

Memory Work (Blackline Master 1)

Operations, Expressions, and Equations

$$3 + 4 = 7$$

↑
sum

$$7 - 4 = 3$$

↑
difference

$$7 \times 8 = 56$$

↖ ↗ ↑
factors product

$$21 \div 5 = 4 \text{ R}1$$

↖ ↗ ↖ ↖
dividend divisor quotient remainder

$$8 \times 6$$

expression

$$8 \times 6 = 48$$

equation

Order of Operations with Parentheses

1. Complete operations in parentheses.
2. Multiply or divide, from left to right.
3. Add or subtract, from left to right.

Multiplying and Dividing with Zero

$$6 \times 0 = 0$$

$$0 \div 8 = 0$$

$8 \div 0$ is undefined.

Multiples and Factors

Multiples of 12: 12, 24, 36, 48, 60...

LCM stands for least common multiple.

Factors of 12: 1, 2, 3, 4, 6, 12

GCF stands for greatest common factor.

Prime and Composite

Prime numbers have exactly two factors.

Composite numbers have more than two factors.

Divisibility Rules

A number is divisible by **2** if it is even.

A number is divisible by **5** if it has 0 or 5 in the ones-place.

A number is divisible by **10** if it has 0 in the ones-place.

A number is divisible by **3** if the sum of its digits is divisible by 3.

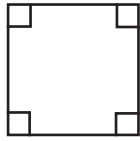
A number is divisible by **4** if you get an even quotient when you divide it by 2.

A number is divisible by **6** if it is even and divisible by 3.

Quadrilaterals



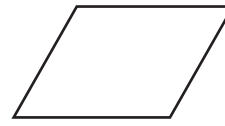
Rectangle
4 right angles



Square
4 right angles
4 equal sides



Rhombus
4 equal sides

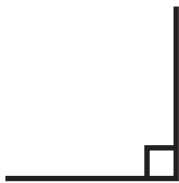


Parallelogram
2 pairs of
parallel sides

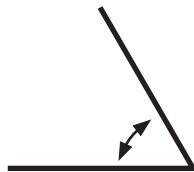


Trapezoid
1 pair of
parallel sides

Angles



Right angle
 90°



Acute angle
less than 90°

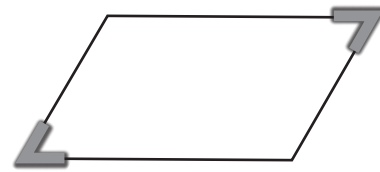


Obtuse angle
more than 90°

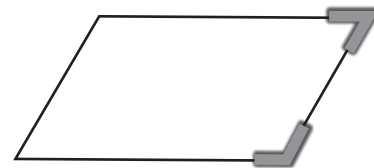


Straight angle
 180°

Angles in Parallelograms

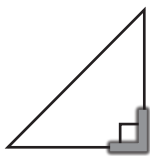


Opposite angles are across
from each other.

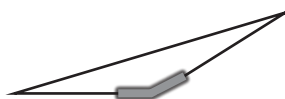


Adjacent angles are next to
each other.

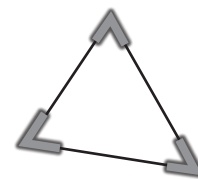
Triangles



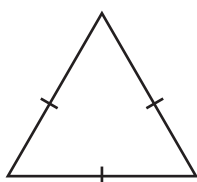
Right triangle
1 right angle



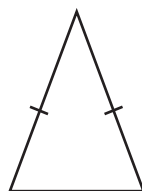
Obtuse triangle
1 obtuse angle



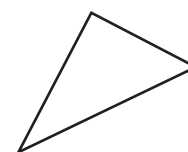
Acute triangle
3 acute angles



Equilateral triangle
3 equal sides

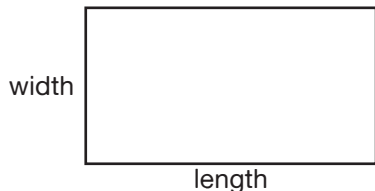


Isosceles triangle
2 equal sides



Scalene triangle
0 equal sides

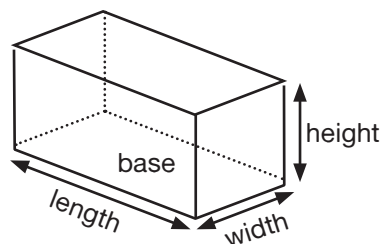
Perimeter and Area of a Rectangle



$$\text{length} + \text{width} + \text{length} + \text{width} = \text{perimeter}$$

$$\text{length} \times \text{width} = \text{area}$$

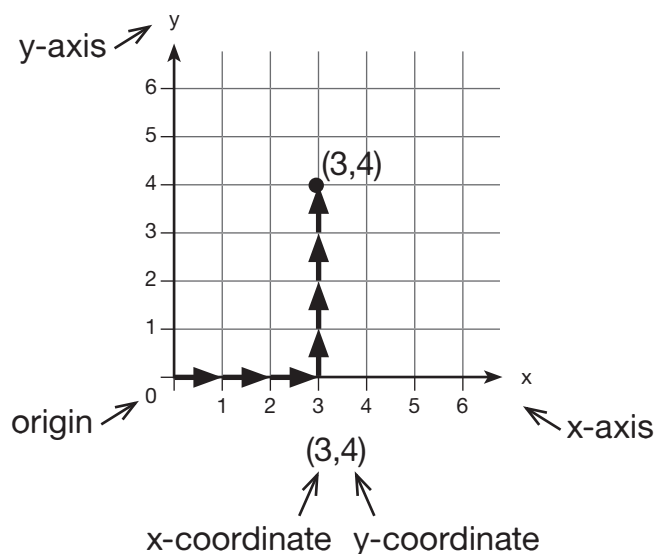
Volume of a Rectangular Prism



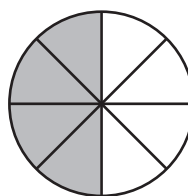
$$\text{length} \times \text{width} \times \text{height} = \text{volume}$$

$$\text{base area} \times \text{height} = \text{volume}$$

Coordinate Plane and Ordered Pairs



Fractions



$\frac{4}{8}$ ← Numerator
← Denominator

$$\frac{4}{8} = \frac{1}{2}$$

equivalent fractions

$$1 \frac{2}{3} = \frac{5}{3}$$

↑ ↑
mixed number improper fraction

Data

The mean (average) is the sum of the values divided by the number of values.

The median is the middle value when the values are in order from least to greatest.

Measurement Conversion Factors

1 foot = 12 inches	1 centimeter = 10 millimeters
1 yard = 3 feet	1 meter = 100 centimeters
1 yard = 36 inches	1 kilometer = 1,000 meters
1 mile = 5,280 feet	1 kilogram = 1,000 grams
1 pound = 16 ounces	1 liter = 1,000 milliliters
1 cup = 8 fluid ounces	

Decimal and Digit Vocabulary

1.76

2 decimal digits

0.009

3 leading zeros

2.60

1 trailing zero

Multiplication Assessment (Blackline Master 2)

How to Give the Assessment

Use this multiplication assessment to assess how well your child knows the multiplication facts. Make sure to give the assessment at a time when your child is fresh and focused so that the results are as accurate as possible.

- Ask your child each math fact **orally**. Encourage her to respond with the answer as quickly as possible, without repeating the question. For example: **6 times 1? 6.**
- Ask questions across the page *horizontally*, not vertically. Start by moving from left to right across the first row, then the second row, and so on.
- Mark the problem as correct (✓) if your child says the correct answer within 3 seconds. Mark the problem as incorrect (✗) if your child doesn't know the answer, takes longer than 3 seconds, or counts to find the answer.

Children who process information very quickly may be able to name the answers in less than 1 second, but children who are slower processors may always need a few seconds. As a general rule, aim for no more than **3 seconds** per fact, but adjust this guideline based on your individual child.

$$9 \times 1 = 9 \quad \square \quad 3 \times 2 = 6 \quad \square \quad 8 \times 3 = 24 \quad \square \quad 5 \times 4 = 20 \quad \square \quad 1 \times 10 = 10 \quad \square$$

$$4 \times 1 = 4 \quad \square \quad 5 \times 2 = 10 \quad \square \quad 6 \times 3 = 18 \quad \square \quad 7 \times 4 = 28 \quad \square \quad 8 \times 10 = 80 \quad \square$$

$$1 \times 6 = 6 \quad \square \quad 2 \times 9 = 18 \quad \square \quad 3 \times 5 = 15 \quad \square \quad 4 \times 4 = 16 \quad \square \quad 10 \times 6 = 60 \quad \square$$

$$1 \times 1 = 1 \quad \square \quad 4 \times 2 = 8 \quad \square \quad 3 \times 3 = 9 \quad \square \quad 6 \times 4 = 24 \quad \square \quad 9 \times 10 = 90 \quad \square$$

$$3 \times 1 = 3 \quad \square \quad 2 \times 2 = 4 \quad \square \quad 9 \times 3 = 27 \quad \square \quad 3 \times 4 = 12 \quad \square \quad 7 \times 10 = 70 \quad \square$$

$$5 \times 5 = 25 \quad \square \quad 6 \times 9 = 54 \quad \square \quad 7 \times 3 = 21 \quad \square \quad 8 \times 8 = 64 \quad \square \quad 4 \times 10 = 40 \quad \square$$

$$9 \times 5 = 45 \quad \square \quad 10 \times 2 = 20 \quad \square \quad 6 \times 8 = 48 \quad \square \quad 7 \times 1 = 7 \quad \square \quad 10 \times 10 = 100 \quad \square$$

$$5 \times 7 = 35 \quad \square \quad 8 \times 9 = 72 \quad \square \quad 2 \times 7 = 14 \quad \square \quad 8 \times 4 = 32 \quad \square \quad 5 \times 10 = 50 \quad \square$$

$$8 \times 1 = 8 \quad \square \quad 6 \times 2 = 12 \quad \square \quad 7 \times 6 = 42 \quad \square \quad 9 \times 7 = 63 \quad \square \quad 3 \times 10 = 30 \quad \square$$

$$5 \times 1 = 5 \quad \square \quad 7 \times 7 = 49 \quad \square \quad 2 \times 8 = 16 \quad \square \quad 8 \times 5 = 40 \quad \square \quad 6 \times 5 = 30 \quad \square$$

$$1 \times 2 = 2 \quad \square \quad 6 \times 6 = 36 \quad \square \quad 9 \times 9 = 81 \quad \square \quad 9 \times 4 = 36 \quad \square \quad 8 \times 7 = 56 \quad \square$$

How to Interpret the Results

- If your child can find answers to most of the facts but takes longer than 3 seconds, he needs more practice to build his speed. Play one of the multiplication review games from Blackline Master 3 a few times per week (either at the beginning of a lesson or at a separate time of day) as you move forward in the program. Encourage your child to respond as quickly as possible as he names the products in the games.
- If your child has just a few facts that stump him, choose 3 of the tricky facts. Write them on a piece of paper and post them in your math lesson area. Have him practice these 3 facts at the beginning of each lesson until he has memorized them. Then, choose 3 new facts to focus on.
- If your child has trouble finding answers to many of the multiplication facts, he likely needs more practice with them to be successful with *Fifth Grade Math with Confidence*. *Multiplication Facts That Stick* (also available from Well-Trained Mind Press) provides a systematic approach to mastering the facts. Use the activities from *Multiplication Facts That Stick* for 5-10 minutes per day outside of your regular math time.

If you find that your child's lack of fluency with the multiplication facts makes lessons long and frustrating, **allow him to use the multiplication chart** (Blackline Master 4) as he completes lessons in *Fifth Grade Math with Confidence*. This will allow him to continue to make progress with new concepts while he works to solidify the multiplication facts.

Multiplication Review Games (Blackline Master 3)

Multiplication War

Materials: Deck of playing cards with jacks, queens, and kings removed (40 cards total)

Object of the Game: Win the most cards.

Shuffle together the cards. Deal them face down into two piles.

On your turn, flip over the top two cards in your pile. Find the product of the numbers. For example, if you flip over a 6 and a 7, the product is 42. Then, the other player flips over their top two cards and finds the product of the cards. Whoever has the greater product wins all 4 cards.

If the products are equal, leave the cards face-up on the table and have both players flip over another two cards from their piles. Whoever has the greater product wins all the face-up cards.

Play until the piles run out. Whoever has won more cards wins the game.

Challenge Version: Use only the 5s, 6s, 7s, 8s, and 9s from 2 decks of cards to give your child lots of practice with challenging multiplication facts like 7×8 or 9×6 .

Multiplication Greatest to Least

Materials: 2 decks of cards, with jacks, queens, and kings removed (80 cards total)

Object of the Game: Win the most cards.

Shuffle the cards and deal 5 cards to both players. Place the rest of the deck in a face-down pile.

Choose who will go first. Player 1 chooses two cards from his hand, places them face-up on the table, and names the product. For example, if you play a 4 and a 9, the product is 36. Then, Player 1 picks up two new cards to replenish his hand.

Player 2 chooses any two cards from her hand whose product is less than Player 1's product. (The products may not be equal.) She places her cards on top of Player 1's cards, names their product, and takes 2 new cards to replenish her hand. For example, if Player 1 played a 4 and a 9, Player 2 can play any two cards with a product less than 36.

Continue alternating turns until one player can no longer play a lower product. The player who last played takes all of the face-up cards. The player who was unable to play new cards starts a new round.

Play until you have used all the cards. Whoever has won more cards wins the game.

Cooperative Version: Take turns playing pairs of cards. Try to play as many cards as possible before one player can no longer play a lower product. Count how many cards both players played, and see if you can play more cards in the next round.

Multiplication Chart (Blackline Master 4)

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Decimal Cards (Blackline Master 5)

Directions: Cut out along the lines.

0.1	0.2	0.3
0.4	0.5	0.6
0.7	0.8	0.9
0.01	0.02	0.03
0.04	0.05	0.06

0.07	0.08	0.09
0.001	0.002	0.003
0.004	0.005	0.006
0.007	0.008	0.009

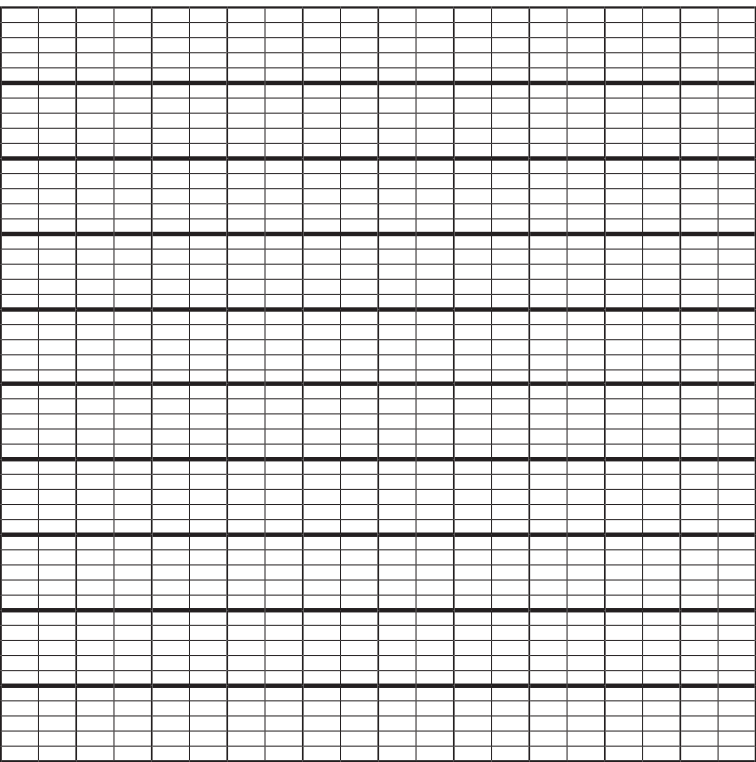
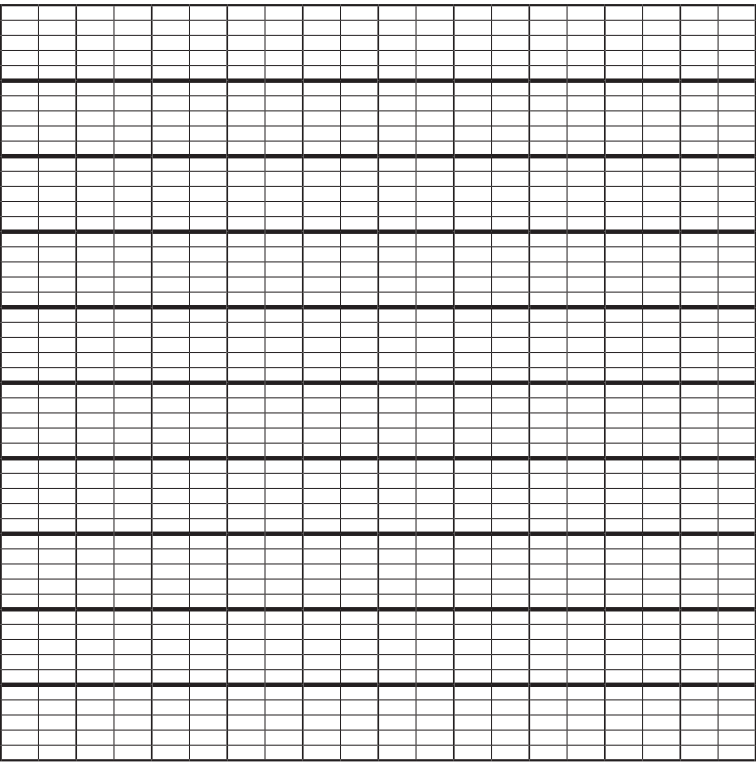
Decimal Place-Value Chart (Blackline Master 6)

ones	tenths

hundredths	
thousandths	

Decimal Squares (Blackline Master 7)

Directions: Put this page in a plastic page protector so you can write on it with a dry-erase marker.



Fraction Bars (Blackline Master 8)

You do not need these if you have real fraction bars.

Directions: Use the following key to color the fraction bars. Then, cut out the fraction bars along the lines.

- 1 whole: red
- 1/2: orange-red
- 1/3: orange
- 1/4: yellow
- 1/5: light green
- 1/6: green
- 1/8: light blue
- 1/10: blue
- 1/12: purple

[illegible]

Fraction Cards (Blackline Master 9)

Directions: Copy on sturdy paper. Cut out along the lines.

$$\frac{1}{2}$$

$$\frac{1}{3}$$

$$\frac{2}{3}$$

$$\frac{1}{4}$$

$$\frac{2}{4}$$

$$\frac{3}{4}$$

$$\frac{1}{5}$$

$$\frac{2}{5}$$

$$\frac{3}{5}$$

$$\frac{4}{5}$$

$$\frac{1}{6}$$

$$\frac{2}{6}$$

$$\frac{3}{6}$$

$$\frac{4}{6}$$

$$\frac{5}{6}$$

$$\frac{1}{8}$$

$$\frac{2}{8}$$

$$\frac{3}{8}$$

$$\frac{4}{8}$$

$$\frac{5}{8}$$

$$\frac{6}{8}$$

$$\frac{7}{8}$$

$$\frac{1}{10}$$

$$\frac{2}{10}$$

$$\frac{3}{10}$$

$$\frac{4}{10}$$

$$\frac{5}{10}$$

$$\frac{6}{10}$$

$$\frac{7}{10}$$

$$\frac{8}{10}$$

$$\frac{9}{10}$$

$$\frac{1}{12}$$

$$\frac{2}{12}$$

$$\frac{3}{12}$$

$$\frac{4}{12}$$

$$\frac{5}{12}$$

$$\frac{6}{12}$$

$$\frac{7}{12}$$

$$\frac{8}{12}$$

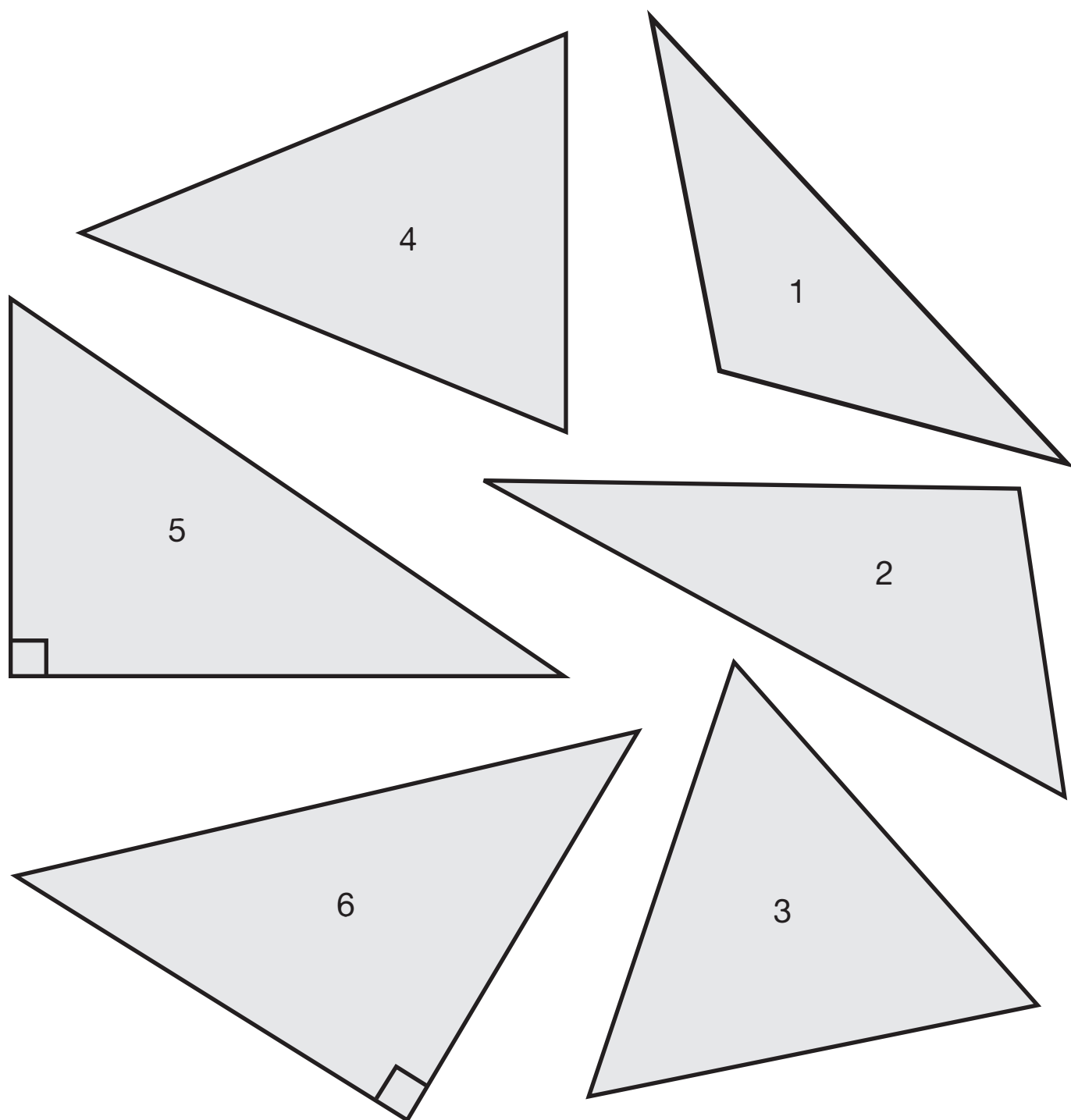
$$\frac{9}{12}$$

$$\frac{10}{12}$$

$$\frac{11}{12}$$

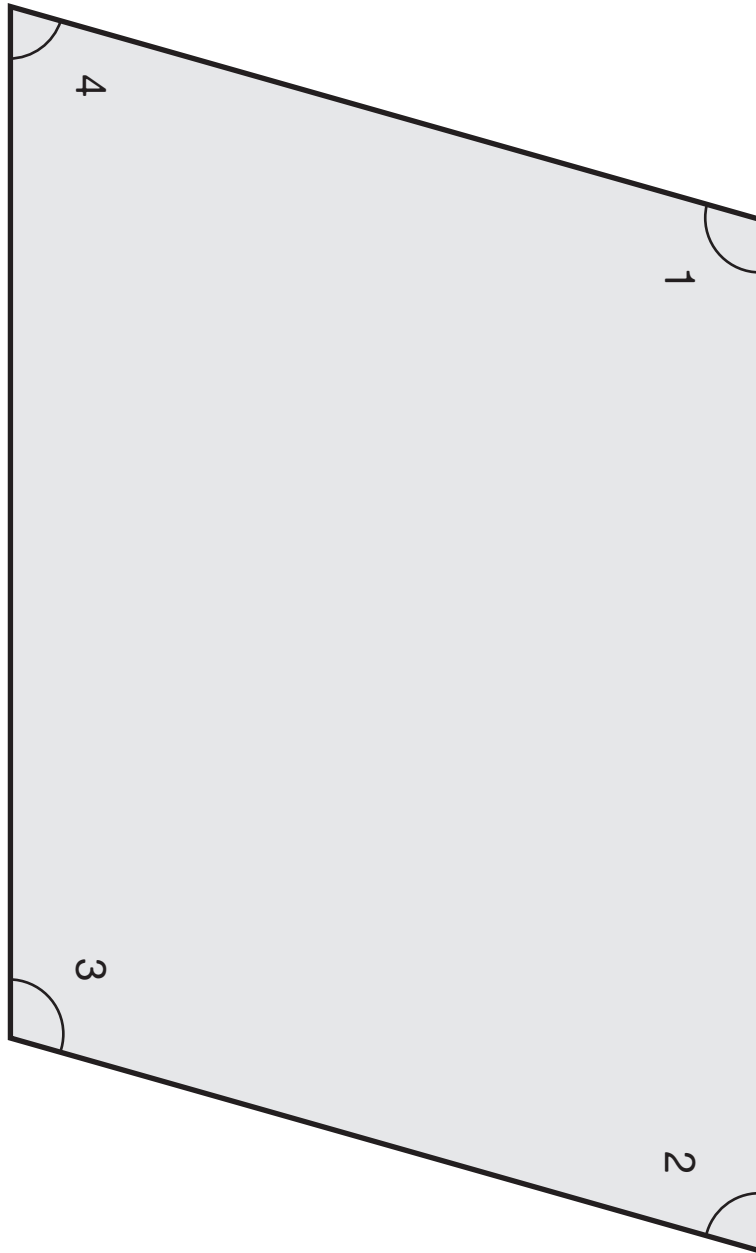
Triangles for Folding (Blackline Master 11)

Directions: Cut out the triangles.



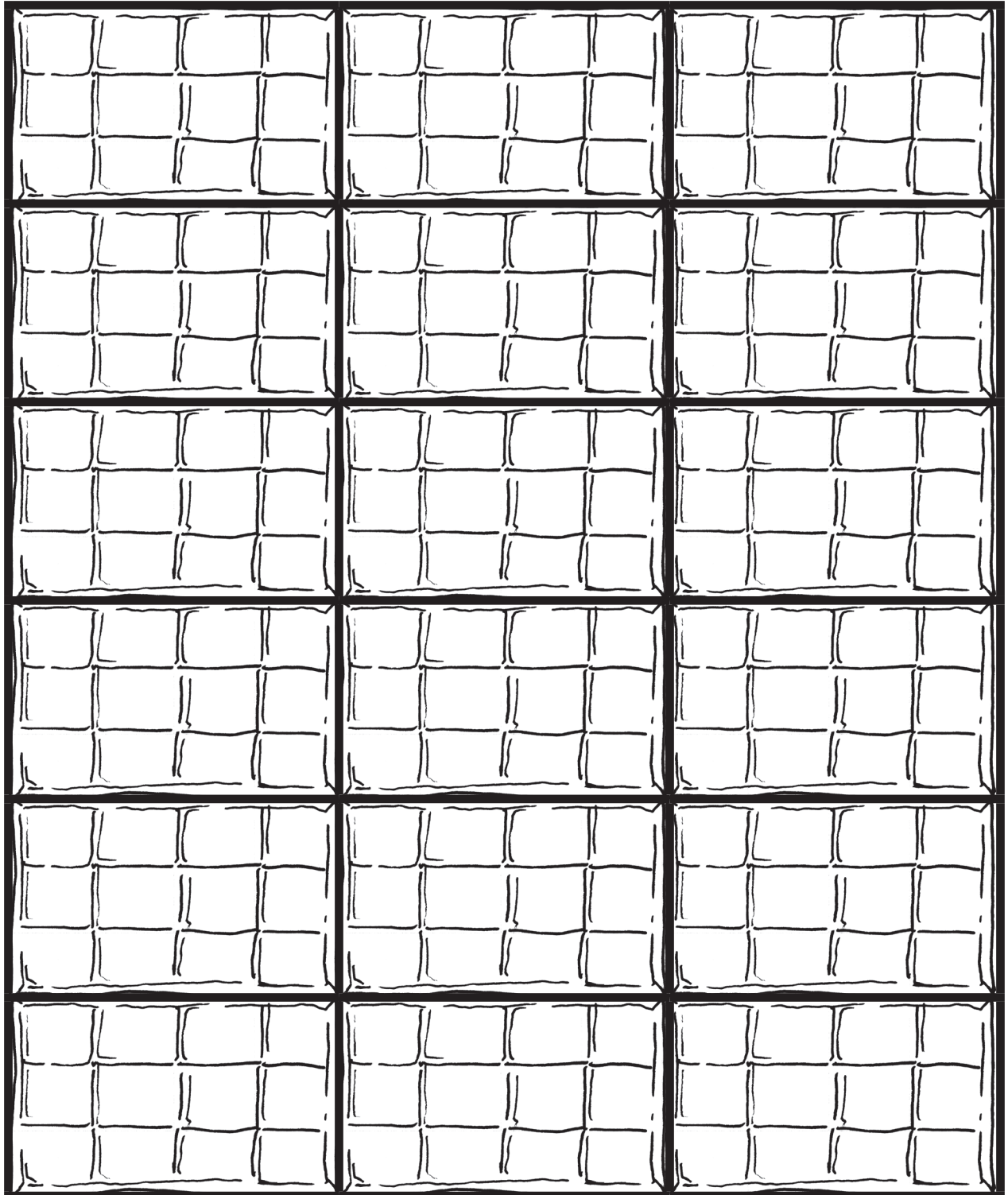
Paper Parallelogram (Blackline Master 12)

Directions: Cut out along the dark lines.



Paper Chocolate Bars (Blackline Master 13)

Directions: Cut out the chocolate bars along the dark lines.

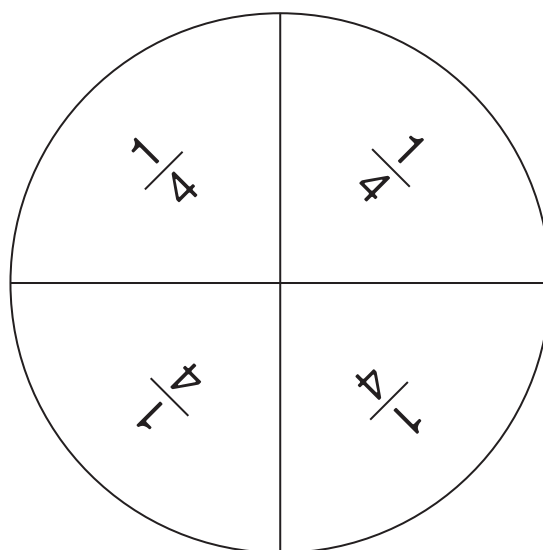
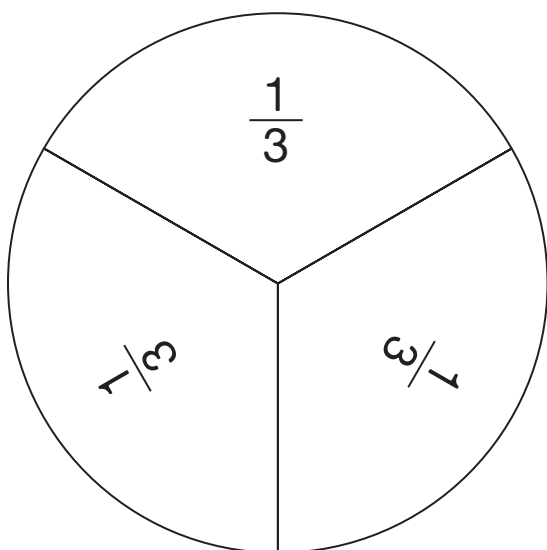
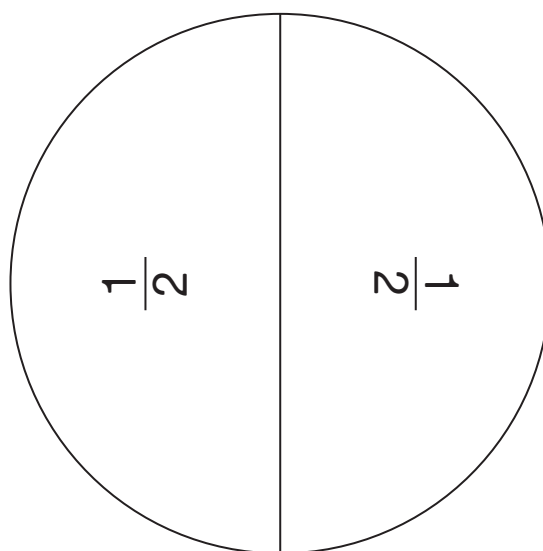
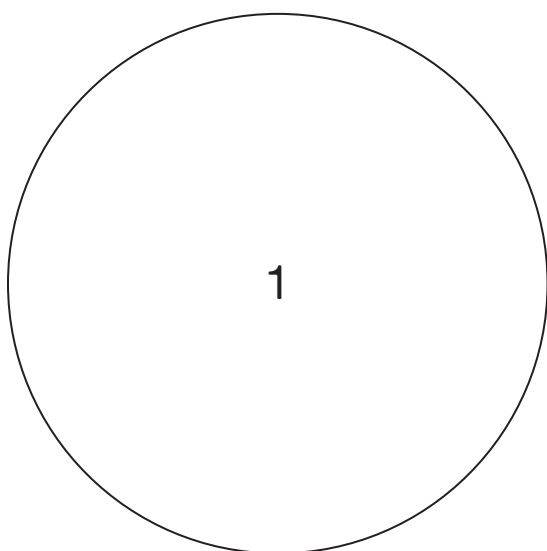


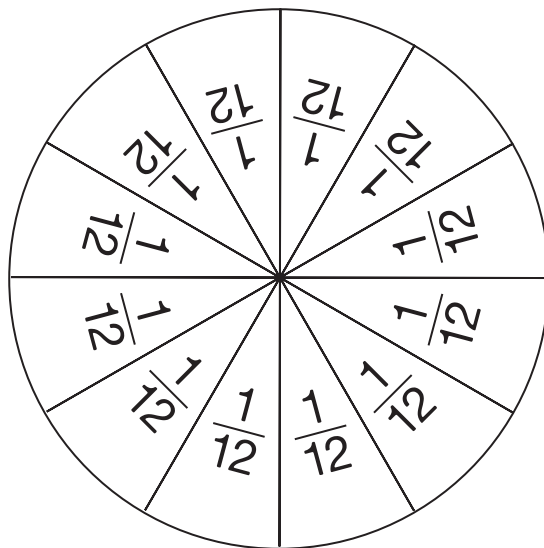
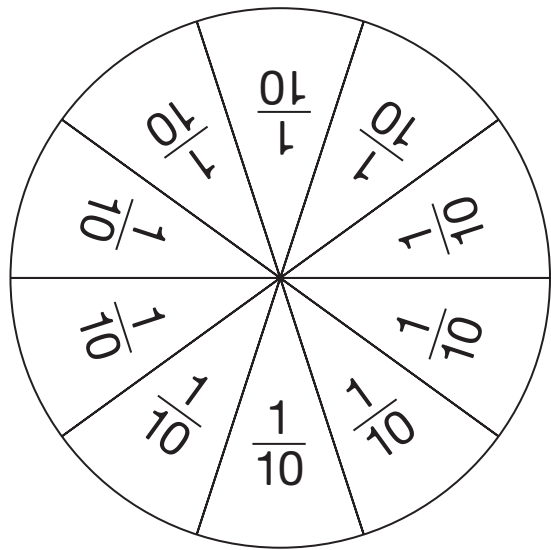
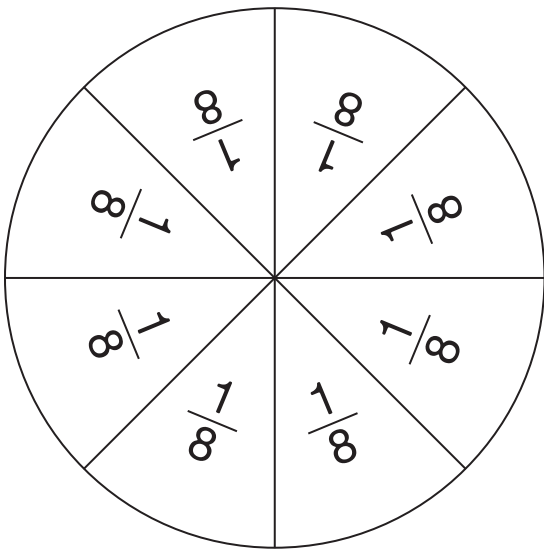
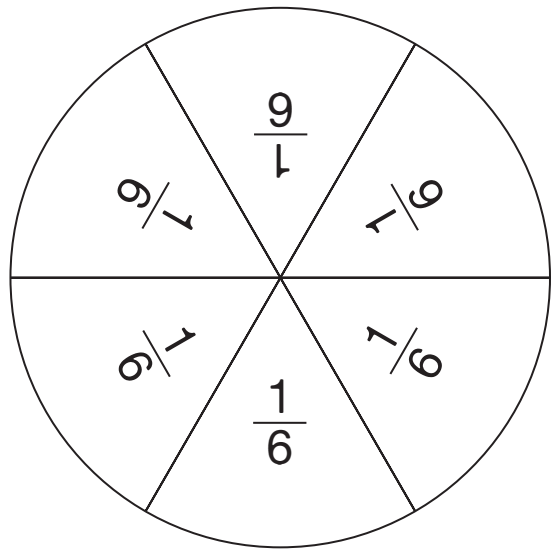
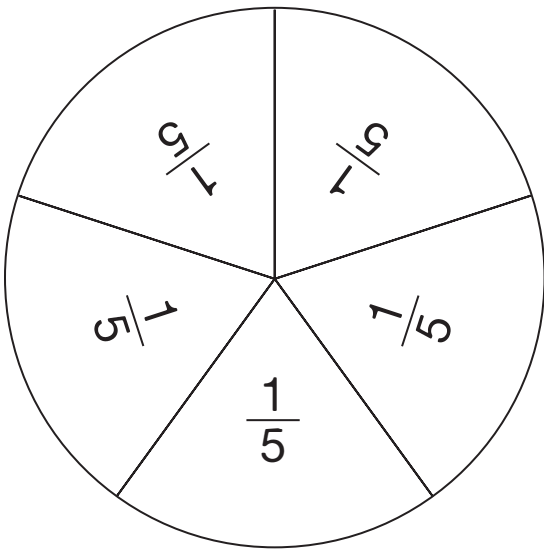
Fraction Circles (Blackline Master 14)

You do not need these if you have real fraction circles.

Directions: Use the following key to color the fraction circles. Then, cut out the fraction circles along the lines.

- | | |
|-------------------------------|---------------------------|
| • 1 whole: red | • $\frac{1}{6}$: green |
| • $\frac{1}{2}$: orange-red | • $\frac{1}{8}$: blue |
| • $\frac{1}{3}$: orange | • $\frac{1}{10}$: purple |
| • $\frac{1}{4}$: yellow | • $\frac{1}{12}$: brown |
| • $\frac{1}{5}$: light green | |

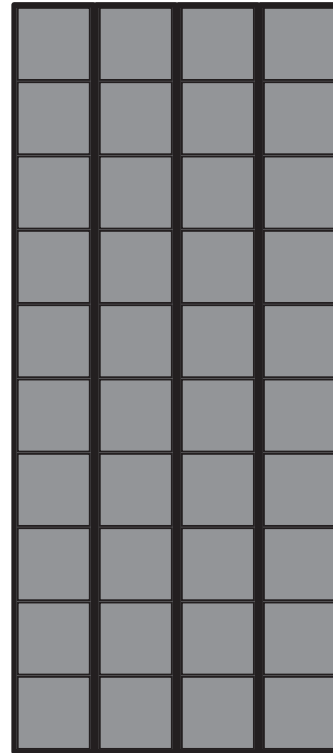
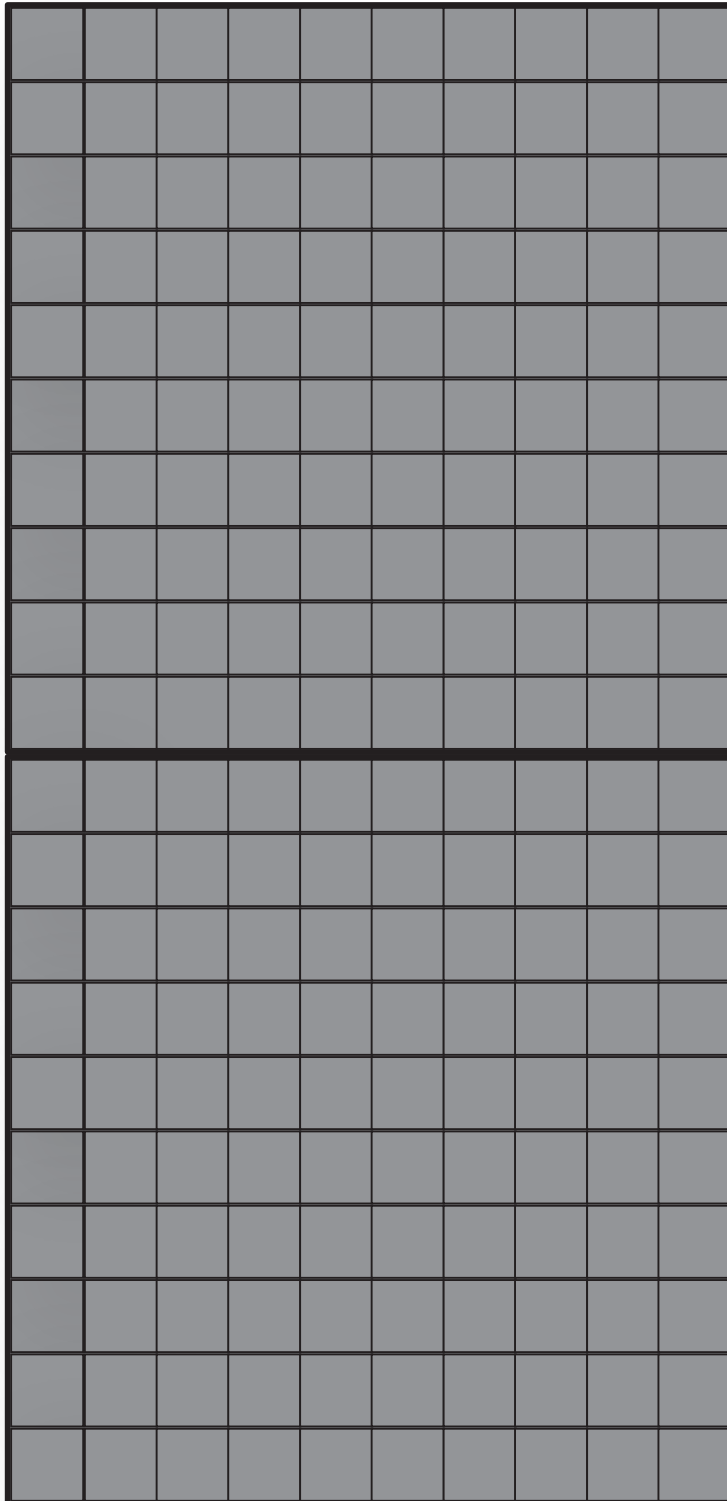




Base-Ten Blocks (Blackline Master 15)

You do not need these if you have real base-ten blocks.

Directions: Make 6 copies of this page on sturdy paper. Cut out the blocks on the dark lines.



Play Money

(Blackline Master 16)

You do not need these if you have other play money, either from a toy cash register or board game.

Directions: Make 2 copies of this page on sturdy paper and cut out the paper bills.

