



USING BAR MODELS TO VISUALIZE PROBLEM SOLVING

Elementary Math
TESD Resources for Parents
December 2015



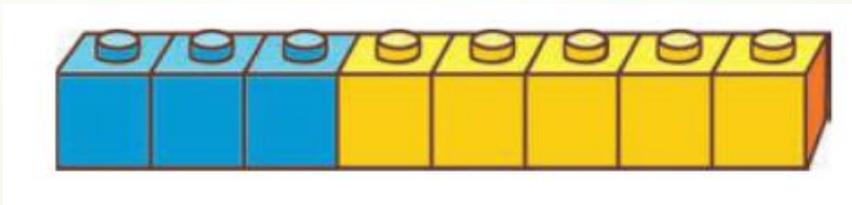
Using models to solve word problems combines two problem-solving strategies:

- 1) categorizing problems by type*
- 2) drawing a picture to describe the relationships found in the problem.*

These two strategies can be used systematically across the grade levels, providing students a reliable method of understanding and solving mathematical problems.

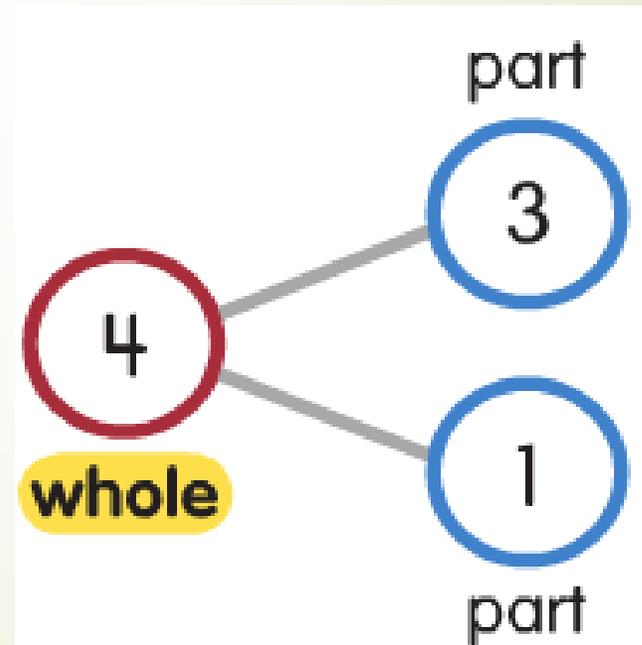
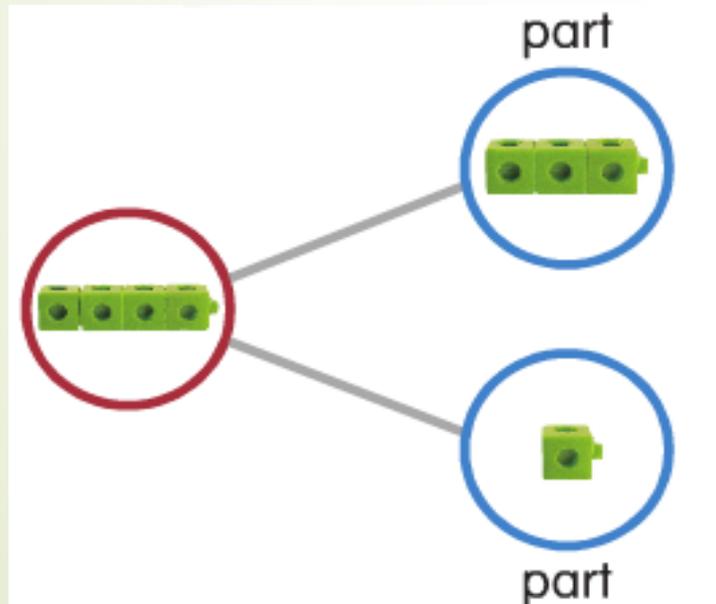
Modeling Progression - *Kindergarten*

Children work with unifix cubes or other counters to form concrete representations.



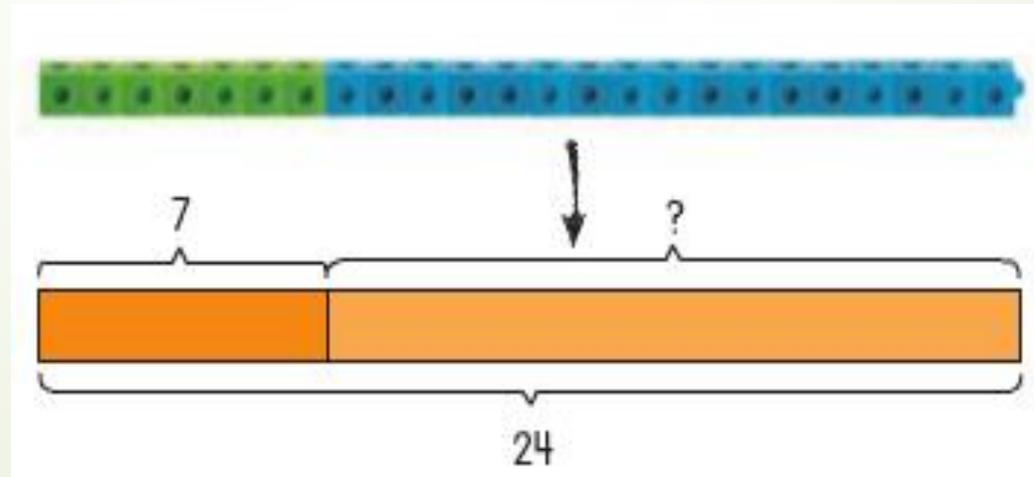
Modeling Progression – *First Grade*

Children use number bonds to create parts and wholes.



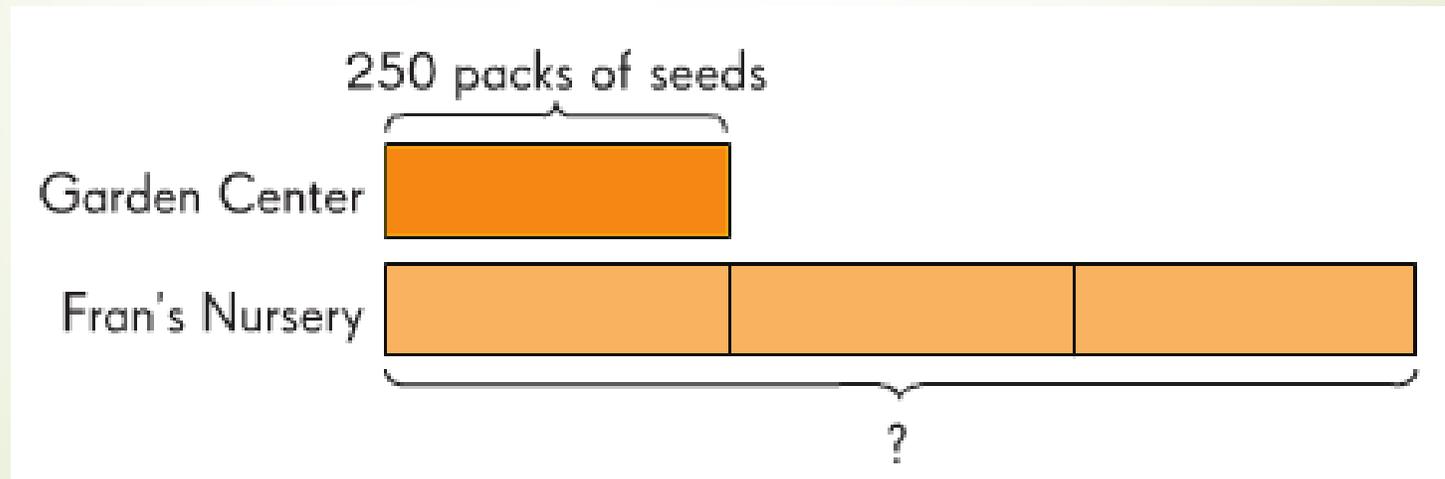
Modeling Progression – *Second Grade*

Children connect the ideas of concrete counters and number bonds to form a bar or rectangle as a part-whole or comparison model.



Modeling Progression – *Third Grade*

Children continue to compare different sized bars or rectangles.



Modeling Progression – *Fourth Grade*

Children use a bar or rectangle representation to solve more complicated problems involving fractions.



1 whole



2 thirds

Modeling Progression – *Fifth Grade*

Children compare more than two things using multiplication and division.

