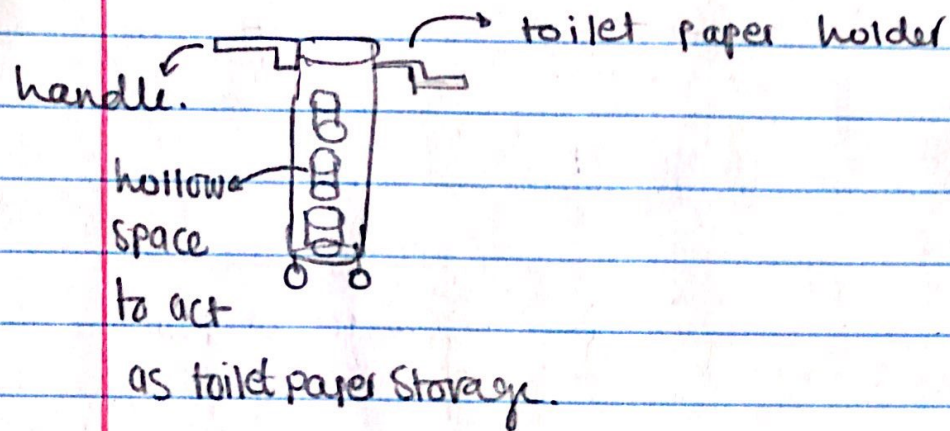


Strategy 3 The toilet paper holder for the kids.



+ $\sigma = \frac{F}{A}$ internal force
area of body.

+ assuming $m = 20 \text{ lbs}$
load that body
can withstand.

$$F = mg$$

$$F = (20 \text{ lb})(9.8 \text{ m/s}^2)$$

$$F = 147 \text{ N}$$

$$g = 9.8$$

$$d = 3 \text{ in.}$$

$$\sigma = \frac{F}{A} = \frac{147 \text{ N}}{3 \pi \text{ in}^2} = 49 \pi \text{ N/in}^2$$

$$\pi d = \pi (3) = 3 \pi \text{ in}^2$$