### **Building the Basic Chassis**

All of the Wacky Races use the same basic chassis, which is made from two pieces of Corriflute, the smaller piece being the front steering axle.

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# Wacky Racers **Building Instructions**

All of the components required to build the racers are included but you will need some tools to help you to assemble the vehicle including:

A pair of scissors (cutting knife or junior hacksaw) to cut the axle rod to length.

- A pair of electrical cutters/strippers for the electrical circuit.
- A piece of sandpaper for smoothing the dowelling.

If you decide to solder the wires to the motor and switch, then a soldering iron and some solder will also be required although this is not essential.

There is always a trade off between speed and power. The small, low-voltage electric motors that are provided with the Wacky Racers can achieve rotational speeds of 24,000 revolutions per minute when they have the maximum permitted voltage and no load. This might be useful to power a fan but it does not have enough power to drive the load of a small four wheeled vehicle. In order to slow the rotational speed of the motor and to increase the power, a gear reduction is required. By reducing the speed of the motor using gearing the greater will be the power. For each of the designs we have produced, the

Solar Power

If the vehicle is being designed for speed then the gearing needs to be tuned so that the output speed of the motor is as fast as can be whilst still being able to drive the vehicle along. If your vehicle requires to be powerful (climb a slope, manoeuvre over a rough surface) then it will need to be geared down to a much lower output speed. This will

Wacky Racers consist of a basic chassis with four powered designs- friction driven, geared, solar powered and pulley driven. In each of these the speed of the motor has been geared down to add to the power and decrease the super fast output speed of the motor spindle. (Having said this they are still pretty fast!).

Feel free to experiment with the Wacky Racers to see if you can build the fastest vehicle or the one that can climb the greatest incline from a standing start.

Note: Wacky Racers have been designed for use within a school or where there is adult supervision. Not suitable for children under 36 months.