Answer Key

GRADE 3 • MODULE 1

Properties of Multiplication and Division and Solving Problems with Units of 2–5 and 10

Lesson 1

Problem Set

1. a. 15; 15; 15
   b. 15; 15; 15
   c. 24; 4, 24; 6, 24
   d. 4, 4, 4, 4, 4, 24; 4, 24; 4, 24
2. No; explanations will vary.
3. 2 equal groups of 3 apples drawn
4. Chocolates circled to show 3 groups of 4; 4 + 4 + 4 = 12; 3 × 4 = 12

Exit Ticket

1. 2, 2, 2, 8; 2, 8
2. Picture showing 3 + 3 + 3 = 9 drawn; 3 × 3 = 9

Homework

1. a. 20; 20; 20
   b. 20; 20; 20
   c. 18; 3, 18; 6, 18
   d. 3, 3, 3, 3, 3, 18; 3, 18; 3, 18
2. Yes; explanations will vary.
3. Picture showing 4 × 2 = 8 drawn
4. Pencils circled to show 3 groups of 6; 6 + 6 + 6 = 18; 3 × 6 = 18

Lesson 2

Sprint

Side A

1.	2	12.	16	23.	6	34.	88
2.	4	13.	14	24.	8	35.	66
3.	6	14.	12	25.	10	36.	44
4.	8	15.	10	26.	12	37.	22
5.	10	16.	8	27.	14	38.	0
6.	12	17.	6	28.	16	39.	22
7.	14	18.	4	29.	18	40.	44
8.	16	19.	2	30.	20	41.	66
9.	18	20.	0	31.	22	42.	88
10.	20	21.	2	32.	44	43.	666
11.	18	22.	4	33.	66	44.	444

Side B

1.	2	12.	16	23.	6	34.	88
2.	4	13.	14	24.	8	35.	66
3.	6	14.	12	25.	10	36.	44
4.	8	15.	10	26.	12	37.	22
5.	10	16.	8	27.	14	38.	0
6.	12	17.	6	28.	16	39.	22
7.	14	18.	4	29.	18	40.	44
8.	16	19.	2	30.	20	41.	66
9.	18	20.	0	31.	22	42.	88
10.	20	21.	2	32.	44	43.	444
11.	18	22.	4	33.	66	44.	666

Problem Set

1. a. 4
   b. 2
2. a. 3
   b. 6
3. a. 8
   b. 2 × 4
4. a. 4
   b. 5 × 4
5. a. 2 rows of 5 drawn
   b. Answers will vary.
6. 4 rows of 3 drawn; 12
7. 5 rows of 3 drawn; 15

Exit Ticket

1. a. 3
   b. 4 × 3
2. 3 rows of 6 drawn; 3 × 6 = 18

Homework

1. a. 3
   b. 2
2. a. 4
   b. 3
3. a. 15
   b. 5 × 3
4. a. 4
   b. 6 × 4
8. a. 3 rows of 4 drawn
   b. Answers will vary.
9. 5 rows of 4 drawn; 5 × 4 = 20
10. Answers will vary.

Lesson 3

Sprint

Side A

1.	4	12.	20	23.	14	34.	12
2.	4	13.	8	24.	14	35.	20
3.	10	14.	8	25.	18	36.	20
4.	10	15.	6	26.	18	37.	18
5.	6	16.	6	27.	16	38.	18
6.	6	17.	12	28.	16	39.	24
7.	8	18.	12	29.	9	40.	24
8.	8	19.	10	30.	9	41.	21
9.	15	20.	10	31.	12	42.	21
10.	15	21.	25	32.	12	43.	27
11.	20	22.	25	33.	12	44.	27

Side B

1.	10	12.	8	23.	16	34.	9
2.	10	13.	6	24.	16	35.	20
3.	4	14.	6	25.	14	36.	20
4.	4	15.	12	26.	14	37.	21
5.	15	16.	12	27.	18	38.	21
6.	15	17.	8	28.	18	39.	27
7.	20	18.	8	29.	12	40.	27
8.	20	19.	25	30.	12	41.	18
9.	6	20.	25	31.	12	42.	18
10.	6	21.	10	32.	12	43.	24
11.	8	22.	10	33.	9	44.	24

Problem Set

1. a. 4; 5
   b. 20
   c. 20
2. 3
   a. 6; 3
   b. 3, 18
   c. 18
3. 3
   a. 3; 4
   b. 3, 12
   c. 12
4. 2
   a. 5; 2
   b. 5, 2, 10
   c. 10
5. a. $4 \times 3 = 12$
   b. Number bond showing 4 units of 3 equals 12 drawn
6. Array showing 2 rows of 3 or 3 rows of 2 drawn; number bond drawn depending on the array, showing 2 units of 3 equals 6 or 3 units of 2 equals 6

Exit Ticket

Array showing 5 rows of 3 squares drawn; number bond showing 5 units of 3 equals 15 drawn

Homework

1. a. 5; 5
   b. 25
   c. 25
2. 4
   a. 6; 4
   b. 4, 24
   c. 24
3. 4
   a. 4; 4
   b. 4, 16
   c. 16
4. 3
   a. 6; 3
   b. 6, 3, 18
   c. 18
5. Array showing 4 rows of 2 or 2 rows of 4 drawn; number bond drawn depending on the array, showing 4 units of 2 equals 8 or 2 units of 4 equals 8

Lesson 4

Sprint

Side A

1.	15	12.	8	23.	12	34.	18
2.	15	13.	10	24.	12	35.	18
3.	15	14.	10	25.	12	36.	18
4.	6	15.	10	26.	9	37.	12
5.	6	16.	6	27.	9	38.	12
6.	6	17.	6	28.	15	39.	12
7.	10	18.	6	29.	15	40.	16
8.	10	19.	20	30.	15	41.	16
9.	10	20.	20	31.	14	42.	16
10.	8	21.	20	32.	14	43.	28
11.	8	22.	4	33.	14	44.	28

Side B

1.	6	12.	10	23.	12	34.	16
2.	6	13.	6	24.	12	35.	16
3.	6	14.	6	25.	12	36.	16
4.	15	15.	6	26.	16	37.	14
5.	15	16.	10	27.	16	38.	14
6.	15	17.	10	28.	20	39.	14
7.	8	18.	10	29.	20	40.	18
8.	8	19.	20	30.	20	41.	18
9.	8	20.	20	31.	12	42.	18
10.	10	21.	20	32.	12	43.	24
11.	10	22.	4	33.	12	44.	24

Problem Set

1. 7
2. 7
3. 3; 10
4. 12, 2; 6; 6
5. 5; 5
6. 3
7. 6; 6
8. Four apples drawn in each basket; 4; 5, 4
9. 3; 15, 5, 3

Exit Ticket

1. Four glue sticks drawn in each group; 4; 4, 4
2. Picture showing 15 ÷ 3 drawn; 5

Homework

1. 6
2. 7
3. 5; 5
4. 9, 3; 3; 3
5. 3; 3
6. 4
7. 7; 7
8. Five pencils drawn on each table; 5; 4, 5
9. 4; 20, 5, 4

Lesson 5

Problem Set

1. 2
2. Four groups of 2 shown; 4; 4
3. Two groups of 5 shown; 2
4. 4; 4 groups of 3 shown; 4
5. Three groups of 3 circled
   a. $9 \div 3 = 3$
   b. Number bond showing 3 units of 3 equals 9 drawn
6. a. Count-by fours from 4 to 16 written and drawn
   b. $16 \div 4 = 4$

Exit Ticket

1. Two groups of 6 shown; 2
2. Count-by fives from 5 to 20 written and drawn

Homework

1. Two groups of 2 shown; 2
2. Three groups of 3 shown; 3; 3
3. Four groups of 3 shown; 4
4. Three groups of 5 shown; 3; 3
5. Two groups of 6 circled
   a. $12 \div 6 = 2$
   b. Number bond showing 2 units of 6 equals 12 drawn
6. a. Count-by fours from 4 to 24 written and drawn
   b. $24 \div 4 = 6$

Lesson 6

Problem Set

1. Five groups of 3 circled; 5; 5; 5
2. Five groups of 3 drawn and circled; 3; 3; 3
3. Array of 5 rows of 3 drawn
   a. 5; 5; the number of groups
   b. 3; 3; the size of each group
4. 3; 3; the number of groups
5. Answers will vary.
6. Array of 4 rows of 3 drawn

Exit Ticket

Array of 2 rows of 6 drawn; 2; 2

The number of groups

Homework

1. Three groups of 4 circled; 3; 3; 3
2. Three groups of 4 drawn and circled; 4; 4; 4
3. Array of 3 rows of 4 drawn
   a. 3; 3; the number of groups
   b. 4; 4; the size of each group
4. 6; 6; the size of each group
5. Answers will vary.
6. Array of 3 rows of 5 drawn

Lesson 7

Problem Set

1. a. 2, 4, 6, 8, 10, 12
   b. Array of 6 rows of 2 drawn
   c. 6, 2, 12
2. a. 6, 12
   b. Array of 2 rows of 6 drawn
   c. 2, 6, 12
3. a. Same array in Problem 1 turned on its side in Problem 2
   b. The meaning of the factors switched; 2 represents size of each group, and 6 represents number of groups in Problem 1; 2 represents number of groups, and 6 represents size of each group in Problem 2
4. a. Answer provided
   b. $2 \times 6 = 12$
   c. $7 \times 2 = 14$
   d. $2 \times 7 = 14$
   e. $9 \times 2 = 18$
   f. $2 \times 9 = 18$
   g. $11 \times 2 = 22$
   h. $2 \times 12 = 24$
5. $4 \times 2 = 8$; $2 \times 4 = 8$
6. Agree; array of 7 rows of 2 and array of 2 rows of 7 drawn
7. 5; 2; 10; 9
8. a. Array of 2 rows of 6 drawn
   b. $2 \times 6 = 12$
   c. $6 \times 2 = 12$

Exit Ticket

Agree; array of 2 rows of 5 and array of 5 rows of 2 drawn; skip-counts by fives or twos, depending on the array, written to show a total of 10 each

Homework

1. a. 2, 4, 6, 8, 10, 12, 14
   b. Array of 7 rows of 2 drawn
   c. 7, 2, 14
2. a. 7, 14
   b. Array of 2 rows of 7 drawn
   c. 2, 7, 14
3. a. Same array in Problem 1 turned on its side in Problem 2
   b. The meaning of the factors switched; 2 represents size of each group, and 7 represents number of groups in Problem 1; 2 represents number of groups, and 7 represents size of each group in Problem 2
4. a. Answer provided.
   b. $3 \times 2 = 6$
   c. $2 \times 3 = 6$
   d. $2 \times 4 = 8$
   e. $4 \times 2 = 8$
   f. $5 \times 2 = 10$
   g. $2 \times 5 = 10$
   h. $6 \times 2 = 12$
   i. $2 \times 6 = 12$
5. $6 \times 2 = 12$; $2 \times 6 = 12$
6. Agree; array of 2 rows of 8 and array of 8 rows of 2 drawn
7. 2; 7; 2; 10
8. a. Array of 2 rows of 7 drawn
   b. $2 \times 7 = 14$
   c. $7 \times 2 = 14$

Lesson 8

Problem Set

1. a. 3, 6, 9, 12, 15
   b. Array of 5 rows of 3 drawn
2. a. 5, 10, 15
   b. Array of 3 rows of 5 drawn
3. 5; 3; 3; 5
4. a. Answer provided
   b. $3 \times 2 = 6$
   c. $3 \times 4 = 12$
   d. $4 \times 3 = 12$
   e. $3 \times 7 = 21$
   f. $7 \times 3 = 21$
   g. $3 \times 9 = 27$
   h. $9 \times 3 = 27$
   i. $10 \times 3 = 30$
5. a. 15, matched with Part (e), 15
   b. 27, matched with Part (f), 3
   c. 24, matched with Part (d), 24
6. a. Array of 7 rows of 3 drawn
   b. 21, $7 \times 3 = 21$
   c. 3 rows of 3 x's added to array in Part (a)
   d. $10 \times 3 = 30$
7. a. 3, 2, 6
   b. 6, 2, 12

Exit Ticket

a. Array of 3 rows of 4 drawn
b. $3 \times 4 = 12$
c. Rows of array labeled 4, 8, 12
d. $4 \times 3 = 12$

Homework

1. a. 3, 6, 9, 12, 15, 18
   b. Array of 6 rows of 3 drawn
2. a. 6, 12, 18
   b. Array of 3 rows of 6 drawn
3. 6; 3; 3; 6
4. a. Answer provided
   b. 3 × 5 = 15
   c. 6 × 3 = 18
   d. 3 × 6 = 18
   e. 7 × 3 = 21
   f. 3 × 7 = 21
   g. 8 × 3 = 24
   h. 3 × 9 = 27
   i. 10 × 3 = 30
5. a. 18, matched with Part (e), 18
   b. 15, matched with Part (f), 3
   c. 27, matched with Part (d), 27
6. a. Array of 8 rows of 3 circles drawn
   b. 8 × 3 = 24
   c. 2 rows of 3 x's added to array in Part (a)
   d. 10 × 3 = 30
7. a. 4, 3, 12
   b. 7, 3, 21

Lesson 9

Pattern Sheet

2	4	6	8
10	2	4	2
6	2	8	2
10	2	4	6
4	8	4	10
4	2	4	6
2	6	4	6
8	6	10	6
8	2	8	4
8	6	8	10
8	10	2	10
4	10	6	10
8	4	8	6
10	6	4	8
6	10	4	8

Problem Set

1. a. 25
   b. 3, 5
   c. 5, 25
2. 14; 10; 4; 14; 7
3. 18; 20; 2; 2; 18
4. a. Array of 4 rows of 3 x's drawn
   b. 12
5. 2 rows of 3 circles added to array in Problem 4(a)
   a. 2, 6
   b. 12, 6
   c. 6, 3

Exit Ticket

1. 10, 2, 20
2. a. 10, 2, 8
   b. 4
   c. 8, 16

Homework

1. a. 20
   b. 2, 5
   c. 5, 20
2. 14; 12; 2; 14; 7
3. 27; 30; 3; 3; 9
4. a. Array of 5 rows of 4 x's drawn
   b. 20
5. 2 rows of 4 circles added to array in Problem 4
   a. 2, 8
   b. 20, 8
   c. 7

Lesson 10

Pattern Sheet

2	4	6	8
10	12	14	16
18	20	10	12
10	14	10	16
10	18	10	20
12	10	12	14
12	16	12	18
12	14	12	14
16	14	18	14
16	12	16	14
16	18	18	12
18	14	18	16
18	16	12	18
14	18	12	16
18	14	12	16

Problem Set

1. 21; 6; 6; 6, 21
2. 24; 4, 12; 4, 12; 12, 12; 8, 24
3. a. Array of 2 rows of 3 shown in upper album, 2; array of 3 rows of 3 shown in lower album, 3
   b. 5 × 3 broken into two smaller facts: 2 × 3 = 6 and 3 × 3= 9; answers of two smaller facts added: 6 + 9; 5 × 3 = 6 + 9 = 15

Exit Ticket

1. 18; 12; 6; 12, 6; 12, 6; 6, 18
2. 21; 5, 15; 2, 6; 15, 6; 15, 6; 7, 21

Homework

1. 18; 6; 6, 18; 18
2. 16; 4, 8; 4, 8; 8, 8; 8, 16
3. a. Array of 5 rows of 3 shown on top shelf, 5; array of 1 row of 3 shown on bottom shelf, 1
   b. 6 × 3 broken into two smaller facts: 5 × 3 = 15 and 1 × 3 = 3; answers of two smaller facts added: 15 + 3; 6 × 3 = 15 + 3 = 18

Lesson 11

Pattern Sheet

3	6	9	12
15	3	6	3
9	3	12	3
15	3	6	9
6	12	6	15
6	3	6	9
3	9	6	9
12	9	15	9
12	3	12	6
12	9	12	15
12	15	3	15
6	15	9	15
12	6	12	9
15	9	6	12
9	15	6	12

Problem Set

1. a. 6; array drawn showing 2 columns of 6; 12, 6
   b. 2 oranges drawn in each unit; unit labeled 2; whole labeled 12
2. 3; array drawn showing 6 columns of 3; tape diagram drawn showing 6 groups of 3 is 18
3. 2; array drawn showing 7 columns of 2; tape diagram drawn showing 7 groups of 2 is 14
4. 3; array drawn showing 8 columns of 3; tape diagram drawn showing 8 groups of 3 is 24
5. 8

Exit Ticket

9; array and tape diagram drawn showing 9 groups of 2 is 18

Homework

1. a. Array drawn showing 2 rows of 5; 10, 5
   b. 2 pears drawn in each unit; unit labeled 2; whole labeled 10
2. 5; array drawn showing 3 columns of 5; tape diagram drawn showing 3 groups of 5 is 15
3. 8; array drawn showing 2 columns of 8; tape diagram drawn showing 2 groups of 8 is 16
4. 6; array drawn showing 3 columns of 6; tape diagram drawn showing 3 groups of 6 is 18
5. 7

Lesson 12

Pattern Sheet

3	6	9	12
15	18	21	24
27	30	15	18
15	21	15	24
15	27	15	30
18	15	18	21
18	24	18	27
18	21	18	21
24	21	27	21
24	18	24	21
24	27	27	18
27	21	27	24
27	24	18	27
21	27	18	24
27	21	18	24

Problem Set

1. 4 groups of 2 birds circled; 4; 4
2. 2 fish drawn in each bowl; 2; 2; 2
3. First rabbit matched to 5
   Second rabbit matched to 8
   Third rabbit matched to 9
   Fourth rabbit matched to 7
   Fifth rabbit matched to 6
4. 7; labels will vary.
5. 6
6. $9

Exit Ticket

7; tape diagram drawn and labeled to represent the problem

Homework

1. 5 groups of 2 people circled; 5; 5
2. 2 frogs drawn in each group;
   labels will vary; 2
3. First frog matched to 5
   Second frog matched to 8
   Third frog matched to 9
   Fourth frog matched to 7
4. 8; labels will vary.
5. 7
6. $8

Lesson 13

Sprint

Side A

1.	4	12.	14	23.	10	34.	8
2.	6	13.	16	24.	2	35.	7
3.	8	14.	18	25.	3	36.	9
4.	10	15.	20	26.	10	37.	6
5.	2	16.	8	27.	5	38.	8
6.	2	17.	7	28.	2	39.	22
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	24
9.	2	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	28
11.	12	22.	6	33.	9	44.	14

Side B

1.	2	12.	12	23.	2	34.	7
2.	4	13.	14	24.	10	35.	8
3.	6	14.	16	25.	3	36.	9
4.	8	15.	18	26.	2	37.	6
5.	10	16.	7	27.	2	38.	7
6.	3	17.	6	28.	10	39.	22
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	24
9.	2	20.	9	31.	6	42.	12
10.	5	21.	6	32.	8	43.	26
11.	20	22.	5	33.	9	44.	13

Problem Set

1. Top row: 1; 2; 9; 12, 12; 15, 15

   Bottom row: 18, 18; 21, 21; 24, 24; 27, 27; 30, 30

2. a. 4 groups of 3 circled; skip-count written as 3, 6, 9, 12

   b. Tape diagram drawn and labeled to represent problem; 12, 4; 4

3. 5; tape diagram drawn and labeled to represent problem

4. 10

5. 8

Exit Ticket

1. 7; tape diagram drawn and labeled to represent problem

2. 8

Homework

1. 2; 3, 3; 21, 21; 27, 27

2. a. 5 groups of 3 circled; skip-count written as 3, 6, 9, 12, 15

   b. Tape diagram drawn and labeled to represent problem; 15, 5; 5

3. 6

4. 8

5. 9

Lesson 14

Sprint

Side A

1.	6	12.	21	23.	10	34.	8
2.	9	13.	24	24.	2	35.	7
3.	12	14.	27	25.	3	36.	9
4.	15	15.	30	26.	10	37.	6
5.	3	16.	8	27.	5	38.	8
6.	2	17.	7	28.	3	39.	33
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	36
9.	3	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	39
11.	18	22.	4	33.	9	44.	13

Side B

1.	3	12.	18	23.	2	34.	7
2.	6	13.	21	24.	10	35.	8
3.	9	14.	24	25.	3	36.	9
4.	12	15.	27	26.	2	37.	6
5.	15	16.	7	27.	3	38.	7
6.	3	17.	6	28.	10	39.	33
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	36
9.	3	20.	9	31.	6	42.	12
10.	5	21.	4	32.	8	43.	39
11.	30	22.	5	33.	9	44.	13

Problem Set

1. 12, 16, 20, 24, 28, 32, 36, 40
   Answer provided; 8 matched to 4 × 2; 12 matched to 4 × 3; 16 matched to 4 × 4; 20 matched to 4 × 5; 24 matched to 4 × 6; 28 matched to 4 × 7; 32 matched to 4 × 8; 36 matched to 4 × 9; 40 matched to 4 × 10
2. 28; tape diagram drawn and labeled to represent problem
3. Tape diagram drawn and labeled to show 24 beads used
4. 20

Exit Ticket

24; tape diagram drawn and labeled to represent problem

Homework

1. 8, 12, 16, 20, 24, 28, 32, 36, 40
   Answer provided; 8 matched to 2 × 4; 12 matched to 3 × 4; 16 matched to 4 × 4; 20 matched to 5 × 4; 24 matched to 6 × 4; 28 matched to 7 × 4; 32 matched to 8 × 4; 36 matched to 9 × 4; 40 matched to 10 × 4
2. Array of 5 rows of 4 drawn; skip-count shown as 4, 8, 12, 16, 20; 5, 20; 20
3. 24; tape diagram drawn and labeled to represent problem
4. 32

Lesson 15

Pattern Sheet

4	8	12	16
20	4	8	4
12	4	16	4
20	4	8	12
8	16	8	20
8	4	8	12
4	12	8	12
16	12	20	12
16	4	16	8
16	12	16	20
16	20	4	20
8	20	12	20
16	8	16	12
20	12	8	16
12	20	8	16

Problem Set

1. a. Top: 8; 8
   Bottom: 8; 8
   b. Top: 4, 12; 3, 12
   Bottom: 3, 12; 3, 12
   Array showing 3 rows of 4 or 4 rows of 3 drawn
   c. Top: 4, 28; 7, 4
   Bottom: 7, 28; 4, 7
   Array showing 7 rows of 4 or 4 rows of 7 drawn
2. Two tape diagrams drawn and labeled to model $4 \times 6 = 6 \times 4$
3. Tape diagram drawn and labeled to represent 32 petals
4. 32; tape diagram drawn and labeled to represent problem

Exit Ticket

Two tape diagrams drawn and labeled to show 4 × 3 = 3 × 4; both total 12

Homework

1. a. Top: 12; 12
   Bottom: 12; 12
   b. Top: 9, 36; 9, 36
   Bottom: 4, 36; 9, 36
   Array showing 9 rows of 4 or 4 rows of 9 drawn
   c. Top: 4, 24; 6, 24
   Bottom: 6, 24; 6, 24
   Array showing 6 rows of 4 or 4 rows of 6 drawn
2. Tape diagram drawn and labeled to represent 28 balloons
3. 28; tape diagram drawn and labeled to represent problem

Lesson 16

Pattern Sheet

4	8	12	16
20	24	28	32
36	40	20	24
20	28	20	32
20	36	20	40
24	20	24	28
24	32	24	36
24	28	24	28
32	28	36	28
32	24	32	28
32	36	36	24
36	28	36	32
36	32	24	36
28	36	24	32
36	28	24	32

Problem Set

1. a. 24; 4; 4, 24
   b. 28; 20; 8; 20, 8
   c. 32; 20; 3, 12; 3, 20, 12, 32
   d. 36; 20; 4, 16; 4, 20, 16, 36
2. First cloud matched to 8 × 4; second cloud matched to 6 × 4; third cloud matched to 9 × 4; fourth cloud matched to 7 × 4
3. 10 fours broken into two smaller facts: 5 fours and 5 fours, or 5 fours doubled; sum of two smaller facts found to answer larger fact

Exit Ticket

8; 20, 8, 28; 7 fours broken into two smaller facts: 5 fours and 2 fours; sum of two smaller facts found to answer larger fact

Homework

1. a. 24; 1, 4; 1, 4, 24
   b. 32; 20; 3, 12; 3, 20, 12, 32
2. First sun matched to 24; second sun matched to 28; third sun matched to 32; fourth sun matched to 36
3. 20; 16; 9 fours broken into two smaller facts: 5 fours and 4 fours; sum of two smaller facts found to answer larger fact

Lesson 17

Sprint

Side A

1.	8	12.	28	23.	10	34.	8
2.	12	13.	32	24.	2	35.	7
3.	16	14.	36	25.	3	36.	9
4.	20	15.	40	26.	10	37.	6
5.	4	16.	8	27.	5	38.	8
6.	2	17.	7	28.	4	39.	44
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	3
9.	4	20.	10	31.	4	42.	12
10.	4	21.	5	32.	7	43.	56
11.	24	22.	6	33.	9	44.	14

Side B

1.	4	12.	24	23.	2	34.	7
2.	8	13.	28	24.	10	35.	8
3.	12	14.	32	25.	3	36.	9
4.	16	15.	36	26.	2	37.	6
5.	20	16.	7	27.	4	38.	7
6.	3	17.	6	28.	10	39.	44
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	48
9.	4	20.	9	31.	3	42.	12
10.	5	21.	4	32.	6	43.	52
11.	40	22.	5	33.	9	44.	13

Problem Set

1. Answer provided

   8; 8

   3; 3

   4; 4

   5, 4; 4, 5

   6, 4; 4, 6

   7, 28; 28, 7

   8, 32; 32, 8

   9, 4, 36; 36, 4, 9

   10, 4, 40; 40, 4, 10

2. Tape diagram drawn and labeled showing 9 boxes packed
3. 8
4. $14

Exit Ticket

1. 4; number bond drawn showing 4 units of 4 equals 16
2. 14; tape diagram drawn and labeled to represent the problem

Homework

1. 4; 4

   8; 8

   3; 3

   4; 4

   5, 4; 4, 5

   6, 4; 4, 6

   7, 28; 28, 7

   8, 32; 32, 8

   9, 4, 36; 36, 4, 9

   10, 4, 40; 40, 4, 10

2. 8; tape diagram drawn and labeled to represent the problem
3. 6
4. 12

Lesson 18

Sprint

Side A

1.	5	12.	40	23.	15	34.	60
2.	10	13.	35	24.	20	35.	55
3.	15	14.	30	25.	25	36.	50
4.	20	15.	25	26.	30	37.	65
5.	25	16.	20	27.	35	38.	70
6.	30	17.	15	28.	40	39.	65
7.	35	18.	10	29.	45	40.	60
8.	40	19.	5	30.	50	41.	150
9.	45	20.	0	31.	50	42.	200
10.	50	21.	5	32.	100	43.	150
11.	45	22.	10	33.	55	44.	100

Side B

1.	5	12.	40	23.	15	34.	60
2.	10	13.	35	24.	20	35.	55
3.	15	14.	30	25.	25	36.	50
4.	20	15.	25	26.	30	37.	65
5.	25	16.	20	27.	35	38.	70
6.	30	17.	15	28.	40	39.	65
7.	35	18.	10	29.	45	40.	60
8.	40	19.	5	30.	50	41.	150
9.	45	20.	0	31.	50	42.	200
10.	50	21.	5	32.	100	43.	150
11.	45	22.	10	33.	55	44.	100

Problem Set

1. 80; 3 tens; 3 tens; 3; 30, 80; 80
2. 28; 2 fours; 2 fours; 2; 8, 28; 28
3. 90; 4 × 10; 4 tens; 4; 50, 40, 90; 90
4. 100; 5 × 10, 5 × 10; 5 tens, 5 tens; 5, 5; 50, 50, 100; 100
5. 70
6. 24
7. 120

Exit Ticket

6 × 4; 1 × 4; 6, 4, 24

Homework

1. First apple matched to third bucket; second apple matched to first bucket; third apple matched to fourth bucket; fourth apple matched to second bucket
2. 36; 5 × 4, 4 × 4; 5, 4; 20, 16, 36; 36
3. 40
4. Answers will vary.
5. 70

Lesson 19

Problem Set

1. a. 12; 10, 2; 2
   b. 5; 1; 1, 5
   c. 7; 5, 8, 2; 8, 5, 2, 7
   d. 8; 20, 5, 12, 3, 20, 12; 5, 3, 8
2. First bucket matched to fourth ball; second bucket matched to first ball; third bucket matched to second ball; fourth bucket matched to third ball
3. 24 ÷ 2 broken into two smaller facts: 12 ÷ 2 and 12 ÷ 2; sum of two smaller facts found to answer larger fact

Exit Ticket

11; 10; 2, 1; 2; 10, 1, 11

Homework

1. a. 6; 3; 3
   b. 7; 2; 2, 7
   c. 6; 5, 1; 4, 5, 1, 6
   d. 9; 5, 4; 20, 16, 5, 4, 9
2. First white board matched to fourth clipboard; second white board matched to first clipboard; third white board matched to third clipboard; fourth white board matched to second clipboard
3. 35 ÷ 5 broken into two smaller facts: 20 ÷ 5 and 15 ÷ 5; sum of two smaller facts found to answer larger fact

Lesson 20

Sprint

Side A

1.	10	12.	30	23.	40	34.	15
2.	15	13.	25	24.	20	35.	40
3.	20	14.	20	25.	45	36.	20
4.	25	15.	15	26.	20	37.	45
5.	30	16.	10	27.	45	38.	25
6.	35	17.	5	28.	15	39.	50
7.	40	18.	5	29.	40	40.	60
8.	45	19.	30	30.	10	41.	55
9.	50	20.	10	31.	35	42.	60
10.	40	21.	35	32.	5	43.	65
11.	35	22.	15	33.	30	44.	70

Side B

1.	15	12.	25	23.	20	34.	20
2.	20	13.	20	24.	40	35.	45
3.	25	14.	15	25.	25	36.	25
4.	30	15.	10	26.	20	37.	50
5.	35	16.	5	27.	45	38.	15
6.	40	17.	5	28.	15	39.	40
7.	45	18.	30	29.	40	40.	55
8.	50	19.	10	30.	10	41.	60
9.	40	20.	35	31.	30	42.	65
10.	35	21.	15	32.	5	43.	60
11.	30	22.	40	33.	30	44.	65

Problem Set

1. Tape diagram labeled
   a. $24
   b. $28
2. Tape diagram labeled
   a. 4
   b. 12
3. 12
4. 5 blue and 3 red
5. 4

Exit Ticket

1. Tape diagram labeled
   a. 4
   b. 16
2. 10

Homework

1. Tape diagram labeled
   a. $12
   b. $9
2. Tape diagram labeled
   a. 6
   b. 24
3. 4 green and 5 purple
4. 9
5. 4

Lesson 21

Pattern Sheet

5	10	15	20
25	5	10	5
15	5	20	5
25	5	10	15
10	20	10	25
10	5	10	15
5	15	10	15
20	15	25	15
20	5	20	10
20	15	20	25
20	25	5	25
10	25	15	25
20	10	20	15
25	15	10	20
15	25	10	20

Problem Set

1. Tape diagram labeled; $4 \times 6 = 24$; $24 + 4 = 28$; \$28
2. Tape diagrams labeled; 22
3. Tape diagram drawn and labeled to represent problem; 12
4. a. 7
   b. 5

Exit Ticket

Tape diagram drawn and labeled to represent problem; 18

Homework

1. Tape diagram labeled; 4 × 8 = 32; 32 + 5 = 37; 37
2. Tape diagrams labeled; 23
3. 12; tape diagram drawn and labeled to represent problem
4. 3