

Mini Lesson  
Science

**Grade Level:** Fourth Grade

**Curriculum Topic:** Students will predict outcomes about the changes in energy that occur when objects collide.

**Standard:** 4-PS3-3, PS3.C

**Tools:** Sphero and Excel Spread Sheet

**Groups of Four**

**Synopsis:** Students will be conducting multiple experiments with the robot Sphero. They will set Sphero on a path and place different objects in his path to see how the transfer of energy causes the objects to move. The students will then record their findings using Microsoft Excel. Students will work in groups of four. Each group will have a laptop to use in order to record the information found from their experiments.

Roles in the group:

Student 1- Facilitator, this student leads the group activity and discussion

Student 2- Operator, this student will be the one to operate Sphero

Student 3- Time Keeper, this student will watch the clock and make sure the group is performing their experiment on a timely manner

Student 4- Recorder, this student will record all of the necessary information for the round

\*If desired, the students can switch each role with each object\*

Students will record their findings in a spreadsheet that identifies what they did and how they conducted their experiment. They will record how five different objects react to Sphero running into them.

The objects will be:

1. Dry erase marker
2. Tennis Ball
3. Lego
4. Standing Water Bottle  $\frac{1}{4}$  filled with water