

# AERODYNAMICS: IT'S ALL AROUND YOU

You may see a funny, bumpy ball sitting on a tee. But when you take it into the the STEM ZONE, a golf ball looks *aerodynamic*!

“What other people may find in poetry or art museums I find in the flight of a good drive.”

– Arnold Palmer

The word **aerodynamic** comes from two Greek words:

**AEROES** **DYNAMIS**

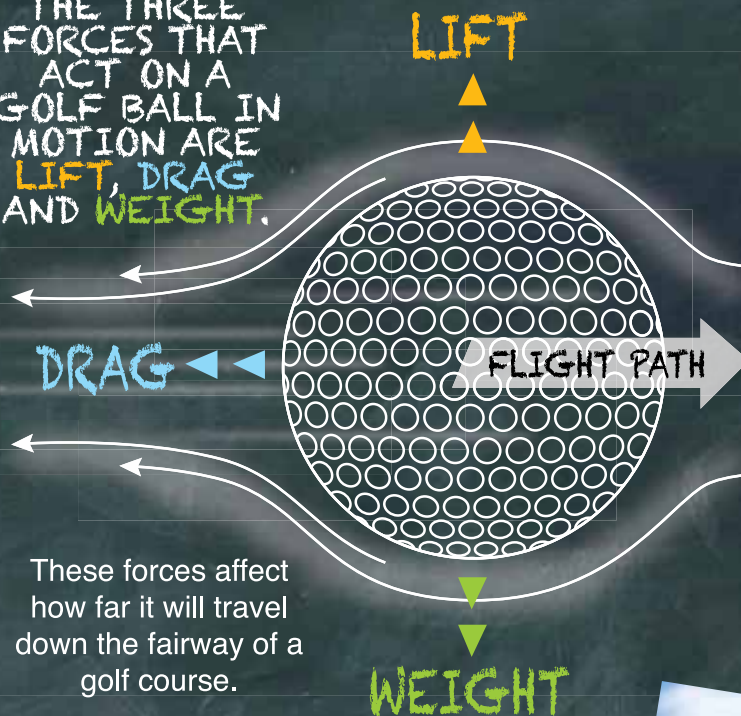
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OF THE AIR

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POWER, STRENGTH, FORCE



Scientists and engineers use the rules of aerodynamics to make things go fast and far – like race cars, jet planes and golf balls!

THE THREE FORCES THAT ACT ON A GOLF BALL IN MOTION ARE LIFT, DRAG AND WEIGHT.



## ROUND AND ROUND WE GO!

The impact, or hit, of a golf club on a ball gives it speed to move. **Drag** is an opposite force that slows a moving object.

Most round objects (like a golf ball) have less drag than flat objects (like a cube).



Wave your hand through the air. You can feel the drag of the air. You can feel it against your face when riding your bike.

## WHAT A DRAG!

This golf cart has enough speed to move it through the air, but not enough to counter the drag of the water.

THIS KIND OF DRAG IS CALLED "WIND RESISTANCE." BUT I CAN'T RESIST IT!



## GOLF ON THE MOON

Air slows down moving objects. So what would happen if you hit a golf ball on the moon where the air is much thinner than on earth?

Astronaut Alan Shepard found out when he walked on the moon on Feb. 6, 1971. Even wearing a bulky space suit, he hit a ball that

traveled 400 yards (366 meters). On earth the average golfer can hit a ball about 200 yards (183 meters).

