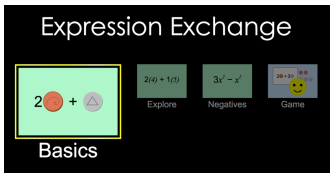
Name: _____ Date: _____ Class: _____

ALGEBRAIC EXPRESSIONS – DAY 1

💬 = turn and talk. Stop and share your responses with your partner. If you have different responses, try to come to a consensus.

1. Play with the sim for 5 minutes. Write down three questions or observations that you have.



2. When you overlap two terms, sometimes the sim shows a yellow glow. What is happening?

3. When you overlap two terms, sometimes you *can't* get a yellow glow. What is happening?

4. When you overlap two expressions, what happens?

5. Go to the Negatives screen. Build an expression with 5-10 terms.
    a. Record your expression here.

    b. Simplify your expression so it has as few terms as possible. Record it here.

    c. What information does your expression in (a) give you that (b) does not? 💬

APPLY WHAT YOU LEARNED!

6. Jill and Kyle get paid per project. Jill is paid a project fee of $25 plus $10 per hour. Kyle is paid a project fee of $18 plus $14 per hour.
    a. Write expressions to represent how much Jill and Kyle are paid.

    b. Write an expression to represent how much a company will pay to hire *both* to work the same number of hours on a project.

    c. What information do the expressions in (a) give you that (b) does not?

    d. What information does the expression in (b) give you that (a) does not?

7. Below are two courts with their length and width labeled.

    a. Write an expression for the perimeter of each court.

    Perimeter of tennis court =

    Perimeter of basketball court =

    b. If the basketball court is bigger than the tennis court, *how much bigger* is it?

    c. Suppose the tennis court is 36 ft wide (x = 36). What are the dimensions of the tennis and basketball courts?

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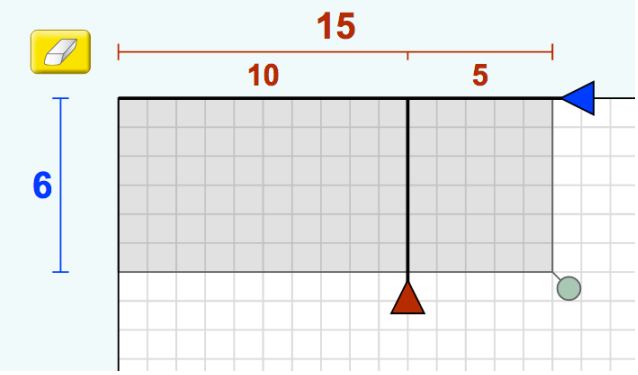
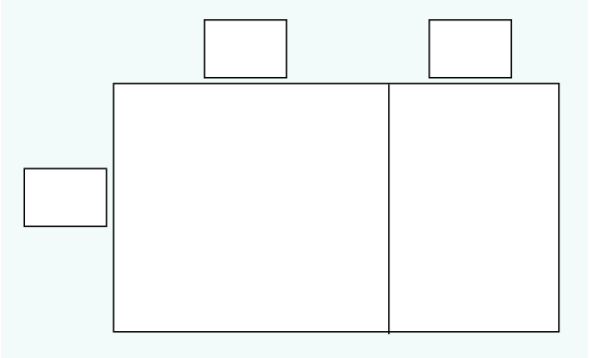
ALGEBRAIC EXPRESSIONS – DAY 2

1. Play with the sim for 5 minutes. Write down three questions or observations that you have.

2. Use the sim to explain why $6(15) = 6(10) + 6(5)$.



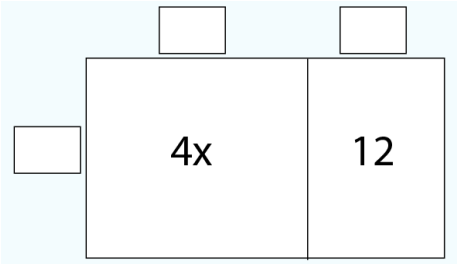
3. Use the sim to explain why $6(x - 5) = 6x - 30$.



4. Understanding an area model:
   a. How do the interior numbers (partial products) get calculated?

   b. How does total area get calculated?

5. The Area Model sim is playing tricks on you! It gives you the interior numbers, but not the exterior numbers. What numbers must be on the outside of this area model? 💬



6. Complete the table below without using the sim. Use the Variables screen to check your answers.

Factored form	Expanded form (product)
$3(x + 2)$	
$7(x + 5)$	
	$2x + 12$
	$8x + 4$
$-2(2x + 4)$	
	$5x - 25$

7. Challenge! Make a prediction: What is the expanded form of $(x + 3)(x + 2)$? Use the sim to check your prediction and explain how to find a product of two expressions.

SUMMARY

What is the relationship between multiplying and factoring?