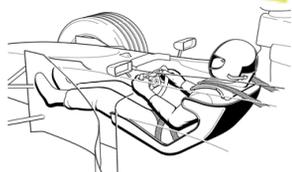


# SPEED Science of Racing

## Machine (1) – Monocoque



The driver's survival cell and cockpit is known as the monocoque.  
What is it made of?  
Go to the **F1 car** exhibit and have a look.

### DO YOU KNOW?

1. It is constructed from carbon fibre reinforced composites. Hence it is very strong - stronger than steel but a lot lighter.
2. They are used to replace metals in many cases, from parts for airplanes and the space shuttle to tennis rackets and golf clubs.



### Weaving Drinking Straws

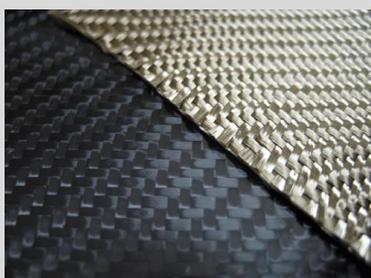
1. Flatten 2 drinking straws of different colours (e.g. yellow and pink).
2. Fold the yellow straw in half and angle it to form a "V".
3. Allow one end to be longer.
4. Slide the pink straw into the bottom of the "V" shape.
5. Weave / fold the drinking straw.
6. Try pulling the woven straw at the completed end. Does it fall apart easily?

[You may also use paper or magazine pages cut into strips.]

Examples of woven materials:



Woven Mat

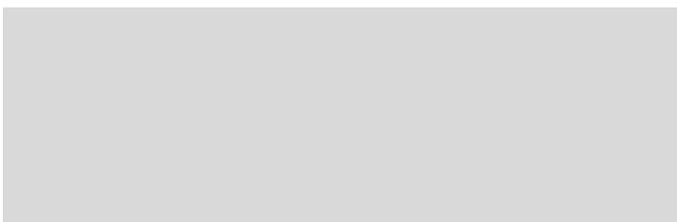


Woven Reinforced Carbon  
Fibre



Ketupat

Can you think of other **natural** materials that can be woven for our daily use besides *mengkuang* leaves, *pandan* leaves or bamboo?



# SPEED Science of Racing

## Machine (1) – Monocoque

### DO YOU KNOW?

#### How safe is the F1 car for the driver?

1. In emergencies the driver has to get out within 5 seconds including removing the seatbelt and steering wheel. Hence no fuel, oil or water lines may pass through the cockpit.
2. The width of the cockpit at the steering wheel is 50cm and at the pedal 30cm. The width has grown from year to year for safety reasons.
3. There is a fire extinguisher system that automatically spreads foam around the chassis and engine area.
4. There is a master switch that deactivates the car's electronics, fuel pumps and rear lights in the event of an accident.

#### How fast can you get out from the F1 car?

1. Go to the **F1 simulator** (next to the F1 car).
2. Get into the car.
3. Have someone time how fast you can get out of the car.

Pretty easy right? Do you think you could get out faster if the cockpit is narrower?



**Keywords:** monocoque, carbon fibre, weaving

