

Linear Relationships

Grade Eight Linear Relationships HLC

Understand linear relationships using contexts, tables, graphs and equations. Make connections among representations of linear relationships.

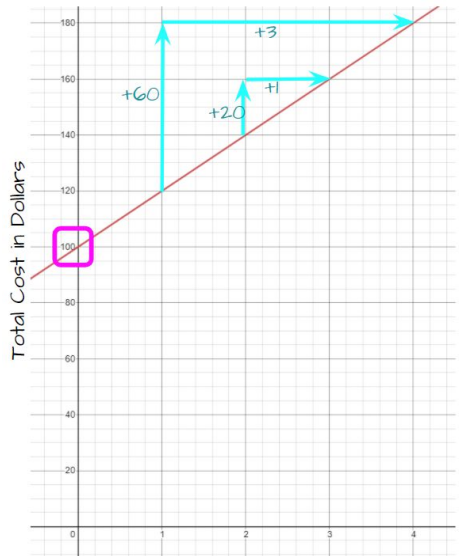
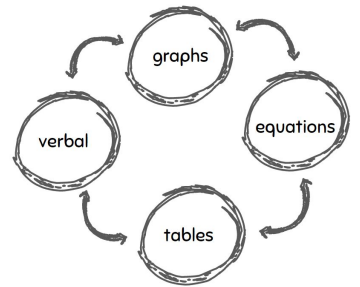
September

Grade Eight (LR) Learning Progressions

June

Students must use visual representations to build understanding along this trajectory and interact with a variety of linear contexts.
Be VERY cautious of introducing algorithms before conceptual understanding is SOLID

Critical Strategies: Finding the rate of change between two quantities (x and y) and the vertical intercept or initial value

Verbal (in context)	Tables	Graphs	Equations												
<p>At Monster Ski Mountain, the cost for a Bash Badge is \$100. Once you purchase a badge, you then pay \$20 for each day you ski.</p> <p>Initial Value (Starting cost/out of pocket) = \$100</p> <p>Rate of Change = \$20 for every ticket you purchase. (an increase of \$20 for every 1 ticket)</p> <p><i>*Note: the vocabulary "initial value" & "rate of change" comes directly from Common Core</i></p>	<p>Initial Value of 100 (when x is 0, y is 100)</p> <table border="1"> <thead> <tr> <th># of tickets (x)</th> <th>Total Cost in dollars (y)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>100</td> </tr> <tr> <td>1</td> <td>120</td> </tr> <tr> <td>2</td> <td>140</td> </tr> <tr> <td>5</td> <td>200</td> </tr> <tr> <td>12</td> <td>240</td> </tr> </tbody> </table> <p>$\Delta x = +4$ $\Delta y = +80$</p> <p>Rate of Change An increase of 80 for every 4 x's = an increase of 20 for every 1 x</p> $\frac{\Delta y}{\Delta x} = \frac{80}{4} = \frac{20}{1}$	# of tickets (x)	Total Cost in dollars (y)	0	100	1	120	2	140	5	200	12	240	<p>Initial Value of 100 is found when x=0, on the y-axis</p>  <p>Rate of Change For every 3 x's, y increases by 60 so... For every 1 x, y increases by 20</p>	<p>Even when x is 0, you still will have to pay \$100 so your Initial Value is 100</p> $y = 20x + 100$ <p>For every 1x, y increases by 20 ... So your Rate of Change is 20</p> 
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