



WHEEL SIZE RESTRICTIONS AND SAFETY

On the race day, all teams must present a car with **four wheels** that are connected to the foam body of the car using axles through the pre-drilled axle holes.

The wheels must be a **minimum of 65mm diameter** to ensure that the metal eyes that are used to secure the car to the tether do not strike the ground.

Axles holes can be drilled out to 6mm to accommodate thicker axle materials or a bearing surface (e.g. a straw)

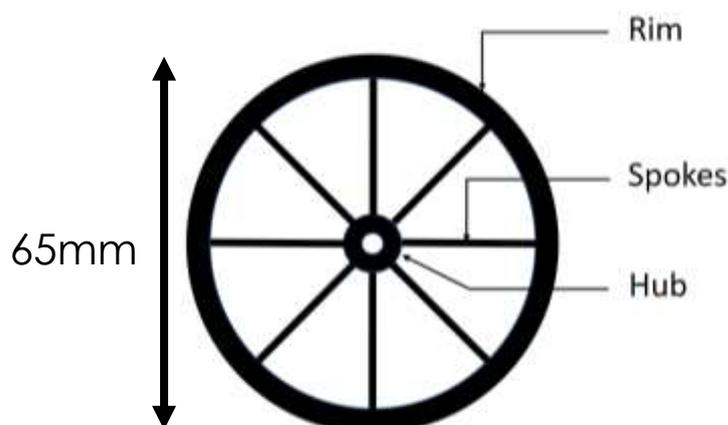
The wheels **should be strong enough to withstand up to 12 newtons of thrust** (approx. 1.2 kg) from the rocket motor.

Axles may be free spinning or secured to the axle (e.g. hot glue or epoxy)

To be a valid run, all four wheels must remain on the car as it passes through the timing gate.

The choice of material and method of construction (*handmade, laser cut, 3D printed, etc.*) of the wheels is up to the school and the students but care must be taken to ensure that any wheels used in the competition are safe.

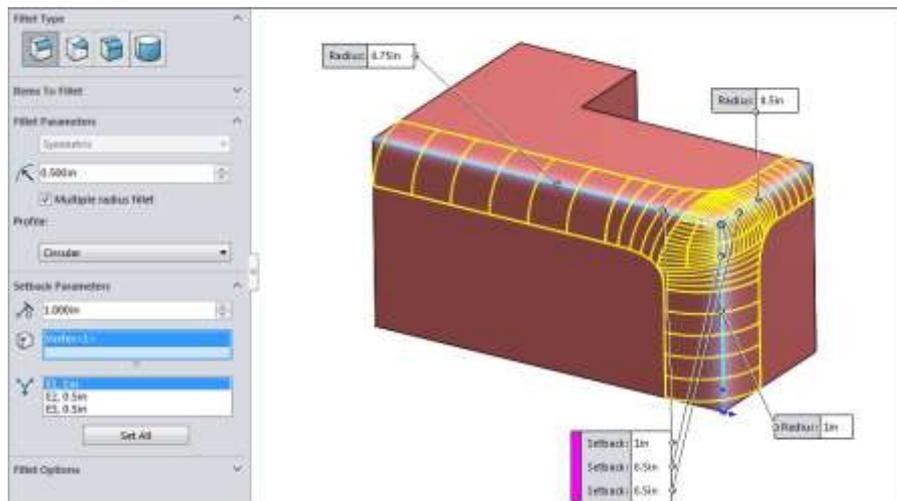
Moulded plastic wheels and metal axles can be purchased from the competition store (trolley icon at top) if schools cannot construct wheels.



TIPS FOR MAKING SAFE WHEELS

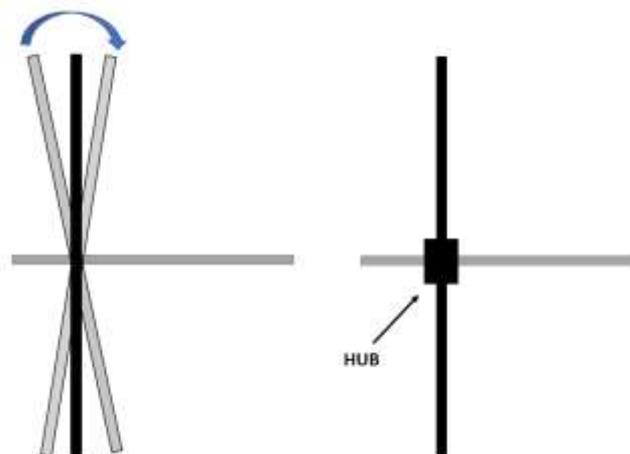
Use fillets at corners

The resilience of wheels you make can be greatly improved by filleting any sharp corners. This helps to prevent cracks in your wheels which often begin at a sharp angle somewhere on the wheel. This is particularly useful when using a laser cutter with a brittle material such as acrylic for the wheels.



The fillet tools in Solidworks™ allow you to set the radius of the curved section.

Use a hub to prevent the wheel wobbling



A well designed hub will grip more of the axle which can prevent the wheel from wobbling and pushing the car off course or having a wheel fall off.