

## Bitesize GCSE Science – Physics

### Forces

#### **British Cycling coach Charlie Evans on how distance-time graphs are used in cycling**

Within pursuit and team pursuit events the coach of the team will have agreed the schedule with the riders based on their average speed and he will have worked out the lap times so the coach can let the team know whether they are up or down on that schedule. He'll do that for the riders by stepping to one side of the start line or the other depending whether they are up or down on that schedule.

Another example of how distance-time graphs are used in cycling is for race schedules. For events like the Tour De France so spectators can look at the routes of the events and see the villages and the climbs and see what time the riders are going to come through that village.

There will be three times based on the average, a slow race time and a fast race time. The race schedules will be based on average race performances.

We can measure cycling performance very accurately with the use of power meters these are a device that measure the force the rider is applying through the peddles, this could be done at the cranks or at the rear hub.

There are various devices that measure power but essentially it is looking at the amount of force applied and the rate at which that force is applied, so the peddling rate and from that the power can be derived.