S8P3.b I can construct an explanation using Newton's Laws of Motion to describe the effects of balanced and unbalanced forces on the motion of an object.

**8th Grade EOG Physical Science Review: Action Reaction pairs – Match the following words with their correct description.**

| | |
|---|---|
| **Unequal force** | **Action Reaction pairs** |
| **Newton's 3rd Law of Motion** | **Equal force** |

1. _____ force pairs of equal magnitude and opposite direction that act on different objects.

2. _____ for every action there is an equal and opposite reaction.

3. _____ forces that have the same magnitude and act in opposite directions.

4. _____ forces that are not equal in magnitude and may or may not act in the same direction.

**Describe and explain what the action and reaction forces are and if they are balanced or unbalanced for each illustration.**

5. **Kicking soccer ball**

Action force: _____

Reaction force: _____

Balanced or Unbalanced: _____

6. **Pushing chair**

Action force: _____

Reaction force: _____

Balanced or Unbalanced: _____

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7. **Book on desk**

Action force: _____

Reaction force: _____

Balanced or Unbalanced: _____

**8. Janesia hits a softball with her bat. The softball travels very far. She says that hitting the softball is an example of balanced forces. Is she correct?**

A. Yes, because she hits the softball with more force in the forward direction.
B. No, because she hits the softball with more force in the forward direction.
C. Yes, because the forces acting on the softball are equal and on all sides.
D. No, because the forces acting on the softball are equal on all sides.

**9. Newton's third law of motion states**

A. When a force acts on an object, it will cause the object to accelerate.
B. An object in motion tends to stay in motion unless an external force acts on it.
C. Matter cannot be created or destroyed; it can be changed from one form to another.
D. For every action, there is an equal and opposite reaction.

**10. What is the reaction force in this rocket ship graphic?**

A. An amazing feat of science, magic, and sorcery!
B. The gases from the rockets pushing downward.
C. The rocket moving upward.
D. The wind rushing upward past the shuttle wings.

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**11. How much force is applied to Reacher's hand if he hits the wall with a force of 12,500N?**

A. 12,500N

B. -12,500N

C. 1,250N

D. Not possible to determine

**12. A golf club hits a golf ball and the ball travels far, which force is greater?**

A. Gravity acting on the golf club

B. Golf club

C. Golf ball

D. They're the same

**13. A notebook rests on a table. The force of gravity pulls down on the notebook with a force of 35N. What prevents the notebook from accelerating downward at 9.8 m/s$^2$?**

A. The table and the notebook are pushing back with an acceleration of 9.8 m/s$^2$.
B. The inertia of the book is equal to the inertia of gravity.
C. The table presses back up on the book with a force greater than 35N.
D. The table presses back up on the book with an equal and opposite force of 35N.

**14. When a cannonball fires a cannonball, we observe Newton's third law. Which force is the reaction force?**

A. The cannon moving backward.

B. The cannon moving forward.

C. The cannonball moving backward.

D. The cannonball moving forward.

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