## Big Idea(s):

Arithmetic concepts extend to understanding of algebraic expressions and equations.

## Content Standard(s):

Write, read, and evaluate expressions in which letters stand for numbers.

## Learning Intention(s):

Mathematical Learning Intentions
We are learning to:

- Write expressions that record operations with numbers and letters standing for numbers. For example, "subtract y from 5" as 5-y.


## Language Learning Intentions

We are learning to:

- Use the terms algebraic expression, sum, term, product, factor, quantity, quotient, coefficient, constant, like terms, equivalent expressions, and variables appropriately


## Social Learning Intentions

We are learning to:

- Listen to the ideas of others
- Respectfully disagree with the mathematical arguments of others


## Essential Question(s):

What are some everyday situations that can be expressed as algebraic expressions and equations?

## Mathematical Practice or Process Standards:

Reason abstractly and quantitatively.
Attend to precision.
Look for and make use of structure.

## Success Criteria (written in student voice):

I know that I am successful when I can:

- Read and write expressions with letters standing for numbers
- Evaluate expressions for specific values
- Apply the order of operations to algebraic expressions
- Use the terms algebraic expression, sum, term, product, factor, quantity, quotient, coefficient, constant, like terms, equivalent expressions, and variables appropriately in writing and speaking
- Listen to the ideas of others
- Respectfully disagree with the mathematical arguments of others


## Purpose:

$\square$ Conceptual Understanding
$\boxed{\square}$ Procedural FluencyTransfer

## Task:

Each small group of students will solve the problems on the worksheet entitled, soccer Kicks! (see Figure A.I). Students may rely upon the use of Algebra Tiles early in the lesson but should move to the pictorial and abstract stage by the end of the lesson.

## Materials (representations, manipulatives, other):

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Algebra Tiles
Paper/pencil
soccer Kicks! Problems Set A and set B (see Figures A.l and A.2)
```


## Misconceptions or Common Errors:

- Students incorrectly translate statements such as "6 less than $y$ " as " 6 - $y$."
- Students incorrectly use the distributive property and may only distribute the first term.
- Students forget that if a coefficient is not written, the coefficient is I.


## Format:

Four-Part Lesson Game Format Small-Group InstructionPairsOther
## Formative Assessment:

Observe students as they work on problems. Look to determine if students are drawing pictures of the manipulatives or writing the expressions abstractly. Note that a few students may still need to use Algebra Tiles.

## Launch:

Refer back to the previously taught lesson. Yesterday we used Algebra Tiles to help us model expressions. Let's see what we remember as you work with your partner to model the following:

Sam went to the fair. He bought a book of tickets for $\$ 4.00$. Then he bought drinks that cost $\$ 2.00$ each for his friends. What expression represents the problem?

Have students share how they modeled the word problem using Algebra Tiles. Select one student to draw a picture of his or her tiles on the document camera.

## Facilitate:

Refer to the drawing of the tiles on the document camera. Discuss with students if the drawing is as useful as using the tiles. Encourage students to work on the set A worksheet problems by drawing the tiles and, if possible, not using the real tiles. Walk around as students solve the problems. For students who seem to be proficient with the pictures, collect their tiles and challenge them to visualize the tiles to solve Set B's (see Figure A.2) problem abstractly. Not all students will be able to solve problems abstractly at this point. Select students you have observed having difficulty moving away from the tiles and work with them in a small group. The teacher will listen to how the students describe their thinking. The teacher uses his or her thinking to help move them away from using the tiles and drawing pictures. The teacher may also work with students who are having difficulty moving from the pictorial level to the abstract level by also pulling them into a small group.

## Closure:

Use the STOP closure. Students summarize the lesson in writing by finishing the sentence starters.

We started the lesson $\qquad$
Our Topic was $\qquad$ —.

Opportunities to do the work included $\qquad$ -

The Purpose of the lesson was $\qquad$

Retrieved from the companion website for The Mathematics Lesson-Planning Handbook, Grades 6-8: Your Blueprint for Building Cohesive Lessons by Lois A. Williams, Beth McCord Kobett, and Ruth Harbin Miles. Thousand Oaks, CA: Corwin, www.corwin.com. Copyright © 2019 by Corwin. All rights reserved. Reproduction authorized for educational use by educators, local school sites, and/or noncommercial or nonprofit entities that have purchased the book.

