Lesson Printables

Be a rockstar and only print what you need!

Lesson Information Sheet: 2

Sunlight Zone
Activity: 3

Twilight Zone
Activity: 4

Midnight Zone
Activity: 5

Extras
Grid Method Thinking Steps: 6
Answers: 7

Let's use grid method to multiply multi-digit numbers

Why learn this?

Using grid method (also called area models) to multiply multi-digit numbers helps students break a big problem into smaller, easier steps. Instead of trying to multiply everything at once, grid method involves expanding numbers, multiplying separately and then adding products together. This strategy helps builds a strong foundation for more complex problems that involve larger numbers.

Using grid method to multiply 2-digit numbers by 2-digit numbers

Grid method multiplication
- Set up the grid.
  - ➔ For 2-digit x 2-digit problems you will end up needing four rectangles. We suggest drawing one big rectangle and then dividing it into four rectangles once you have expanded both numbers.
- Expand the first 2-digit number. Write the expanded amounts on the top part of the rectangle. At this point, divide your rectangle into two columns.
- Expand the second 2-digit number. Write the expanded amounts on the left side of the rectangle. Divide the rectangle into two rows.
- Get multiplying!
  - ➔ The tens x the tens in both numbers.
  - ➔ The tens from the first number x the ones in the second number.
  - ➔ The ones from the first number x tens in the second number.
  - ➔ The ones x the ones in both numbers.
- Add up the products to get the final answer.

Let's warm up!

Starter Activity - Sweet Scoops
If an ice cream shop sells 6 different flavors of ice cream, how many unique double 'scoopers' can be made?

To support, students could:
- Be guided to create a recording table in order to work systematically.
- Be asked guiding questions.
  - ➔ What is one possible 2 scoop combination? If you keep the bottom scoop the same, how many times could you change the top scoop?

To challenge, students could:
- Explore how the quantity would change if 3 scoops were allowed.

Let's do this!

Main Activity - Students are shown several large food orders. Can students use grid method (or a strategy of choice) to work out each order total?

To support, students could:
- Print the grid method templates to help students organise their thinking when using the strategy.
- Work with up to 3-digit numbers. See Sunlight Zone.

To challenge, students could:
- Apply additional problem-solving skills. See Twilight and Midnight Zone.
- Use another strategy or rounding to double check their answer. Students could round both numbers to the nearest ten and then multiply in order to get a target zone number.
  - ➔ For 35 x 67, you would multiply 40 by 70. The answer, 280 would be the 'target zone'. If a student's answer is relatively close, their answer is reasonable.
    - ◆ In this case, both numbers rounded up, so the real answer should be less than 280.
- Make their own orders using the prices provided.

Sunlight Zone

1. Find the total of each customer's order.

Noggin's Order:

→ 152 tacos ($7 per taco)

Rozza's Order:

→ 26 sushi rolls ($12 per roll)

Mika's Order:

→ 113 pizzas ($8 per pizza)

Buzz's Order:

→ 45 cupcakes ($13 per cake)
→ 22 milkshakes ($15 per shake)

Twilight Zone

1. Find the total of each customer's order.

Noggin's Order:
→ 52 tacos ($27 each)

Rozza's Order:
→ 136 sushi rolls ($24 each)

Chilli's Order:
→ 15 banana splits ($14 each)
→ 12 deluxe milkshakes (1 shake is triple the cost of a banana split)

Buzz's Order:
→ 36 quesadillas ($19 each)
→ 21 guacamole bowls (1 bowl is $13 cheaper than a quesadilla)

Midnight Zone

1. Find the total of each customer's order.

Taco	Milkshake	Pizza	Cupcake	Macaroon	Snow Cone
$27	$12	$18	$14	$26	$15

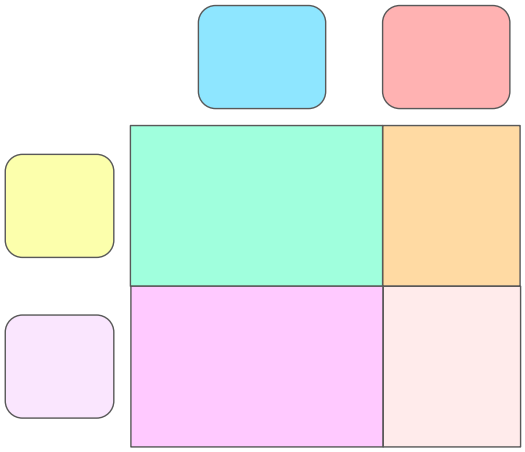
Mika's Order:
→ 117 pizza slices
→ Minka ordered a third of the amount of cupcakes compared to pizza slices.

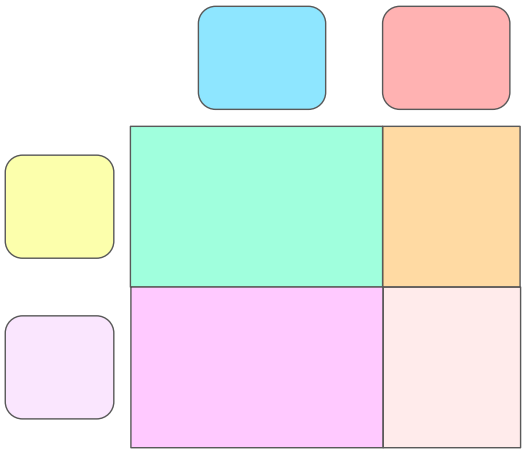
Buzz's Order:
→ 176 tacos and triple the amount of banana splits compared to tacos.
→ 1 banana split is a quarter of the price of a macaroon.

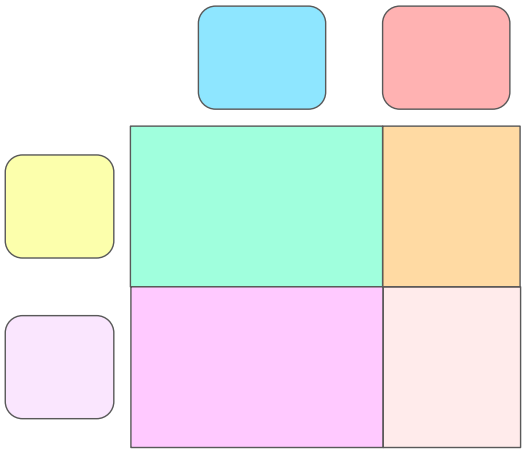
Dori's Order:
→ Dorrica spent $2,028 on milkshakes and snow cones. If she bought double the amount of milkshakes compared to snow cones, how many milkshakes did she buy?

Multiplying 2-Digit By 2-Digit Numbers

1. Expand both numbers.
   - ➔ Write one number in expanded form along the top of the grid.
     - ◆ Tens and ones.
   - ➔ Write the other number on the left side in expanded form.
     - ◆ Tens and ones
2. Multiply! Use the color-coding to help you.
   - ➔ Yellow x blue = green
   - ➔ Yellow x red = orange
   - ➔ Pink x blue = dark pink
   - ➔ Pink x red = peach
3. Add up all of your products.







Answers

Sunlight Answers	
Noggin	152 x 7 = 1,064
Rozza	26 x 12 = 312
Mika	113 x 8 = 904
Buzz	45 x 13 = 585 (cupcake total) 22 x 15 = 330 (milkshake total) Total: 915

Twilight Answers	
Noggin	52 x 27 = 1,404
Rozza	136 x 24 = 3,264
Chilli	15 x 14 = 210 (split total) 14 x 3 = $42 (1 milkshake) 12 x 42 = 504 (milkshake total) Total: 714
Bianca	36 x 19 = 684 (quesadilla total) 19 - 13 = 6 (1 guacamole bowl) 6 x 21 = 126 (guacamole total) Total: 810

Midnight Answers		
Mika	Buzz	Dori
117 x 18 = 2,106 (pizza total) 117 ÷ 3 = 39 (cupcake quantity) 39 x 14 = 546 (cupcake total) Total: 2,652	176 x 27 = 4,752 (taco total) 176 x 3 = 528 (banana split quantity) 26 ÷ 4 = 6.50 (cost of 1 banana split) 6.50 x 528 = 3,432 (banana split total) Total: 8,184	52 x 15 = 780 (snow cone total) 104 x 12 = 1,248 (milkshake total) Dorrica bought 104 milkshakes.