<table>
<thead>
<tr>
<th>Activity</th>
<th>Description of Activities and Settings</th>
<th>Materials and Supplies</th>
<th>Time (min.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Focus and Review</strong></td>
<td>Review straight line motion and 1 dimensional motion due to gravity. Vector mathematics. Resolving vectors into components.</td>
<td></td>
<td>10</td>
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<tr>
<td><strong>2. Objective</strong></td>
<td>Learn the independence of component velocities.</td>
<td></td>
<td>2</td>
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</tbody>
</table>
| **3. Instructional Development / Teacher Input** | 1. Analyze the Monkey and Gun experiment. Use the Alice World demo.  
2. Analyze the Horizontal Ballistic Cart to demonstrate independence of velocities. |                          | 30          |
| **4. Guided Practice**           | Use white boards for groups to predict what happens in 1 and 2 above and 3 below.  
3. Demo: Ball-bearing gun. Do a simple horizontal launch then expand to angular launch. |                          | 40          |
| **5. Independent Practice**      | HW: Read chapter 3 on 2-D motion. Page 102: #3; Page 104: 3, Page 115: #36.                              |                          | 2           |
| **6. Closure**                   | Discuss any problems students are having completing the g-lab.                                         |                          | 6           |
Handins:  
none

Handouts:  
none

Objectives:  
1. Learn the independence of component velocities.

Activities:  
1. Analyze the Monkey and Gun experiment.
2. Analyze the Horizontal Ballistic Cart to demonstrate independence of velocities.
3. Create data for analyzing projectile motion (Video Tape path of Basketball thrown across room.)
4. Demo: Ball-bearing gun. Do a simple horizontal launch then expand to angular launch.
   Use white boards for groups to predict what happens in 2 and 3 above.
5. Discuss any problems students are having completing the g-lab.

Homework:  