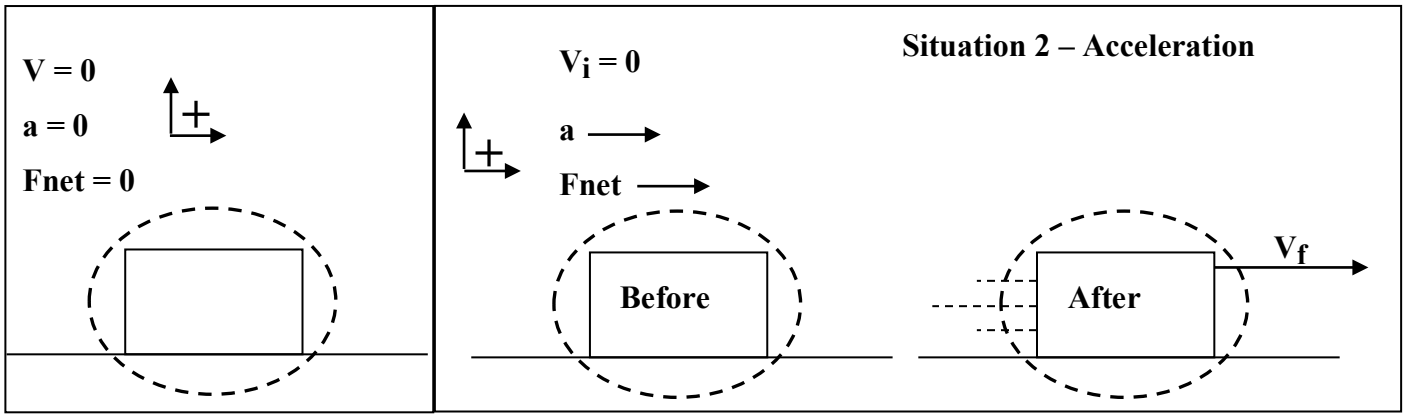
Steps to make a Force Diagram (AKA: Free-Body Diagram):

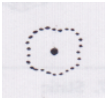
1. Define the system → 

2. Define the direction of positive → 

3. Label if there is Acceleration, Net Force, Initial and Final Velocity. If you have acceleration then you have Net Force

Situation 1 – No Acceleration



4. Draw a dot that represents the object in question.  **or** ●

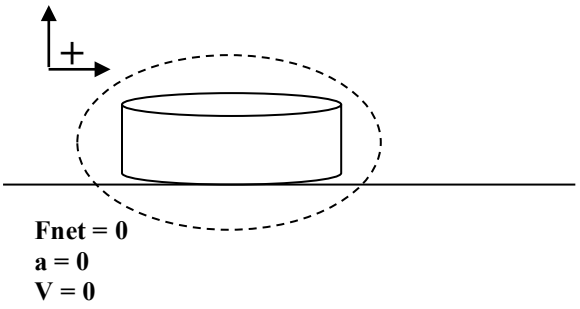
Ask yourself the following 4 questions when making a Force Diagram (Free-Body Diagram):

1. Is it on Earth?

(HINT: It is always **yes** for us!!! This is called **"Weight" and mistakenly called "gravity"**) Draw an arrow straight down and label it **$F_{Earth, Puck}$**. This stands for the **Force of the Earth on the Puck**

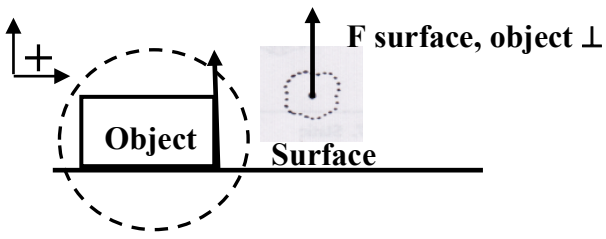
AGENT that causes the force

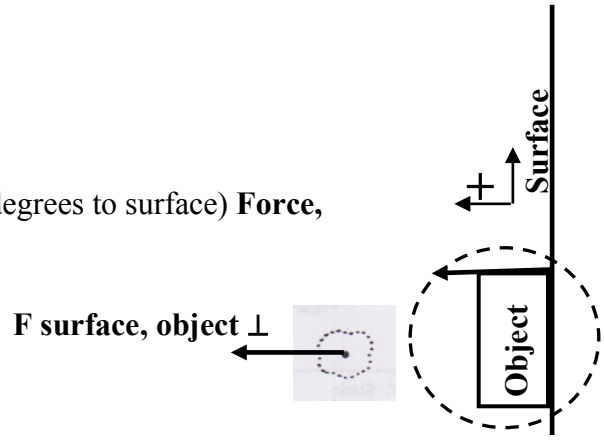
OBJECT that is affected by the force

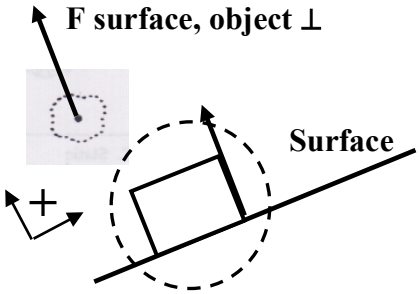


2. Is it touching a surface?

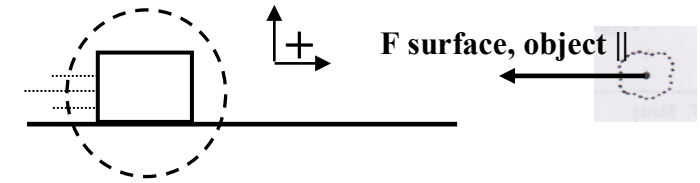
a. If yes, ALWAYS Draw the **Normal** (Normal means 90 degrees to surface) **Force, Label it as F surface, object ⊥**

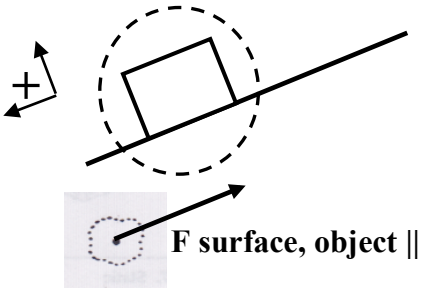


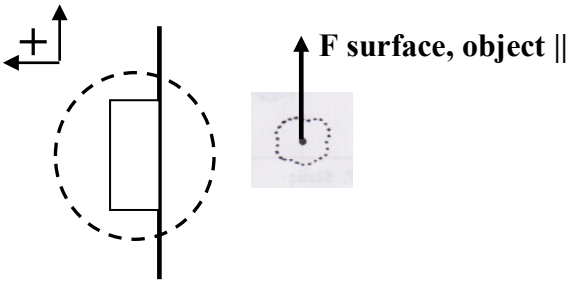




b. Is there **friction**? If yes, Draw the **F surface, object ||** **(The force is parallel to surface)**







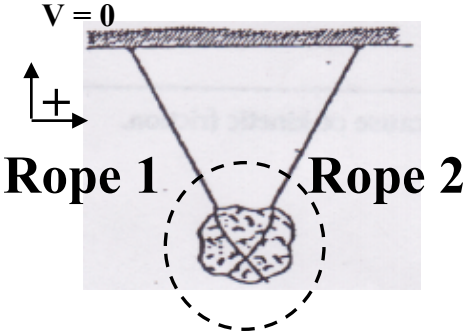
3. **Is a rope, string, chain, or spring pushing or pulling it (TENSION)**?

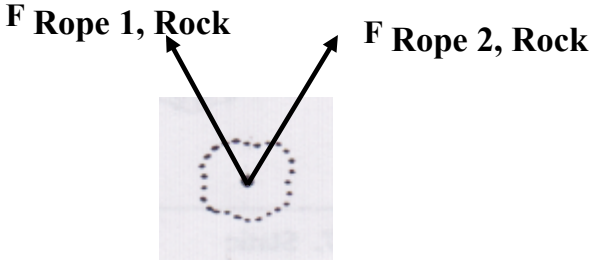
If yes draw in the Force of Rope on object pointing in the direction the rope is attached to the object.

a = 0

$F_{net} = 0$

V = 0





4. **Is anything else pushing or pulling on the object?** Hand, foot, air, magnets, a rabbit with REALLLY big teeth, a duck, a witch, a European swallow but not an African swallow because they are non-migratory, or comfy chair, etc … …