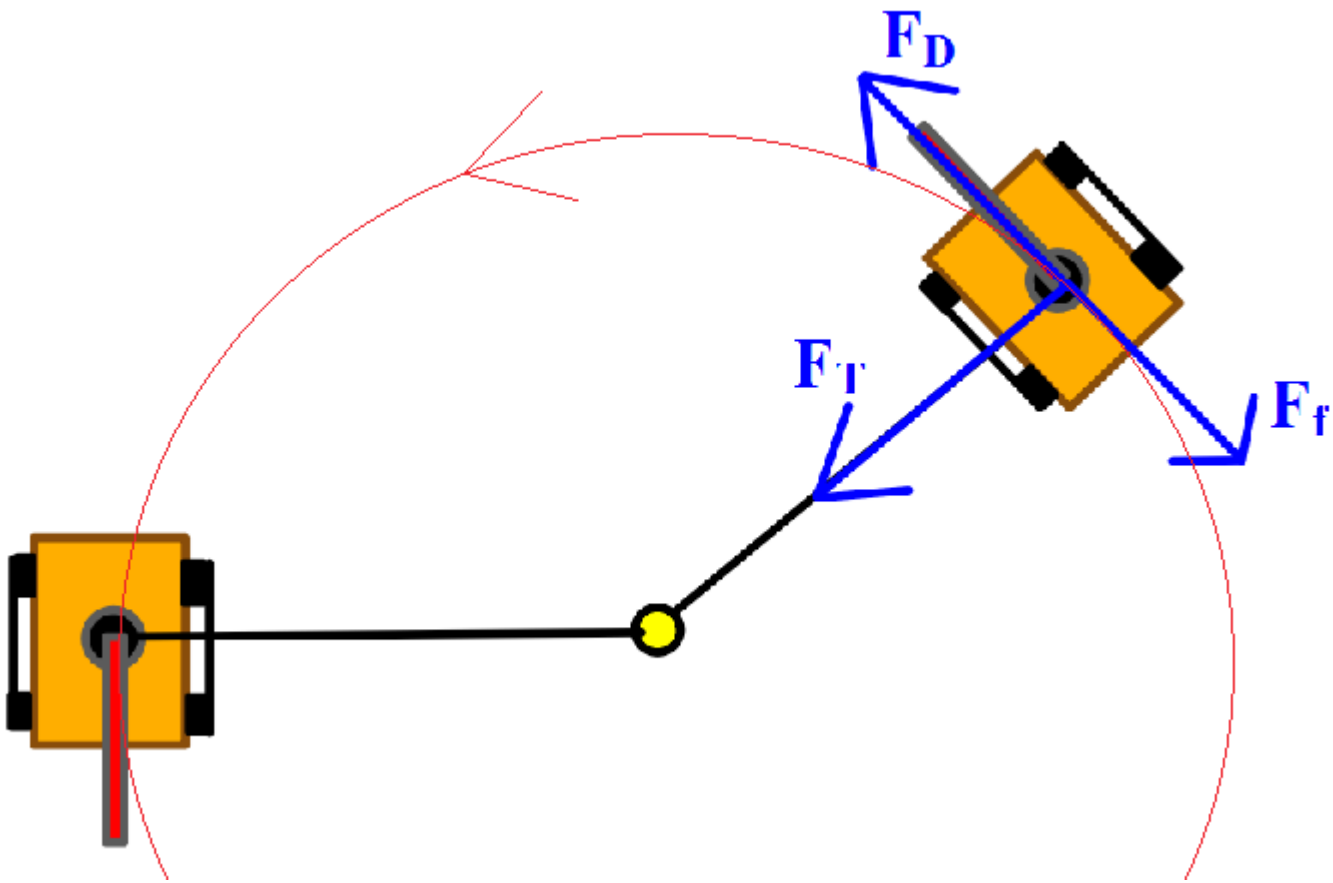
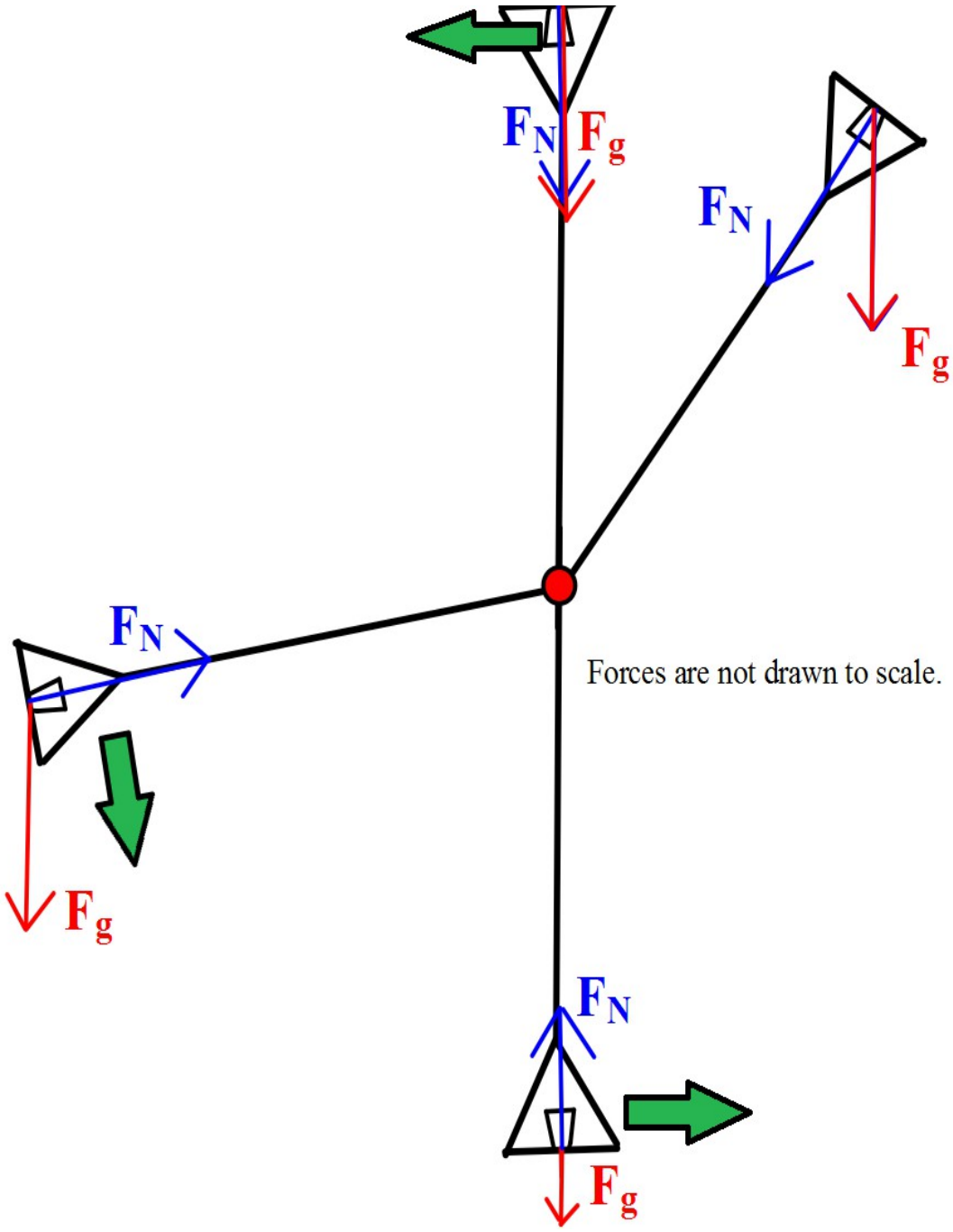
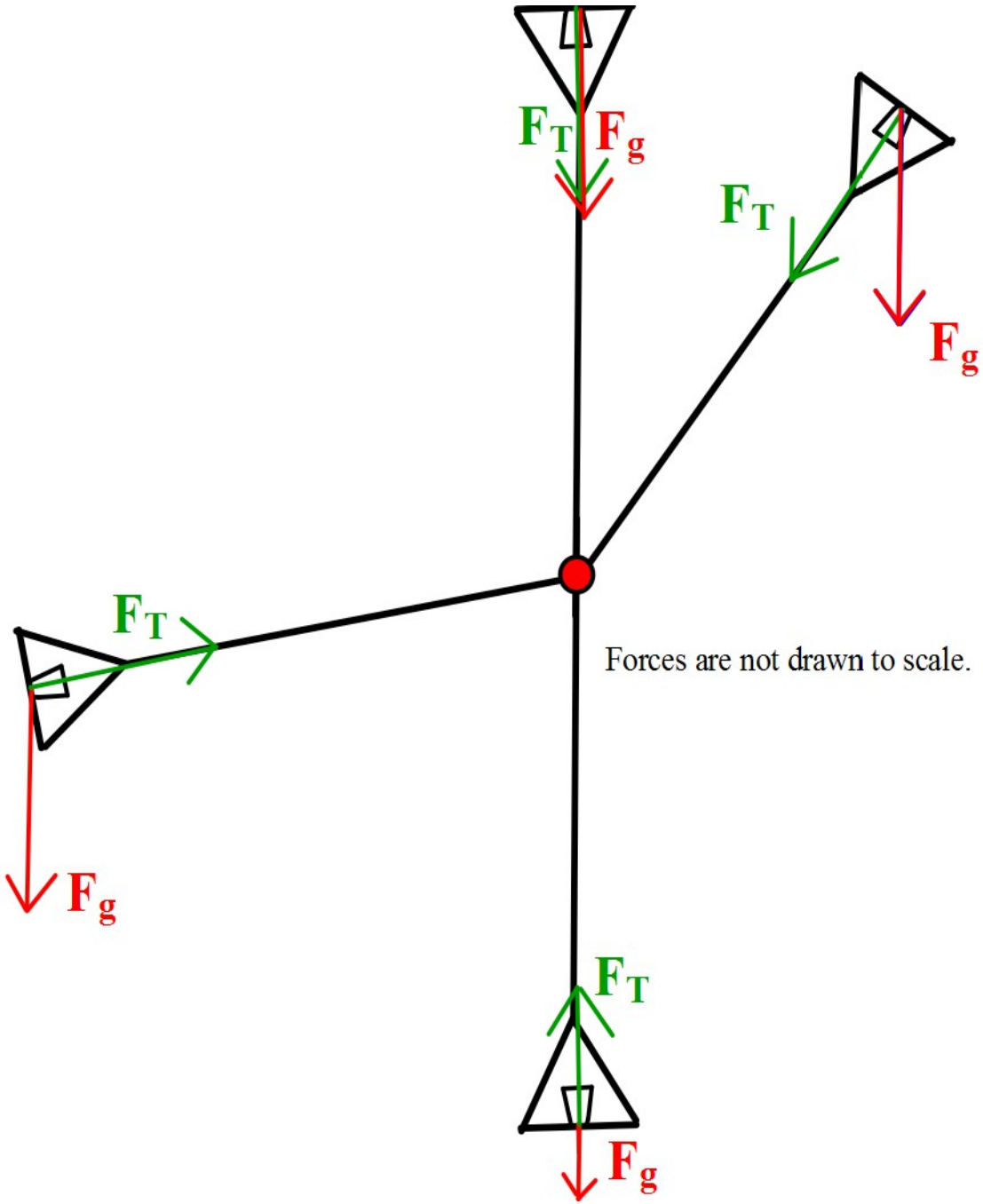
Circular Motion

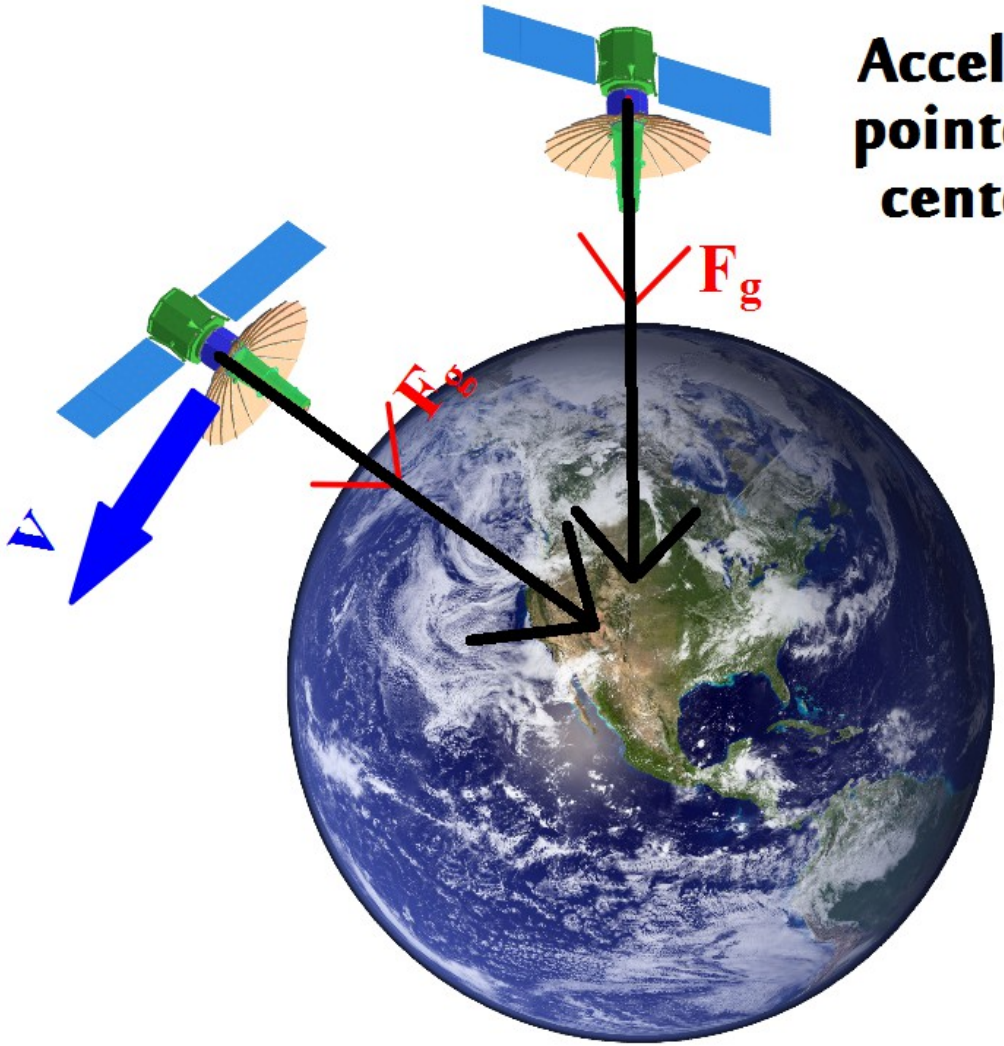

F_D
F_T
F_f

Centripetal force is the force that acts towards the center of the circle, that keeps the object moving in a circle.


F_N
F_g
F_N
F_g
F_N
F_g
F_N
F_g
Forces are not drawn to scale.


F_T
F_g
F_T
F_g
F_T
F_g
F_T
F_g
Forces are not drawn to scale.

NEVER label F_c


Acceleration
pointed towards
center of circle
F_g
F_c
v

$$F_c = \frac{mv^2}{r}$$

F_c = centripetal force (N)

m = mass (kg)

v = velocity (m/s)

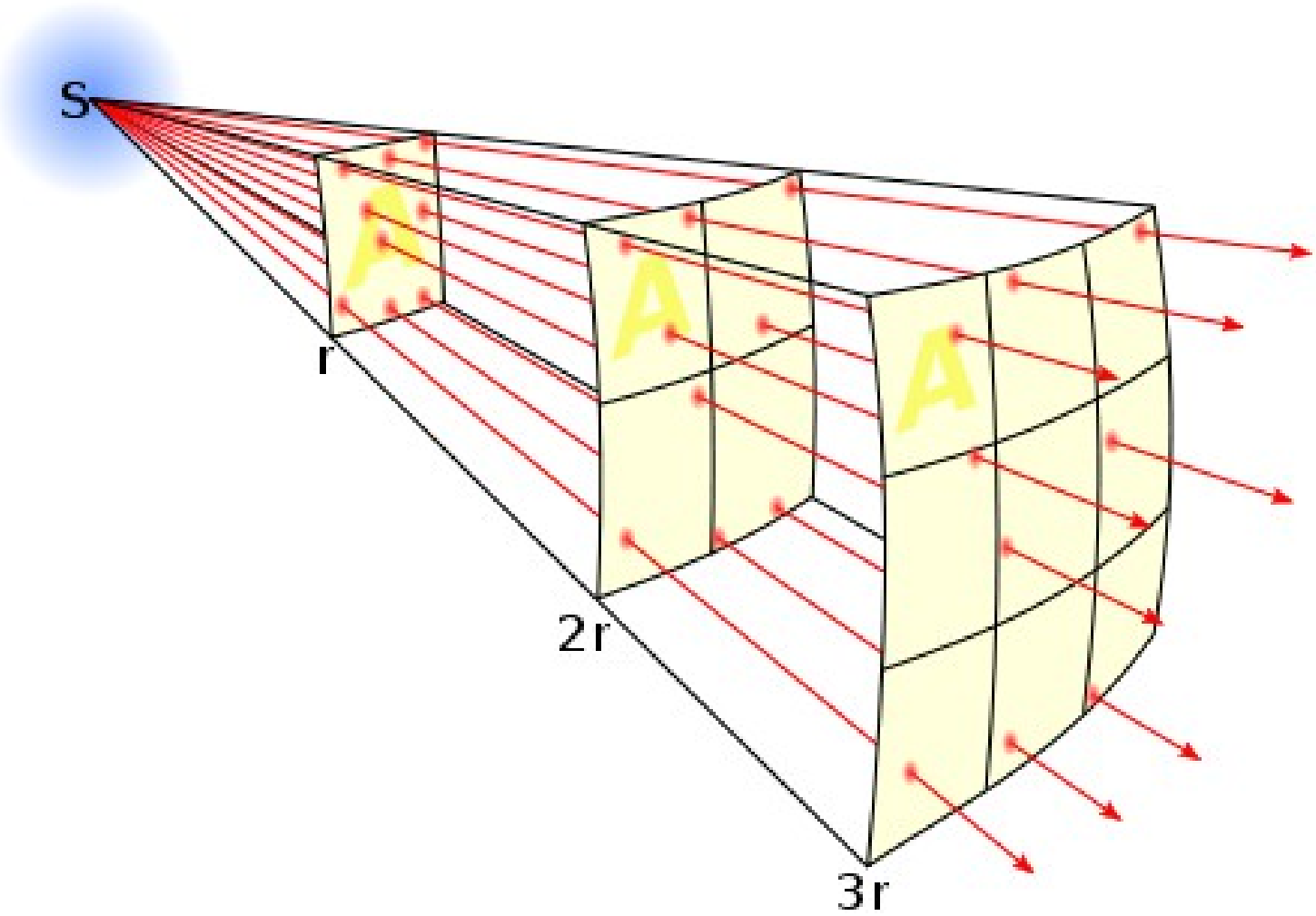
r = radius (m)

$$a_c = \frac{v^2}{r}$$

a_c = centripetal acceleration (m/s^2 or m/s/s)

v = velocity (m/s)

r = radius (m)


S
A
A
A
r
2r
3r