



GOBLIN

MODULAR BUILD AWARD



Global partner

SIEMENS

National partner



National partner

IET The Institution of
Engineering and Technology

*Global technology
partner*

SOLID EDGE

Legal partner



*Communications
partner*





GOBLIN MODULAR BUILD AWARD

If the car is already built from last season, please de-construct the car ready to rebuild from scratch.

The information below provides the steps to work alongside the Outcomes Summary sheet which can be found at the bottom of this document.

When a module is completed, enter the date in the appropriate column on the summary sheet, please see below.

Once all modules are completed, Teachers may submit their class information and evidence by emailing info@greenpower.co.uk.

A member of Greenpower staff will review the documentation and, provided everything is complete, will issue the Modular Award certificate.

Above all the objective is to engage with all students involved in the team to ensure development of vital skills in STEM. The build process can be used to gain practical and problem-solving skills and promote a methodical working manner- which in turn will generate interest in and open future career pathways.

Module 1 - Tools, Equipment and Safety

- Identify tools required and understand the sizing and differences.
- Understand when and how to use Spanners, Allen keys, Screwdrivers and Hammers.
- Understand the different fixings (Nuts, Bolts, Washers, Linch Pins, Roll Pins, Screws).
- Identify the different kit components, ensuring all are present.
- Use of Safety equipment (Goggles, Overalls, Gloves).
- Understand the risks for Batteries and Tyres
- *Manual p5.*
- Understand the process for Battery charging
- *Manual p24.*

Module 2 - Build

- Assemble Chassis - *Manual p6 - 7.*
- Assemble Steering Column - *Manual p8.*
- Assemble Front Axle - *Manual p9.*
- Assemble Rear Left Axle - *Manual p10.*
- Assemble Rear Right Axle - *Manual p11.*
- Assemble Brake and Throttle - *Manual p12.*
- Assemble Motor Cage - *Manual p13.*
- Assemble Motor - *Manual p14.*
- Assemble Battery Tray - *Manual p15.*
- Fit the Motor Cage to the Chassis ensuring wiring to the Isolator Switch has been connected before mounting - *Manual p13 and p16.*
- Assemble and fit the Seat - *Manual p18-19.*
- Assemble Roll Bar - *Manual p20.*
- Assemble Driver Harness - *Manual p21.*
- Check all nuts, bolts and screws are secure and tight - *Manual p27.*
- Check rear axle rotates freely (and rectify if necessary) - *Manual p22.*
- Check Brake is not binding (and rectify if necessary) - *Manual p27.*
- Check Steering is not binding (and rectify if necessary) - *Manual p27.*



Module 3 - Electrics

- Assemble wiring following the Wiring Diagram provided - *Manual p23.*
- Double check the wiring before proceeding.
- Charge the Batteries (never leave discharged) - *Manual p24.*
- Fit the Batteries - *Manual p17.*
- Switch on Isolator Switch and front Rocker Switch and check for red LED illumination on the front Rocker Switch - *Manual p22.*
- Fault-find and rectify if unsuccessful by double checking wiring and checking fuses.



Module 4 - Bodywork

- Ask students to submit (up to) 3 designs for the bodywork.
- Collectively decide which design and materials will be used.
- Manufacture, decorate and fit bodywork.



Module 5 - Testing and Pre-race Checks

- Check Front Wheel Alignment which must be parallel - *Manual p27.*
- Check Brake performance - *Manual p27.*
- Check Tyre Pressures - *Manual p27.*
- Check Wheel Bearings and greased and spinning freely - *Manual p27.*
- Check Drive Belt tension - *Manual p14.*

Module 6 - Driver Training

- Familiarise drivers with steering and brake controls without power - *Manual p26.*
- Drivers to wear helmet, gloves, eye protection, long sleeves and trousers - *Manual p26.*
- First powered run to be on a hard surface with no obstructions on a single battery - *Manual p26.*
- Practice steering on a course laid out with cones - *Manual p26.*
- When driver feels more confident, switch to running with both batteries - *Manual p26.*
- Changing the Wheel- learn how to quickly and efficiently change a wheel (pit stop challenge)

Outcomes Summary Sheet

Action	Learning Outcome	Student notes/ comments	Date completed	Project leader initials
Module 1	Teamwork			
Module 2	Organisational skills Practical hands-on skill Choosing correct equipment			
Module 3	Following diagrams Problem solving			
Module 4	Creativity Accuracy			
Module 5	Assessing final product Adjusting any areas that can be improved			
Module 6	Confidence in driving Enjoying the result!			



GREENPOWER **EDUCATION TRUST**



The Greenpower Centre
Arundel Road
Fontwell
West Sussex
BN18 OSD



01243 552305



info@greenpower.co.uk



Visit us on the web at:
www.greenpower.co.uk



/GreenpowerTrust



/Greenpowertrust



/greenpowertrust



/greenpower-education-trust

Greenpower Education Trust is a charity registered in England and Wales no. 1133536 and in Scotland no. SC046969

© All Rights Reserved - Greenpower Education Trust