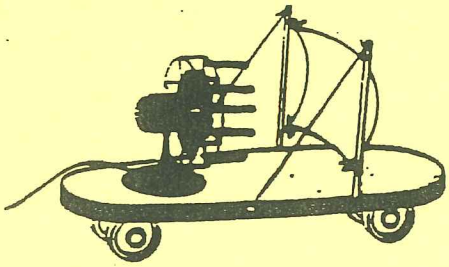
Name: _____

CAMERAS! ACTION!! REACTION!!!

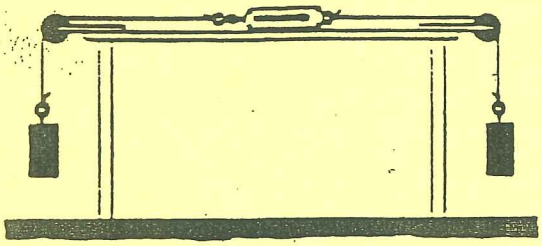
1. If two teams are having a tug of victory, Newton's third law states that they must always pull equally hard on each other. What, then, determines the winner?

2. A spacecraft is accelerated away from Earth by its rocket engines. Once the craft is far out in space, how can the rockets continue to accelerate the ship if the escaping gases have nothing to push against?

3. How will the skateboard pictured below move, if at all? Explain.



4. Two 10 Newton weights are attached to a spring scale as shown in the diagram. What would be the reading in the spring scale? Explain.



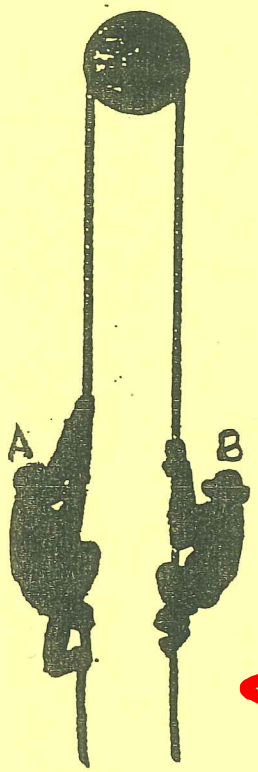
10N

5. If a heavy object is suspended as shown, and the bottom string is pulled sharply, which string will break? Explain. What is the result if the bottom string is pulled with a slow, even motion? Explain.

I start with my self on a scale. I weight 10 lb. Same as the scale reading. If the scale (say you) is at rest and the force applied is equal

6. Your weight is the result of the gravitational force of Earth pulling down on your body. If this is considered to be the action force, what is the reaction force?

7. Suppose two monkeys of equal weight are hanging on a rope over a frictionless pulley as shown. Monkey A begins to climb while monkey B simply hangs on. Will one monkey reach the top before the other, or does something else happen? Explain.



8. Refer to the drawing. Two unequal weights are suspended over a pulley. Which way will the system of weights move? Calculate the acceleration of each weight. What do you think the tension in the cable will be?

9. Refer to the drawing. Two equal weights are connected over a pulley. The coefficient of friction between the block and the table is 0.30. Will the system accelerate? Calculate the system's acceleration to find out. What do you think the tension in the cable will be?