**Direct Proportions**

**Students will:**
- Draw pictures and use manipulatives to demonstrate a conceptual understanding of proportions
- Solve problems using proportional reasoning
- Represent and recognize direct variation graphically, numerically, and symbolically
- Identify and interpret the constant of proportionality in direct relationships

**Case Closed - Evidence:**

1. Karen is mixing paint. She mixed three cups of red with five cups of white to make her favorite shade of pink. Her brother, Phil, dumped in another cup of red paint. How much white paint must Karen add to make the mixture return to her favorite shade of pink?

Karen needs about 6.67 cups of white paint. She has already poured in 5 cups of white so she must add 1.67 cups.

2. At the spring sale, prices were marked 20% off. How much would you pay for an item that regularly costs $10.50?

You will pay $8.40 for the item.

3. Consider the table below. Does it represent a proportional relationship? How do you know? Write a rule describing the relationship and then express the relationship with an equation.

<table>
<thead>
<tr>
<th>x</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

**Case Closed - Evidence:**

The quantities in the table vary proportionately $y/x$ is equal to a constant, 2. Each $y$ value is 2 times the corresponding $x$ value. As an equation, this relationship is: $y = 2x$

**Book’em:**
- If You Hopped Like a Frog by David M. Schwartz
- Jim and the Bean Stalk by Raymond Briggs
- Roll Thunder, Hear My Cry by Mildred D. Taylor