Core Content

Cluster Title: Reason about and solve one-variable equations and inequalities.

Standard 6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number or, depending on the purpose at hand, any number in a specified set.

MASTERY Patterns of Reasoning

Conceptual:
Recognize real-world mathematical problems can be expressed using a variable to represent an unknown.

Procedural:
Write and solve an expression that represents a real-world problem using variables.

Representational:
Use variables to represent numbers or sets of numbers when solving a real-world or mathematical problem.

Supports for Teachers

Critical Background Knowledge

Conceptual:
Understand that a variable represents a number or a specified set of numbers.

Procedural:
Show arithmetic operations work the same way on variables as they do on numbers.
Solve real world mathematical problems using equations or expressions with numbers.

Representational:
Model authentic problems with manipulatives or diagrams.

Academic Vocabulary and Notation

>, <, ≥, ≤, constant, coefficient, solution

Code: 6.EE
### Instructional Strategies Used

| 1. | Have students write an expression for a real-world mathematical problem in which all parts of the expression have a numerical value. Then give a similar real-world mathematical problem in which one of the parts of the expression is an unknown, resulting in one part of the expression being a variable. |
| 2. | Have students write a real-world mathematical problem and an expression that represents that problem. Then have students switch word problems only and find the expression that represents their partner’s real-world mathematical problem. |
| 3. | Expose students to a variety of real-world mathematical problems. Have students work in small groups, with a partner, and eventually by themselves to write expressions to represent those situations. |

### Resources Used

- Create PDF for real-world examples.

### Assessment Tasks Used

**Skill-based Task:**
This is a problem-based standard, so there is no skill-based task.

**Problem Task:**

An appliance repairman charges $50 for coming to a home for a service call and $40 an hour for the service. Write an expression to represent her earnings for h hours.

Sally delivered 7 newspapers and John delivered x number of newspapers. Write an expression showing how many total newspapers were delivered. Write an expression to represent how many John delivered if Sally delivered seven more newspapers than John.