

# Ohio Science Standards

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## First and Farthest

First and Farthest covers the history of the space race between the United States and Russia. First and Farthest covers these Ohio Education Standards:

### (5<sup>th</sup> Grade - High School)

#### *Physical Science (PS)*

- ✓ **The amount of change in movement of an object is based on the mass of the object and the amount of force exerted.**
  - Movement can be measured by speed. The speed of an object is calculated by determining the distance (d) traveled in a period of time (t). Earth pulls down on all objects with a gravitational force. Weight is a measure of the gravitational force between an object and the Earth. Any change in speed or direction of an object requires a force and is affected by the mass of the object and the amount of force applied.
- ✓ **Forces have magnitude and direction.**
  - The motion of an object is always measured with respect to a reference point. Forces can be added. The net force on an object is the sum of all of the forces acting on the object. The net force acting on an object can change the object's direction and/or speed. When the net force is greater than zero, the object's speed and/or direction will change. When the net force is zero, the object remains at rest or continues to move at a constant speed in a straight line.
- ✓ **Forces**
  - Force Diagrams
    - Dynamics and the motion of rockets in space.
    - Accelerating Objects and the speed needed to produce orbits.
  - Newton's Third Law
    - For every action there is an equal, but opposite reaction.