

Geography Toyota Challenge

Using RapMan



Toyota Challenge

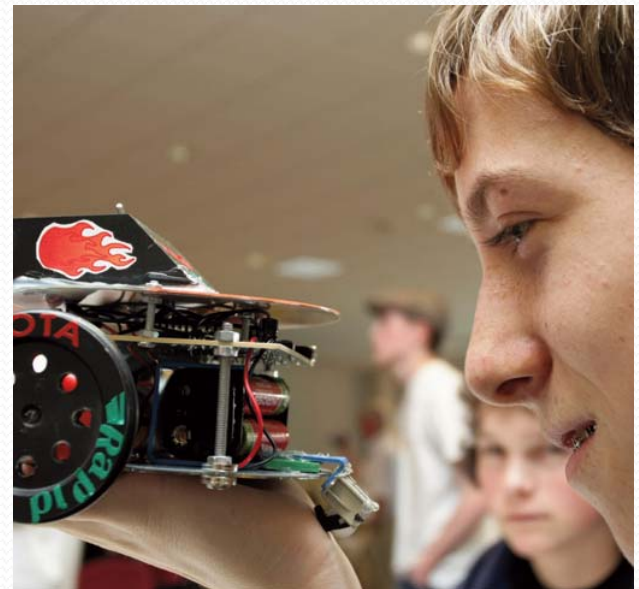
- The Toyota Challenge is an annual event sponsored by Toyota and rapid Electronics to challenge students to design and build a buggy.
- A series of heats lead to a final competition where buggies negotiate a maze or travel along a course.

There are two categories to the challenge: Solar Power and PIC Microcontroller. The challenge is to design and build an environmentally friendly model vehicle for a chance to win up to £1,000 in cash for the school, trophies, certificates and, for the best of the best in each category, a 6 day visit abroad.



Kits

- A kit containing all the parts, entry forms etc can be purchased from Rapid Electronics, and for several years there have been hugely discounted offers on the price of kits leading up to the competition.
- <http://www.rapidonline.com/toyota>

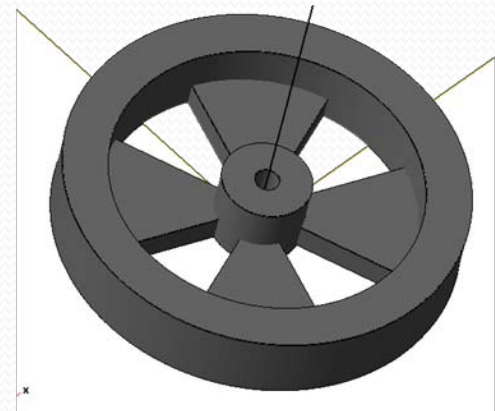
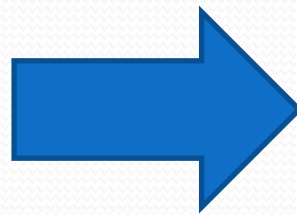


3D printing

- The standard kit is an excellent starting point but most schools will want to modify the design for better performance..... So why not print new parts?



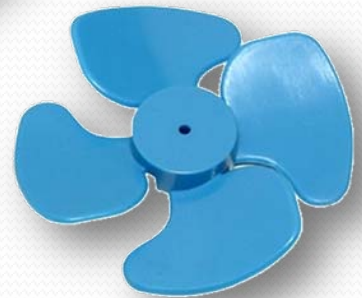
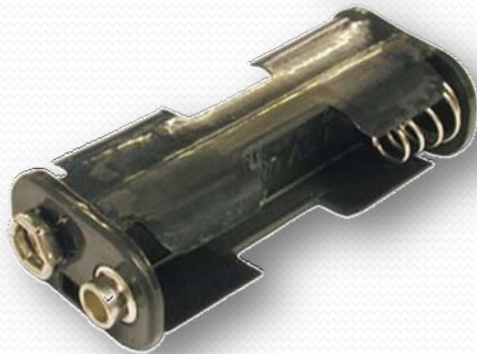
Standard wheels



Printed “improved” wheels

Other parts

- What other parts could be printed?



Designing

- You can use almost any 3D CAD Program to create parts... As long as you can export the file in .stl format.

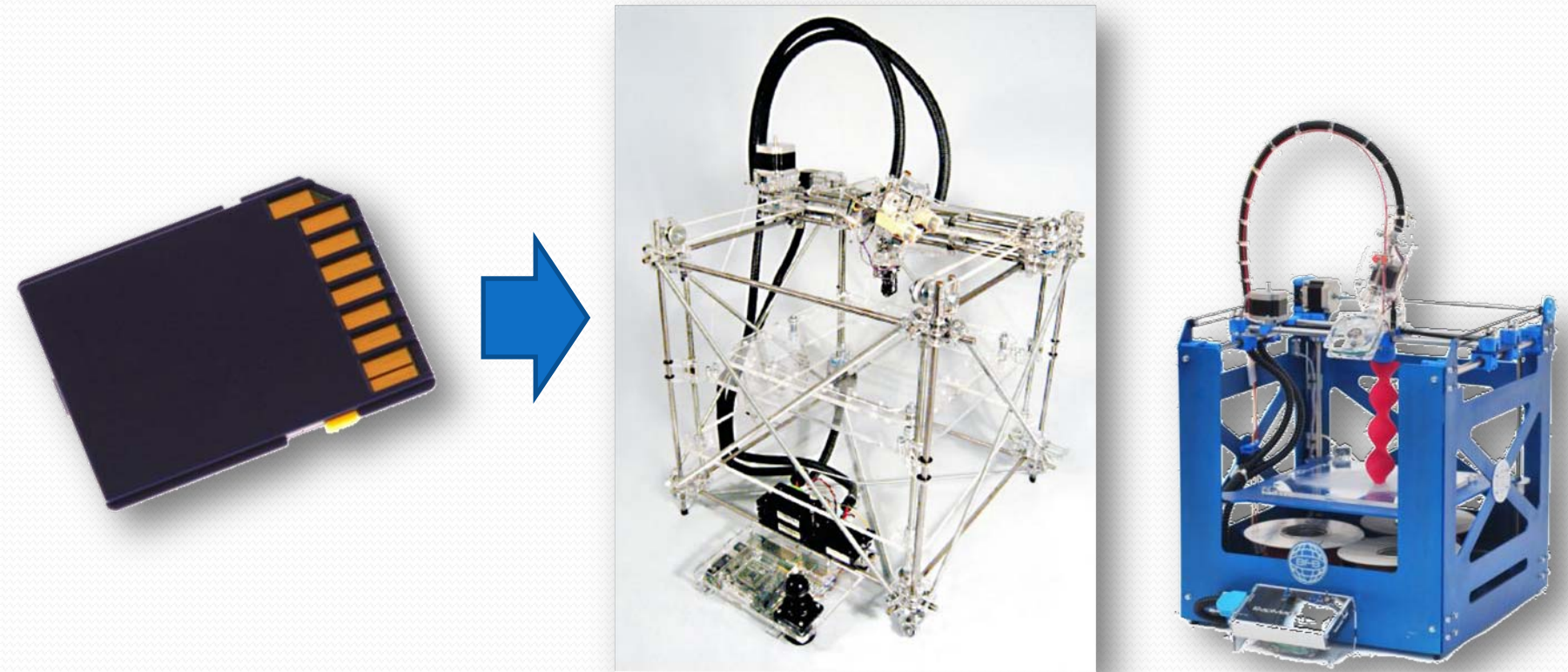


Autodesk®



Printing

- The file is converted to g-code and copied to a SD card, inserted into the machine, and....Result, new parts for your buggy!



RapMan

- RapMan is a low cost 3D printer available from Bits from Bytes www.bitsfrombytes.com
- Further assistance can be found on the BfB forum and wiki.

Forum <http://www.bitsfrombytes.com/fora/user/index.php>

Wiki <http://www.bitsfrombytes.com/wiki>

- Rapid electronics <http://www.rapidonline.com/toyota>

Images courtesy of Toyota challenge and Middlesex university Teaching resources (www.mutr.co.uk)