

Unifying Theme: Motion & Design

Essential Standards and Clarifying Objectives

5.P.1 Understand force, motion and the relationship between them.

5.P.1.1 Explain how factors such as gravity, friction, and change in mass affect the motion of objects.

5.P.1.2 Infer the motion of objects in terms of how far they travel in a certain amount of time and the direction in which they travel.

5.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period of time.

5.P.1.4 Predict the effect of a given force or a change in mass on the motion of an object.

5.P.2 Understand the interactions of matter and energy and the changes that occur.

5.P.2.2 Compare the weight of an object to the sum of the weight of its parts before and after an interaction.

5.P.2.3 Summarize properties of original materials, and the new material(s) formed, to demonstrate that a change has occurred.

Unpacking

What does this clarifying objective mean a child will know, understand and be able to do?

5.P.1.1 Students know that gravity pulls any object on or near the Earth toward the Earth without touching the object. Students know that friction is a force that is created anytime two surfaces move or try to move across each other. Students know that all matter has mass. Students understand that changing any or all of these factors will affect the motion of an object.

5.P.1.2 Students know that it is possible to measure the motion of an object based on the distance it will travel in a certain amount of time.

5.P.1.3 Students know that a graph can be created using one axis to represent the distance that an object travels, and the other axis to represent the period of time the object is traveling. Students know how to construct a graph that demonstrates a relation of distance to time.

5.P.1.4 Students know that the greater a force is, the greater the change in motion it produces. The greater the mass of the object being acted on, the less the effect of the same force.

5.P.2.2 Students know that the weight of an object is equal to the sum of its parts. This is true in all closed systems.

5.P.2.3 Students know that by making qualitative and quantitative data records, we are able to create before/after representations of materials and their properties, so that we can compare before/after versions of materials.