

PHYSICAL SCIENCE
NEWTON'S LAWS WORKSHEET

NAME _____

I. NEWTON'S FIRST LAW OF MOTION

1. Newton's first law of motion is also known as the LAW OF _____.
2. Newton's first law says that
 - a. an object that IS NOT MOVING, or is at _____, will stay at _____, **AND**
 - b. an object that IS MOVING will keep moving with constant _____, which means at the same _____ and in the same _____, **UNLESS**
 - c. an _____ force acts on that object.
3. What is inertia?
4. What property of an object determines how much inertia it has?
5. Which of the following has more inertia?
 - a. Bowling ball or Tehnis ball
 - b. Hammer or Feather

II. NEWTON'S SECOND LAW OF MOTION

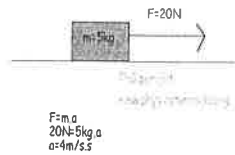
6. Newton's second law of motion is also known as the LAW OF _____.
7. Newton's second law says that when an _____ force is applied to a _____, it causes it to _____.
8. The greater the force that is applied, the _____ the acceleration.
9. The lesser the force that is applied, the _____ the acceleration.
10. If the same force is applied to an object with a large mass, it will have a _____ acceleration.
11. If the same force is applied to an object with a small mass, it will have a _____ acceleration.
12. The equation that is used to solve second law problems is **$F = ma$** .
 - a. What do each of the variables mean?
 $F =$ _____ $m =$ _____ $a =$ _____
 - b. What unit of measurement must be used with each variable?
 $F =$ _____ $m =$ _____ $a =$ _____

III. NEWTON'S THIRD LAW OF MOTION

13. Newton's third law of motion is also known as the LAW OF _____.
14. Newton's third law says that every time there is an _____ force, there is also a _____ force that is _____ in size and acts in the _____ direction.
15. Newton's third law states that forces must ALWAYS occur in _____.
16. Listed below are ACTION forces. Tell the REACTION force.
 - a. Your bottom pushing on your desk seat
 - b. A bat hitting a baseball
 - c. Your finger pressing on your phone screen while texting

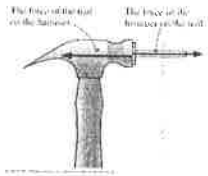
IV. UNDERSTANDING.....

Label each of the following images/descriptions below as being examples of 1st, 2nd, or 3rd law. Then EXPLAIN your answer!



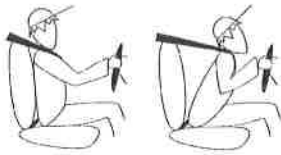
1st law 2nd law 3rd law

Explanation:



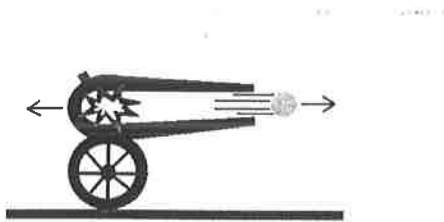
1st law 2nd law 3rd law

Explanation:



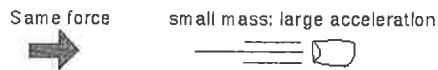
1st law 2nd law 3rd law

Explanation:



1st law 2nd law 3rd law

Explanation:



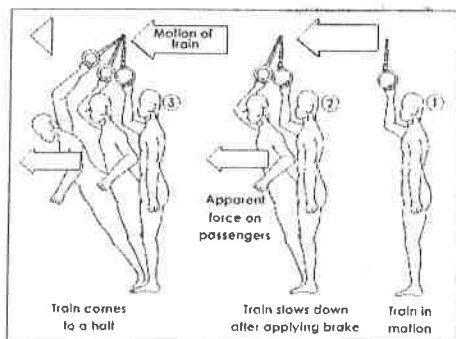
large mass: small acceleration



Force = mass x acceleration

1st law 2nd law 3rd law

Explanation:

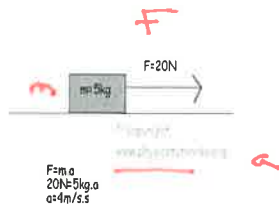


1st law 2nd law 3rd law

Explanation:

IV. UNDERSTANDING.....

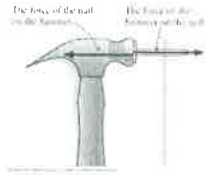
Label each of the following images/descriptions below as being examples of 1st, 2nd, or 3rd law. Then EXPLAIN your answer!



1st law 2nd law 3rd law

Explanation:

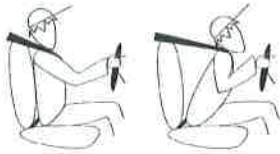
To accelerate an object (mass)
a force must be applied.



1st law 2nd law 3rd law

Explanation:

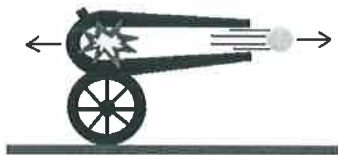
Hammer hits nail (action)
Nail hits hammer w/ force
(reaction) = and opposite.



1st law 2nd law 3rd law

Explanation:

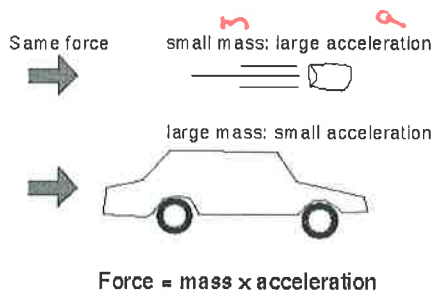
- car stops
- driver continues to move forward



1st law 2nd law 3rd law

Explanation:

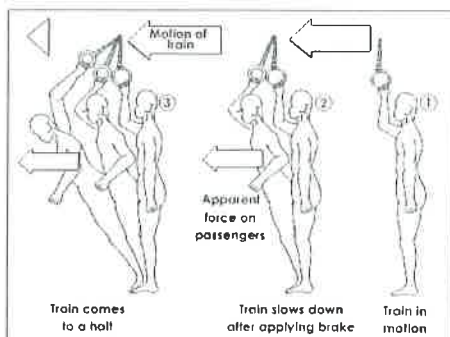
When ignited cannonball hits
cannon (Action); cannon
hits ball (Reaction) with
F = and opposite



1st law 2nd law 3rd law

Explanation:

bullet has less mass
so will accelerate more
than car - when F is =.



1st law 2nd law 3rd law

Explanation:

Force applied to Train to stop.
Passengers keep moving forward.