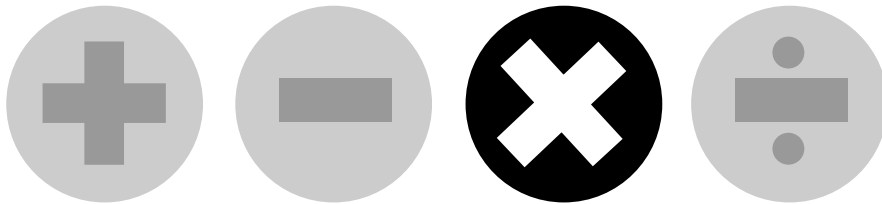


# THINKING STRATEGIES: MULTIPLICATION

BUILDING MASTERY OF MULTIPLICATION FACTS



**CELIA BARON**

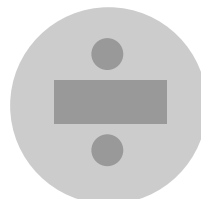
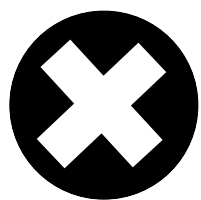
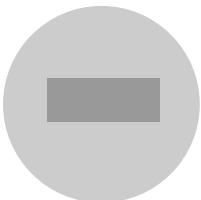


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# LESSON 2E: WACKY WEBS WITH 2, 5, AND 10

## TEACHER LESSON

### Identifying and Applying Thinking Strategies

Present the following multiplication facts to the students:

$$9 \times 5$$

$$7 \times 2$$

$$10 \times 6$$

Have the students complete the facts. The students must be able to recognize and apply an appropriate thinking strategy for each fact, then explain their thinking strategies. Have the students first note whether the facts have a factor of 2, 5, or 10.

#### (a) $9 \times 5$ (factor of 5)

##### ■ Clock Fact:

Picture the minute hand of a clock pointing to 9.  
The minute hand indicates 45 minutes after the hour.  
SO,  $9 \times 5 = 45$

##### ■ Pattern of 5:

9 is an odd number.  
The product ends in 5.  
 $9 - 1 = 8$ , and one-half of 8 is 4.  
SO,  $9 \times 5 = 45$

##### ■ Half-Fact:

$9 \times 5$  is half of  $9 \times 10$   
 $9 \times 10 = 90$   
One-half of 90 is 45  
SO,  $9 \times 5 = 45$

##### ■ Helping Fact:

$10 \times 5 = 50$   
 $50 - 5 = 45$   
SO,  $9 \times 5 = 45$

#### (b) $7 \times 2$ (factor of 2)

##### ■ Addition Double:

The special picture for  $7 + 7$  is a calendar.  
 $7 + 7 = 14$   
SO,  $7 \times 2 = 14$

##### ■ Helping Fact:

$5 \times 2 = 10$   
 $10 + 2 + 2 = 14$   
SO,  $7 \times 2 = 14$

#### (c) $10 \times 6$ (factor of 10)

- Move the number that is multiplied with 10 one position to the left, and place a zero in the ones position.  
 $10 \times 6 = 60$

### Even or Odd Products

Present students with the number sentence  $5 \times 9 = 45$ .

Ask them:

- Are the factors 5 and 9 even or odd? (The factors 5 and 9 are both odd.)
- Is the product 45 even or odd? (The product 45 is odd.)

Show the students the number sentence  $7 \times 2 = 14$ . Ask:

- Are the factors 7 and 2 even or odd? (The factor 7 is odd, and the factor 2 is even.)
- Is the product 14 even or odd? (The product 14 is even.)

Show the students the number sentence  $10 \times 6 = 60$ . Ask:

- Are the factors 10 and 6 even or odd? (The factors 10 and 6 are even.)
- Is the product 60 even or odd? (The product 60 is even.)

---

**Note:** A more detailed explanation of even and odd products, including rules, is given in Lesson 4F. The discussion in this lesson serves only as an introduction to even and odd products.

---

### CHALLENGE FACTS

Use Challenge Facts 4 and Challenge Facts 5 (pages 190-191) to help the students identify facts that have factors of 2, 5, or 10. Have students place shapes around the facts. For example, have them place circles around all the facts with a factor of 5 and then complete the facts. Next, have them place rectangles around all the facts with a factor of 10, and so on.

### Encouraging Class Discussion

Engaging students in whole-class discussions is an integral part of the program. Prompts for encouraging class discussions can be found on page 2 of the Introduction.

### INTRODUCING THE STUDENT ACTIVITY SHEET

Distribute a copy of the sheet, Wacky Webs, to each student. Read the instructions aloud as a class, and have the students complete the activity.

---

**Note:** The shaded cells form a pattern that students can use to check their work.

---



# Wacky Webs

The numbers ending in 0, 2, 4, 6, and 8 are **EVEN** numbers. The numbers ending in 1, 3, 5, 7, and 9 are **ODD** numbers.

Fill in the outer cells of each web by multiplying the numbers in the inner cells by the number in the middle.

Shade in all the cells that have an **ODD** number.

The four webs are as follows:

- Top Web:** Middle: 5. Inner ring: 9, 3, 7, 4, 10, 8. Outer ring: (blank), (blank), (blank), (blank), (blank), (blank).
- Left Web:** Middle: 2. Inner ring: 7, 9, 5, 8, 6, 4. Outer ring: (blank), (blank), (blank), (blank), (blank), (blank).
- Right Web:** Middle: 10. Inner ring: 1, 7, 3, 6, 2, 8. Outer ring: (blank), (blank), (blank), (blank), (blank), (blank).
- Bottom Web:** Middle: 5. Inner ring: 7, 1, 9, 4, 8, 6. Outer ring: (blank), (blank), (blank), (blank), (blank), (blank).

# Partner Bingo 8



Find a partner.

Partner #1: Complete the first fact beside your card. On your card, find a square that matches the product of the first fact, and shade it in.

Partner #2: Complete the first fact beside your card. On your card, find a square that matches the product of the first fact, and shade it in.

Take turns completing the facts in order and shading in a square on your card. The first one to fill in a row, column, or diagonal wins the game.

## Partner #1

- |                         |                         |
|-------------------------|-------------------------|
| ① $5 \times 9 =$ _____  | ⑨ $8 \times 5 =$ _____  |
| ② $6 \times 2 =$ _____  | ⑩ $2 \times 4 =$ _____  |
| ③ $3 \times 5 =$ _____  | ⑪ $7 \times 2 =$ _____  |
| ④ $8 \times 2 =$ _____  | ⑫ $6 \times 5 =$ _____  |
| ⑤ $7 \times 5 =$ _____  | ⑬ $10 \times 6 =$ _____ |
| ⑥ $1 \times 10 =$ _____ | ⑭ $2 \times 2 =$ _____  |
| ⑦ $5 \times 5 =$ _____  | ⑮ $4 \times 5 =$ _____  |
| ⑧ $2 \times 9 =$ _____  | ⑯ $5 \times 7 =$ _____  |

## Partner #2

- |                         |                         |
|-------------------------|-------------------------|
| ① $2 \times 7 =$ _____  | ⑨ $5 \times 3 =$ _____  |
| ② $5 \times 6 =$ _____  | ⑩ $2 \times 6 =$ _____  |
| ③ $10 \times 7 =$ _____ | ⑪ $5 \times 8 =$ _____  |
| ④ $9 \times 2 =$ _____  | ⑫ $1 \times 5 =$ _____  |
| ⑤ $3 \times 2 =$ _____  | ⑬ $2 \times 10 =$ _____ |
| ⑥ $2 \times 8 =$ _____  | ⑭ $2 \times 9 =$ _____  |
| ⑦ $7 \times 5 =$ _____  | ⑮ $4 \times 2 =$ _____  |
| ⑧ $9 \times 5 =$ _____  | ⑯ $5 \times 5 =$ _____  |

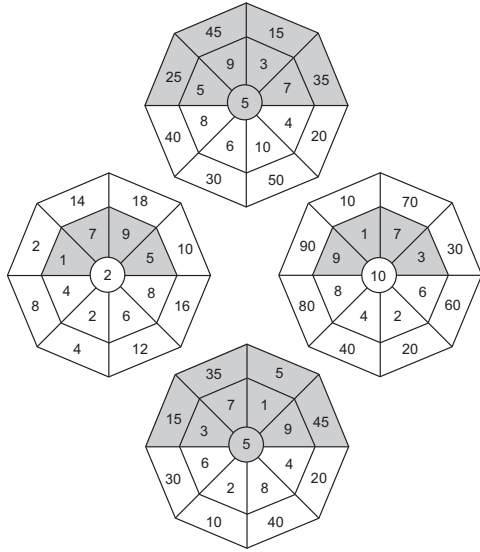
## Partner #1

35	14	2	18	40
16	60	30	5	12
6	4	X	20	35
15	5	8	25	18
25	30	45	10	6

## Partner #2

10	15	8	30	35
45	14	4	12	18
6	18	X	6	5
40	10	15	16	25
20	30	45	4	70

Sample Pages



Lesson 2E, page 35

What did the hour hand of the clock say to the minute hand?

S	U	L	U	N	C	H	7	9									
E	O	F	O	R	L	U	N	C	H	x2	x2						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	18	18		
A	T	T	W	E	L	V	E	O	C	L	O	C	K	5	5		
(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	x9	x5		
R	K	W	C	Y	N	U	A	F	T	H	L	S	E	O	V	45	45
5	6	8	10	12	14	15	16	18	20	25	30	35	40	45	50	6	6
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	15	15
7	x5	x10	x9	x5	x2	x2	x5	x1	x10	x5	x5	x5	x10	x5	x3	25	25
35	40	40	45	45	12	12	15	10	40	40	30	30	50	50	6	5	5
⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒	㉓	25	25
9	x5	x5	x6	x5	x5	x2	x2	x8	x8	x2	x5	x5	x10	x5	x3	25	25
45	45	5	30	20	8	8	40	40	8	8	30	30	50	50	6	5	5
⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	25	25
8	x2	x10	x5	x5	x2	x2	x8	x8	x2	x5	x5	x5	x10	x5	x3	25	25
16	20	20	20	20	8	8	40	40	8	8	30	30	50	50	6	5	5
⑳	㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜	㉝	㉞	㉟	25	25
10	x4	x9	x10	x10	x6	x6	x5	x5	x10	x5	x5	x5	x10	x5	x3	25	25
40	45	45	10	10	30	30	45	45	10	10	30	30	50	50	6	5	5

Lesson 2F, page 37

$\frac{5}{x7}$	$\frac{1}{x10}$	$\frac{2}{x8}$	$\frac{9}{x5}$	$\frac{2}{x2}$	$\frac{8}{x5}$	$\frac{7}{x2}$	$\frac{2}{x5}$	$\frac{3}{x2}$
35	10	16	45	4	40	14	10	6

<p>This fact has factors of 2 and 5.</p> $\begin{array}{r} 2 \\ \times 5 \\ \hline 10 \end{array}$	<p>This fact can be modelled with the following number line:</p>	<p>The product of this fact is 5 less than 50.</p> $\begin{array}{r} 9 \\ \times 5 \\ \hline 45 \end{array}$	= 59
<p>The product of this fact is the number of days in 2 weeks.</p> $\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$	<p>The product of this fact ends in 0. The numeral in the tens position is one-half of 8.</p> $\begin{array}{r} 8 \\ \times 5 \\ \hline 40 \end{array}$	<p>This fact means 3 groups of 2.</p> $\begin{array}{r} 3 \\ \times 2 \\ \hline 6 \end{array}$	= 60
<p>The product of this fact is the number of minutes after the hour:</p> $\begin{array}{r} 5 \\ \times 7 \\ \hline 35 \end{array}$	<p>The product of this fact is 4 less than 20.</p> $\begin{array}{r} 2 \\ \times 8 \\ \hline 16 \end{array}$	<p>This fact can be modelled with the following array:</p> $\begin{array}{r} 1 \\ \times 10 \\ \hline 10 \end{array}$	= 61

Lesson 2G, page 39

Complete the facts, using the numbers you circled in the hundreds chart.

$1 \times 9 = \underline{\quad}$	$6 \times 9 = \underline{\quad}$
$2 \times 9 = \underline{\quad}$	$7 \times 9 = \underline{\quad}$
$3 \times 9 = \underline{\quad}$	$8 \times 9 = \underline{\quad}$
$4 \times 9 = \underline{\quad}$	$9 \times 9 = \underline{\quad}$
$5 \times 9 = \underline{\quad}$	$10 \times 9 = \underline{\quad}$

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Lesson 3A, page 43