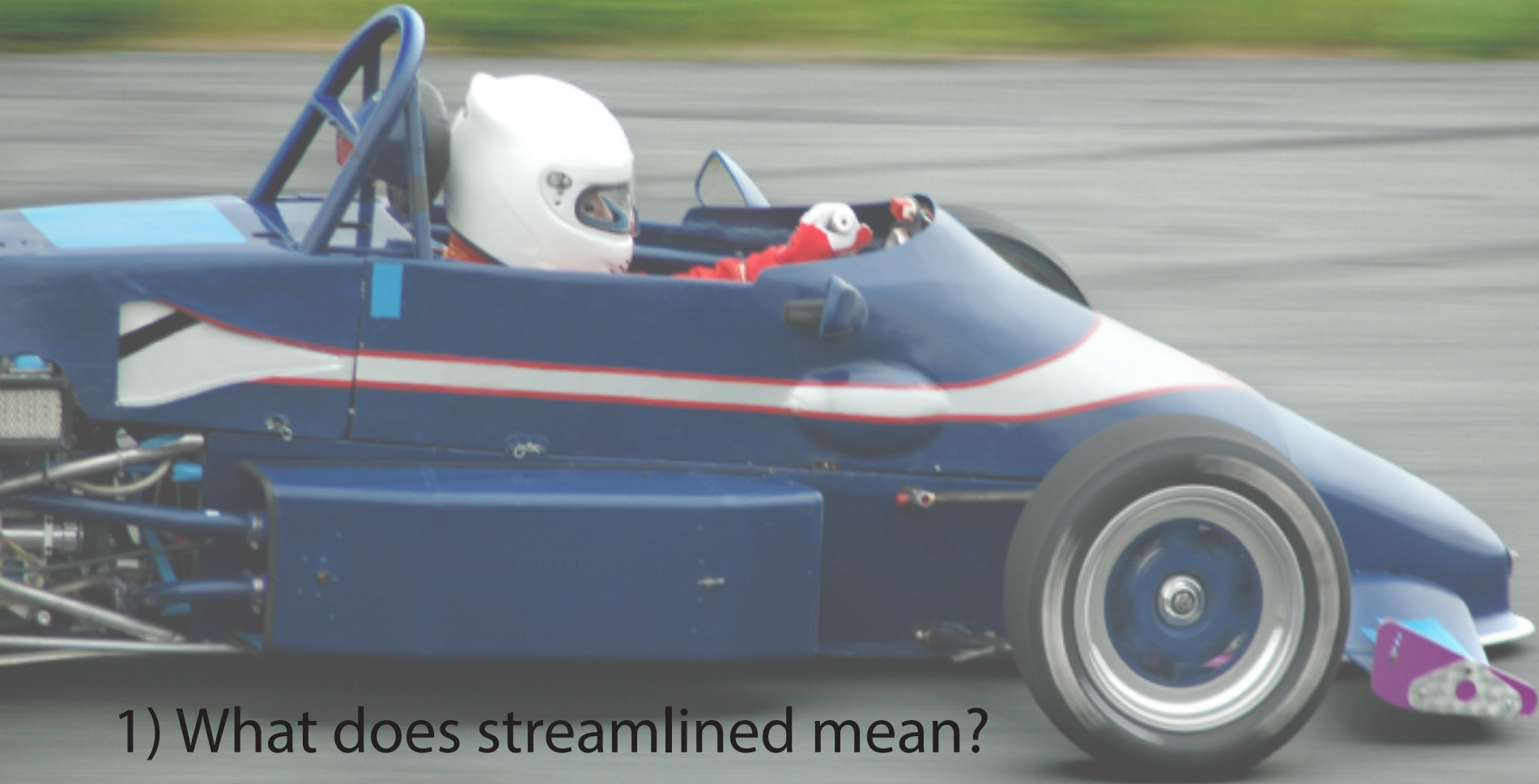


# Streamlined Designs

## Discussion Questions:



- 1) What does streamlined mean?
- 2) What does aerodynamic mean?
- 3) What forces are involved in aerodynamics?
- 4) How does a streamlined design affect performance?

# Streamlining

A streamlined form presents very little resistance to a flow of air or water.

A streamlined form can travel with increased speed and ease of movement.

Most fish, sharks, dolphins and whales have streamlined forms. They are often pointy at the front with a curved shape that tapers off.

Designers incorporate these shapes in their designs for fast moving vehicles such as boats, aeroplanes and trains.





Aerodynamics is the way air moves around things.  
An aerodynamic design is streamlined to allow air to flow easily over a body.

Forms that are designed to travel quickly are curved to allow an easy flow of air or water around them.



Designers use curved lines in their designs to encourage air to flow quickly over the top of a form. They can test the streamlining of a car by placing it in a wind tunnel. A thin line of smoke is released in front of the car to demonstrate the flow of air over the design model.



The curved nose of this train reduces wind resistance, allowing it to travel faster.



Where are the curves in this design?



Boat designs need water to flow under them and air to flow over them.

Designs are often pointier at the front to increase speed.





# Performance

Streamlined designs reduce drag on a moving body.

Less drag means the body will be able to go faster.

Less drag means less thrust is needed to move the object. This uses less fuel.

Streamlined shapes are more stable and easily manoeuvred.

