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| **M.7.NS.2.a** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as \((-1)(-1) = 1\) and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. | **M.EE.7.NS.2.a** Solve multiplication problems with products to 100 | **Initial Precursor**
- Recognize separateness
- Recognize set

**Distal Precursor**
- Solve repeated addition problems
- Represent repeated addition with an equation
- Explain repeated addition

**Proximal Precursor**
- Demonstrate the concept of multiplication

**Target**
- Multiply by 1, 2, 3, 4, 5, 6, 7, 8, 9, and/or 10

**Successor**
- Divide by 1, 2, 3, 4, 5, 6, 7, 8, 9, and/or 10
- Apply the relationship between multiplication and division

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### How is the Initial Precursor related to the Target?

**Initial Precursor:** Solving multiplication problems requires a student to be able to recognize that two or more sets or groups of items exist. Work on this skill using a variety of sets. Help students recognize when items are grouped together into a set or separated out. As educators present a set, they label it (e.g., two balls, one marker, three CDs), count the items, label it again, and encourage students to use numerals to label and count the separate sets. Use tools like the ten-frame to point out whole and parts (e.g., a row of 5 dots and a row of 4 dots are parts or subsets of 9).

![Diagram showing initial precursor nodes](image)

### How is the Distal Precursor related to the Target?

**Distal Precursor:** As students' understanding of labeling and counting sets develops, they will begin working on adding items to a set and combining sets to create a new set. Additionally, students will work on developing an understanding of equal shares by actively participating in one-to-one distribution of objects to person, objects to objects, and objects to available space (e.g., giving each person in the group two pencils; given four counters, they would line up four more counters in front of or on top of the first set; given three chairs at a table, the student would place a cup on the table for each available chair). As students learn to work with sets and connect their understanding of equal shares to sets, educators will provide students experience with combining multiple sets (e.g., 3 sets with 4 counters each) and represent the problem (e.g., $4 + 4 + 4 = ?$). Students will also learn to represent the problem using a pencil or their communication system (e.g., the student is shown 4 equal sets each with 2 counters. The student counts the first set and writes a 2 or indicates 2, then writes or indicates the plus sign. The student repeats for all 4 sets and then indicates the equal sign and solves the problem.).

A diagram showing the relationship of nodes in the mini-map appears below.

**Key to map codes in upper right corner of node boxes:**

- **IP** Initial Precursor
- **SP** Supporting
- **DP** Distal Precursor
- **S** Successor
- **PP** Proximal Precursor
- **UN** Untested
- **T** Target
M.EE.7.NS.2.a Solve multiplication problems with products to 100