Physical Science B **Name:**_____
Newton's Worksheet #4
Force

1. What are the units that go into making up Force?_____
2. In reference to question one, we take the units for force and rename them a new unit, based on someones name? _____
3. A force of 12 N is applied to a crate on a frictionless surface. If the crate masses 6 Kg, what is its acceleration? Show three steps.

4. State Newton's 2nd Law of Motion:_____

5. State Newton's 3rd Law of Motion:_____
_____

6. A 12 Kg object is accelerated at 2 m/sec^2. What is the force acting on the object? Show three steps.

7. Gravity is a force that pulls objects down toward the Earth. A book is placed on a table. Why doesn't the book crash through the table due to the force of Earth's gravitation pull? Which one of Newton's Law can explain this? _____

8. Friction is a force. A crate is being pushed to the right across the floor. In which direction is the object accelerated by the force due to friction?
_____

9. Two objects have the same mass. One is accelerated at 2 m/sec^2 in a forward direction and one is accelerated at 2 m/sec^2 in a backward direction. What can you say about the FORCE acting on each object?
_____

10. A girl on roller skates accelerates at a rate of 2 meters/sec^2 with a force of 100 N. What is her mass? Show three steps.

11. What is the force on a 1 Kg ball that is falling freely due to the pull of gravity (neglect air resistance)?

12. A man has a mass of 66 Kg on the Earth. What is his weight?

13. A person weighs 540 N on Earth. What is the person's mass? What would the person weigh on the moon, where acceleration due to gravity is 1.67 m/s^2?

14. A stationary car with a mass of 1500 Kg reaches a velocity of 15 m/sec 5 seconds after starting. What is the car's acceleration? How much force was required to reach this acceleration?

15. An astronaut, sitting in her shuttle on the launch pad, has a mass of 50 Kg (on Earth).

a.) How much does she weigh before liftoff?

b.) When her space shuttle is 6400 Km above the Earth's surface, she will weigh one quarter of what she weighed on Earth.

(i) What does she weigh at that point in space?

(ii) What is the acceleration on her mass at that point in space?