

# Unit 3 - Where are we? Vectors and projectiles

Content Area: **Science**  
Course(s): **Physics Honors, Horticulture 1**  
Time Period: **October**  
Length: **6 weeks**  
Status: **Published**

## Enduring Understandings

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Vectors are the key to navigation.

Projectile motion is both horizontal and vertical motion. These two motions are independent of one another and are analyzed separately.

## Essential Questions

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How are vectors used?

Why are there differences between vector and scalar quantities?

How does an object move in two dimensions?

## Content

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Vocabulary:

Projectile

Trajectory

Resultant

Equilibrium

## Skills

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Create a vector given parameters.

Add and subtract vectors using the two methods.

Determine resultant vectors using two methods.

Determine the equilibrant for a system in/not in equilibrium.

Apply vector calculations to Newton's Laws of Forces.

Use vector analysis to determine headings and velocities in Navigation problems.

Use vectors to determine relative velocities in Navigation problems.

Separate horizontal and vertical components of motion.

Understand and apply principles of gravitational effects on an object in projectile motion.

Apply trigonometric functions to separate horizontal and vertical components of velocity.

## **Resources**

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## **Standards**

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