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**Activity Sheet 1: Using Multiplication by 10**

**Directions:** Solve each problem with a ratio table. Use the strategy of multiplying by 10. You may not need to use every column in the ratio table.

**Example:** There are 5 pieces of gum in a pack. How many pieces of gum are in 10 packs?

Pack	1	10		
Pieces	5	50		

$\xrightarrow{\times 10}$   
 $\xleftarrow{\times 10}$

- 1) There are 6 desks per row. How many desks are there in 10 rows?

Rows	1	10		
Desks	6	60		

60 desks

- 2) There are 3 birds per nest. How many birds are there in 10 nests?

Nests	1	10		
Birds	3	30		

30 birds

- 3) There are 4 students per table. How many students are there at 10 tables?

Tables	1	10		
Students	4	40		

40 students

- 4) Two trays contained 12 ice cubes. How many ice cubes are there in 20 trays?

Trays	2	20		
Ice Cubes	12	120		

120 trays

- 5) Jon gets paid \$4 for every 3 hours he works. How much will he get paid if he works 30 hours?

Hours worked	3	30		
Dollars earned	4	40		

\$40

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**Activity Sheet 2: Using Multiplication by Any Number**

**Directions:** Solve each problem with a ratio table. Use multiplication to help you arrive at the answer. You may not need to use every column in the ratio table.

**Example:** There are 5 apples in each bag. How many apples are in 16 bags?

Bags	1	2	8	16
Apples	5	10	40	80

Handwritten annotations:  $\times 2$  (1 to 2),  $\times 4$  (2 to 8),  $\times 2$  (8 to 16) for Bags;  $\times 2$  (5 to 10),  $\times 4$  (10 to 40),  $\times 2$  (40 to 80) for Apples.

- 1) There are 4 chairs per table. How many chairs are there for 20 tables?

Tables	1	20				
Chairs	4	80				

Handwritten annotations:  $\times 20$  (1 to 20) for Tables;  $\times 20$  (4 to 80) for Chairs.

80 chairs

- 2) There are 12 eggs in every carton. How many eggs are there in 8 cartons?

Cartons	1	8				
Eggs	12	96				

Handwritten annotations:  $\times 8$  (1 to 8) for Cartons;  $\times 8$  (12 to 96) for Eggs.

96 eggs

- 3) Three people can fit in each rowboat. How many people can fit into 12 rowboats?

Rowboats	1	12				
People	3	36				

Handwritten annotations:  $\times 12$  (1 to 12) for Rowboats;  $\times 12$  (3 to 36) for People.

36 people

- 4) You can buy 8 balloons for \$1. How many balloons can you buy for \$8?

Here is Melia's solution strategy:

Dollars	1	2	4	8		
Balloons	8	16	32	64		

Explain Melia's Strategy

Melia's strategy:

multiply by 2  
each time

Now... solve this problem in a **different** way.

Dollars	1	8				
Balloons	8	64				

Handwritten annotations:  $\times 8$  (1 to 8) for Dollars;  $\times 8$  (8 to 64) for Balloons.

64

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**Activity Sheet 3: Using the Doubling Strategy**

**Directions:** Solve each problem with a ratio table. Use "doubles" to help you arrive at the answer. You may not need to use every column in the ratio table.

**Example:** Gasoline costs \$4 per gallon. How much does it cost to buy 8 gallons?

Gallons	1	2	4	8
Dollars	4	8	16	32

$\xrightarrow{x2}$     $\xrightarrow{x2}$     $\xrightarrow{x2}$   
 $\xleftarrow{x2}$     $\xleftarrow{x2}$     $\xleftarrow{x2}$

1) Each student has 2 shoes. How many shoes are there for 8 students?

Students	1	2	4	8		
Shoes	2	4	8	16		

16 shoes

2) There are 12 eggs in every carton. How many eggs are there in 4 cartons?

Cartons	1	2	4			
Eggs	12	24	48			

48 eggs

3) There are 8 M&M's in every mini-bag. How many M&M's are there in 16 mini-bags?

mini-bags	1	2	4	8	16	
M&M's	8	16	32	64	128	

128 M + M's

4) There are 6 chairs for every 3 tables. How many chairs are there for 12 tables?

Tables	3	6	12			
Chairs	6	12	24			

24 chairs

5) 5 students need 20 crayons. How many crayons do 40 students need?

Students	5	10	20	40		
Crayons	20	40	80	160		

160 crayons

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**Activity Sheet 4: Using the Halving Strategy**

**Directions:** Solve each problem with a ratio table. Use "halves" to help you arrive at the answer. You may not need to use every column in the ratio table.

**Example:** 10 bottles of juice cost \$20. How much does it cost for 5 bottles of juice?

Bottles	10	5		
Cost	\$20	\$10		

+2  
+2

- 1) It takes 10 hours to ride a bike 40 miles. How far can you ride in 5 hours?

Hours	10	5			
Miles	40	20			

20 miles

- 2) 60 eggs fit into 4 baskets. How many eggs fit into one basket?

Baskets	4	2	1		
Eggs	60	30	15		

15 eggs

- 3) You can buy 12 apples for \$4. How much does it cost to buy 6 apples?

Apples	12	6			
Cost	4	2			

\$2

- 4) You can buy 20 oranges for \$6. How much would it cost to buy 5 oranges?

Oranges	20	10	5		
Cost	6	3	1.5		

\$ 1.50

- 5) 32 students need to sell 80 raffle tickets. If the students split it up evenly, how many tickets does each student need to sell on his or her own?

Students	32	16	8	4	2	1	
Tickets to sell	80	40	20	10	5	2.5	

2.5 tickets

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## Activity Sheet 5: Using Addition

**Directions:** Solve each problem with a ratio table. Use addition across columns to help you arrive at the answer. You may need to use some other strategies as well (like doubling, multiplication, etc.). You may not need to use every column in the ratio table.

**Example:** 1 bottle of juice costs \$4. How much does it cost for 3 bottles of juice?

Bottles	1	2	3		
Cost	\$4	\$8	\$12		

$1 + 2 = 3$   
 $\$4 + \$8 = \$12$

- 1) It takes 1 minute to travel 2 miles on the high speed train. How many miles can you travel in 12 minutes?

Minute	1	2	10	12		
Miles	2	4	20	24		

24 miles

- 2) It takes 2 minutes to run 1 lap around the track. How long would it take to run 5 laps?

Laps	1	2	3	5		
Minutes	2	4	6	10		

10 minutes

- 6) One t-shirt costs \$6. 3 shirts cost \$18. How much does it cost to buy 4 shirts?

Shirts	1	3	4		
Cost	\$6	\$18	24		

\$24

- 7) You can buy 10 cherry tomatoes for \$6. How much would it cost to buy 15 tomatoes?

Tomatoes	10	5	15		
Cost	\$6	3	9		

\$9

- 8) Each player on the basketball team needs has to shoot 5 free-throw shots at practice. There are 12 players on the team. How many shots in all will be taken by the team?

Players	1	12			
Free throws	5	60			

60 free throws

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Activity Sheet 6: Using Subtraction

**Directions:** Solve each problem with a ratio table. Use subtraction across two columns to help you arrive at the answer. You may need to use some other strategies as well (like doubling, multiplication, etc.). You may not need to use every column in the ratio table.

**Example:** 1 bottle of medicine costs \$4. How much does it cost for 9 bottles?

Bottles	1	10	9	
Cost	\$4	\$40	\$36	

$10 - 1 = 9$

$\$40 - \$4 = \$36$

~~1) It takes 1 minute to pump 2 gallons of gas. How many minutes does it take to pump 19 gallons of gas?~~

Minutes	1	10	20	19	
Gallons	2	20	40	38	

2) Each pizza contains 6 slices. How many slices in 8 pizzas?

Pizzas	1	2	10	8	
Slices	6	12	60	48	

48 minutes

3) In a big storm, rain fell at the rate of 2 centimeters every hour for an entire day. How much rain had fallen after 18 hours?

Hours	1	10	20	2	18	
Centimeters	2	20	40	4	36	

36 cm

4) One baseball cap costs \$5. How much would 14 caps cost?

Caps	1	10	5	15	14	
Cost	\$5	\$50	25	75	70	

\$70

5) You can buy 10 bananas for \$6. Therefore, 50 bananas cost \$30. How much would it cost to buy 45 bananas?

Bananas	10	50	5	45	
Cost	6	30	3	27	

\$27

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**Activity Sheet 7: Solving Problems with Ratio Tables**

Sammy is helping his parents plant a garden. He goes to the store and finds that corn seeds come in small packs. Each pack of seeds contains 12 seeds. How many seeds will he get if he buys 6 packs? He solves the problem 4 different ways.

**Solution Strategy #1**

Packs	1	2	3	4	5	6
Seeds	12	24	36	48	60	72

Explain Sammy's strategy? How did he use the ratio table to solve the problem?

Add one pack  
add 12 seeds

**Solution Strategy #2**

Packs	1	2	3	6
Seeds	12	24	36	72

Explain Sammy's strategy? How did he use the ratio table to solve the problem?

add one pack, then double after 3  
add 12 packs, then double

**Solution Strategy #3**

Packs	1	10	5	6
Seeds	12	120	60	72

Explain Sammy's strategy? How did he use the ratio table to solve the problem?

$\times 10 \div 2$ , then add 1 pack to 5 packs  
add 12 seeds to 60 seeds

Solution Strategy #4

Packs	1	2	4	8	6
Seeds	12	24	48	96	72

Explain Sammy's strategy? How did he use the ratio table to solve the problem?

doubling, then subtract 8 packs minus 2  
and subtract 96 seeds minus 24

Now YOU solve the problem, using any strategy you prefer.

Sammy is helping his parents plant a garden. He goes to the store and finds that corn seeds come in small packs. Each pack of seeds contains 12 seeds. How many seeds will he get if he buys 6 packs?

Packs	1	6				
Seeds	12	72				

Explain your strategy.

multiply by 6

Why did you choose the strategy that you did?

quickest way to arrive at 6 packs



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**Activity Sheet 8: Solving Problems with Ratio Tables**

**Problem:** Silver City Middle School needs a new gym floor. The gym floor tiles come in boxes of 45 tiles per box. Mr. Sheffield, the gym teacher, ordered 16 boxes of tiles. Three students used a ratio table to find out how many tiles were in all 16 boxes.

Becky solved the problem this way:

Boxes	1	2	3	4	5	6	7	8	16
Tiles	45	90	135	180	225	270	315	360	720

Explain Becky's thinking. How did Becky use the ratio table?

+ 1 each box  
+ 45 tiles in each

Ann solved the problem this way:

Boxes	1	2	4	8	16
Tiles	45	90	180	360	720

Explain Ann's thinking. How did Ann use the ratio table?

doubling each time

Brian solved the problem this way:

Boxes	1	10	2	6	16
Tiles	45	450	90	270	720

Explain Brian's thinking. How did Brian use the ratio table?

x10                      x3                      Add  
x2

**Question:** Which of these strategies do you like the best? Why?

Answers will vary

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**Activity Sheet 9: Solving Problems with Ratio Tables**

Directions: Use a ratio table to solve the following problems. Use any combination of strategies you'd like to use. You may not need all the columns in the tables provided. Be prepared to share and explain your strategy with a partner.

1. A tube contains 3 tennis balls. How many tennis balls are there in 32 tubes? *96 balls*

Tube	1	32					
Tennis Balls	3	96					

2. Sunglasses cost \$8. How much will it cost to buy 12 sunglasses? *\$96*

Sunglasses	1	12					
Cost	8	96					

3. At the market, 2 tomatoes sell for \$3. How much would it cost to buy 12 tomatoes? *\$18*

Tomatoes	2	12					
Cost	3	18					

4. At the zoo, the lions eat 25 pounds of meat a day. How much would they eat in one week (7 days)? *175 lbs*

Meat (lb)	25	175					
Days	1	7					

5. At the same zoo, 50 visitors are allowed into the monkey exhibit each hour. How many visitors can see the monkeys in a day? The zoo is open for 8 hours each day. *400 visitors*

Visitors	50	400					
Hours	1	8					

6. It costs \$12 per student to get into the zoo. How much would it cost for a group of 21 students to visit the zoo? *\$252*

Students	1	21					
Cost	12	252					

7. Every 4 hours, the doctor sees 8 patients. How many patients does the doctor see after 11 hours? *22 patients*

Hours	4	2	1	11			
Patients Seen	8	4	2	22			

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**Activity Sheet 10: Ratio Table Strategy Review**

You have solved many problems in this book with ratio tables. You probably used familiar strategies like these:

**Multiply by 10**

1	10
15	150

**Doubling**

4	8
15	30

**Adding**

1	2	3
25	50	75

**Multiplying**

2	6
50	150

**Halving**

20	10
30	15

**Subtracting**

1	10	9
12	120	108

Find the missing numbers in the shaded boxes in the ratio tables below. Then write which of the above strategies you used.

1.

1	10	9
18	180	162

Strategy: Subtracting

3.

1	10	20
12	120	

Strategy: Multiplying / Doubling

5.

4	40
18	

Strategy: Multiply by 10

7.

4	8
18	

Strategy: Doubling

2.

1	10	5
18	180	90

Strategy: Multiplying / Halving

4.

2	12
8	48

Strategy: Multiplying

6.

2	10	12
8	40	48

Strategy: Multiply / Add

8.

12	6
8	4

Strategy: Halving