

# **KENT SOLAR CAR CHALLENGE**

## **2004 Project Report**



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### **1. Project Summary**

The Kent Solar Car Challenge was piloted this year with the following aims:

- To be a fun way for children to learn about the environment as well as engineering, science and graphic design
- Promote solar energy
- Meet National Curriculum targets on teaching sustainability, environmental education and design and technology
- Raise awareness in schools and in the wider community of issues such as renewable energy, climate change and pollution

The project targets 8-11 year olds (Key Stage 2) as well as their parents and teaching staff. The participating schools were sent a photovoltaic (solar) cell, motor and gearing wheels, with the brief to design and construct 2 cars to enter into 2 competitions.

The first competition involved the children entering a car into a flat race over 20 metres. The car therefore had to be designed and built solely for speed. The second competition allowed the children to use their imaginations and create a car to compete in a design competition. As long as the car would move, the children were free to experiment and try anything!

Schools all over the county were initially contacted in February 2004, car kits were sent to the participating schools in April, and an event was held in each of 11 local authority areas throughout June and July.

## 2. The Sponsors

The main sponsor of the Kent 2004 Solar Car Challenge was Pfizer. Pfizer is a research-based global pharmaceutical company. Pfizer discovers, develops, manufactures and markets leading prescription medicines for humans and animals, as well as many of the world's best-known consumer products.



Important additional funding was also secured from the Government Office for the South East, and 12 Kent Local Authorities.



## 3. The Cars

The cars are the invention of the Plugging into the Sun® initiative of the Schools and Home Energy Education Project. The project has been successfully creating and implementing renewable energy and energy efficiency resources that teach pupils key concepts in science and design and technology in a fun and exciting way.

Some of this year's resulting car designs are shown below.



*'Polly Shark'* – Challock Primary School



*'Graveney Solar Star'* – Graveney Primary School



*'The Cheetah'* – Cage Green Primary School



*'The Mummy Mobile'* – St Peter's Primary School



*'Flaming Hot Dragon'* – Palmarsh Primary School



*'Thunderflyer'* – Sheldwich Primary School

#### 4. Participating Boroughs and Schools

<b>Borough/District</b>	<b>Participating Schools</b>
Ashford	<ul style="list-style-type: none"> <li>-Ashford South Community Primary School</li> <li>-Bethersden School</li> <li>-Challock Primary School</li> <li>-Pluckley CEP School</li> </ul>
Canterbury	<ul style="list-style-type: none"> <li>-Wickhambreaux CEP School</li> <li>-Briary Primary School</li> <li>-Reculver CEP School</li> </ul>
Dartford	<ul style="list-style-type: none"> <li>-Langafel CEP School</li> <li>-Barn End Centre</li> <li>-Joydens Wood Junior School</li> <li>-West Hill Primary School</li> </ul>
Dover	<ul style="list-style-type: none"> <li>-Deal Parochial School</li> <li>-Capel-le-Ferne Primary School</li> <li>-Langdon Primary School</li> <li>-Melbourne Community Primary School</li> <li>-Nonington CEP School</li> <li>-Priory Fields School</li> <li>-St Martin's School</li> <li>-St Mary's Catholic School</li> <li>-Wingham Primary School</li> </ul>
Gravesham	<ul style="list-style-type: none"> <li>-Higham Primary School</li> <li>-Dover Road Community Primary School</li> <li>-Riverview Junior School</li> </ul>
Maidstone	<ul style="list-style-type: none"> <li>-Molehill Copse Primary School</li> </ul>
Sevenoaks	<ul style="list-style-type: none"> <li>-Churchill CEP School</li> <li>-Chiddingstone CEP School</li> <li>-Edenbridge Primary School</li> <li>-High Firs Primary School</li> <li>-New Ash Green Primary School</li> <li>-Otford Primary School</li> <li>-Our Lady of Hartley Catholic School</li> </ul>
Shepway	<ul style="list-style-type: none"> <li>-Palmarsh Primary School</li> <li>-St Peter's Primary School</li> <li>-Sandgate Primary School</li> <li>-George Spurgen Primary School</li> </ul>
Swale	<ul style="list-style-type: none"> <li>-South Avenue Junior School</li> <li>-West Minster Primary School</li> </ul>

	-Sheldwich Primary School -Boughton-under-Blean Methodist Primary School -Davington Primary School -Graveney Primary School -Eastchurch CEP School
Thanet	-St Peter-in-Thanet CEJ School -Chilton Primary School -St Saviour's CEJ School
Tonbridge & Malling	-West Malling CEP School -Borough Green Primary School -Cage Green Primary School -Platt CEP School -Tunbury Primary School

## 5. The events

At the events, each child that participated was presented with a certificate. The winning team of the Fast Car Race were presented with an engraved Solar Car Challenge Cup and a framed certificate.

The winning team of the Creative Car Competition were presented with a GOSOLAR experiment kit and a framed certificate.

The Runners-up from both competitions were also presented with a framed certificate. At a few events, some local authority representatives also brought along some extra prizes, such as solar powered radios and torches, books, pens and pencils.

- THANET 17<sup>th</sup> May 2004 – St Peter-in-Thanet CEJ School

Fast Car Competition: WINNER – ‘Solar Speed’ by St Peter-in-Thanet CEJ School  
RUNNER-UP – ‘GT 500’ by Chilton Primary School

Creative Car Competition: WINNER – ‘Bat Boy’ by St Saviours  
CEJ School  
RUNNER-UP – ‘Fireball’ by Chilton  
Primary School



### • *The victorious winning team!*



## h Av Getting ready at the start line

Fast Car Competition: WINNER – ‘Reptile Racer’ by South Avenue Junior School  
RUNNER-UP –

Creative Car Competition: WINNER – ‘Graveney Solar Star’ by Graveney Solar Star  
RUNNER-UP – ‘Flame Thrower’ by Sheldwich Primary School



*Celebration!*



*Prize giving*



*Eager supporters look on!*

- **CANTERBURY 9<sup>th</sup> June 2004 – Wickhambreaux CEP School**

Fast Car Competition: WINNER – ‘Wickhambreaux Warrior’ by Wickhambreaux CEP School  
RUNNER-UP –

Creative Car Competition: WINNER – ‘Solar Blaze’ by Reculver CEP School  
RUNNER-UP – ‘Pretty Pink’ by Wickhambreaux CEP School



*Reculver team*



*Wickhambreaux team*



*Briary team*

- **DOVER 11<sup>th</sup> June 2004 – Deal Parochial School**

Fast Car Competition:

WINNER – ‘Langdon Lightening’ by Langdon Primary School  
RUNNER-UP – ‘Speedo’ by Deal Parochial School & ‘Mean Green Racing Machine’ by Wingham Primary School

Creative Car Competition: WINNER – ‘Formal Focus’ by Deal Parochial School



*The team from Wingham Primary School*



*Prize ceremony*

- **SEVENOAKS 15<sup>th</sup> June 2004 – Churchill CEP School**

Fast Car Competition:

WINNER – ‘Rapid Rocket’ by Churchill CEP School  
RUNNER-UP – ‘Flash Lightening’ by New Ash Green Primary School & ‘Solaris Speedstar’ by Otford Primary School

Creative Car Competition: WINNER – ‘Flaming Fast Fire’ by High Firs Primary School

RUNNER-UP – ‘Va Va Voom’ by Our Lady of Hartley Catholic School



*Willing the car down the track!*



*Chiddingstone CEP School*



*Churchill CEP School*

- **MAIDSTONE 17<sup>th</sup> June 2004 – Molehill Copse Primary School**

This event was slightly different to the others in that all other participants except the host school had to pull out of the competition at the last minute due to unforeseen circumstances. Fortunately, Molehill Copse Primary School had bought about 20 extra cars as part of a school project, so we were still able to go along and host an 'intra-school' competition. Lots of fun was had by all, despite initial difficulties.

Fast Car Competition:      WINNER – 'Vendetta'

Creative Car Competition: WINNER – 'Beauty'



*The proud creators of 'Vendetta'*



*Creative car winner 'Beauty'*

- **TONBRIDGE & MALLING 25<sup>th</sup> June 2004 – West Malling CEP School**

Fast Car Competition:      WINNER – 'Thunderbolt' by Borough Green Primary School  
RUNNER-UP – West Malling CEP School

Creative Car Competition:      WINNER – 'Dimmock Special' by Cage Green Primary School  
RUNNER-UP – 'The Dragonfly' by Platt CEP School



*Getting ready for the final!*

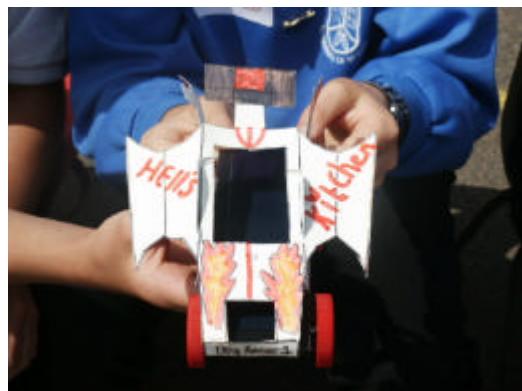


*Celebrations!*

- **ASHFORD 28<sup>th</sup> June 2004 – Ashford South Community Primary School**

Fast Car Competition:                   WINNER – ‘Turbo A300’ by Challock Primary School  
   RUNNER-UP – ‘Hell’s Kitchen’ by Bethersden School

Creative Car Competition:           WINNER – ‘Polly Shark’ by Challock Primary School



*Runner – up ‘Hell’s Kitchen’*

- **SHEPWAY 29<sup>th</sup> June 2004 – Palmarsh Primary School**

Fast Car Competition:                   WINNER – ‘Odd Wheels’ by Palmarsh Primary School  
   RUNNER-UP – ‘St Peter’s Rocket’ by St Peter’s Primary School

Creative Car Competition:           WINNER – ‘The Mummy Mobile’ by St Peter’s Primary School  
   RUNNER-UP – ‘Flaming Hot Dragon’ by Palmarsh Primary School



*Palmarsh Primary School team*



*St Peter’s Primary School team*

- **DARTFORD 1<sup>st</sup> July 2004 – Langafel CEP School**

Fast Car Competition:

WINNER – ‘Too Fast Too Furious’ by Barn End Centre  
RUNNER-UP – ‘Rocket’ by Langafel CEP School

Creative Car Competition:

WINNER – ‘It’s not Rocket Science’ by Barn End Centre



*Group photo*



*The champions from Barn End Centre*

- **GRAVESEND 13<sup>th</sup> July 2004 – Higham Primary School**

Fast Car Competition:

WINNER – ‘Dover Road Flyer’ by Dover Road Community Primary School  
RUNNER-UP – ‘Need for Speed’ by Riverview Junior School

Creative Car Competition:

WINNER – ‘Glitter Bug’ by Higham Primary School  
RUNNER-UP – ‘Minnie Mouse’ by Riverview Junior School



6.

*Group photo*



*Racing down the track*

Total number of participating schools:	50
Total number of participating children:	408
Total number of newspaper articles:	9 to date – more expected from the press clippings service, which does have a delay of several weeks.
Total number of radio interviews:	5
Total number of TV features:	1

## 7. What did the children learn?

The 2004 Solar Car Challenge has been a great success, with very positive feedback received from all those involved. The children that have taken part have learnt about:

- solar and renewable energy
- team work and co-operation
- design and technology
- interpreting and following instructions
- problem solving
- working to a time limit
- perseverance

Below are some exerts from letters received from some of the children involved:

*“Making solar cars showed me that the sun can be a powerful tool. Also I learnt to follow instructions carefully....”*

*“Making the solar powered cars was a challenge but we got there in the end! I enjoyed making, decorating and racing the cars. Our school was very lucky to get the opportunity to make and race our solar powered cars.”*

*“It was a wonderful experience making the cars, it has made me want to have more solar experiences, it was a challenge and we had to use team work.”*

*“Thank you very much for setting up the solar car challenge, I loved it, I loved it when the crowd cheered for us, but I mostly loved taking part, not just me but everyone...”*

*“The solar powered cars are really good, I would recommend making the solar powered cars to anyone, it was so fun decorating our car, we’ve had so much fun racing our solar cars.”*

*“I learnt that it was better to share the cars with the others”.*

## 8. Media Success

It was decided early on that engagement with the media would be a key activity as part of the project. The media targeted were the local and countywide press, radio and television.

We are pleased to report that all 3 sections of the media reported on the 2004 Solar Car Challenge competition.

### 8.1 Television

TV station	Audience	Date	Details
Meridian TV		08/06/2004	Meridian TV sent a camera crew and reporter to the Swale event. This resulted in a 5-minute slot on the Meridian Tonight 6pm programme, going out at 6.25pm.

### 8.2 Radio

Radio station	Weekly reach	Date	Interviewer
KM-FM Thanet	28,000	17/05/2004	Emma Batt
KM-FM Folkestone	28,000	10/06/2004	Katie Dartford
BBC Radio Kent	277,000	15/06/2004	Gemma Sterba
CTR 105.6fm	11,000	18/06/2004	Moira
KM-FM West Kent	25,000	21/06/2004	Jack Taylor

Source: [www.rajar.co.uk](http://www.rajar.co.uk)

What is 'weekly reach'?

The number in thousands of the area adult population who listen to a particular station for at least 5 minutes in the course of an average week, figures apply for period ending June 2004.

### 8.3 Press

Kent Energy Centre uses a media agency, Romeike, to carry out media monitoring and make's use of their 'press clippings' service. This picks up the majority of our published press releases.

From this data we are able to say that the Solar Car Challenge was covered in the following press publications;

Newspaper	Coverage	Date	Pictures
Sheerness Times Guardian	27,090	17/06/2004	8
Swanley Times	241,222	24/06/2004	0
Dartford Messenger	4,180	24/06/2004	1

News Shopper (Dartford & Swanley)	347,341	07/07/2004	1
News Shopper (Gravesend)	347,341	07/07/2004	1
Kent Messenger (County)	57,841	04/06/2004	0
Kent on Sunday	120,395	23/05/2004	0

Source: Romeike

NOTE: we know of several more successes, and can confirm 2 additional articles as follows:

Newspaper	Coverage	Date	Pictures
Kentish Express (Ashford)		01/07/2004	9
Kentish Gazette (Canterbury)		17/06/2004	3

Copies of all cuttings are available on request.

## 9. Evaluation

The pilot year for the Kent Solar Car Challenge has been a great success. The press coverage that the project has received has been tremendous and the enthusiasm and interest shown by the schools and pupils participating has far exceeded expectations. It is very much hoped that the project will continue in future years if sufficient funding can be secured. We have also been fortunate enough to forge a relationship with Business Link Kent, who has expressed great interest in the Solar Car Challenge, and we are looking forward to the likelihood of working in partnership with them in future years.

Of course there is always potential for improvement, and as this has been the first Kent Solar Car Challenge there have arisen some points to consider which will ensure that the success of this project can be continued and added upon.

- Clarification and simplification of the rules and instructions may help to reduce problems that were encountered with misinterpretation, and may help to make the races run more smoothly.
- Some schools unfortunately had to withdraw from the competition due to having insufficient time to complete the cars. It may be that the timescales for the project may have to be revised in future years to give the schools a little more time to plan and prepare for the races. Increasing the levels of contact with the schools prior

to the races, to give encouragement and to help solve any problems, may also rectify this problem.

- As this was the pilot year for the solar car challenge, we felt unable to advise the schools involved on issues such as how long it takes to build the cars and how much time they need to invest in the project. Now that we have seen the project through from start to finish we feel qualified to offer this type of advise in future years, and feel that this would again be of help in ensuring that all schools that initially commit to the project will be able to see it through to completion.

## **10. Acknowledgements**

We would like to thank all our sponsors for the money and support they have provided which has helped to make the 2004 Kent Solar Car Challenge such a great success:

- Pfizer
- Government Office for the South East
- Ashford Borough Council
- Canterbury City Council
- Dartford Borough Council
- Dover District Council
- Gravesham Borough Council
- Maidstone Borough Council
- Sevenoaks District Council
- Shepway District Council
- Swale Borough Council
- Thanet District Council
- Tonbridge & Malling Borough Council
- Tunbridge Wells Borough Council