

# EQUATE

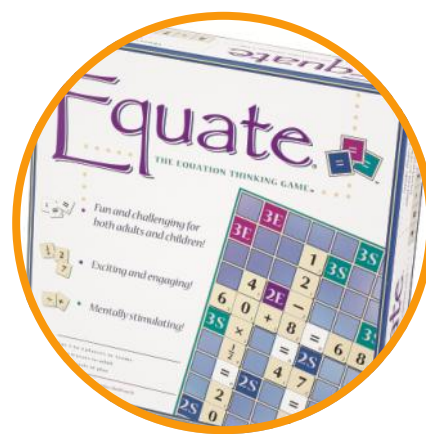
## OBJECTIVES

- Working with composite numbers, whole numbers, and fractions\*
- Practice building numerical equations using four operations (+, -, x, ÷)
- Mastering operations and early algebra skills\*
- Use critical thinking, problem-solving, and creativity to build equations

\*Indicates STEM and/or Common Core objectives

GRADES  
3-7\*\*

ESTIMATED TIME  
1 Hour  
Adapt as needed



## MATERIALS NEEDED

- [Equate Board Game](#)
- Paper/pens if you want students to write down examples and scoring

## SETTING THE STAGE

Define and give examples of the following terms:

- Numerical Equation: A mathematical sentence that includes an equal symbol along with numbers and operations.

Ex:  $8+12 = 20$ ,  $3 \times 4 = 12$

- Numerical Expression: A mathematical sentence the includes numbers and/or operations. Numerical expressions do not contain equal symbol.  
Ex:  $38$ ,  $8+12$
- Composite Number: A number that is divisible by numbers other than itself and 1.  
Ex:  $20$  (divisible by 2, 4, 5, and 10)
- Whole Number: An integer, a number without fractions.  
Ex:  $15$
- Fraction: A part of a whole.  
Ex:  $\frac{3}{4}$

## EQUATE

### PROCEDURE

Students should play in groups of 2 - 4 or teams.

Each player or team draws 9 tiles and keeps an equal symbol (=) tile in their hand. After each round of play, players should replenish their hands.

During play, equations are built horizontally or vertically. Equations may only contain one equal symbol. Players may add tiles to existing equations on either side of an equal symbol.

Players may add tiles to create new numerical expressions or numerical equations for each round of play. *Numerical expressions do not earn players any points.*

Subtraction symbol may only be used for subtraction, cannot be used to create a negative number.

All operations must be designated by an operations tile (+, -, x, ÷).

Players may choose to trade in tiles instead of play tiles but will receive zero points for their turn.

The game is over when all tiles other than equation symbols have been used. If players are unable to continue play, they must add up their individual tiles and subtract that total from their score.

*Scoring:* If you choose to have students score themselves, there are a few options.

Each tile has a score in the lower right corner that is added up for equations that are played. Some places on the board also designate extra points.

2S = 2 times individual tile score

3S = 3 times individual tile score

2E = 2 times equation score

3E = 3 times equation score

Scores should be recorded for each player after each turn.

## EQUATE

### PROCEDURE

Players who use all of their tiles in their hand receive 40 bonus points. The equal symbol does not need to be used to earn the 40 bonus points.

Player(s) with the highest score will win the game.

If timing play, make sure all players have the same number of turns. Player(s) with the highest score after designated amount of time wins.

### FOLLOW UP

Have students reflect on the following as a small group or large group:

- What types of equations gave you the most/least points?
- When was it the most difficult to add to the board, at the beginning or end of the game?
- Did you have a strategy you used while playing?
- Write two equations that have different operations but both equal 52.
  - ⇒  $4+50-2 = 52$
  - ⇒  $100\div 2+2 = 52$
  - ⇒ Follow up: write out one of the example equations in word form: four plus fifty minus two equals fifty-two.

\*\*This plan can be adapted to [Equate Advanced Tiles](#) (recommended for ages 12 and up).