

## **SOLAR GEARBOX BOAT<sup>1</sup>**

**Note: 3.0 - The solar gearbox boat uses the solar car motor & gear casing and motor clip to power our solar boat**

**3.1 Remove lid 'B' from black gear box, gear cog and 120mm shaft/gear cog.**

**3.2 With flat edge of casing away from you and at top replace gear cog on right hand black peg.**

**3.3 Insert 40mm shaft & gear cog into hole to the right with flat of flange facing down.**

**3.4 Replace lid.**

**3.5 If not already done, remove 1cm from one arm of the clip with sharp scissors to ensure 40mm shaft does not touch clip arm.**

**3.6. Place clip with shorter arm on your left and slightly off centre to the right.**

**3.7. Push the motor only into the clip with the flat edge of the gear casing facing down and flush with the base of the clip.**

**3.8 Slot propeller shaft through hole in shaft support and connect to 40mm shaft with tubing provided. Ensure the propeller shaft is central through the hole in the support.**

**3.9 Move hook Velcro currently placed on short sides of PV cell to flush with the outer edges.**

<sup>1</sup>**The boat with a gearbox By Jonny Powell:** [Special note: Jonathan Powel {now age 13} is the inventor/had the idea to use the car motor & casing to power the boat when he was ten years of age. Using our problem solving skills [14/05/10] the solar boat gearbox was born.]

I saw the boat and saw the motor with the gearbox and thought "Why not put the motor on the boat." So, me and David tried to fix the gearbox to the boat but the cog in the gearbox had too larger hole for the propeller shaft. So, to fix this, first of all we tried putting tape around the gear shaft but the cog simply pushed the tape down the shaft and it didn't help. Then i decided to try taping over the hole in the cog and piercing the tape with the shaft to help make it more secure but this did nothing. David came up with the idea of using some special glue but while he was working on that I found an easier option. I decided to fit the gearbox with a very short shaft that the cog did fit on, then attach the propeller shaft to it using a special rubber adapter. This worked very successfully and dint hinder the performance of the motor at all. And so, the boat with a gearbox was born!