



# GOODWOOD GATHERING OF GOBLINS 2021



Sponsored By Lockheed Martin

27th June 2021

Global partner

SIEMENS

National partner



National partner

IET The Institution of  
Engineering and Technology

Global technology  
partner

SOLID EDGE

Legal partner



Communications  
partner

SQN



# CONTENTS

---

01	Foreword	2	09	Flags	16
02	Welcome	4	10	Key Personnel	19
03	Timetable	5	11	Get In Touch	20
04	Introducing Greenpower	6			
05	Case Study: Rose Hill Motorsport	8			
06	IET Formula Goblin Entries	10			
07	Goblin Awards	12			
08	Volunteers Needed	14			



## FOREWORD

Advancing science, technology, engineering, and mathematics (STEM) education is a critical focus for Lockheed Martin. We know first-hand the importance of educating our young people in these areas. Our future success — and our country's technological advantage — depend on a constant supply of highly trained, highly capable technical talent.

We believe strongly that advancing STEM education requires collaboration among industry, educators, policy makers and families. As an industry leader, Lockheed Martin globally has an employee population that includes 58,000 engineers, scientists

and IT professionals and we are committed to working to develop programmes that educate and inspire tomorrow's scientists, engineers and mathematicians.

To help address these challenges and strengthen the UK workforce pipeline, Lockheed Martin is proud to partner with Greenpower, who provide a range of practical, educational engineering challenges which fulfil our mission and encompass all of our values.

We wish all of the participants luck at the Goblin Event this weekend!



# WELCOME

Welcome to the Goodwood Gathering of Goblins 2021! The flagship event of the Goblin season, this year's GoG will see 40 electric cars, each built by the students themselves, take to the iconic asphalt of the Goodwood Motor Circuit. After an extended period without any Goblin events in 2020, we are delighted to have our youngest Greenpower competitors back on track.

We would like to thank our event sponsor Lockheed Martin who with their continued support make this event happen, along with all our fantastic set of volunteers who bring such joy and enthusiasm to the event.

It is fantastic to see that so many others share our vision on engineering subjects and sustainability and can engage with these through the thrill of Motorsport.

## TIMETABLE

27<sup>th</sup> June 2021

---

08:00 Site opens for teams to arrive

---

08:30 Scrutineering starts

---

09:30 Events Start

*Slalom & Drag combined Run & Chicane Sprint*

---

12:30 Lunch

---

13:00 Events Recommence

*Slalom & Drag combined Run & Chicane Sprint*

---

15:30 Lap of Champions

---

16:30 Prize Giving

---



# INTRODUCING GREENPOWER

## About Greenpower

Greenpower Education Trust inspires young people aged 9-25 to excel in science, technology, engineering and Maths, through a unique challenge - To design, build, and race an electric car.

## IET Formula Goblin age 9 to 11

The Goblin Kit Car is a great introduction to STEM for primary school children, they get hands on assembling the car and compete in slaloms, sprints, and drag races at events.

## IET Formula 24 age 11 to 16

In F24, teams have more freedom to design and build their Kit Cars



or scratch builds, and students develop their STEM skills. Regional heats feature four 20 minute races, with an International Final at the end of the season.

## IET Formula 24+ age 16-25

F24+ is a great project as a gateway to a STEM career, and for furthering employability skills. Similarly to F24, teams compete in four 20 minute races over the course of an event.



## At the heart of every great company are great people

Every day, across Lockheed Martin, our 100,000 employees come to work with one focus – our customers' missions. Whether it's protecting citizens or advancing the boundaries of science, these missions are some of the most important and challenging in the world. We bring an unwavering commitment to help our customers succeed, and it's that sense of purpose and opportunity to make a difference in the world that drives us every day.

Lockheed Martin. Your Mission is Ours.™

[www.lockheedmartin.com](http://www.lockheedmartin.com)

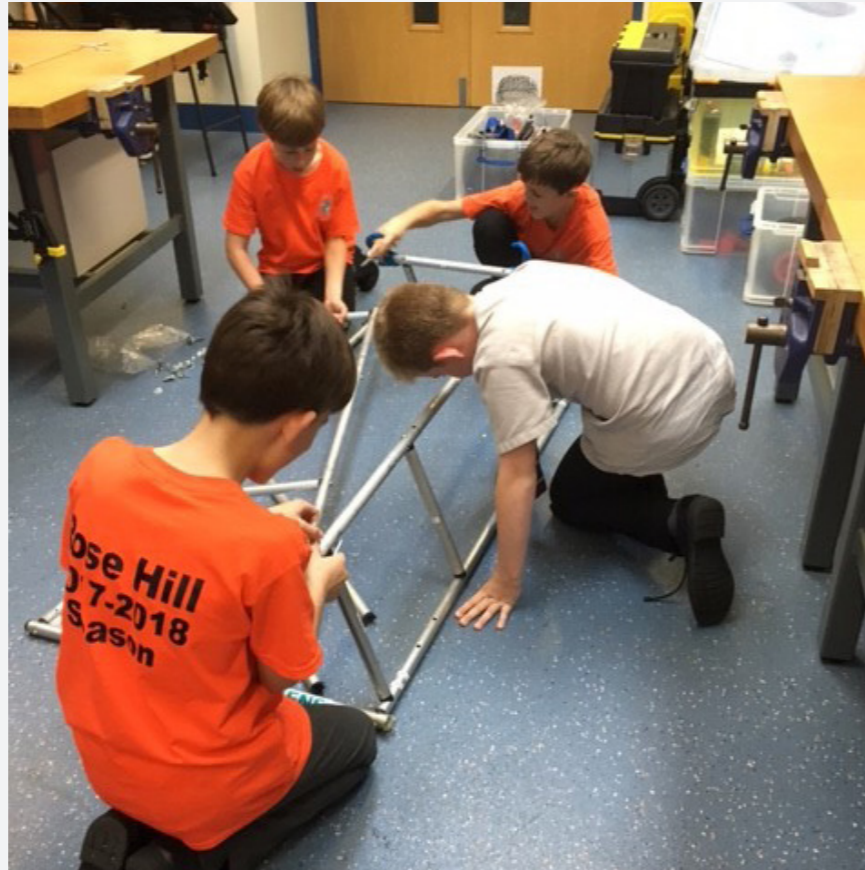


## CASE STUDY

Rose Hill Motorsport  
Driving Ambition since 2012

Our Greenpower journey began when the Rose Hill School Parent Association purchased a Goblin electric car. Pupils built the car during STEM Club on a Friday after school. The Red Devil car was finished on a Friday and raced at the 'Gathering of the Goblins' on the Sunday! Staff, parents and pupils were hooked and the club took off. We were offered a second hand car, the Blue Demon.

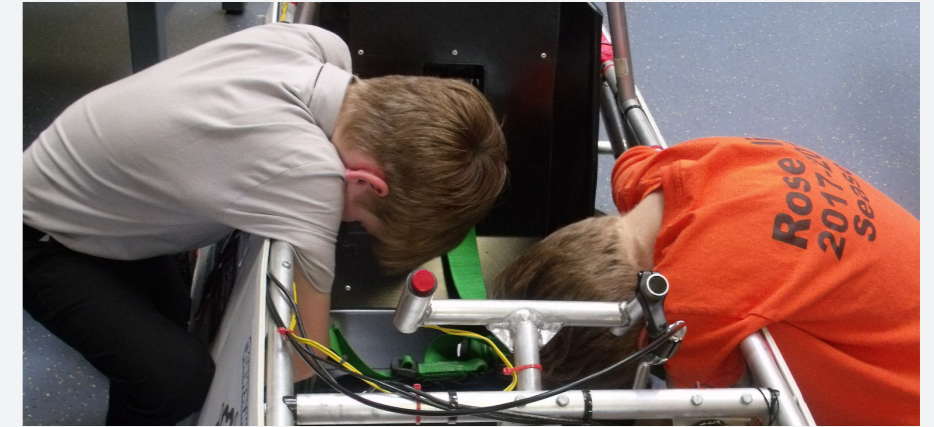
STEM Club is thriving and we have over 40 pupils signed up – we split them into groups of 8-10 per half term. Three members of staff, an ex-parent and an ex-pupil help run the club. At the start of the academic year the pupils dismantle one of the cars and the other one is used for



driver training. Each Friday, weather permitting, we have half a group building or maintaining a car in the DT workshop whilst the other half are honing their driving skills on the AstroTurf.

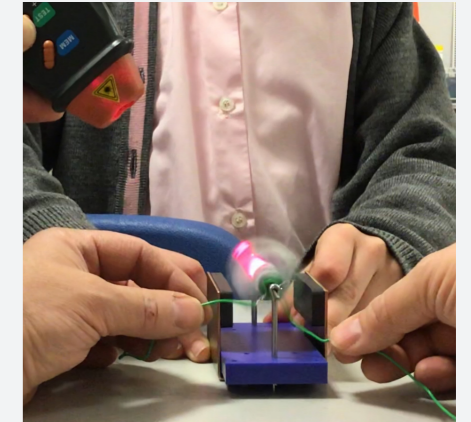
We have produced an engineering logbook that the pupils complete each week, detailing what they have learnt, what tools they have used or how well they have driven. There is a 'name the tool' quiz and 'name the parts of a Goblin' in the engineering log books that the pupils can fill in as they develop skills and knowledge over time.

Rose Hill School is a prep school and so has pupils up to Year 8. To continue with the work from the Goblins, we have purchased a F24, V12 Warrior. Through the use of the Goblins and F24 our pupils develop a better understanding of STEM subjects. Both class of cars are used in DT and science lessons.



This rich opportunity allows pupils to engage in the subject where they have previously struggled and it helps pupils to grasp concepts that would be hard to visualise otherwise.

The Greenpower projects have allowed all pupils no matter gender, academic ability or sporting prowess to engage in a fun, stimulating and worthwhile activity and take it around the South of England showing off what they have achieved.



# IET FORMULA GOBLIN ENTRIES

No.	CAR NAME	ORGANISATION
1	ACE BEN	Arundel C of E Primary School
3	ACE RIC	Arundel C of E Primary School
2	Arty Abby	Beachborough School
4	Merry Mary	Beachborough School
5	Clarence House Goblin	Clarence House Preparatory School
6	CPS-GG	Cranleigh Prep School
7	Cumnor 1	Cumnor House School
9	Cumnor 2	Cumnor House School
11	Cumnor 3	Cumnor House School
8	Car One	Easebourne C.E. Primary School
10	Car Two	Easebourne C.E. Primary School

No.	CAR NAME	ORGANISATION
12	Galaxy Scout	Four Marks Primary School
14	Shooting Star	Four Marks Primary School
16	The Fast Food Truck	Four Marks Primary School
18	Turtley Awesome	Four Marks Primary School
15	Oodles of Noodles	Funtington Primary School
17	Goldstone Goblin 1	Goldstone Primary
19	Goldstone Goblin 2	Goldstone Primary
20	Grove 1	Grove Wood Primary School
22	Grove 2	Grove Wood Primary School
24	Grove 3	Grove Wood Primary School
21	Data Stream	Newick CoE

# IET FORMULA GOBLIN ENTRIES

No.	CAR NAME	ORGANISATION
23	Mean Green Speedy Machine	Newick CoE
25	Sparkle Roadster	Orchards Junior School
26	Gobbles	Orley Farm School
27	Bagheera	Pennthorpe School
29	Milky Way	Pennthorpe School
28	Blue Demon	Rose Hill School
30	Red Devil	Rose Hill School
31	PP	South Malling Primary School
32	St Faith's 1 - old	St Faith's School
34	St Faith's 2 - old	St Faith's School
36	St Faith's 3 - new	St Faith's School

No.	CAR NAME	ORGANISATION
35	East Wittering	STEM Innovation
37	West Wittering 1	STEM Innovation
39	West Wittering 2	STEM Innovation





## AWARDS

- Slalom 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>
- Drag 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>
- Sprint 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>
- Lap of Champions 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>

### Overall Winner

To reflect the work that has gone into designing and building the cars, Greenpower presents additional team awards to reward excellence in design, engineering and team ethos.

### Best Presented Team

This is for the team that looks, sounds and works like a team! Not necessarily the ones with the snazzy race overalls but the ones that have taken pride in their appearance, are polite and helpful and work well together when changing drivers or moving between events.

### Best Bodywork

This is judged by the level of skill and creativity shown by the students in creating the bodywork for their Goblin. Sometimes this may be for excellent engineering concepts (aerodynamics, weight) or can be for artistic flair.

### Spirit of Greenpower

At every event there is either a team that has encountered difficulties, a team who have a team member lacking in confidence that they support or a team who help out others with the loan of tools or equipment. Overall they embody the team spirit and positive attitude that has made teachers rate Greenpower so highly for team work.





# VOLUNTEERS NEEDED

---

If you feel you can spare a day to inspire the next generation of Engineers then we would love to hear from you!

There's a volunteering role for everyone, from administrative to scrutineering and marshalling.

Don't panic if you do not have any experience in STEM or motorsport. We value each and every one of our volunteers contribution. There will be a short briefing for each role on event day and we are there to support you and answer any questions you may have.

Please see you events calendar on the Greenpower website: [www.greenpower.co.uk/events](http://www.greenpower.co.uk/events). If you have any questions at all regarding volunteering or would like to sign up please contact: [info@greenpower.co.uk](mailto:info@greenpower.co.uk)

See you at the track!



# FLAGS



## Union Jack flag

Indicates the start of the race



## Yellow flag

Indicates that there is a hazard ahead. Be extra careful, slow down, and only overtake other cars if there is a significant speed differential.



## Red flag

This means that the session is stopped until further notice. All drivers will slow immediately and continue slowly around the circuit until indicated to stop.



## Chequered flag

Each vehicle will finish the race when it first crosses the timing point after the race duration. The winning car will be presented with a waved chequered flag.



## WARNING!

### MOTORSPORT CAN BE DANGEROUS

Despite the organisers taking all reasonable precautions, unavoidable accidents can happen. Please comply with all instructions of marshals, notices and remain in permitted areas only.

They are concerned with your safety.





## KEY PERSONAL

---

### Staff

Paul Van Veggel - CEO  
Nicollette Baldwin - Executive Assistant to Paul van Veggel  
Lisa Roberts - Finance Manager  
Olivia Procter-Moore – Events and Project Manager  
Gavin Woodruff - Team Liaison Officer  
Poppy Gold - Events and Project officer  
Steve Newman - Stores & Technical Manager  
Leah Clack - Office Administrator  
Kieran Kinsella – Stores and Dispatch coordinator  
Vaughan Curnow - Project Co-ordinator  
Harriet Davis-white – Marketing Executive

### Event Staff

Stewart Coulden-Smith      Will Humphrey

### Patrons

The Duke of Richmond      David Richards CBE      Allan Cooke CBE

### Trustees

Debbie Beale, Chris Baylis, Emma Smith, Lisa Russell, Mark Groves, Nash Vracas, Vaughan Clarke Marcus Hall, Stuart Morgan, Faisal Ansari, Ajai Ahluwalia



# GET IN TOUCH

---

## Greenpower Education Trust

The Greenpower Centre  
Arundel Road, Fontwell,  
West Sussex BN18 0SD

T: 01243 552 305

E: [info@greenpower.co.uk](mailto:info@greenpower.co.uk)

[www.greenpower.co.uk](http://www.greenpower.co.uk)



/GreenpowerTrust



/GreenpowerTrust



/GreenpowerTrust



/greenpower-education-trust



/GreenpowerTrust

© All Rights Reserved - Greenpower Education Trust

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



# PARTNERS



**GREENPOWER  
EDUCATION TRUST**

## Partners

Global partner



National partner



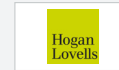
National partner



Global technology



Legal partner



Communications Partner



## Regional partners

Event partner



Event partner



Event partner



Event partner



Event partner



Event partner



Event partner



Event partner



Event partner



Event partner



Event partner



Event partner



## Media Partners

Photographic partner



Photographic partner



Video partner



Exhibition partner



## Supporters

Project funder



Project funder



Project funder



Project funder



Grant funder



Grant funder



## Accredited by

Motorsport sector



Motorsport sector



Academic sector



Academic sector



STEM sector

