







Concept: Tiles and Algebra

Name:


Warm-Up:

Complete the chart by finding the area of the following shapes.

					
Area is 1	Area is 9	Area is 5	Area is 8	Area is 64	Area is x

COMPUTER COMPONENT

Instructions:

In  follow the **Content Menu** path:

Algebra > Tiles and Algebra



Work through all Sub Lessons of the following Lessons **in order**:

- *Area*
- *Introduction to Tiles*
- *Pictures to Words to Algebraic Expressions*
- *Algebraic Expressions to Tiles*
- *Equivalent Algebraic Expressions*
- *Combining Opposites*
- *Summary*

Additional Required Materials: *Coloring pencils*









As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal

SUMMARY







1. Like tiles are the same size and *shape*.

Draw the tile representation for each term. Be sure to use both red and blue colors.

Term	Tile Representation	Term	Tile Representation
+ 1	 blue	- 1	 red
x	 blue	- x	 red
x^2	 blue	- x^2	 red


OFF COMPUTER EXERCISES

1. Complete the following chart by finding the area of each of the following shapes.

					
Area is	Area is	Area is	Area is	Area is	Area is
1	x	y	xy	y^2	x^2

We all learn math in different ways and we all grasp concepts at different speeds. This said, we can always utilize different strategies to demonstrate our knowledge of a concept. Pictures/diagrams and words can be valuable tools in assisting us to understand algebra.

2. Complete the following chart using tiles, words and algebraic expressions to demonstrate your knowledge of this concept.

Tile Representation	Words	Algebraic Expression
	Pick any number. Since we don't know what your number is, we will call it x.	x

	Add 4 to your number.	$x + 4$
	Double the result.	$2x + 8$
	Subtract 4.	$2x + 4$
	Divide by 2.	$x + 2$
	Subtract your original number.	2
	Result :	2

3. Draw the appropriate picture for each expression.
 Be sure to use red and blue here OR use a shaded tile to represent a positive integer, a non-shaded tile to indicate a negative integer.

Algebraic Expression	Pic/Tile Representation
$4x - 1$	
$2x^2 - 3x + 1$	

$-4x^2 - 3x - 2$			
$3x^2 - 5$			

4. Write the algebraic expression for each picture.

NOTE: Consider a shaded tile to indicate positive, a non-shaded tile to indicate negative

(a) $2x^2 - x + 3$

(b) $-x^2 + 5x - 2$

(c) $x^2 - x + 1$

(d) $-3x^2 + 5$

5. Demonstrate your knowledge by completing the following sentences.

(a) The opposite of (+1) is -1.

(b) The opposite of is x.

(c) Adding and produces a result of 0.

(d) Adding and produces a result of 0.

6. Write instructions for each of the following algebraic expressions.

Algebraic Expression	Instructions
$4x$	Four times a number
$2y + 5$	<i>Two times a number increased by five</i>
$3p - 4$	<i>Three times a number decreased by four</i>
$3(x + y)$	<i>The sum of x and y times 3</i>
$0.5x$	<i>One half of a number</i>

7. Write algebraic expressions for each of the following phrases.

(a) 4 more than a certain number. $4+x$

(b) Half a number increased by 2. $0.5x+2$

(c) 13 decreased by 5 times a number. $13-5x$

(d) The area of a rectangle with length 4 units longer than its width. $A=w(w+4) = w^2+4w$

8. If Josh's father is four times as old as Josh, then write algebraic expressions for each of the following.

(a) Josh's present age... x

(b) Josh's father's present age... $4x$

(c) Josh's age 4 years from now... $x + 4$

(d) Josh's father's age 4 years from now... $4x + 4$

(e) (design your own question)

Responses will vary.
9. MATH IN ACTION

Chester’s Coffee Bar has just placed its first coffee order for their newest location. They will be offering both regular and Fairtrade coffees from around the world. The following is the invoice from their first order.

Fairtrade- Where farmers, producers and their workers get paid fairly/true market value for the products that they work hard to offer.

Origin	Cost per lb for regular coffee	Number of 1 lb bags	Cost for regular coffee	Cost per lb for Fairtrade coffee	Number of 1 lb bags	Cost for Fairtrade coffee	TOTAL COST
Kenya	\$11	x	$11x$	\$12	y	$12y$	$11x + 12y$
Ethiopia	\$10	x	$10x$	\$11	y	$11y$	$10x + 11y$
Costa Rica	\$8	x	$8x$	\$9	y	$9y$	$8x + 9y$
Nicaragua	\$9	x	$9x$	\$10	y	$10y$	$9x + 10y$

Therefore, the total cost for Chester’s first coffee order is = $38x + 42y$

Extension:

(a) Coffee is coffee, right? Why might you pay an extra \$1 per pound for Fairtrade?

Answers will vary. Ultimately, the reason why Fairtrade typically costs more is because the growers are being paid a fair price for their crop/product.

(b) Explain why you think Chester’s Coffee Bar might be paying more for Kenyan over Nicaraguan coffee?

Answers will vary. Responses may include: the shipping costs, grade of product, availability etc.

(c) Do you know of any other Fairtrade products available in stores?

Answers will vary.