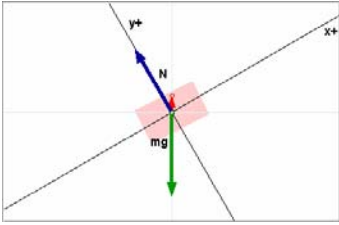


Worksheet for Exploration 4.1: Vectors for a Box on an Incline



Exploration 4.1 represents a free-body diagram for a 20-N block on a 30° frictionless incline (**the length of the vectors is given in newtons**). The light gray lines represent the traditional xy axis, and the black lines represent the coordinates along the incline. The blue vector represents the normal force; the green vector represents the weight. You may move the tails of the blue and green vectors to add them and use the red vector to represent their resultant vector by dragging the red vector's tip. [Restart](#).

- a. Determine the resultant force from the diagram.
 - i. Reposition the weight vector so that the normal force and weight form a "head to tail" vector addition diagram.
 - ii. Drag the red resultant vector (net force) so that it represents the sum of the other two vectors.
 - iii. The magnitude and direction of the net force are indicated.
- b. Determine the acceleration of the block.
 - i. Determine the mass of the block.
 - ii. What is the direction of the acceleration.

	X component	Y component
Weight		
Normal Force		
Net		