SUITE SCIENCE

Magnus Effect!

CLASS: 1st– 6th | 35 mins | PHYSICS

Learning Objectives - WALT (We are learning to…)

1. Explore air pressure and dynamics
2. How to use physics in our everyday lives

Curriculum links
Pressure and Forces

- **Physics** – Air pressure, forces and dynamics
- **Engineering** – How planes fly

Teaching Methodologies

- **Talk and Discussion** - listening, questioning
- **Collaborative/Cooperative Learning** - group work
- **Active Learning** – Through observation and participation
- **Skills through Content:** observing, predicting, describing,

Introduction

In this experiment we're looking at the beautiful game – the most popular sport in the world – football. It is estimated that about 3 billion people play or have played it meaning that it is one of the most accessible sports you can play. If you then think of our own Gaelic football then there's even more people playing sports with footballs.

Whether its GAA or soccer, we often we see players standing over a free kick running up and then curving the ball into the net or over the bar normally just out of the goalkeepers reach. But how do they do that? It all has to do with spin and something call the magnus effect!

How does it work?

When you kick a ball more on one side than the other (so not in the middle) it will spin as it travels through the air. So air is hitting the spinning ball as it travels.

Now one side of the ball the air is moving in the opposite direction to the spin of the ball and on the other is moving in the same direction.

This difference causes an area of high pressure and low pressure on opposite sides of the ball which in turn causes the ball to curl in the air!

Investigation

Investigating the magnus effect is great fun and there are lots of ways to explore it. You can find a ball and try kicking it on one side and seeing how it curls and then trying to kick it on the other side. You can also try it with table tennis bats and balls. Its a lot of hands-on experimenting with the principle to see what happens right in front of you.

You can go further with it by building you own “Magnus Flyer” by taping two light cups together at the bottom. Then take several elastic bands, tie them together and wrap them around the middle where the tape is. If you can throw the cup out in front of you with bottom side spinning in the direction of …

Well actually why don’t you try it and find out? The idea is to think of what direction the cup sides are spinning and based on what way the balls moved when they were spinning. Linking the two maygive you enough information to make a prediction on what you think will happen! Good luck and happy spinning ☺

REFER BACK TO YOUR WALT GOALS AND HAVE THE CHILDREN SHARE WHAT THEY LEARNED TODAY AS WELL AS RECAPPING ON ANYTHING THEY MISSED!

REFER BACK TO YOUR WALT