



## Long Range Grade 2 Science and Technology Plan

### **Term 2: Structures and Mechanisms – Movement**

#### **Specific Expectations**

##### *Understanding Basic Concepts*

- describe different mechanisms through observation and investigation (e.g., hinge, inclined plane), and identify the components that are simple machines (e.g., lever, wedge);
- describe, using their observations, the characteristics and movements of simple mechanisms (e.g., hinge, wheels and axle);
- describe, using their observations, the position of an object in relation to other objects or to a specific area (e.g. use such words as over, under, beside, behind);
- identify changes in the position of an object in relation to other objects (e.g., movement upward or to the left);
- describe, using their observations, the pattern of movement of objects (e.g., turning, spinning, swinging, bouncing, vibrating).

##### *Developing Skills of Inquiry, Design and Communication*

- ask questions about and identify needs or problems related to structures and mechanisms, and explore possible answers and solutions (e.g., investigate the effect of different floor coverings on the motion of a toy car);
- plan investigations to answer some of these questions or solve some of these problems, and describe the steps involved;
- use appropriate vocabulary to describe their investigations, explorations, and observations (e.g., use words such as rotate, turn, faster, and slower to describe the motion of wheels and axles);
- record relevant observations, findings, and measurements, using written language, drawings, charts, and concrete materials (e.g., record what happens to the movement of a vehicle released from a ramp if the size of its wheels is changed);
- communicate the procedures and results of investigations and explorations for specific purposes, using drawings, demonstrations, and oral and written descriptions (e.g., draw a sketch of an object they plan to make and another sketch of the object after it is made; tell the class the procedures they followed in making a vehicle or a container with a hinged lid);

- make simple mechanisms and use them in building a device they have designed (e.g., vehicle with wheels and axles);
- select and use appropriate tools, utensils, and equipment (e.g., use a paper punch to make holes for the axle in cardboard wheels);
- use appropriate techniques to make and fasten the components of a model that they have made (e.g., bend cardboard to make hinges; glue various materials together).

### *Relating Science and Technology to the World Outside the School*

- identify, through observation, the mechanical parts of objects (e.g., hinges on doors) and describe the motion of these parts;
- compare the motion of objects on different surfaces (e.g., wheels of a toy on carpet, tile, and sand);
- compare the motion of similar objects made with or filled with different materials (e.g., ways in which baseballs and tennis balls bounce; ways in which film canisters containing different materials roll down a slope);
- describe, using their observations, the effect that different surfaces (e.g., wood, tiles, carpet, water) have on the rate at which an object slows down;
- describe, using their observations, the effects of changing the slope of an inclined plane on the motion of an object that is placed on it (e.g., changes in speed, changes in distance travelled);
- predict factors that make a load easier or more difficult to move (e.g., the size of a wheel or hinge, the amount of friction);
- identify different ways in which wheels and axles can be attached to a chassis (e.g., by using an axle-holder, by placing the axle in holes drilled in the frame);
- demonstrate awareness that the wheels of a vehicle rotate clockwise or counterclockwise depending on the direction of movement of the vehicle.