

A Simple Egg Drop Project

A Class Project for Applied English for Science and Technology

Introduction

Children of today like playing computer games and games designed for mobile phones. Yet, it is still possible to design toys through which children will build and operate a gadget. The Egg-Drop Toy is one of these toys. The basic idea is to build a mechanism which is less than 200 gr in weight, which will not be harmful for children (no glass or any other breakable material will be used for its production), and which can be built easily by a child. The toy, together with the egg, will be dropped from a height of minimum 5 metres and the toy will protect it against the impact. As a principle, the project will not include any parachutes, cushions or lighter-than-air balloons.

Methods

For the project, it is possible to suggest various mechanical formations. Some interesting and striking projects are displayed below. We chose a much simpler design and used only one plastic bottle of fruit juice for our project. When the bottom of the bottle was removed and the sides were cut in slices to form the propellers, the neck of the bottle was enough to protect the egg. For additional protection, we secured the bottom of the bottle to the tip of the neck so that it would function as a landing platform.

Results

When it was tested both with and without the egg, the toy flew as expected. In several experiments with eggs, it was observed that the egg did not break. As the height increased, the toy functioned better because the propellers could then rotate fully and make the landing much softer.

Discussion

It is possible to improve the design with very few additions. For example, because of the weight of the egg, the propellers might bend a little and this might result in a fast drop. To prevent this, they can be fixed to the body by means of scotch tape or strings. In addition, a soft material like a pad of cotton can be placed inside the neck so that the egg will be protected better. The toy is very easy to build and does not require many tools. We build the toy in less than 30 minutes by using a pair of scissors. The bottom of the bottle is quite hard and it might be difficult for a child to cut out a circle in its middle. Therefore, the "landing gear" part of the toy can be dismissed altogether.

Acknowledgments

For the final phase, the propellers were fixed with strings by Monique Ivers from Clausthal TU.



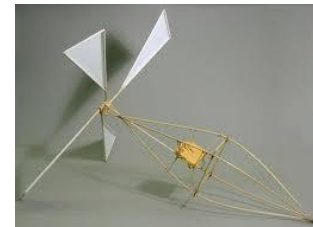
The bottom of the bottle with its centre removed



One of the propellers



Four propellers and the bottom



The toy without strings and the landing piece



With strings and the landing piece



Ready for the mission