Mini-Map for M.EE.6.NS.5-8

Subject: Mathematics
The Number System (NS)
Grade: 6

Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.6.NS.5-8 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).	**M.6.NS.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. **M.6.NS.6** Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. **M.6.NS.7** Understand ordering and absolute value of rational numbers. **M.6.NS.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Linkage Level Descriptions

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate understanding of "separateness" by recognizing objects that are not joined together. Communicate understanding of set by recognizing a group of objects sharing an attribute.	Count all objects in a set to communicate the total number of objects in that set. Identify sets having the same number of objects. Identify a set containing a different number of objects than the other two sets. Recognize a set containing more or fewer objects than the other set.	Communicate understanding that opposite numbers are equidistant from zero but in opposite directions, or that when two opposite numbers are added together they yield a sum of zero (e.g., 3 + (- 3) = 0, thus 3 and -3 are opposite numbers).	Demonstrate use of positive and negative numbers in real-world contexts such as temperature, elevation, credits, and debits (e.g., representing a debit of 500 dollars as -500 dollars).	Communicate understanding of inequalities in real-world contexts (e.g., -3 degrees > -7 degrees means that -3 degrees is warmer than -7 degrees). Communicate the meaning of zero in relation to positive and negative numbers in real-world contexts (e.g., recognize that no elevation, or 0 feet, means "at sea level"; positive elevation, for example, 200 feet, means "above sea level"; and negative elevation, for example, -200 feet, means "below sea level").

Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

In order to use positive and negative numbers, students need to gain experience with creating sets. Educators can help students learn this by providing students with opportunities to take a set of objects (e.g., tiles, linking cubes, buttons) and separate them based on a given characteristic (e.g., shape, color, size) into two distinct sets. Then encourage them to separate them again based on another characteristic.

How is the Distal Precursor related to the Target?

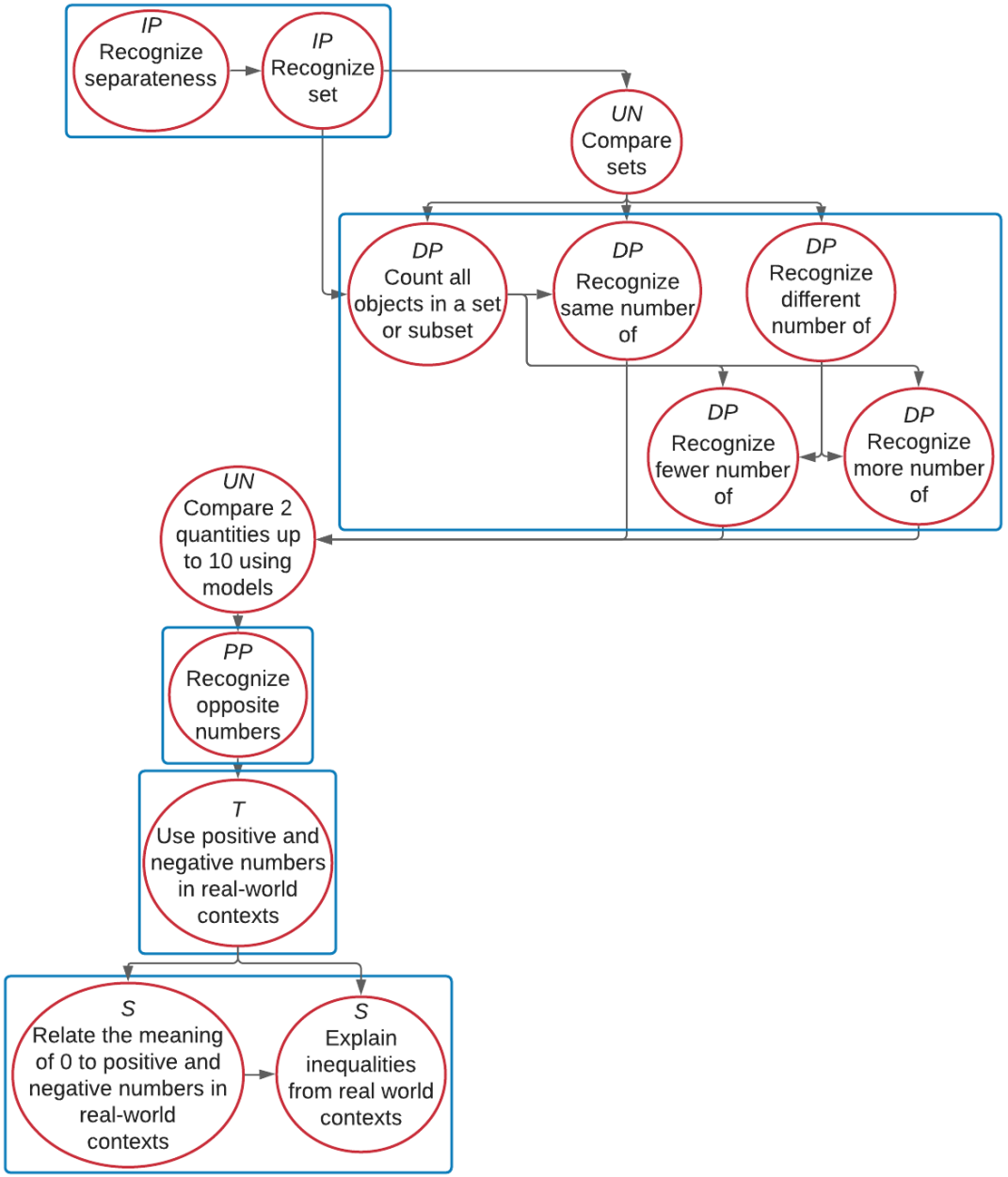
As students begin to develop the understanding of sets and numbers, educators will highlight the differences between sets on the basis of overall area or discrete number using the words same, different, fewer and more. Provide students with multiple opportunities to count and compare a wide variety of sets with an increasing number of items, label the set (e.g., eight ball, 12 bears, 15 blocks), and move items in and out of the sets, labeling and counting them again (e.g., "You just said this set has 11 cubes; if I take two cubes, how many will you have?").

Instructional Resources

Released Testlets
See the Guide to Practice Activities and Released Testlets.
Using Untested (UN) Nodes
See the document Using Mini-Maps to Plan Instruction.

[Link to Text-Only Map]

M.EE.6.NS.5-8 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).



Map Key	
IP	Initial Precursor
DP	Distal Precursor
PP	Proximal Precursor
T	Target
S	Successor
UN	Untested

Boxes indicate tested nodes