Name of Exhibit: Bernoulli Ball

Description: The Bernoulli Ball, named after Daniel Bernoulli, renowned Swiss mathematician and physicist, is an exhibit that has the guest or visitor press a button to turn on the fan and watch the ball float. The air pushes the ball up, while gravity drags it down. Moving fluids (and also air) have a lower pressure than stationary fluids, so the surrounding stationary air keeps the ball in the column of moving air even if the column is moved.

For all ages.

MN SCIENCE Grad Stand/Strand/Sub-strand: Number####:

0P 2.2.1.1, 0P 4.1.1.1,
2P 1.1.1.1, 2P 2.2.1.1
5P 1.1.1.1,
6E 3.1.1.1
8P 1.2.1.2

Grade Level(s): Kindergarten through 8th Grades

Content Area(s): Earth and Life Science

Learning Target(s):

1. I can identify and describe patterns that show the effects of different strengths of different directions of pushes and pulls on the motion of an object.
2. I can ask questions from conducting investigations about how things move.
3. I can identify and predict quantitative patterns of the effects of balanced and unbalanced forces on the motion of objects.
4. I can ask investigative questions and make predictions using information from observations about changes in energy, related to speed, when two objects interact.
5. I can plan and conduct an investigation that provides evidence that a change in an object's motion depends on the sum of the forces on the object and the mass of the object.

Essential Question(s):

1. What are the effects of pushes and pulls on the motion of an object?
2. What are the forces that make an object move, stop, change direction or slow down?
3. How does the speed and direction change of two colliding objects?
4. What happens to an object when forces are applied to the object, and what effect does the mass of the object have on the motion?

Key Vocabulary in Demo: Bernoulli (Ball), Experiment(s), Force, Gravity, Inertia, Mass, Motion, Wind

Prerequisite Terms: Behavior, Differences, Model, Observation, Patterns, Relationship, Similarities, Strategies