



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

- 15; 15; 15
 - 15; 15; 15
 - 24; 4, 24; 6, 24
 - 4, 4, 4, 4, 24; 4, 24; 4, 24
- No; explanations will vary.
- 2 equal groups of 3 apples drawn
- Chocolates circled to show 3 groups of 4; $4 + 4 + 4 = 12$; $3 \times 4 = 12$

Exit Ticket

- 2, 2, 2, 8; 2, 8
- Picture showing $3 + 3 + 3 = 9$ drawn; $3 \times 3 = 9$

Homework

- 20; 20; 20
 - 20; 20; 20
 - 18; 3, 18; 6, 18
 - 3, 3, 3, 3, 18; 3, 18; 3, 18
- Yes; explanations will vary.
- Picture showing $4 \times 2 = 8$ drawn
- Pencils circled to show 3 groups of 6; $6 + 6 + 6 = 18$; $3 \times 6 = 18$

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; $3 \times 6 = 18$

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; $5 \times 4 = 20$
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

- 4; 5
 - 20
 - 20
- 3
 - 6; 3
 - 3, 18
 - 18
- 3
 - 3; 4
 - 3, 12
 - 12
- 2
 - 5; 2
 - 5, 2, 10
 - 10
- $4 \times 3 = 12$
 - Number bond showing 4 units of 3 equals 12 drawn
- 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

- 5; 5
 - 25
 - 25
- 4
 - 6; 4
 - 4, 24
 - 24
- 4
 - 4; 4
 - 4, 16
 - 16
- 3
 - 6; 3
 - 6, 3, 18
 - 18
- 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 $15 \div 3$ 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

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

Exit Ticket

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

Homework

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

Lesson 6

Problem Set

- Five groups of 3 circled; 5; 5; 5
- Five groups of 3 drawn and circled; 3; 3; 3
- Array of 5 rows of 3 drawn
 - 5; 5; the number of groups
 - 3; 3; the size of each group
- 3; 3; the number of groups
- Answers will vary.
- Array of 4 rows of 3 drawn

Exit Ticket

Array of 2 rows of 6 drawn; 2; 2

The number of groups

Homework

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

Lesson 7

Problem Set

- 2, 4, 6, 8, 10, 12
 - Array of 6 rows of 2 drawn
 - 6, 2, 12
- 6, 12
 - Array of 2 rows of 6 drawn
 - 2, 6, 12
- Same array in Problem 1 turned on its side in Problem 2
 - 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
- Answer provided
 - $2 \times 6 = 12$
 - $7 \times 2 = 14$
 - $2 \times 7 = 14$
 - $9 \times 2 = 18$
 - $2 \times 9 = 18$
 - $11 \times 2 = 22$
 - $2 \times 12 = 24$
- $4 \times 2 = 8$; $2 \times 4 = 8$
- Agree; array of 7 rows of 2 and array of 2 rows of 7 drawn
- 5; 2; 10; 9
- Array of 2 rows of 6 drawn
 - $2 \times 6 = 12$
 - $6 \times 2 = 12$

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

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

Exit Ticket

- Array of 3 rows of 4 drawn
- $3 \times 4 = 12$
- Rows of array labeled 4, 8, 12
- $4 \times 3 = 12$

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. $3 \times 5 = 15$
c. $6 \times 3 = 18$
d. $3 \times 6 = 18$
e. $7 \times 3 = 21$
f. $3 \times 7 = 21$
g. $8 \times 3 = 24$
h. $3 \times 9 = 27$
i. $10 \times 3 = 30$
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. $8 \times 3 = 24$
c. 2 rows of 3 x's added to array in Part (a)
d. $10 \times 3 = 30$
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

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

Exit Ticket

- 10, 2, 20
- 10, 2, 8
 - 4
 - 8, 16

Homework

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

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

Exit Ticket

- 18; 12; 6; 12, 6; 12, 6; 6, 18
- 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: $5 \times 3 = 15$ and $1 \times 3 = 3$; answers of two smaller facts added:
 $15 + 3$; $6 \times 3 = 15 + 3 = 18$

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

- 6; array drawn showing 2 columns of 6; 12, 6
 - 2 oranges drawn in each unit; unit labeled 2; whole labeled 12
- 3; array drawn showing 6 columns of 3; tape diagram drawn showing 6 groups of 3 is 18
- 2; array drawn showing 7 columns of 2; tape diagram drawn showing 7 groups of 2 is 14
- 3; array drawn showing 8 columns of 3; tape diagram drawn showing 8 groups of 3 is 24
- 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

- 4 groups of 2 birds circled; 4; 4
- 2 fish drawn in each bowl; 2; 2; 2
- 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
- 7; labels will vary.
- 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

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

Exit Ticket

Two tape diagrams drawn and labeled to show $4 \times 3 = 3 \times 4$; 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

- 24; 4; 4, 24
 - 28; 20; 8; 20, 8
 - 32; 20; 3, 12; 3, 20, 12, 32
 - 36; 20; 4, 16; 4, 20, 16, 36
- First cloud matched to 8×4 ; second cloud matched to 6×4 ; third cloud matched to 9×4 ; fourth cloud matched to 7×4
- 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

- 24; 1, 4; 1, 4, 24
 - 32; 20; 3, 12; 3, 20, 12, 32
- First sun matched to 24; second sun matched to 28; third sun matched to 32; fourth sun matched to 36
- 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

- 12; 10, 2; 2
 - 5; 1; 1, 5
 - 7; 5, 8, 2; 8, 5, 2, 7
 - 8; 20, 5, 12, 3, 20, 12; 5, 3, 8
- First bucket matched to fourth ball; second bucket matched to first ball; third bucket matched to second ball; fourth bucket matched to third ball
- $24 \div 2$ broken into two smaller facts: $12 \div 2$ and $12 \div 2$; sum of two smaller facts found to answer larger fact

Exit Ticket

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

Homework

- 6; 3; 3
 - 7; 2; 2, 7
 - 6; 5, 1; 4, 5, 1, 6
 - 9; 5, 4; 20, 16, 5, 4, 9
- 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
- $35 \div 5$ broken into two smaller facts: $20 \div 5$ and $15 \div 5$; 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; $4 \times 8 = 32$; $32 + 5 = 37$; 37
2. Tape diagrams labeled; 23
3. 12; tape diagram drawn and labeled to represent problem
4. 3