

Multiplication Card Game

Multiplication Top-It

Purpose:

The objectives are to:

- ★ practice multiplication strategies (see pages two);
- ★ develop fluency of multiplication facts with factors 0-12.

Materials:

Select cards from a standard deck to calibrate this game appropriately:

- I. To practice multiplication with factors 1 through 10, use cards 1-10 with Ace = 1 (remove all face cards);
- II. For practice of the harder factors 3 through 9, use just the cards 3-9;
- III. To practice all basic facts with factors 1 through 12, use the cards 1-10 with Ace = 1, Jack = 11 and Queen = 12;

How to Play:

1. Shuffle cards and place facedown in stack.
2. Each player takes two cards and multiplies them together.
3. Each player says the product of his/her cards.
4. Player with the higher product takes all the cards.
5. In case of a tie, players draw two more cards and find their product.
The higher product wins all eight cards.
6. The game ends when no cards remain to draw.

Extend:

For a greater challenge, increase the number of factors.
Draw three cards at a time and find their product.

Basic Facts

Multiplication Strategies

Students' understanding of multiplication and division develops over time, generally between grades 2 and 5, as students move from additive reasoning to *multiplicative reasoning*. Multiplicative reasoning involves: composite groups (i.e., six bags that contain two dozen apples each); transforming units (i.e., price per gallon, miles per hour); concepts of rate, ratio, scale; and Cartesian product (despite the fancy name, this simply is the number of pairs made from sets of items: for example, 7 shirts and 9 pants result in 63 possible outfits).

To build multiplicative reasoning, students explore equal groups, arrays, and area problems. These problems, which can be solved with additive strategies, lay the foundation for the cognitive shift to multiplicative reasoning. Hence, the thinking strategies summarized below begin with what students already know – addition, number relationships, and number composition – and expand to multiplicative thinking as their reasoning develops.

Addition:

Use addition to solve whole number multiplication.

Skip Count

Example: $7 \times 5 = ?$

Solution: Count by five's 7 times: 5, 10, 15, 20, 25, 30, 35

Repetitive Addition

Example: $3 \times 8 = ?$

Solution: $8 + 8 + 8 = \underline{24}$

Anchor Facts

Use well known multiplication facts to solve unknowns. Particularly useful for solving the more difficult $\times 7$, $\times 9$, and $\times 12$ problems are using the easier $\times 2$, $\times 5$ and $\times 10$ facts.

7s Strategy: Times 7 = Times 5 + Times 2

Example: $8 \times 7 =$ I know (8×5) and (8×2)
 $= 40 + 16$
 $= 56$

9s Strategy: Times 9 = Times 10 – Times 1

Example: $9 \times 6 =$ I know (10×6) is 60.
 $= 60 - 6$
 $= 54$

12s Strategy: Times 12 = Times 10 + Times 2

Example: $11 \times 12 =$ I do know (11×10) and (11×2)
 $= 110 + 22$
 $= 132$

Unknown Facts: Build From Facts You Do Know

Examples: $6 \times 7 = ?$ Hmm, I know $6 \times 6 = 36$, so another 6 makes 42.

$4 \times 9 = ?$ I know 2×9 is 18, so double this and get 36.

$13 \times 12 = ?$ Let's see, $13 \times 10 = 130$ and $13 \times 2 = 26$, so $130 + 26 = 156$.

$6 \times 19 = ?$ Well, $6 \times 20 = 120$ and $120 - 6 = 114$.