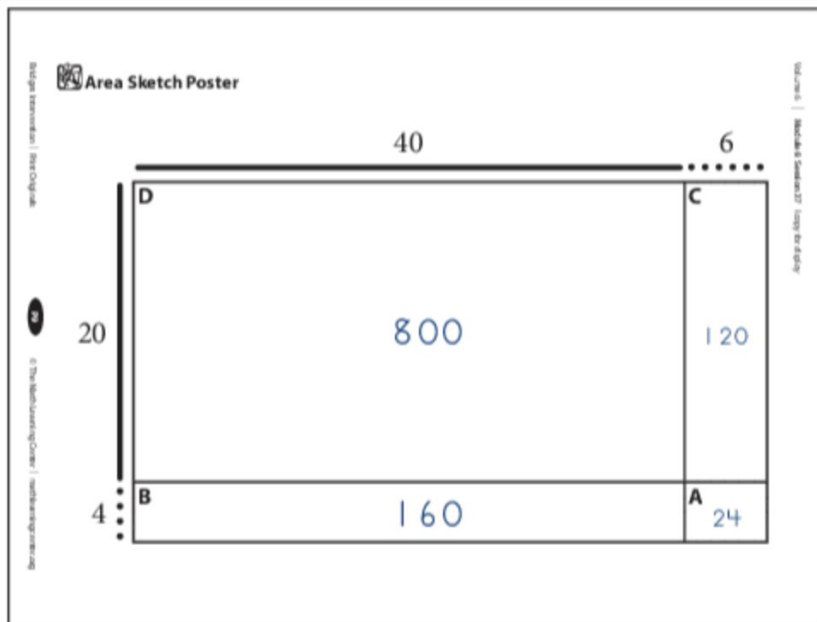
Today you will be working toward using the standard algorithm by viewing and computing the familiar four partial products in a different way today.



Introducing the Standard Algorithm

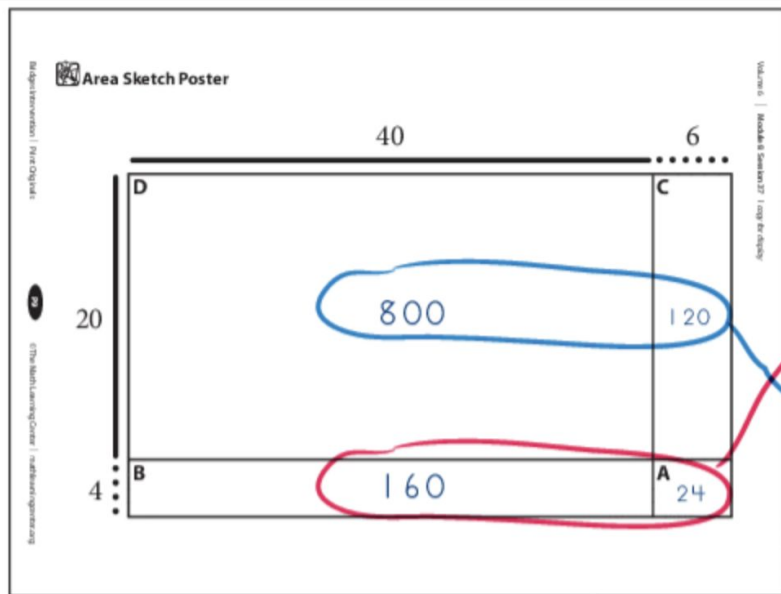


Introducing the Standard Algorithm



$$\begin{array}{r}
 46 \\
 \times 24 \\
 \hline
 A \quad 4 \times 6 = 24 \\
 B \quad 4 \times 40 = 160 \\
 C \quad 20 \times 6 = 120 \\
 D \quad 20 \times 40 = + 800 \\
 \hline
 1,104
 \end{array}$$

Introducing the Standard Algorithm



$$\begin{array}{r} 46 \\ \times 24 \\ \hline 184 \\ + 920 \\ \hline 1,104 \end{array}$$

Area calculations:

- A: $4 \times 6 = 24$
- B: $4 \times 40 = 160$
- C: $20 \times 6 = 120$
- D: $20 \times 40 = 800$

Sum: $24 + 160 + 120 + 800 = 1,104$

Practice Page: Reviewing Multiplication



Reviewing Multiplication Version A

- 1** Multiply multiples of 10 by single-digit numbers.

$$\begin{array}{r} 60 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 70 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 80 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 40 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 80 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 90 \\ \times 8 \\ \hline \end{array}$$

- 2** Multiply two multiples of 10.

$$\begin{array}{r} 30 \\ \times 40 \\ \hline \end{array}$$

$$\begin{array}{r} 50 \\ \times 30 \\ \hline \end{array}$$

$$\begin{array}{r} 70 \\ \times 30 \\ \hline \end{array}$$

$$\begin{array}{r} 40 \\ \times 80 \\ \hline \end{array}$$

$$\begin{array}{r} 90 \\ \times 50 \\ \hline \end{array}$$

$$\begin{array}{r} 80 \\ \times 80 \\ \hline \end{array}$$

- 3** Mr. Mugwump is puzzled. He says, “ 20×30 equals 600. And 20×40 equals 800. And 30×30 equals 900. So why doesn’t 30×40 equal 120?”

- a** Write the correct answer. $30 \times 40 =$ _____
- b** Explain to Mr. Mugwump why 30×40 doesn’t equal 120. Use labeled sketches, numbers, or words in your explanation.