

## **Mechanical Hand:**

### ***1. What is force?***

A force is a push or pull that acts on an object.

### ***2. What is the difference between balanced and unbalanced forces?***

When forces on an object are balanced, they will not change its motion. When unbalanced forces act on an object, its motion will be changed.

### ***3. What is an application that bioengineers use 3D Printing for?***

Bioengineers use 3D printers for the creation of prosthetic limbs.

### ***4. How can forces affect motion?***

The action from a force can cause an object to move or speed up (accelerate), to slow down (decelerate), to stop, or to change direction.

### ***5. What is tension?***

Tension is a pulling force acting outwards from either end of an object.

### ***6. What type of deformation occurs when a spring is able to return to its original form once tension is removed?***

Elastic deformation occurs when a spring is able to return to its original form once tension is removed.

### ***7. What does a straight line on a graph tell us?***

The straight line illustrates the directly proportional relationship between increased force on a spring and increase in extension. This is in an equal ratio in an area of elastic deformation.

### ***8. What do we call the point that an object stops behaving elastically and permanent deformation starts to occur?***

The limit of proportionality.

### ***9. What is Hooke's Law?***

Hooke's Law states that as we increase the force on a spring, the extension increases in an equal ratio up to the limit of proportionality.

### ***10. What are the four main biological parts that allow you to move your fingers?***

Bones, muscles, tendons & joints.