

## **WEEK: TWO**

### **CLASS: JSS 3**

#### **TOPIC: FRICTION**

This is the force that opposes the relative motion between two surfaces that are in contact with each other.

#### **EFFECTS OF FRICTION**

1. Friction produces heat.
2. Friction causes wears and tears.
3. Friction aids motion/ movement.
4. Friction aids load lifting.
5. Rough surfaces have higher frictional value.
6. Smooth surfaces have lower frictional value.

#### **ADVANTAGES OF FRICTION**

1. Walking (locomotion): Friction between ones sole and the ground helps in walking without slipping.
2. Friction belt: Belt drives are able to work because of the friction between the belt and the pulley's rim.
3. Grindstone: It is because of friction that cutlasses, knives etc. can be sharpened on stones by rubbing them on it.
4. Brake: Friction between the brake drum and the brake lining of an automobile bring the car to a halt when they come in contact.
5. Bolt and nut: The threaded surfaces of a bolt and nut give it high friction value, hence, used to hold mechanical pieces together.
6. Tyre: It is the presence of friction between the tyre and the road that makes car motion possible etc.

#### **DISADVANTAGES OF FRICTION**

1. Reduction of efficiency: Moving parts of machines encounter a lot of resistance and lots of energy loss on their way to needed operation. So, friction reduces the efficiency of machines.
2. Wears and tears: Friction reduces the size of machines parts because of the contact rubbing against each other which will eventually wears and tears of parts.

#### **Methods of reducing friction**

1. By lubrication: To limit the effects of metal-to-metal contacts in machines, the moving parts of the machine are rubbed with a lubricant (grease, oil). Lubricants allow for slippery movement of parts of machines.
2. By the use of ball bearing and rollers: These are small metal balls which can allow a part of a machine to run easily with less rubbing.