

## Meaningful Learning Experiences

Strategic Commitment	✓	Part of a regional Careers Hub initiative for Careers Leaders
Curriculum Provision	✓	Key Stage 3 Electricity: 'Define and calculate power'
Employer Partnerships	✓	Partnership with Engie EV solutions
Reflective Young People	✓	Motivation for harder work in the classroom
Informed Career Choices	✓	Hearing about the work of a major utilities firm

### Electric vehicle charging points provide focus for Year 7 to learn about Electricity

Science teachers at Oasis Academy Brislington described the challenge of teaching the 'abstract concepts of current & voltage' with Key Stage 3 students: *'These ideas are so hard for most students to imagine and so their conceptual understanding ends up based on very thin foundations. This leads to confusion and disengagement and a fairly unsatisfactory teaching experience also.'*

Surrounding the school are several electric vehicle charging points, including 'GeniePoint' stations managed by utilities company Engie. An approach to the firm resulted in a prompt response from the marketing communications team: *'Thank you for your email, we'd be happy to help encourage students with practical application information on electricity. Do you have anything particular in mind?'*

Classroom resources included links to an existing video from Engie about 'How the GeniePoint Network works' and a challenge presented from the company: *'We want to encourage more people to learn about the advantages of electric vehicles. Can you use your knowledge about electrical power to explain in plain English how different types of charging points work and are suitable for different situations.'*

A change in personnel at Engie EV Solutions caused a minor delay, but the COVID pandemic resulted in much greater disruption. Even so, the project was successfully completed with examples of student work sent to the firm, as promised in the classroom challenge: *'Thanks again for offering to look at these. Any feedback at all would be greatly appreciated.'*

### Benefits for the Students

*'Students have been very excited by this project and are already asking when they will receive their feedback.'*

*'Many of the students were excited to have their work reviewed by a professional and were more driven to work harder. The impact was very noticeable, especially in those students who believed they could do well in the task.'*

## Benefits for the School

*'The process clearly works and we will be looking at implementing this next year.'*

*'This topic comes up every year and it would be very easy to repeat or tweak the content to fit our syllabus more closely, but to also allow them to inject a little more personality into the process – either in person, or as seems more likely, over live or pre-recorded video.'*

## Benefits for the Employer

The project helped to share the strategy of Engie to 'act to accelerate the transition to a carbon-neutral economy' and to become the leader in the energy and climate transition.

*'Dear students, thank you so much for taking the time to complete this question and for helping us with these calculations. It is great to see the amount of effort you have put into this and there has been some excellent work to show for it. Keep up the great work!'*

**Power in a Circuit**  
LO: Define and calculate power.

**Independent Task (5 mins):**

Electrical power calculations:

30%	50%	70%
1. What is the formula linking power, current and voltage?	7. A kettle has a current of 10A and a p.d. of 230V. Calculate the power output.	13. The heating element in a kettle produces an output of 1200W using mains electricity. Calculate the current flowing through it.
2. Rearrange this calculate current		
3. Rearrange this calculate voltage		

**Key terms:** Power, potential difference, current, P, V, I, Watt, Amps, Volts

Year 7 students were motivated to learn about electricity by applying knowledge to electric charging points located near the school.

**Power in a Circuit**  
LO: Define and calculate power.

**Time to charge the battery to 80% capacity**



Rapid chargers (up to 50kW) take 20-30 minutes  
Fast chargers (7-22kW) take 1-4 hours  
Home Chargers (3kW) take up to 8 hours

**Key terms:** Power, potential difference, current, P, V, I, Watt, Amps, Volts



**Power in a Circuit** Thursday, 22 July 2021  
LO: Define and calculate power.

**Genie Point Challenge**



*'I look forward to seeing examples of your work.'*

Susan Finn, ENGIE EV Solutions

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