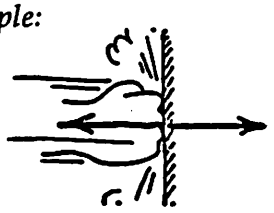
Name_____ Period _____ Date _____

Chapter 5: Newton's Third Law—Action and Reaction **5-1**

1. In the example, the action-reaction force pair is shown by the arrows (vectors), and the action-reaction described. In (a) through (g) draw the other arrow (vector) and state the reaction to the given action. Then make up your own example in (h).

Example:

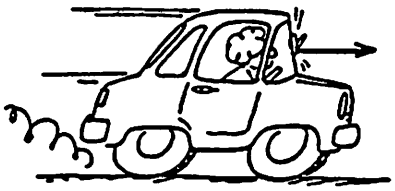


Fist hits wall.

Wall hits fist.

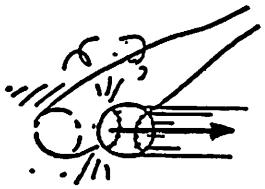
Head bumps ball..

(a)_____



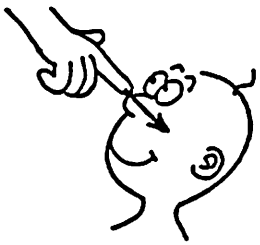
Windshield hits bug.

(b)_____



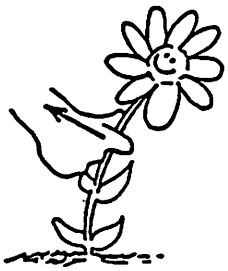
Bat hits ball.

(c)_____



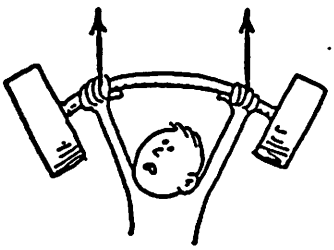
Hand touches nose.

(d)_____



Hand pulls on flower.

(e)_____



Athlete pushes bar upward.

(f)_____

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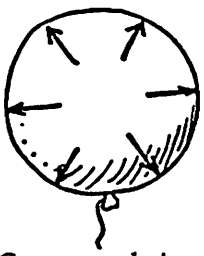

Compressed air pushes balloon surface outward.

(g)_____

_____

(h)_____

_____

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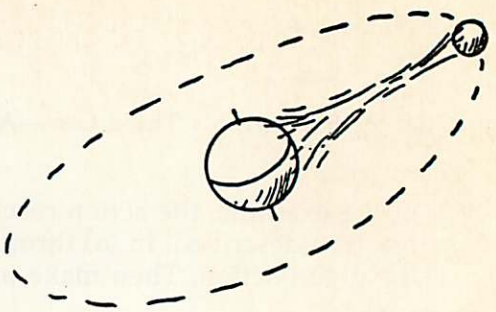
2. In some sketches, both objects are moving; in some, both objects are at rest; and in some, one object is moving and the other is at rest. Does this affect the size of the reaction force?_____

3. There is an interaction between the earth and the moon that we call *gravity*. Part of the interaction is the earth pulling on the moon, and the other part is the moon pulling on the earth. Which, if any part, is greater: the earth pulling on the moon, or the moon pulling on the earth?



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4. Show the chain of at least six action-reaction pairs of forces below.