High Leverage Concepts
Middle School

PROPORTIONAL REASONING		
Ratio & Rates	**Integers & Proportion**	**Linear Relationships**

Grade Six	**Grade Seven**		**Grade Eight**
Use models to compare ratios, and solve problems including those involving unit rates.	All operations with integers.	Solves proportional reasoning problems using a model. (The cross-products algorithm does not qualify as demonstrating understanding.)	Understand linear relationships using tables, and/or graphs, and/or equations. Make connections among representations of linear relationships (proportional relationships, lines, and linear equations.
<u>Meaning:</u> Students show an understanding of rations and rates including unit rates involving whole numbers or fractions. They identify equivalent ratios, and use unit rates to solve problems. They can demonstrate this understanding using models and expressions.	<u>Meaning:</u> Students will show an understanding of all four basic arithmetic operations with integers.	<u>Meaning:</u> Students will extend the basic understanding of ratios using proportional (a/b=c/d). This means applying proportions to topics including percentages, similarity, scaling, conversion, etc. This work builds on, and extends, the work in proportional reasoning from Grade 6.	<u>Meaning:</u> Students show their understanding of linear relationships by representing them in four ways: verbal, tables, graphs, and equations.
MODELS FOR INTERVENTION			
Tape diagrams (might use paper tickets or chocolate bars as concrete models for this)	If first instruction was done with algebra chips/tiles, then intervention is with the number line. If first instruction was done with the number line, then intervention is with algebra chips/tiles.	Double number line.	Graphing on a coordinate plane (technology- for example, Desmos or GeoGebra- is helpful for this approach to modeling.)

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