

Ingenuity And Paper Plates “Eggs-plain” Scientific Principles

For immediate release: March 1, 2007 Tampa, Fla.

What effect do air friction, gravity and terminal velocity have on falling objects?
Does an inexpensive paper plate create sufficient air friction to protect a falling object?
What kind of a shock absorber is Styrofoam?
How is the rate of descent affected by different types of materials?

Each year, middle school students at Independent Day School-Corbett Campus (IDS-CC) ponder these types of issues as they save and recycle everything from rubber bands and drinking straws to craft sticks and chicken wire. It’s all part of an IDS tradition: the middle school physics unit on force and motion, more commonly referred to as the egg drop.

The egg drop is a three-year lesson that helps students develop an understanding of how and why people create. While specific rules vary with each grade, the objective is always the same: to design a structure to protect a raw, untampered-with egg(s) from breaking or cracking as it is dropped from the top ramp at Tampa’s Raymond James Stadium – 95 feet above the concrete pavement below. All containers must pass through a 30-centimeter circle in all directions and include a structure to hold the egg(s). Padding may touch the inside walls of the container only, not the egg(s).

In sixth grade, students focus on the scientific process as they consider the question, “How does man’s creativity help to keep people and things safe.” They construct a container to protect one egg. They also work with their math teachers to calculate the rate of descent and then graph their results along a line graph showing an inverse proportion: the higher the time, the lower the rate of descent and vice versa.

In seventh grade, the egg drop project provides students with the opportunity to investigate how science is used to keep people and items safe. Incorporating two eggs into their containers, students focus in-depth on the design cycle and how scientists apply it to their work.

By eighth grade, students are ready to explore the consequences of man’s creations as they use the egg drop activity to consider both the positive and negative impact of creations such as cars and DDT on the Earth. They have developed sufficient engineering and design experience so the restrictions become more limiting – they must work in class to produce their project with a limited amount of supplies to build their containers for holding two eggs.

“Students learn by doing their own project and also from each other as they compare containers and share results,” said science teacher Gery Morey. For example, before building their own containers, students worked together with classmates collaborating ideas with respect for each other’s views, in an effort to help everyone come up with a successful egg drop container design.

As for those eggs that suffer cracks and breaks after their fall? Well, even Thomas Edison had to try more than 10,000 different experiments before he finally demonstrated the first incandescent light bulb.

“It all relates back to how and why people create,” said Morey.

Founded in 1968, Independent Day School-Corbett Campus is a fully accredited, independent school located in northwest Hillsborough County with 550 students from Pre-K3 through 8th grade. At IDS, all children experience learning in a nurturing and highly academic environment focused on excellence and developing a positive self-concept. IDS-CC has become recognized as an exemplary school with over 3,000 visitors observing and learning from and with IDS-CC teachers. For more information about IDS visit www.idsyves.com.

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