

Mini Lesson 5-science

Grade Level- 4<sup>th</sup>

Curriculum- Science- Energy

**Standard: 4-PS3-3 Ask questions and predict outcomes about the changes in energy that occur when objects collide.** [Clarification Statement: Emphasis is on the change in the energy due to the change in speed, not on the forces, as objects interact.]

**PS3.C: Relationship Between Energy and Forces**

- When objects collide, the contact forces transfer energy so as to change the objects' motions.

Tools being used- Botley, Excel Spread Sheet

Synopsis of Lesson- Students will be conducting experiments with Botley the coding robot. They will set Botley on a path and place different objects in his path to see how the transfer of energy causes the objects to move. They will record their findings using Microsoft excel. Students will work in groups of four. Each group will have a laptop to use to record the information. Roles in the group will be assigned as follows: Student 1- will be the facilitator, this person leads the group activity and discussion. Student 2- will be the runner, they are the only person in the group who has permission to get up. They will collect supplies and turn in the supplies when the group is finished. Student 3- will be the time keeper, they will watch the clock and make sure the group is on time. Student 4- will be the recorder, they will record all of the necessary information for the assignment.

Students will record their findings in a spread sheet that identifies what they did and how they conducted they experiment. They will record how five different objects react to Botley running into them. The objects will be:

- 1.) tennis ball
- 2.) Lego
- 3.) Stuffed animal
- 4.) Chapstick
- 5.) Marble