

Bitesize GCSE Science – Chemistry

Ceramics, polymers and composites

British Cycling coach Charlie Evans on how carbon fibre is used in cycling equipment

Traditionally bikes were made from steel and then aluminium. A frame builder would cut the tubes to length and welded the bikes together and made them the right shape and fit for the rider. However with an increased awareness of aero dynamics and an increased awareness of material and properties carbon fibre is now the material for bike building.

This is because it offers very good properties for cyclists. Its light weight, it is very strong and it can be shaped into pretty much any shape we need it to be shaped into.

Carbon fibre is used throughout other products that cyclists use as well. Wheels and rims are carbon fibre and this allows a nice shape with the tyre and it allows, essentially, a tear drop shape for wheel rims to be made which is a very aero dynamic shape.

It allows cranks to be made out of carbon fibre but one key area which is often overlooked is the shoes. Obviously the shoes help to transmit force to the pedals and if you've got floppy shoes like trainers a lot of power is being lost there so carbon fibre allows a very stiff sole of the shoe to maximise power transfer to the pedals.