**Hot Wheels, Cool Math**

**Scenario:** Students will test the distance a hot wheels car rolls from the end of a ramp based on the height of the ramp. Then students will make a scatter plot, find the line of best fit, and answer questions over the data.

**Supplies:**
- Hot Wheels Cars
- Cardboard ramp
- Ruler
- Tape Measure

**PASS:** Process Standard 4.1 - Link mathematical ideas to the real world.
Content Standard 3.2 - Collect data involving two variables and display on a scatter plot; interpret results using a linear model/equation and identify whether the model/equation is a line best fit for the data.

**Procedure:**
1. Put students in groups of three or four in an open area such as a hallway.
2. Students measure the height of the ramp to be 2 inches. Hold the hot wheels car at the top of the ramp and let go.
3. Measure the distance the car rolled from the end of the ramp in inches.
4. Record the ramp height and the car distance in the table.
5. Repeat the process for a height of 4", 6", 8" and 10"
6. Use the data in the table to answer the questions.

<table>
<thead>
<tr>
<th>Ramp height (inches)</th>
<th>Roll distance (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot;</td>
<td></td>
</tr>
<tr>
<td>4&quot;</td>
<td></td>
</tr>
<tr>
<td>6&quot;</td>
<td></td>
</tr>
<tr>
<td>8&quot;</td>
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</tr>
<tr>
<td>10&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Analyze the data:**

1. Plot the data on a scatter plot. Don't forget to label the axis.
2. Describe the trend of the data. Does it go up, down?
3. What is the independent variable? What does it represent?

4. What is the dependent variable? What does it represent?

5. What type of correlation (positive, negative, none, weak, strong) do you think exist in this data?


7. Find the equation for the line of best fit.

\[
m \\
b = \underline{\quad} \quad \text{equations:}
\]

8. What does the y-intercept tell us?

9. Explain what the slope of this experiment means.

10. What is the domain of the experiment?

11. What is the range of the experiment?