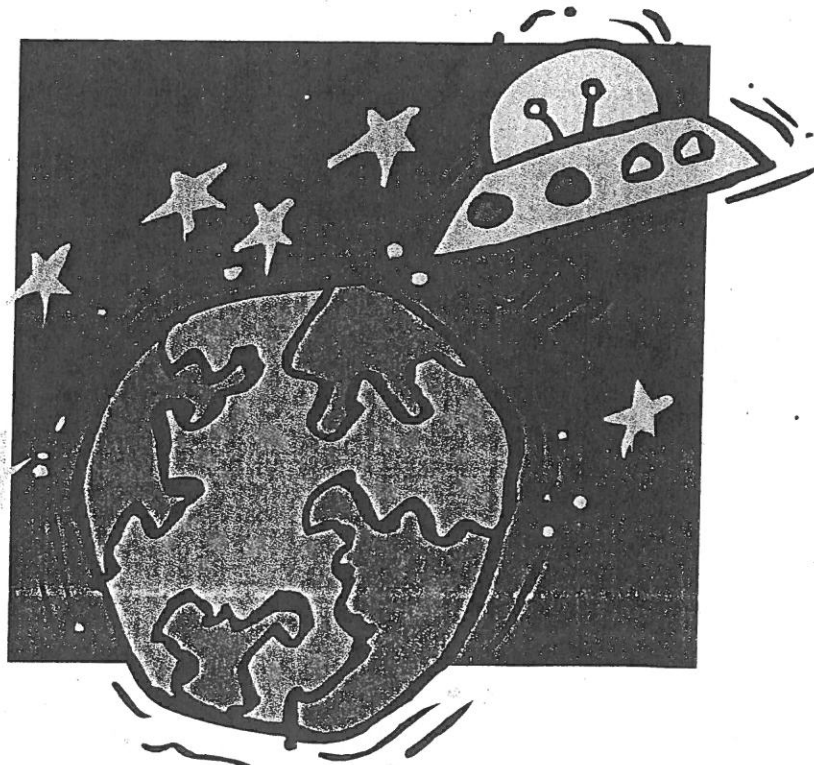


PSS 3: There are two categories of energy: kinetic and potential



- 1 ★ I know that objects and substances in motion have kinetic energy.
- 2 ★ I know the kinetic energy of an object changes when its speed changes.
- 3 ★ I can determine that objects or substances can have potential energy as a result of their position.
- 4 ★ I know gravitational potential energy is associated with the height of an object above a reference position.
- 5 ★ I know that the gravitational potential energy of an object changes as its height above the reference point changes.
- 6 ★ I can identify and describe several different forms of energy, such as:
Electrical energy: movement of electricity through wires of an electrical device.
Sound energy: the back and forth movement of the particles of the medium through which it travels.



PSS 4: An object's motion can be described by its speed and the direction in which it is moving (1).



- 1 ★ I know that an object's position and speed can be measured and graphed as a function of time.
- 2 ★ I know that distance is always measured from some reference point, or an object that is not moving in relation to the moving object.
- 3 ★ I can plot distance (vertically) and time (horizontally) on a graph to compare and analyze motion.
- 4 ★ I can determine that fast motion is represented by steep lines.
- 5 ★ I can determine that slow motion is represented by gradual lines.
- 6 ★ I can determine that no motion at all is represented by a horizontal line.
- 7 ★ I can determine the relative speeds and positions of different objects by comparing their position vs. time graphs.
- 8 ★ I can plot the speed (vertical axis) and time (horizontal axis) on a graph to compare and analyze the speed of an object.
- 9 ★ I can analyze speed vs time graphs to determine the speed of an object at any given time.
- 10 ★ I can analyze speed vs time graphs to determine the time at which an object has a particular speed.
- 11 ★ I can determine that no motion would be shown with a straight horizontal line on the horizontal axis.
A series of seven black silhouettes of a person in various poses, showing movement over time.
- 12 ★ I can determine that constant speed would be shown as a straight line above or below the horizontal axis.

PSS 4: An object's motion can be described by its speed and the direction in which it is moving (2).

13 ★ I can determine that the faster the motion, the farther away the line will be from the horizontal axis.

14 ★ I can determine that speeding up would be shown with a line moving away from the horizontal axis.

15 ★ I can determine that slowing down would be shown with a line moving toward the horizontal axis.

16 ★ I know that if a force on an object acts toward a single center, the object's path may curve into a orbit around the center. Ex.: A ball attached to the end of a string will travel in a circular path when whirled because the string continually pulls the ball toward the center.

