The IET

DIY Faraday Challenge Day

Thorpe Park Teacher Extras

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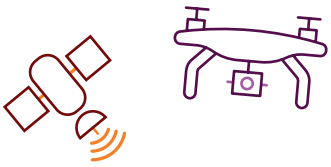

DIY Faraday Challenge Day

Presented to

Signed by

Date

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Student Team Registration Form

Team number ……

Faraday Challenge Date: ……

Your School Name: ……

Your Teacher's Name: ……

Team Member Names (please print clearly):

	First name	Surname
1		
2		
3		
4		
5		
6		

Account sheet

Team……

You will need to keep an accurate record of all the purchases your team makes.

Materials/resources purchased	Quantity	Cost		Faradays remaining
		Spent	Received (if sold back)	
			Total Faradays remaining:	

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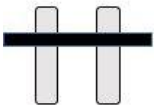
Shop Manager Balance Sheet School …….. Date ……

Faradays spent at each visit to the shop	Team 1	Team 2	Team 3	Team 4	Team 5	Team 6	Team 7
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
TOTAL FARADAYS SPENT							

Shop resource sheet

Items to buy

Electrical components			
Item	**Description**	**Unit**	**Cost**
Crocodile leads	 Lead with crocodile clips at each end	Each	2 Faradays
Insulated wire – red or black	 Can be used to create a circuit using terminal blocks or used for electro-magnets	Per 30 cms	2 Faradays
Terminal blocks	 Can be used to connect insulated wire	Each	2 Faradays
Piezo buzzer	 Connect in a circuit to give a sound output	Each	6 Faradays
LED – various colours	 Light Emitting Diode which lights up when connected in a circuit. Choose from red, orange, green or blue.	Each	6 Faradays
2.5V Bulb with bulb holder	 Used as a light in a circuit. **NOTE:** Will not work with an LDR	Each	6 Faradays
Motor	 Connect in a circuit to create clockwise or anti-clockwise movement.	Each	6 Faradays
Motor holder	 Used to fix a motor or a syringe in position. NOTE: you will need the insert to connect a syringe.	Each	4 Faradays
Gear attachment for motor	 Used to connect a motor to a cog	Each	2 Faradays

Pulley attachment for motor		Used to connect a motor to a pulley wheel – will need connector (e.g. elastic band)	Each	2 Faradays
Light Dependent Resistor		Component that detects the light level and changes resistance in a circuit.	Each	8 Faradays
Moisture sensor		Component which detects moisture in the surroundings. Can also be used to detect materials which conduct electricity.	Each	8 Faradays
Potentiometer		Can be used to vary the resistance in a circuit	Each	8 Faradays
2AA cells in battery holder with battery snap		Used to provide power for your circuit	Each	6 Faradays
9V battery with battery snap		Used to provide power for your circuit	Each	8 Faradays
Push button switch		Connects a circuit when pushed down and breaks the circuit when released.	Each	6 Faradays

Construction materials			
Item	**Description**	**Unit**	**Cost**
Correx	Used to create structures	Piece	6 Faradays
Plastic syringes with tube	Used to develop pneumatic system	Pair of syringes with plastic tube	8 Faradays
Nail	Used to build an electro-magnet	Each	2 Faradays
Small cog	Used in gear systems with motors	Each	2 Faradays
Medium cog	Used in gear systems with motors	Each	2 Faradays

Large cog	Used in gear systems with motors	Each	4 Faradays
Dowel	Piece of solid cylindrical wooden rod used to create structures	Each	4 Faradays
Straws	Can be used in structures	Each	2 Faradays
Pulley wheel 54cm	Used to connect to pulley attachments on motor	Each	6 Faradays
Wooden wheel 54cm	Used with motors to drive something	Each	4 Faradays
Plastic reel	Used in construction	Each	4 Faradays
Polyfoam	A5 foam sheet – assorted colours	Each	4 Faradays
Coloured card	A4 sheet of card – assorted colours	Each	4 Faradays
Tin foil	A conductive material which can be used to make pressure pads or switches (**MUST NOT** be used in place of connecting wires)	10cm strip	6 Faradays
Masking tape	Can be used to secure light parts in your design. **NOTE:** excessive use of tape will result in an additional charge	Roll	6 Faradays
Plastic tape	Can be used to secure heavier parts in your design or those which will have more tension. **NOTE:** excessive use of tape will result in an additional charge	Roll	8 Faradays
Sponge	Can be used to make pressure switches or enhance your design.	Each	6 Faradays
Paperclip	Used to create switches or in construction	Each	1 Faraday
Paper fastener	Used to create switches or in construction	Each	1 Faraday
Elastic bands	Used to hold or create working parts	Each	1 Faraday
Cable ties	Can be used to hold your structures in place	Each	2 Faradays
Green wire	Used to connect structures (**MUST NOT** be used in your electrical circuit)	20 cm piece	4 Faradays

String	Can be used as part of your product design	30cm piece	4 Faradays
Access card	Use this to collect various items from the shop – see below	One per team	6 Faradays

Available with your access card

These items can be used with your access card. You will need to take it to the shop to get use of one of these items. You may only get one item at a time.

Stapler	Used to staple soft materials only
Hole punch	Used to make small holes in soft materials
Rulers	Used to measure any part of your product or additional items
Scissors	Used for soft materials only
Screwdriver	Used to connect insulated wire in terminal blocks or to bulb holders.
Wire strippers	Used to cut or strip insulated wire.

Free to use

The cutting station – craft knives and junior hacksaws may be used at any point **BUT** only 3 people will be allowed at this station at any one time. Please take care when using this equipment.

Crocodile leads

F2.0

String

F4.0


LEDs -
assorted colour
F6.0
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Piezo buzzer
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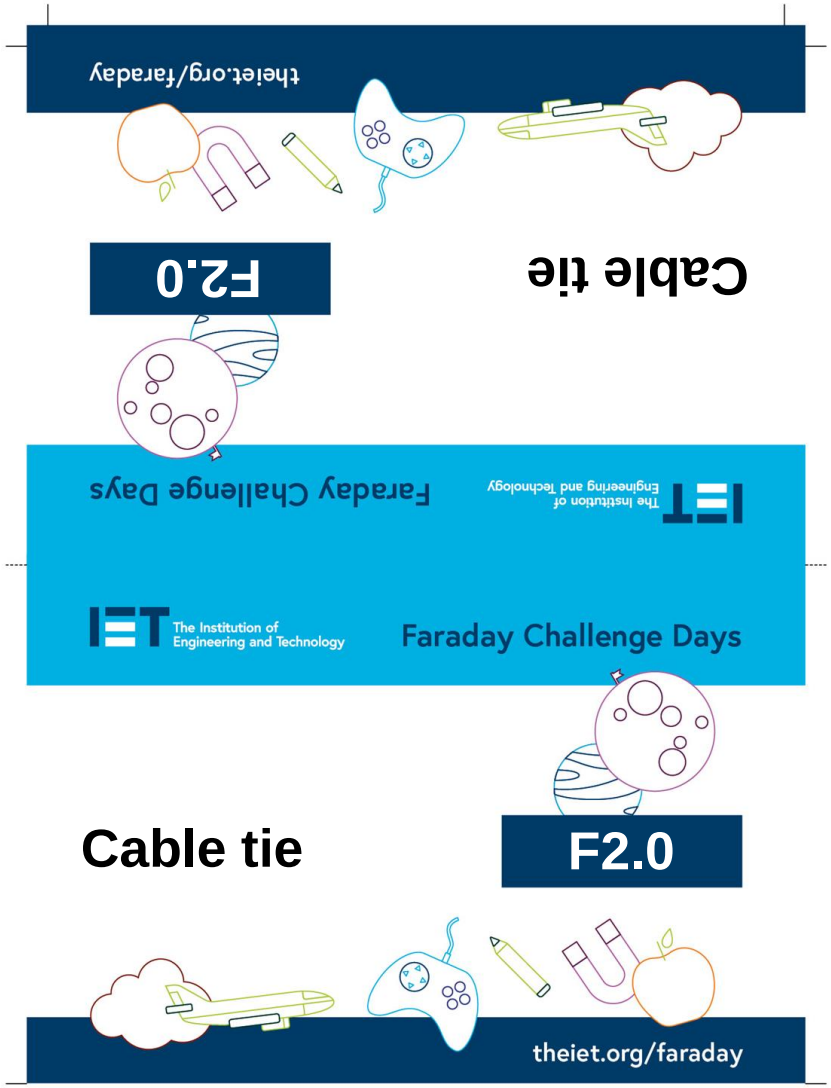
Cable tie
F2.0
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Insulated wire – black or red
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Light Dependent Resistor

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Terminal block

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Polyfoam

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Coloured card

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Sponge

F6.0

Green wire

F4.0

Dowel

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Masking tape

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Paperclip

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Paperclip

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Paper fastener

F1.0

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Paper fastener

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Elastic band

F1.0

Plastic tape

F8.0

Plastic reel

F4.0

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Tin foil

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Plastic reel

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Tin foil

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Wooden wheel

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Moisture sensor

F8.0

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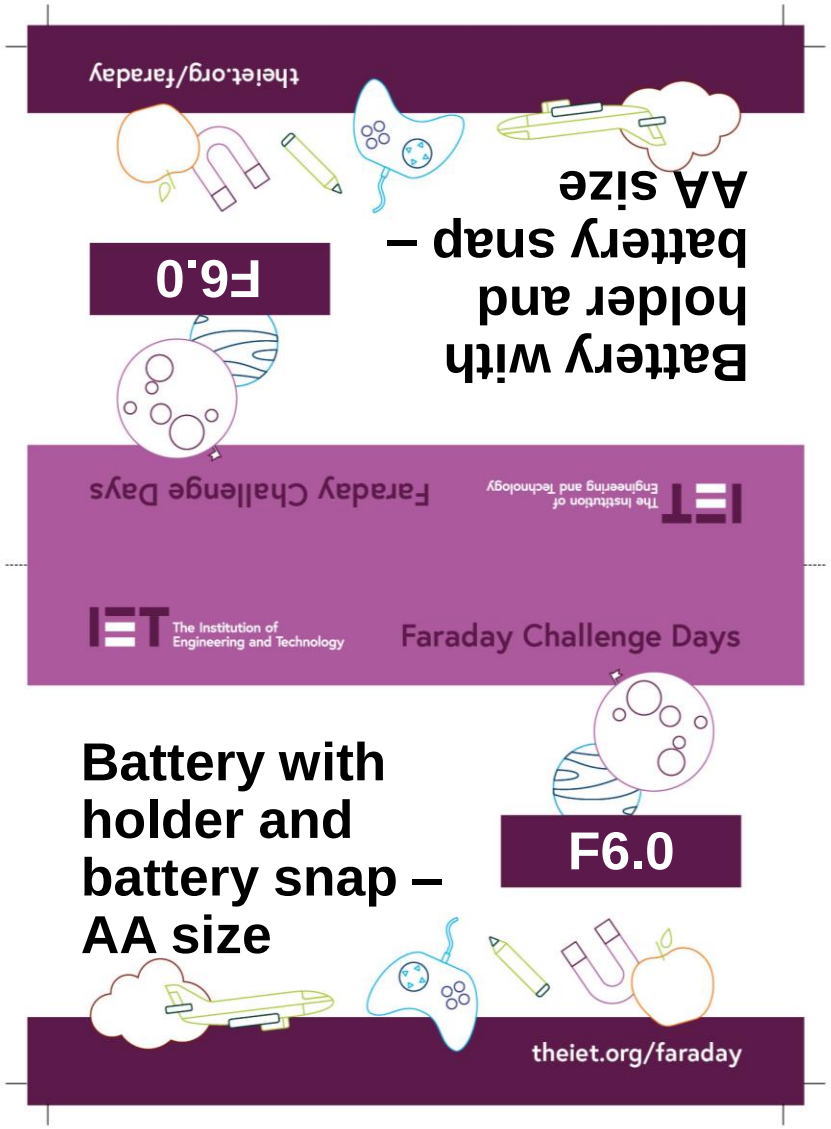
Battery with holder and battery snap – AA size
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9V battery with battery snap
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Push button switch

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Pulley attachment for motor

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Gear attachment for motor

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Motor holder

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Motor

F6.0

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2.5V bulb with holder

F6.0

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F6.0
Correx
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Correx

F6.0

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F8.0
Plastic syringes with tube
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Plastic syringes with tube

F8.0

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F2.0
Nail
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Nail
F2.0
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F2.0
Small cog
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Small cog
F2.0
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Medium cog

F2.0

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Large cog

F4.0

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Straws

F2.0

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Pulley wheel

F6.0

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Potentiometer F8.0

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Potentiometer F8.0

ACCESS CARD ITEMS

1 item only at a time

Need card

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ACCESS CARD

Team 2

FREE

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ACCESS CARD ITEMS

1 item only at a time

Need card

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ACCESS CARD

Team 1

FREE

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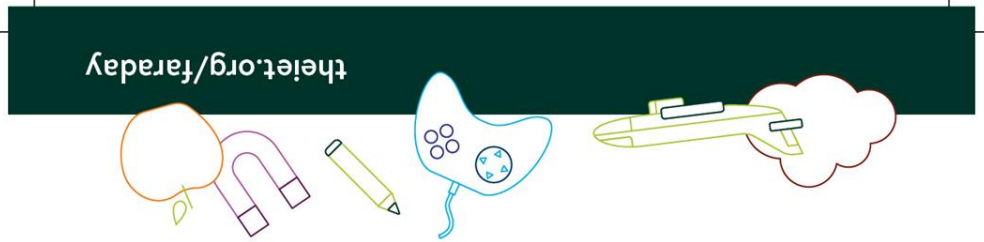

ACCESS CARD

Team 6

FREE

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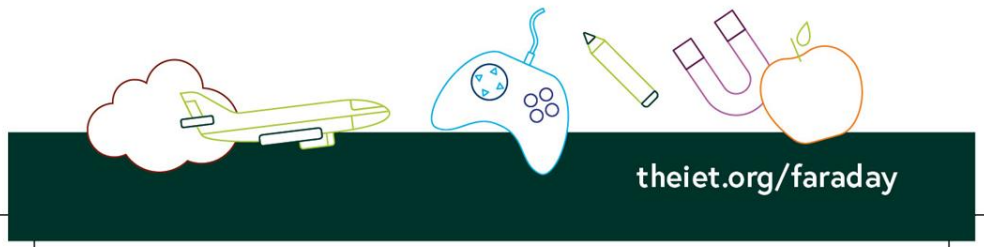
ACCESS CARD

Team 5

FREE



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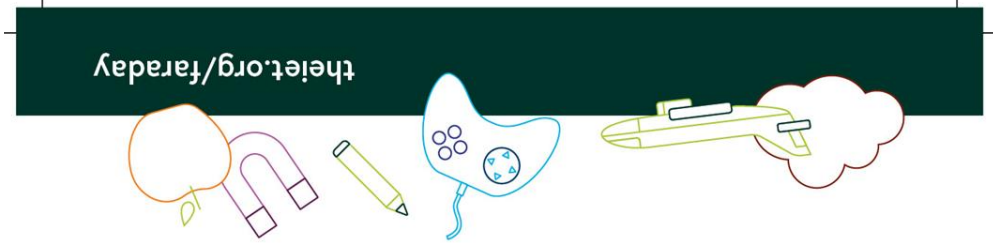

ACCESS CARD

Team 4

FREE

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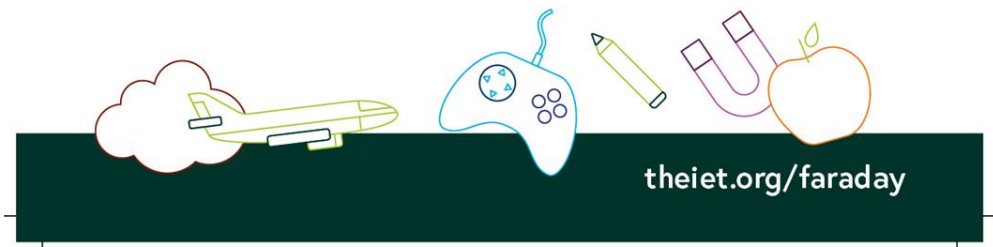
ACCESS CARD

Team 3

FREE



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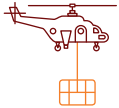
F1

Faraday Reserve Note

One Faraday



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F5

Faraday Reserve Note

Five Faradays

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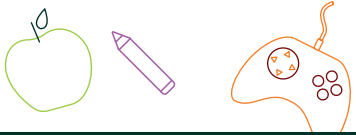
F10

Faraday Reserve Note

Ten Faradays



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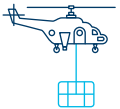
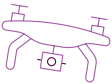
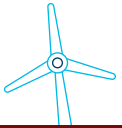
F20

Faraday Reserve Note

= Twenty Faradays







Michael Faraday