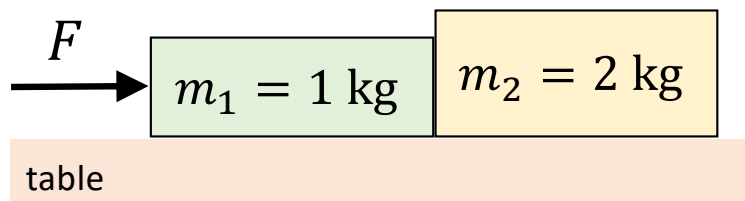


Example: Pushing blocks

$$\vec{F}_{\text{net}} = m\vec{a}$$

Draw the free-body diagrams

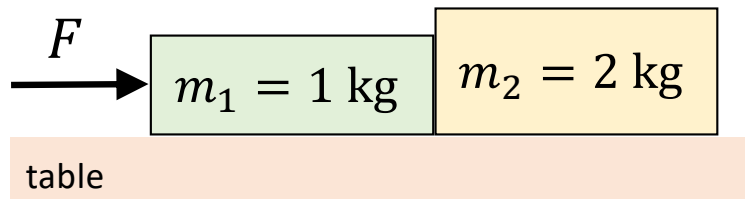


Example: Pushing blocks

$$\vec{F}_{\text{net}} = m\vec{a}$$

System

$$M = _ \text{ kg}$$



If $F = 12 \text{ N}$, what is the acceleration?

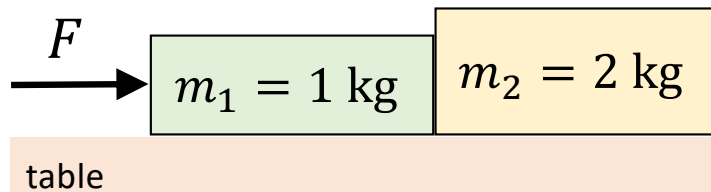
Example: Pushing blocks

$$\vec{F}_{\text{net}} = m\vec{a}$$

Components

$$m_1 = 1 \text{ kg}$$

$$m_2 = 2 \text{ kg}$$



What is the same for the two blocks?

If $F = 12 \text{ N}$, what is the acceleration?

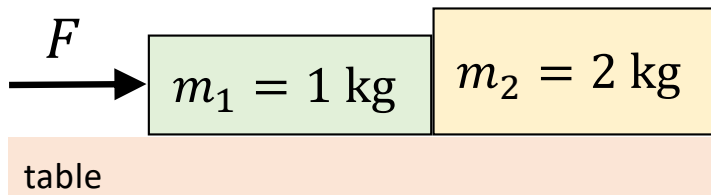
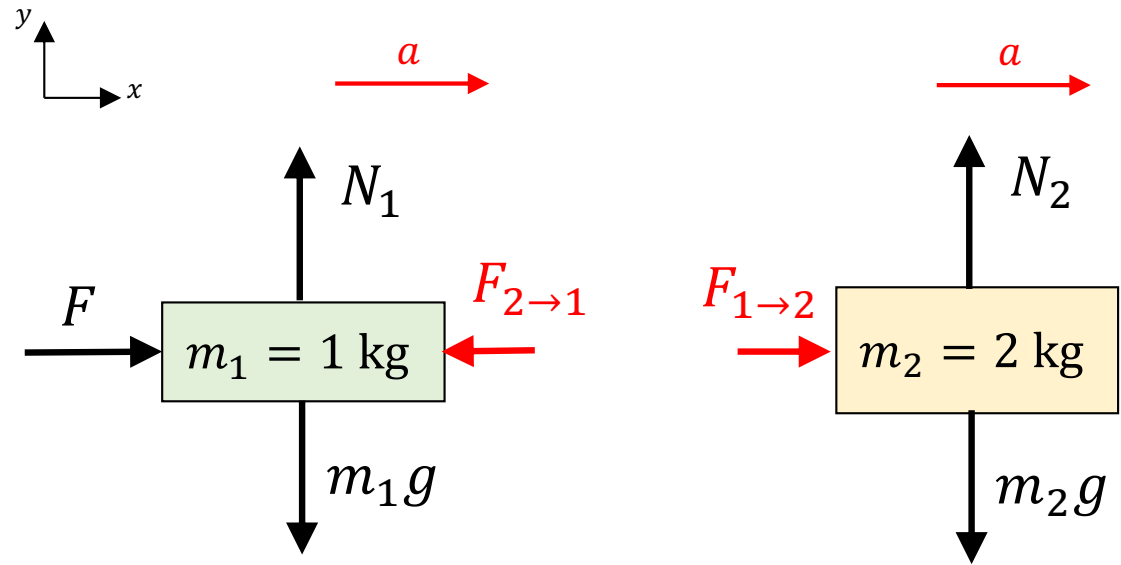
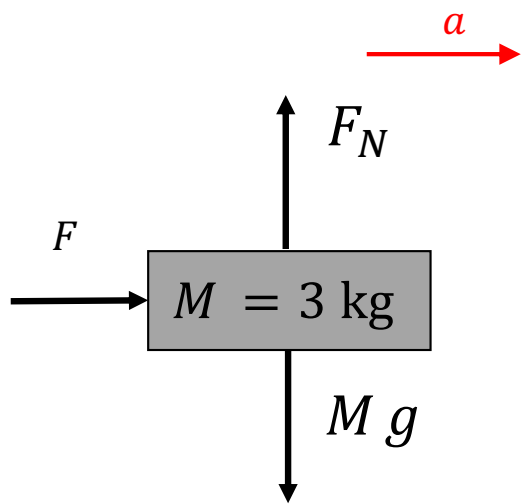
What is $F_{1 \rightarrow 2}$?

Starting from rest, how far does the system move in 5 s?

Example: Pushing blocks

$$\vec{F}_{\text{net}} = m\vec{a}$$

Free-body diagrams



What is the same for the two blocks? **Acceleration**
 If $F = 12 \text{ N}$, what is the acceleration? **4 m/s^2**
 What is $F_{1 \rightarrow 2}$? **8 N**
 Starting from rest, how far does the system move in 5 s?
 $x = x_i + v_i t + (1/2)at^2 = 0 + (0 \text{ m/s})(5 \text{ s}) + \frac{1}{2} (4 \text{ m/s}^2)(5 \text{ s}) = 50 \text{ m}$