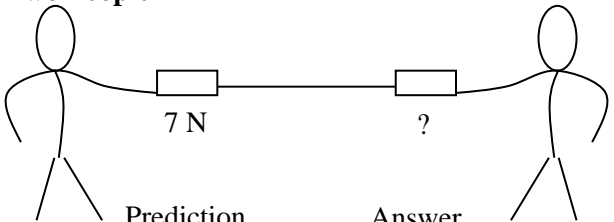
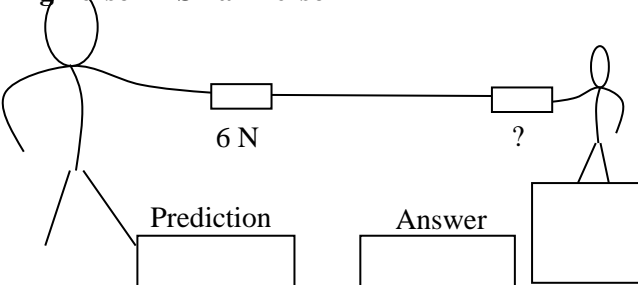

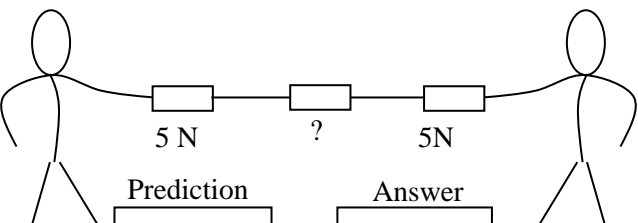
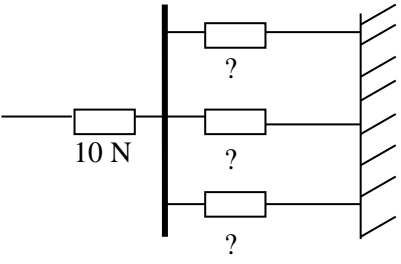
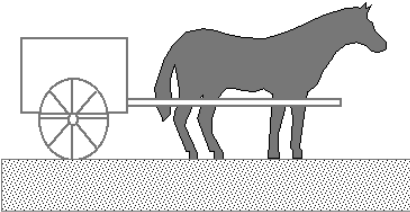
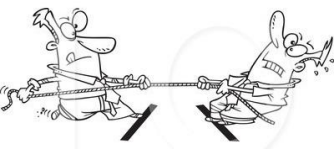


## UNIT II: Worksheet 3

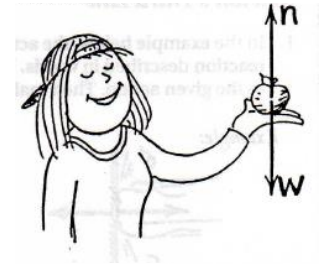
<p><b>Two People</b></p>  <p style="text-align: center;">7 N                      ?</p> <p>Prediction <input style="width: 80px; height: 25px;" type="text"/></p> <p>Answer <input style="width: 80px; height: 25px;" type="text"/></p>	<p><b>Big Person – Small Person</b></p>  <p style="text-align: center;">6 N                      ?</p> <p>Prediction <input style="width: 80px; height: 25px;" type="text"/></p> <p>Answer <input style="width: 80px; height: 25px;" type="text"/></p>	
<p><b>Person - Wall</b></p>  <p style="text-align: center;">3 N                      ?</p> <p>Prediction <input style="width: 80px; height: 25px;" type="text"/></p> <p>Answer <input style="width: 80px; height: 25px;" type="text"/></p>	<p><b>Two People – Three Scales</b></p>  <p style="text-align: center;">5 N                      ?                      5 N</p> <p>Prediction <input style="width: 80px; height: 25px;" type="text"/></p> <p>Answer <input style="width: 80px; height: 25px;" type="text"/></p>	
<p><b>One scale – Three scales</b></p>  <p style="text-align: center;">10 N                      ?                      ?                      ?</p>		<p style="text-align: center;">Answers</p> <p>← Prediction <input style="width: 60px; height: 25px;" type="text"/></p> <p>← Prediction <input style="width: 60px; height: 25px;" type="text"/></p> <p>← Prediction <input style="width: 60px; height: 25px;" type="text"/></p>
<p><b>Horse-Cart</b></p> <p>Problem:</p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>		<p>Solution:</p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>
<p><b>Tug-of-War</b></p> <p>Problem:</p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>		<p>Solution:</p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>

1. Nellie Newton holds an apple weighing 1 N at rest on the palm of her hand. The force vectors shown are those that act on the apple.

a. While Nellie's hand is at rest, which force is greater,  $W$  or  $F_n$ ? Explain.

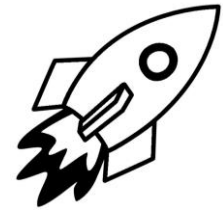
b. Are  $W$  and  $F_n$  an action-reaction pair? Explain.

c. Write out all of the action-reaction pairs from part (b).



2. Rocket ships can change their velocities by applying a force.

a. What does the rocket ship push off of in order to change its velocity?  
(Make sure your answer make sense both on Earth and in space.)

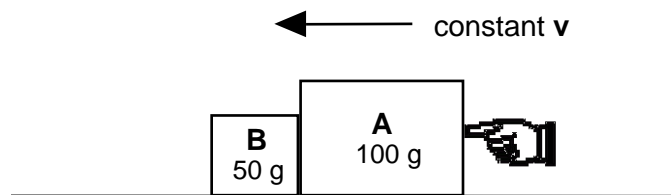


b. Write out the action-reaction pair for the rocket. (The rocket pushes on the \_\_\_\_\_. The \_\_\_\_\_ pushes on the rocket.)

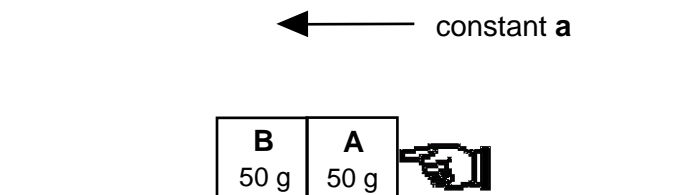
For each of the situations compare the forces exerted by the blocks on each other as they move on a table with friction.

In the space to the left of each diagram, draw a force diagram for block B; to the right, draw a force diagram for block A. Label each force and give each force a numerical magnitude. Write the magnitude on the force arrow. For example: a big force has a force of "4" while a small force has a force of "1".

3.



4.



5.

