



# QUIZ

## POTENTIAL ENERGY

Name \_\_\_\_\_ Class \_\_\_\_\_

**Directions: Write the answer on the line that precedes each question.**

1. \_\_\_\_\_ Which law explains the relationship between thrust and acceleration?
- 1) Inertia
  - 2)  $F = ma$
  - 3) Action/reaction
  - 4) Gravity

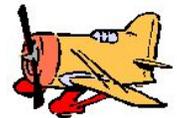


2. \_\_\_\_\_ In general, a model airplane with more turns on its rubber motor (and propeller) will...
- A) have less thrust.
  - B) will have the same thrust.
  - C) have more thrust.



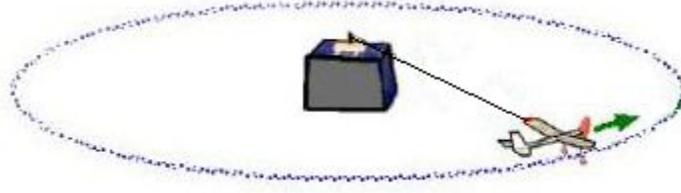
3. \_\_\_\_\_ At takeoff, a plane with twice its standard thrust will...
- A) have twice the acceleration.
  - B) have half the acceleration.
  - C) takeoff at the same point.
  - D) takeoff at twice the distance.

4. \_\_\_\_\_ A spinning propeller pushes air. Which pushes with more force? The spinning propeller or the air?
- A) The air pushes with more force.
  - B) The propeller pushes with more force.
  - C) The propeller and air push with equal and opposite force.



5. \_\_\_\_\_ When the propeller of an airplane is released...
- A) Potential energy is transformed into Kinetic energy.
  - B) Kinetic energy is transformed into Potential energy.





6. \_\_\_\_\_ Which of the following is a force?

- D) Drag
- A) Acceleration
- I) Inertia
- M) Mass



7. \_\_\_\_\_ A student performed an experiment to determine how flight time of a model plane is affected by the potential energy stored in its rubber motor. In general, the student saw that...

- L) planes with more potential energy had LONGER flight times.
- S) planes with more potential energy had SHORTER flight times.
- N) The number of turns did NOT affect flight time.



8. \_\_\_\_\_ Which equation can be used to calculate speed?

- A) Speed = Distance x Mass
- B) Speed = Distance/Force
- C) Speed = Distance x Force
- D) Speed = Distance/Time
- E) Speed = Distance x Time

9. \_\_\_\_\_ What units should go with "speed"?

- A) centimeters
- B) second/meter
- C) meters/second<sup>2</sup>
- D) meters/second

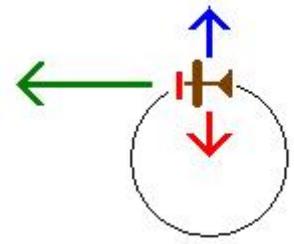
10. \_\_\_\_\_ Potential energy is energy of motion.

- True
- False



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11. \_\_\_\_\_ A plane is flying around its pylon when its string breaks. In what direction will the plane fly according to Newton's law of inertia?  
 S) Straight  
 O) Outward  
 I) Inward



12. \_\_\_\_\_ Which of the following words means "push" or "pull"?  
 A) Acceleration  
 F) Force  
 M) Mass  
 S) Speed  
 V) Velocity

13. \_\_\_\_\_ As a plane climbs in altitude; it is increasing its potential energy.  
 True  
 False

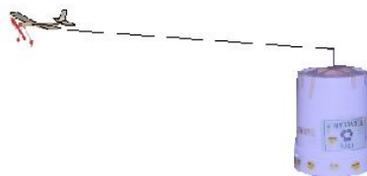


14. \_\_\_\_\_ Stored energy, or the work an object can do because of its position or state is...  
 P) Potential Energy  
 K) Kinetic Energy

15. \_\_\_\_\_ What force of flight does a propeller provide?  
 D) Drag  
 L) Lift  
 W) Weight  
 T) Thrust

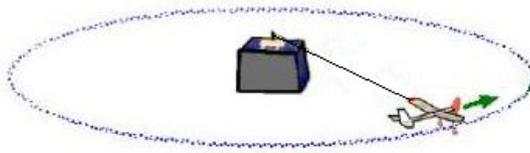


16. \_\_\_\_\_ Kinetic energy can be observed in the following: Choose **all** that apply.  
 A) spinning propeller  
 B) moving plane  
 C) moving air



17. \_\_\_\_\_ A student performed an experiment to determine how average speed of a model plane is affected by the number of turns on its rubber motor. In general, the student saw that...  
 A) The number of turns did not affect average speed.  
 B) planes with more turns on the rubber motor flew faster.  
 C) planes with more turns on the rubber motor flew slower.

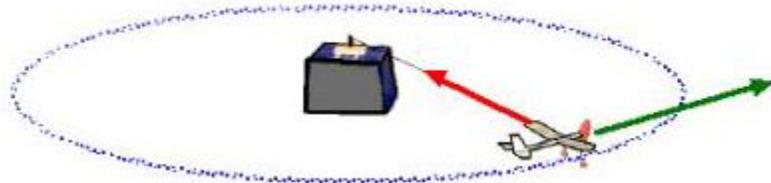




18. \_\_\_\_\_ A student performed an experiment to determine how flight distance of a model plane is affected by the number of turns on its rubber motor. In general, the student saw that...
- L) planes with more potential energy flew a LONGER distance.
  - S) planes with more potential energy flew a SHORTER distance.
  - N) The number of turns did not affect flight distance.

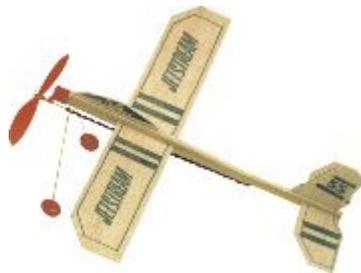


19. \_\_\_\_\_ A plane is flying in a circular path at constant speed. In what direction is centripetal force acting on the plane?
- S) Straight - in the direction of its motion
  - O) Outward - away from the center of the curve
  - I) Inward - toward the center of the curve.



20. \_\_\_\_\_ What kind of energy is stored in the wound rubber motor of a model plane?

- K) Kinetic
- C) Chemical
- P) Potential
- N) Nuclear



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