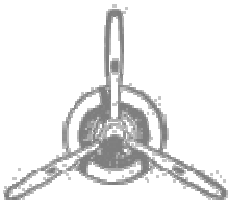
Back to the Future II

The world is going crazy and, as usual, you and your lab partners are at the centre of it. The year is 1885 and your lab team has just been tracked down by two seemingly crazy people who claim to be from the year 2015. Although, judging from their clothing, they may well be telling the truth.



The two strangers, Marty McRun and Doc Emmett Green are in a panic. The reason? The engine in their time machine has broken and they need some way to push their vehicle up to a speed of 88 km/hr so that the time machine will work.

This is where your team comes in. Marty and Doc have approached the leading scientific teams of the 1800's - yours being one of them - in order to help them get home. Your team has recently discovered a new form of energy called 'electrickery' and Doc hopes that it can be harnessed to propel the vehicle along the old race track just outside of town and back to 2015.

Doc suggests that a propeller could be driven by an 'electrick' motor and attached to the rear of their vehicle... It was here that Doc suffered scientist's block and ran out of ideas.

In order to help out Marty and Doc and receive the reward they are offering (an amazing hover board) your team needs to build an efficient propeller and attach it to the vehicle.

But there is a problem. The people and animals sometimes wander onto the old racetrack. If something blocks the track the vehicle will need to pull up quickly without damaging anything. Therefore, the vehicle must be able to accelerate and decelerate very quickly. This means the propeller needs to work in both directions!

Some things you might want to consider when designing the propellers are the number of blades, diameter, width and pitch (the angle or slant of the blade).

Good luck, and remember Marty and Doc are counting on your team!