

# Guide to the Blackline Masters

## Digital Copies of Blackline Masters

Prefer to print the Blackline Masters rather than copy them from the book? **Download digital copies of all Math with Confidence Blackline Masters at [welltrainedmind.com/mwc](http://welltrainedmind.com/mwc).**



## Reference Blackline Masters

Families often find it helpful to have the Memory Work pages and Multiplication Chart available for easy reference.

- Memory Work (Blackline Master 1)
- Multiplication Chart (Blackline Master 2)

For the Multiplication Chart, you'll find suggestions throughout the book on how to best use it. In general, encourage your child to recall the multiplication facts from memory as much as possible. But, if slow multiplication fact recall is causing frustration or making the lessons long and tedious, allow your child to use the Multiplication Chart as needed. For some children, using the chart for a few months makes a big difference in helping them solidify their multiplication fact fluency.

## Short-Term-Use Blackline Masters

You will use these Blackline Masters for only a few lessons, and you do not need to save them after you finish the corresponding unit.

- Place-Value Chart (Blackline Master 4), used in Units 7 and 10 only
- Degree Wheel (Blackline Master 5), used in Unit 8 only
- Quadrilateral Cards (Blackline Master 6), used in Unit 11 only
- Geometry Reference Page (Blackline Master 7), used in Unit 11 only
- Shapes for Folding (Blackline Master 8), used in Unit 11 only

## Optional Blackline Masters

The Multiplication Fact Assessment (Blackline Master 3) is optional for assessing your child's multiplication fact knowledge. See the Unit 2 Checkpoint (page 85) for details on whether or not you need it. If you have real pattern blocks, base-ten blocks, and play money, you do not need Blackline Masters 9, 10, or 11.

- Multiplication Fact Assessment (Blackline Master 3)
- Pattern Blocks (Blackline Master 9)
- Base-Ten Blocks (Blackline Master 10)
- Play Money (Blackline Master 11)

# Memory Work (Blackline Master 1)

## Addition, Subtraction, Multiplication, and Division Vocabulary

$$3 + 4 = 7$$

↑     ↑     ↑  
addends     sum

$$7 - 4 = 3$$

↑  
difference

$$3 \times 4 = 12$$

↑     ↑     ↑  
factors     product

$$9 \div 4 = 2 \text{ R } 1$$

↑     ↑     ↑     ↑  
dividend     divisor     quotient     remainder

## Measurement

1 foot = 12 inches

1 yard = 3 feet

1 yard = 36 inches

1 meter = 100 centimeters

1 kilometer = 1,000 meters

1 pound = 16 ounces

1 kilogram = 1,000 grams

1 pint = 2 cups

1 quart = 2 pints

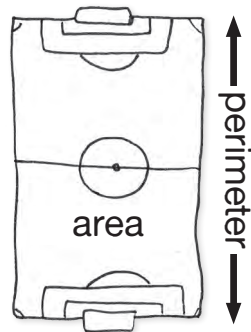
1 gallon = 4 quarts

1 liter = 1,000 milliliters

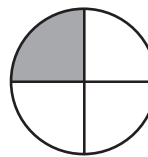
## Perimeter and Area

Perimeter measures the distance around the outside edge of a shape.

Area measures the amount of space that a shape covers.



## Fractions



$\frac{1}{4}$   
↑ numerator  
↑ denominator

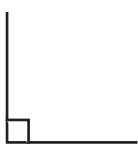
$$\frac{1}{2} = \frac{2}{4}$$

equivalent fractions

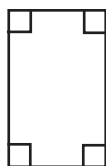
$$2 \frac{1}{3}$$

mixed number

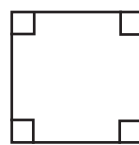
## Geometry



Right Angle



Rectangle  
4 right angles



Square  
4 right angles  
4 equal sides



Rhombus  
4 equal sides  
2 pairs of parallel sides

**Multiples and Factors**

Multiples of 12:

12, 24, 36, 48, 60 ...

Factor Pairs of 12:

$1 \times 12, 2 \times 6, 3 \times 4$

**Prime and Composite**

Prime numbers have exactly two factors.

Composite numbers have more than two factors.

3  
prime

4  
composite

**Divisibility Rules**

Numbers divisible by 2 have 0, 2, 4, 6, or 8 in the ones-place.

Numbers divisible by 5 have 0 or 5 in the ones-place.

Numbers divisible by 10 have 0 in the ones-place.

**Multiplying and Dividing with Zero**

Any number times zero equals zero.

Zero divided by any other number equals zero.

Dividing by zero is undefined.

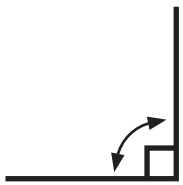
**Measurement**

1 centimeter = 10 millimeters

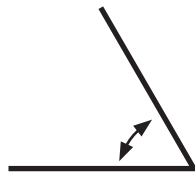
1 mile = 5,280 feet

1 cup = 8 fluid ounces

**Angles**



Right angle  
 $90^\circ$



Acute angle  
less than  $90^\circ$



Obtuse angle  
more than  $90^\circ$



Straight angle  
 $180^\circ$

**Quadrilaterals**

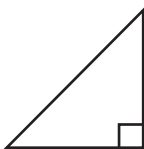


Trapezoid  
1 pair of parallel sides

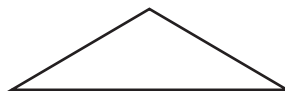


Parallelogram  
2 pairs of parallel sides

**Triangles**



Right triangle  
1 right angle



Obtuse triangle  
1 obtuse angle



Acute triangle  
3 acute angles

# Multiplication Chart (Blackline Master 2)

×	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

# Multiplication Assessment (Blackline Master 3)

**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 in your individual child.

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

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

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

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

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

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

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

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

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

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

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

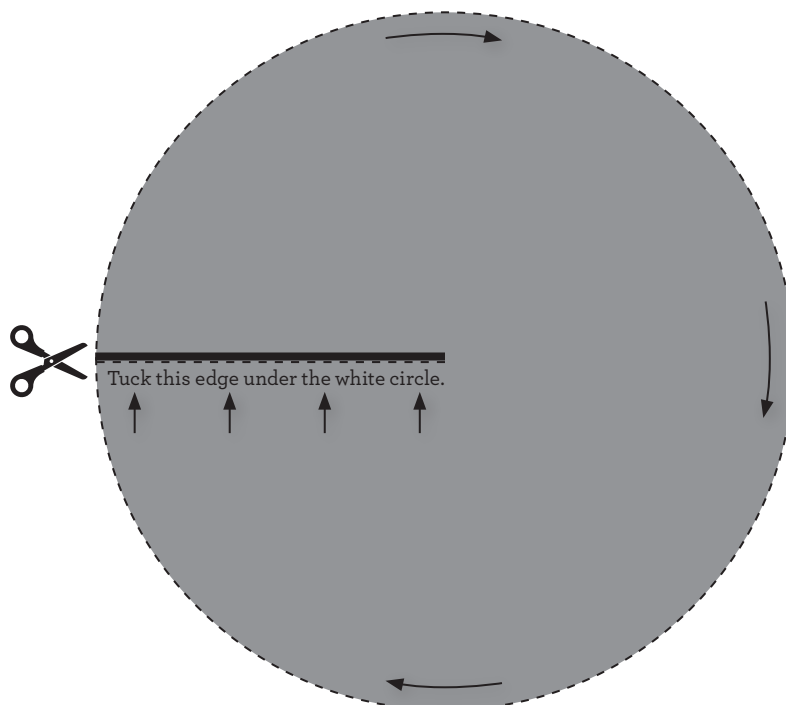
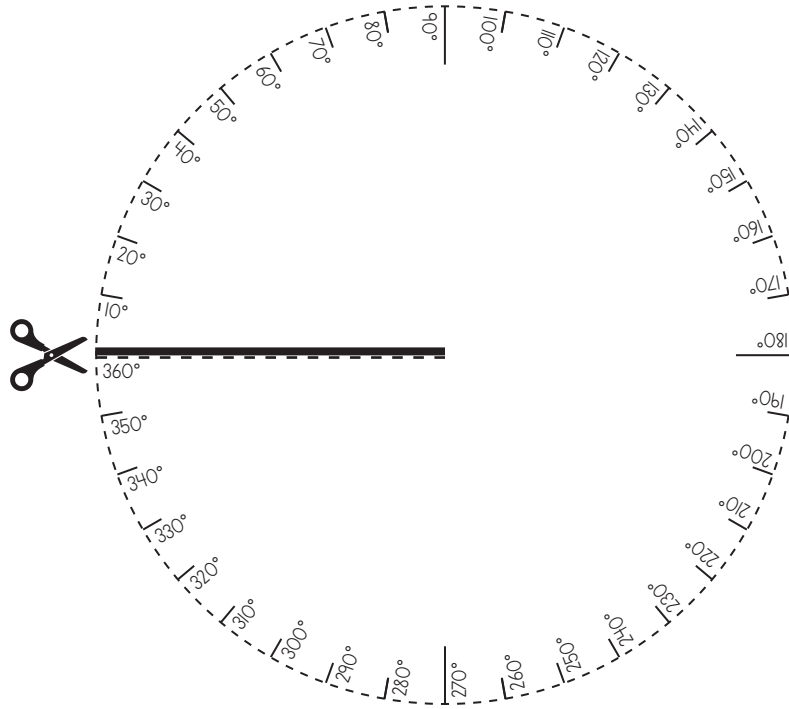
# Place-Value Chart (Blackline Master 4)

tens	ones

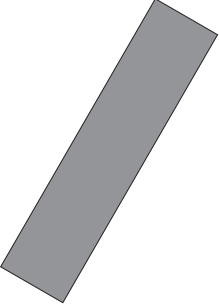

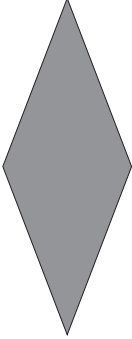
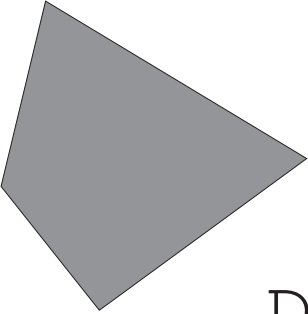

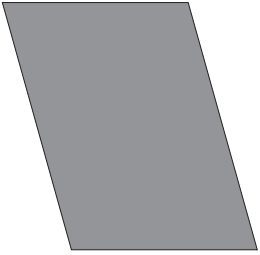
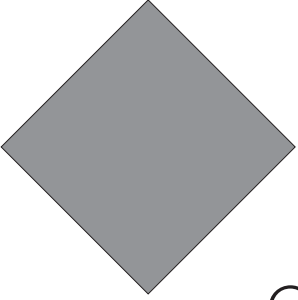
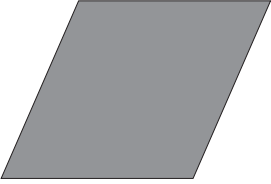

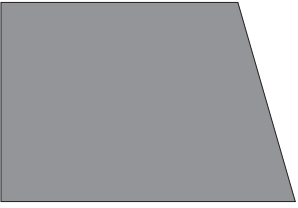
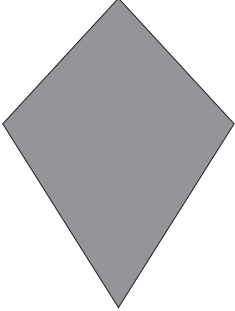
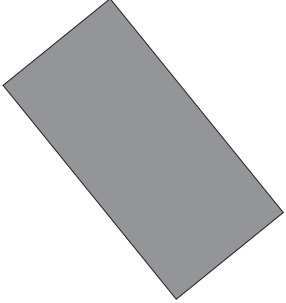
	thousands
	hundreds

# Degree Wheel (Blackline Master 5)

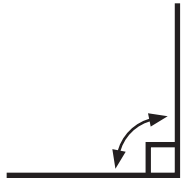
**Directions:** Copy on sturdy paper and cut out on the dotted lines. You will end up with two circles, each with a slit. See Lesson 8.2 for how to assemble.



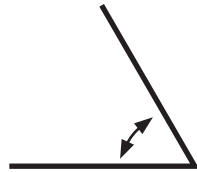
# Quadrilateral Cards (Blackline Master 6)

 <p>A</p>	 <p>B</p>	 <p>C</p>
 <p>D</p>	 <p>E</p>	 <p>F</p>
 <p>G</p>	 <p>H</p>	 <p>I</p>
 <p>J</p>	 <p>K</p>	 <p>L</p>

# Geometry Reference Page (Blackline Master 7)



**Right angle**  
90°



**Acute angle**  
less than 90°



**Obtuse angle**  
more than 90°



**Straight angle**  
180°



**Point**



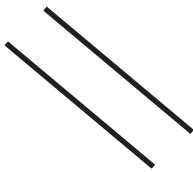
**Line**



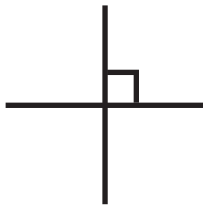
**Line segment**



**Ray**



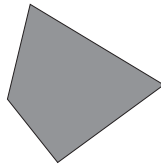
**Parallel (||)**



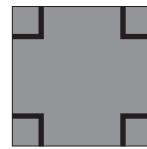
**Perpendicular (⊥)**



**Intersecting**



**Quadrilateral**  
4 sides



**Square**  
4 right angles  
4 equal sides



**Rectangle**  
4 right angles



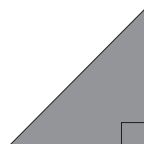
**Trapezoid**  
1 pair of parallel sides



**Parallelogram**  
2 pairs of parallel sides



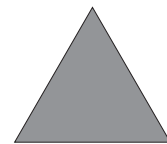
**Rhombus**  
4 equal sides  
2 pairs of parallel sides



**Right triangle**  
1 right angle



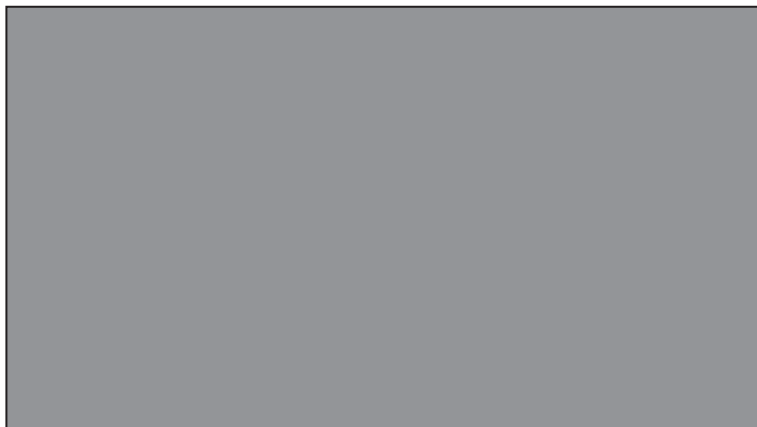
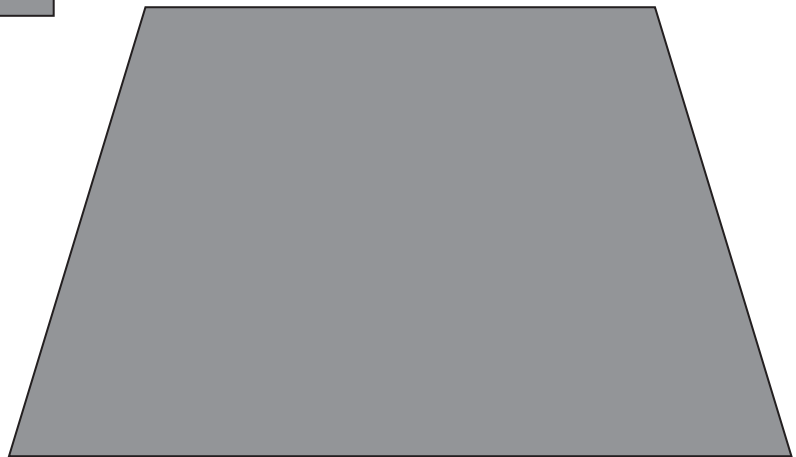
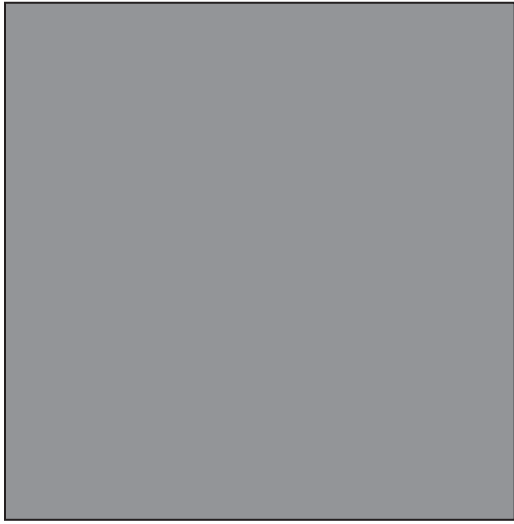
**Obtuse triangle**  
1 obtuse angle

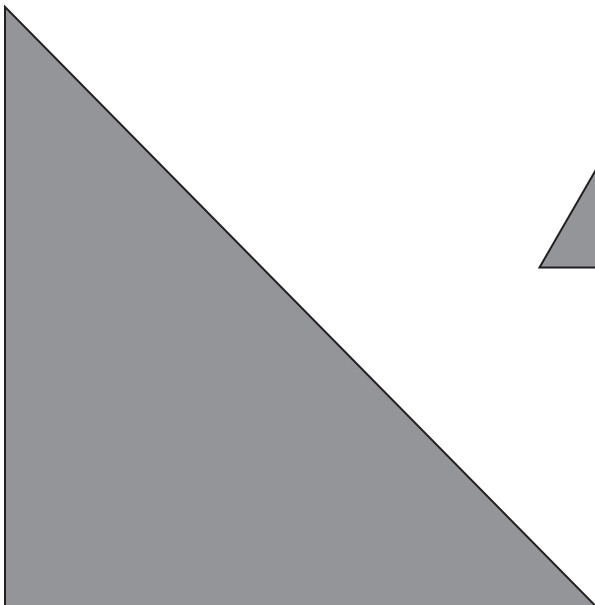
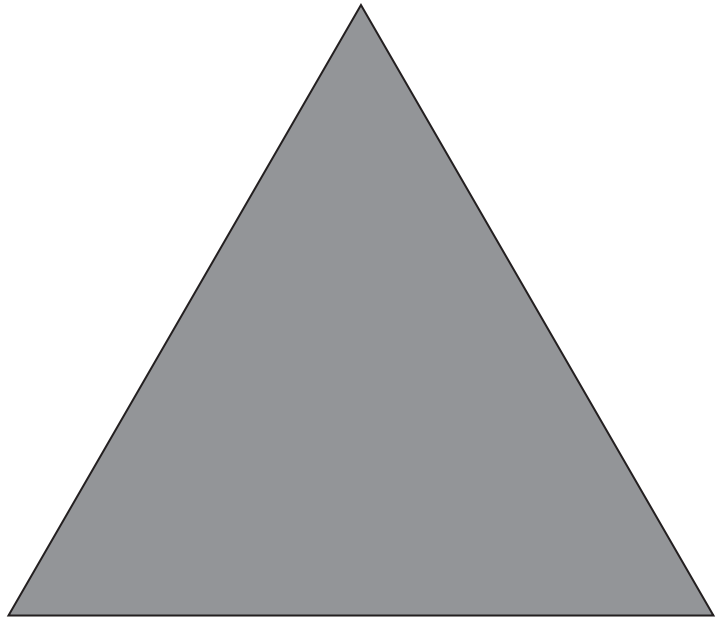


**Acute triangle**  
3 acute angles

# Shapes for Folding (Blackline Master 8)

**Directions:** Cut out the shapes.



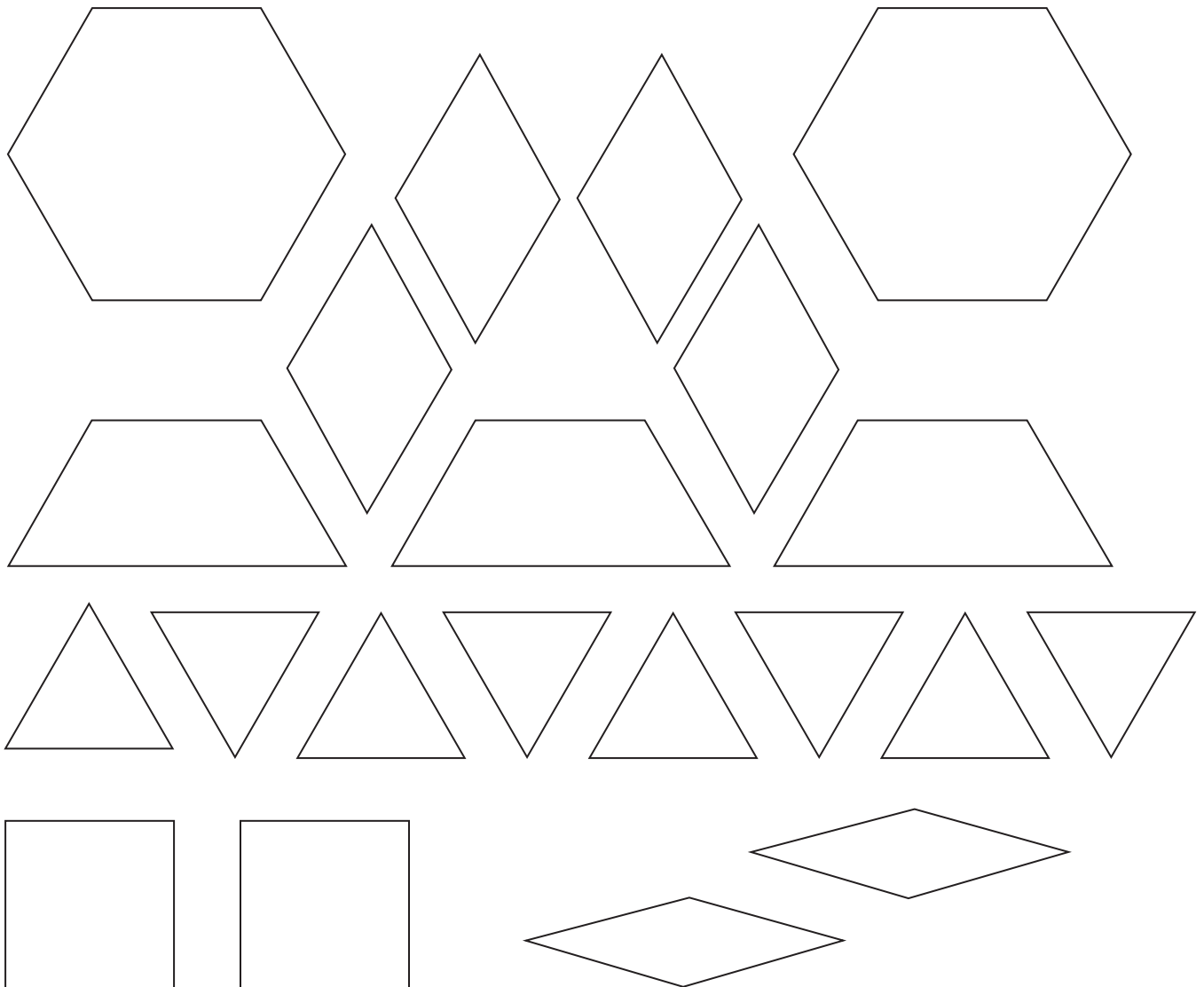


# Pattern Block Templates (Blackline Master 9)

**You do not need these if you already have pattern blocks.** If you do not have access to wooden or plastic pattern blocks, you can use this paper version instead.

**Directions:** Make 3 copies on sturdy paper. Cut out the shapes and color them according to the following key:

- Hexagons: yellow
- Trapezoids: red
- Triangles: green
- Squares: orange
- Wider diamonds: blue
- Narrower diamonds: tan



# Base-Ten Blocks (Blackline Master 10)

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

**Directions:** Make 5 copies of this page on sturdy paper. Cut out the blocks on the dark lines.

