Catching a cold?

Name ........................................

In 1970, Linus Pauling, a famous chemist, published a book called *Vitamin C and the common cold*. He claimed that taking large amounts of vitamin C helps prevent colds. Many people still think this is true today.

**Task 1** Read the following and answer the questions.

Here are some data Professor Pauling used to support his claim.

The data were collected by a Swiss doctor working in a ski resort in 1961. 279 skiers took part in two periods of five to seven days. The skiers were about the same age and had eaten similar foods. Every morning, each skier took a tablet. The tablet contained either vitamin C or another non-vitamin C substance. The skiers did not know which tablet they were taking and neither did the doctor. The doctor examined the skiers to see if they had caught colds. When the study was finished and the symptoms checked against those who had taken the two different tablets, these were the results:

<table>
<thead>
<tr>
<th>Data</th>
<th>Blank group</th>
<th>Vitamin C group</th>
<th>% decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of skiers</td>
<td>140</td>
<td>139</td>
<td></td>
</tr>
<tr>
<td>Number of colds</td>
<td>31</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Total days of illness</td>
<td>80</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Total individual symptoms*</td>
<td>119</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>Severity of colds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From days of illness</td>
<td>2.58</td>
<td>1.82</td>
<td>29</td>
</tr>
<tr>
<td>From individual symptoms per cold</td>
<td>3.84</td>
<td>2.47</td>
<td>36</td>
</tr>
</tbody>
</table>

*Individual symptoms included sore throat, cough, fever, runny nose, aches in the muscles, headaches, pain in the stomach, diarrhoea, general body weakness.

**Questions**

1. Why was it important that neither the skiers nor the doctor knew which tablet was being taken?

2. Work out the percentage difference between the blank and vitamin C groups for:
   a. the number of colds
   b. the number of days of illness
   c. the number of symptoms.

   *Use this method:*
   Percentage decrease = \( (1 - \text{number for vitamin C group} \div \text{number for blank group}) \times 100\)

3. Explain why Linus Pauling thinks that vitamin C helps to prevent colds.
Task 2 Work in your group.

- Compare your answers with the other members.
- Agree answers to the next questions.

4. What are the weaknesses in the study? Think about:
   a. symptoms that might not be due to colds
   b. differences between the two groups of skiers
   c. what we have not been told about the tablets.

5. How confident is your group that vitamin C helps to prevent colds?
   
   Very confident               confident               not at all confident
   
   Explain your choice.

6. Plan another investigation that might give a clear answer to the question, *Does vitamin C help prevent colds?*. 