

# Grade 6 Topic 04 - Solving Equations

Content Area: **Mathematics**  
Course(s):  
Time Period: **Week1**  
Length: **1 Week**  
Status: **Published**

## **Stage 1: Desired Results**

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## **Unit Overview/ Rationale**

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## **Standards & Indicators**

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MA.6.6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which $p$ , $q$ and $x$ are all nonnegative rational numbers.
MA.6.6.EE.A.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

## **Big Ideas - Students will understand that...**

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**Properties** – For a given set of numbers these are relationships that are always true, called properties, and these are the rules that govern arithmetic and algebra.

**Solving Equations and Inequalities** – Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations and inequalities so solutions can be found.

**Practices, Processes and Proficiencies** – Mathematics content and practices can be applied to solve problems.

## **Essential Questions - What provocative questions will foster inquiry and transfer of learning**

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What procedures can be used to solve equations?

## **Content - Students will know...**

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Generate equivalent expressions.

Identify when two expressions are equivalent.

Determine the values from a specified set that make an equation true.

Solve problems by using variables to represent numbers and write expressions.

Understand how variables are used.

Write and solve equations of the form  $x + p = q$ .

Write and solve equations of the form  $px = q$ .

Fluently divide multi-digit numbers using the standard algorithm.

## **Skills - Students will be able to...**

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Use the properties of equality to balance equations.

Use inverse operations to isolate the variable and solve one-step addition and subtraction equations.

Draw pictures that represent information given in problems.

Solve one-step multiplication and division equations.

Draw pictures that represent information given in problems.

## **Stage 2: Assessment Evidence**

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## **Assessment**

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## **Stage 3: Learning Plan**

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### **Learning Activities**

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Use place-value blocks to model an equation; then use a pan balance to determine how to keep an equation balanced.

Use unit cubes or place-value blocks to model solving equations.

Draw addition and subtraction models to help write equations and solve problems.

Use place-value blocks to model solving multiplication and division equations.

Draw multiplication and division models to help write equations and solve problems.

### **Resources**

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Unit cubes, 30 per student

Pan balance

Paper bag

Problem-Solving Recording Sheet (Teaching Tool 1)