Promoting the Use of Educational Technology in Learning and Teaching in Science (S1-3) Learning and Teaching Resources

Action and Reaction

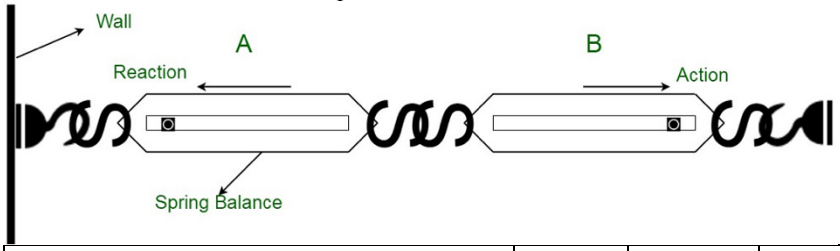
Student Worksheet
Integrated Science (S2)
Action and Reaction

Name:		Class:		( )	Date:	

Learning objectives

- Recognise that forces always work in action and reaction pairs.
- Understand that action and reaction pairs are equal in magnitude, opposite in direction and act on different objects.
- Identify some action and reaction pairs of forces in daily life.

1. Record the data for the experiment below.



Reading on spring balance *A* (Newton)					
Reading on spring balance *B* (Newton)					

Compare the size of the force acting on *A* by *B*, and that on *B* by *A*.

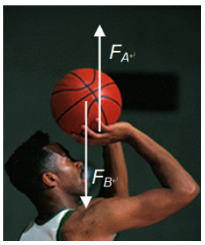
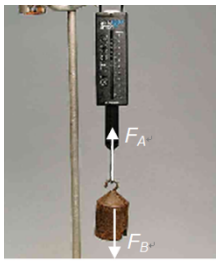
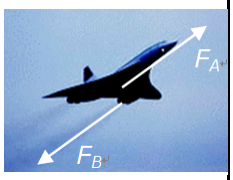
_____

2. Summarize the features of action-reaction pairs.

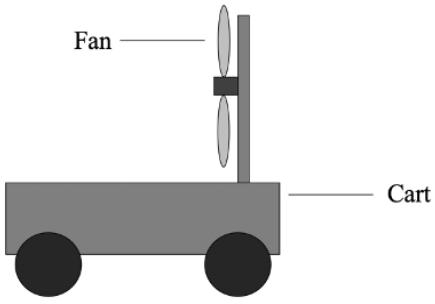
_____

_____

3. For each of the cases below, determine whether it is an action-reaction pair and explain.

	Example		Action-reaction pair? Why?
(a)		F_A = force acting on the ball by the player F_B = weight of the ball	
(b)		F_A = tension in the string that holds the object F_B = weight of the object	
(c)		F_A = force exerted on the plane by the ejected gas F_B = force exerted on the ejected gas by the plane	

4. For the following activity,
(a) **predict** what will happen; (b) record the **observations**; (c) **explain** the observations.
You are suggested to use the concept of **action & reaction** to explain.



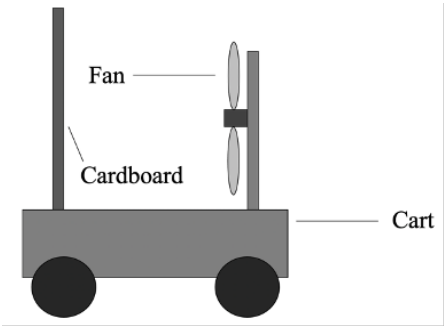
Fan Cart

Investigation 1:
Fix the fan onto the cart. Turn on the fan.

Observation: _____

Investigation 2:
Fix the cardboard onto the back of the cart. Remove the fan.
Hold the fan in your hand and blow air toward the cardboard.

Observation: _____



Investigation 3:
Fix the fan onto the cart again. Turn on the fan so that it blows air toward the cardboard.

Observation: _____

Investigation 4:
Using the setup in investigation 3, hold a plastic sheet between the fan and the cardboard on the fan cart. Turn on the fan.

Observation: _____