Physics Week 18

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Lithium

1. Newton's first law basically states that any object in uniform motion will stay in motion and any object that is at rest will stay at rest. However, it states that this changes when unbalances forces start acting upon these objects. Unbalanced forces are forces that do not cancel each other out or, in other words, when they are added together, they don't result in a net force of 0. For objects at rest, unbalanced forces upset the balance between the normal and gravitational forces while for objects in motion, unbalanced forces upset the balance the applied and friction forces. As an example, let's say that we need to move a chair. The chair is initially at rest and it will stay that way until we push it or, in other words, apply a force to it. Let's say that, for this example's sake, the force that we apply is equal in magnitude to the friction force. The chair will continue to be in uniform motion until it's applied force decreases which would make the applied and friction forces of the chair unbalance forces with the friction force as the stronger force. The chair stops once the applied force is gone and the chair remains at rest once more.
2. Newton's second law states that when the forces that act upon an object become unbalanced, the resulting acceleration is directly proportional to the net external force that's acting upon the object while the acceleration is inversely proportional to the mass of the object. This entire law can be summarized with the equation: Acceleration = Net Force / Mass. In the equation, the Acceleration increases when the Net Force increases and accordingly, the Acceleration decreases when the Net Force decreases. On the other hand, the Acceleration increases when the Mass of the object decreases and decreases when the Mass increases. For example, let's say that we're cleaning a room and we we're moving a table. For this example, let's say that the table is in an accelerated motion and not a uniform one. If the force that we applied to it were to increase, the acceleration of the table would increase too and if our force decreased, the acceleration would also do the same. Now, let's say that the table's mass was higher but we stilled applied the same magnitude of force. The table's acceleration would be much lesser. The opposite would happen if the mass was lower as the table's acceleration would be much higher.
3. Newton's third law is the easiest to understand. It states that for every action made, there will always be an equal reaction that goes in the opposite direction of the action. Basically, if I applied a pushing force to an object, a force called the reaction force would also be applied on me. The reaction force would have an equal magnitude to my pushing force but it would have an opposite reaction. The same reaction force would also act upon me if I applied a pulling force with the only difference being the direction. For another example, let's say that I attempted to push a wall. If I applied a 5-newton pushing force to the wall, then a 5 newton reaction force that's going in the opposite direction of my

pushing force would act upon me and I'd feel that I was being pushed away from the wall.