




UK Electronics Skills Foundation

Primary Electronics – Industry Partner Volunteers


Sophie Batin, Head of Education

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Session Agenda

- What is UKESF?
- What is Primary Electronics?
- The workshop
- Engaging young people
- Teacher expectations
- Logistics in schools
- The STEM attributes
- Developing your own story

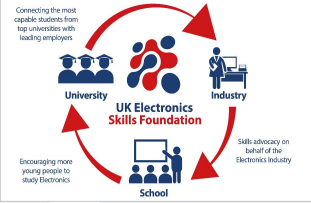


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Tackling the Skills Challenge in the UK's Electronics Industry

- Multi award winning charity.
- Founded in 2010.
- The only STEM organisation in the UK solely focused on Electronics.
- Encourage young people to consider careers in the Electronics industry.
- Connect students, teachers and universities with industry.
- Advocate for skills development.




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Primary Electronics

- Build interest in electronics through a hands-on workshop for 9-11 year olds.
- Connect primary schools to local industry partners.
- Provide professional development for industry partner volunteers.
- Help to build science capital for pupils who may otherwise not consider a career in STEM.
- Support teachers in delivering practical electronics lessons with confidence.



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Equipment Logistics

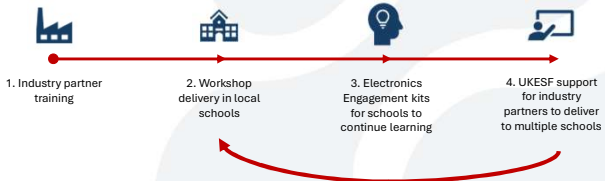
- UKESF can provide all workshop kit
- Shared between industry partners
- Consider timing of school visits – blocks
- To buy your own, branded class set of snap circuits is around £500



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Primary Electronics



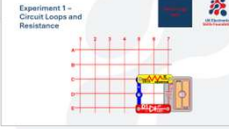


1. Industry partner training
2. Workshop delivery in local schools
3. Electronics Engagement kits for schools to continue learning
4. UKESF support for industry partners to deliver to multiple schools


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Workshop Content

- Focus on delivering a positive, practical experience.
- Run the workshop as a pair of demonstrators, so you can support each other throughout the session(s).
- Children should spend most of the session talking and actively exploring.
- Avoid editing or adding any other slides.

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UK Electronics Skills Foundation

Partner Logo here

Primary Electronics

Your name, your organisation

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UK Electronics Skills Foundation

Primary Electronics


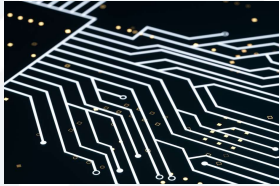
Sophie Batin, UKESF

Check slide deck is working
18 boxes and attribute cards ready on tables
Good afternoon year 5/6! I'm X and this is my colleague, Y.
We will personalise this intro:
We work for an organisation called the UK Electronics Skills Foundation or UKESF.
At UKESF, we want to help children understand how Electronics is a part of our everyday lives and what a career working in Electronics might look like for all of you.
So today, we're going to do some electronics together, using the kits we've brought with us. You will have lots of time to explore the kits in a moment but leave them in the boxes for now, before we get started. I want to make sure that you know that today is about trying something new and you might get stuck or have a question. That's great - that's how engineers work in our life. If you do get stuck or want to ask us a question, put up your hand and an adult will come to help you.

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What is Electronics?

"Electronics is about using technology creativity, to develop innovative products to help solve problems, and make people's lives better"

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Which of these uses electronics?









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About Me – Sophie Batin


- Head of Education, UKESF
- How I would describe myself
 - Imaginative
 - Curious
 - Collaborative
- I have two children and two cats!







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**A Project I've Worked on:
Communicating About Electronics**



Being open-minded





Being organised

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Skills we will use today



Recovering quickly from problems

Resilient



Putting in lots of effort

Hard-working

Thinking of new ideas

Imaginative

With thanks for support with the STEM Attributes from

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**What are you good at?
What might be tricky?**



Recovering quickly from problems

Resilient

Putting in lots of effort


Hard-working

Thinking of new ideas

Imaginative

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Put these attributes in order



Recovering quickly from problems

Resilient

Putting in lots of effort


Hard-working

Thinking of new ideas


Imaginative

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Snap Circuits




You will work in pairs to experiment with circuits using these snap circuit sets

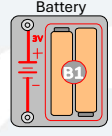


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Circuits Rules to Remember!




- Rule #1 – The battery powers the circuit.
- Rule #2 – There must be a full loop from the + of the battery to the - of the battery (no gaps!)




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Circuits Rules to Remember!




- Rule #3 – The LED only works 1 way.
- Rule #4 – The + on the LED must be on the same side as the + as the battery (they do not need to be touching directly!)

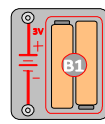


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Experiment 1 – Circuit Loops and Resistance




Battery




Wire



Resistor




LED



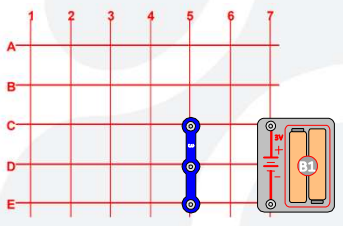
Only works 1 way

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Experiment 1 – Circuit Loops and Resistance




- Step 1 – Put battery on the very edge of the board so you are snapping onto column 7, rows C-E
- Put the 3 wire onto column 5, rows C-E

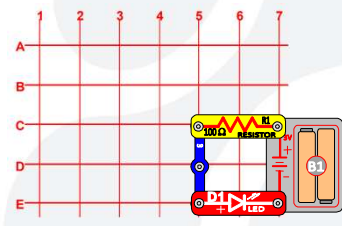


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Experiment 1 – Circuit Loops and Resistance




- Step 2 – Put the resistor on top of the wire and battery along row C
- Put the LED on top of the wire and battery along row E.

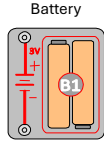


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Experiment 2 – LED and Lamp




Battery



Wires




LED




Only works 1 way


Lamp



Switch


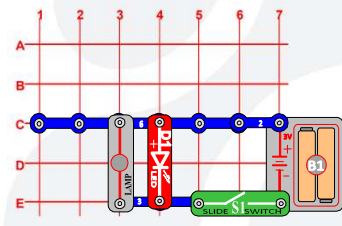


Or




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Experiment 2 – LED and Lamp

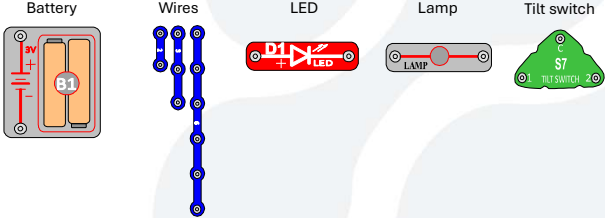



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Experiment 3 – Tilt Switch


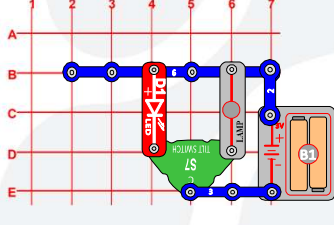


Battery Wires LED Lamp Tilt switch




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Experiment 3 – Tilt Switch

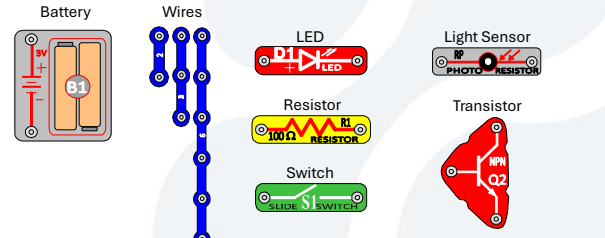



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Experiment 4 – Light Sensor


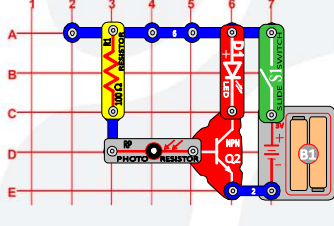


Battery Wires LED Light Sensor




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Experiment 4 – Light Sensor

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The Challenge!




- Your teacher has a jar of special biscuits that we need to keep safe!
- Your challenge is to create a system that will warn the teacher if anyone gets close to stealing the biscuits.




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The Challenge!




Think about how the thief may try to steal the biscuits?


- Will they **tilt** the biscuit box lid as they open it?
- Will they **move** the biscuits jar?

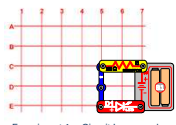


For example, if the biscuit jar is on top of the snap circuit and the biscuit jar was moved, you could use a light sensor to detect when there is a change in light.

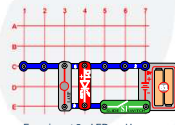


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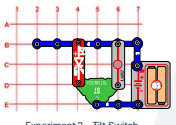


Experiment 1 – Circuit Loops and Resistance

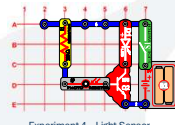


Experiment 2 – LED and Lamp

When your circuit is complete, explain how it works to an adult and ask them to take a photo



Experiment 3 – Tilt Switch



Experiment 4 – Light Sensor

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Tidy up!

- Please arrange all the parts on the base to look like the picture.
- Look carefully – some pieces are stacked up together!



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We used all these skills today, in different parts of the workshop

Recovering quickly from problems
Resilient

Putting in lots of effort
Hard-working

Thinking of new ideas
Imaginative

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Recovering quickly from problems
Resilient

Putting in lots of effort
Hard-working

Thinking of new ideas
Imaginative

- Learning how to use snap circuits and remembering the circuit rules
- Following the instructions to make your circuits

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Primary Electronics

Recovering quickly from problems
Resilient

- Learning how to use snap circuits and remembering the circuit rules
- Following the instructions to make your circuits


Putting in lots of effort
Hard-working

- Thinking of ideas to keep the biscuits safe
- Deciding which ideas to try out

Thinking of new ideas
Imaginative

- Testing your ideas and solving any problems with your circuit
- Explaining your circuit to an adult


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Partner Logo here

Thank You!

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Any Workshop Questions?


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Break



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Managing a Class


Build in time for talking.

Ask teachers if there is a way they usually use to get students attention such as :-

- Clapback
- Countdown
- Rainmaker
- Chime bar/ bell

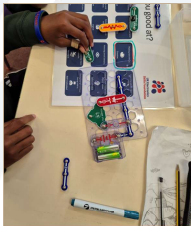


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Volunteering in Schools

- Ask questions beforehand
- Read the safeguarding policy
- Find the toilets and the staffroom
- School staff always present
- 30 mins to set up, 15-20 mins to reset between groups



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Letter for Schools

https://www.ukesf.org.uk/primary-schools

We are excited to be bringing the UK Electronics Skills Foundation Primary School Electronics workshop to your school again for this year. To help the day run smoothly, we have some questions for you.

Details and Classrooms:

- Due to the equipment that we will be bringing with us, we need to arrive by 10. **Can you please arrive at least 15 minutes before 10.30** to set up the equipment in the room you will be using?
- We will require some time for set up before the start of the workshop. This is necessary so that we can safely test the equipment. **Please set up the equipment in the room you will be using at least 15 minutes before the start of the workshop.**
- **Please ensure you have a suitable room for the workshop.** We will need a room that is suitable for the workshop. We will need a room that is suitable for the workshop. We will need a room that is suitable for the workshop.

Classroom Requirements:

- At least one adult from your school must remain with each group during the workshop. We encourage you to have the adult who will be with the group in the workshop. We encourage you to have the adult who will be with the group in the workshop.

Additional Information:

- We will need to know how many adults (non-student) will be attending during the workshop. We will need to know how many adults (non-student) will be attending during the workshop.

Feedback:

- We will need to know how many adults (non-student) will be attending during the workshop. We will need to know how many adults (non-student) will be attending during the workshop.

Signatures:

We will need to know how many adults (non-student) will be attending during the workshop. We will need to know how many adults (non-student) will be attending during the workshop.

UKESF Risk Assessment

Risk Assessment – Primary School Workshop


Classroom Number: _____ Name: _____

Next Review Date: _____

Control Measure	Identified	Assessed	Accepted
Control Measure 1	Y	Y	Y
Control Measure 2	Y	Y	Y
Control Measure 3	Y	Y	Y
Control Measure 4	Y	Y	Y
Control Measure 5	Y	Y	Y
Control Measure 6	Y	Y	Y
Control Measure 7	Y	Y	Y
Control Measure 8	Y	Y	Y
Control Measure 9	Y	Y	Y
Control Measure 10	Y	Y	Y

Please use this risk assessment in conjunction with your own risk assessment and dynamic management of risk.


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Any Logistics Questions?

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STEM Attributes by NuSTEM



- Designed in collaboration with teachers and STEM professionals
- Demonstrate the characteristics people have used to be successful in STEM
- Students already have some of these attributes, and so it helps connects them to their concept of people who work in STEM

Working with others	Sticking with an activity
Collaborative	Committed
Putting in lots of effort	Thinking of new and interesting ideas
Hard-working	Imaginative

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All 15 covered through the project



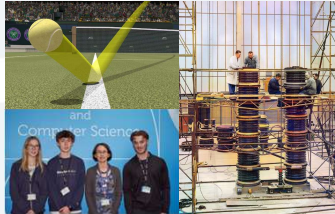
Working with others Collaborative	Sticking with an activity. Committed	Sharing information and ideas. Communicator	Making new things. Creative	Learning about new things. Curious
Putting in lots of effort. Hard-working	Thinking of new and interesting ideas. Imaginative	Solving problems in sensible ways. Logical	Noticing small details. Observant	Listening and respecting others' views. Open-minded
Planning how to finish things. Organised	Caring a lot about your work. Passionate	Staying calm when facing problems. Patient	Recovering quickly from problems. Resilient	Doing things without being told to. Self-motivated

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About Me – Isabel Culmer




- Outreach Advisor, Teacher and Electronic Engineer
- How I would describe myself
 - Creative**
 - Logical**
 - Collaborative**
- My hobbies are all types of crafts and board games.



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About Me – Your name


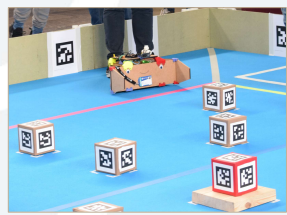




- Your job title**
- How I would describe myself:
 - Choose 3 attributes that resonate with you and explain how they help you excel in your job
- Add an extra fact or two – hobbies, interests, pets, favourite things

Add your own photos

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A Project I've Worked on: Automatic Robot

-  Imaginative
-  Open-minded

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A Project I've Worked on: Project name




- 2 - 3 attributes describing what you loved and what you found tricky about your project

Add your own photos


Keep it brief – 5 minutes max for both slides

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Any STEM Attributes Questions?


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Selecting your Attributes

Start drafting your 2 personalised slides:

- About Me
- My Project



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Post Workshop Activities

Consider offering children or teachers ways to find out more about your industry via:

- Leaflets
- Website links
- Other ways the school can engage with you

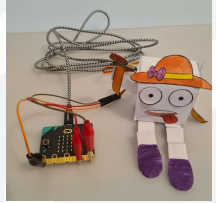


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Electronics Engagement Box

- 5 sessions, designed to extend impact of the workshops, aligned to the English, D&T and Computing curriculum
- One free box per school, containing 10 sets of equipment plus teacher resources
- Children work in groups to design, build, code and test paper robots using micro:bits
- Opportunities to share work with UKESF and industry partners via school social media accounts or email




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Post Workshop Activities Questions?

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Thank You!

Any questions, please email
education@ukesf.org

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