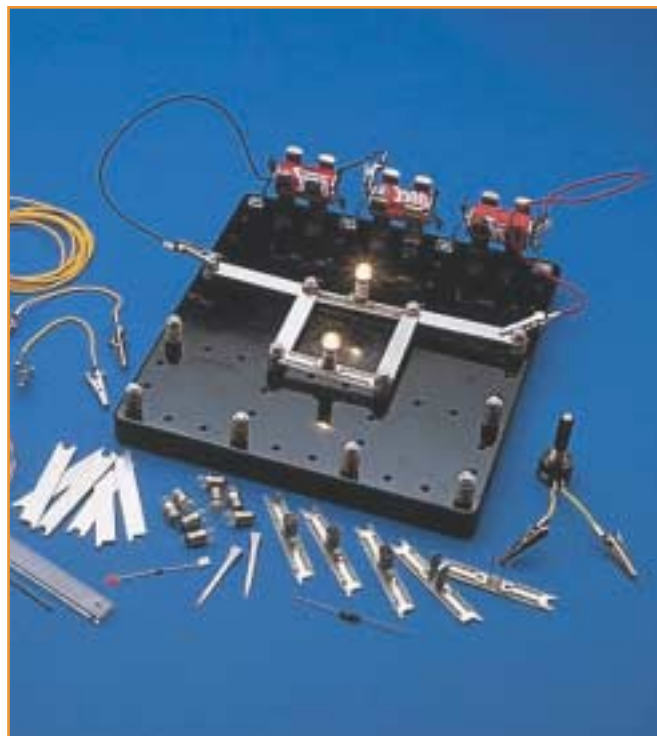
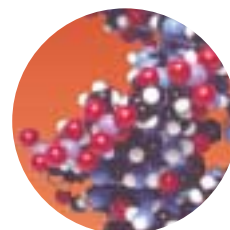


## Teach Assist Resource Worksheets

Series 15 of 16



### "Current in series and parallel circuits"



## **Teach Assist Resources**

TeachAssist resources are written with the practical needs of science teachers in mind. Each resource covers a practical activity that is integral to the QCA schemes of work to provide quick and easy preparation for practical classes.

Please feel free to photocopy the sheets to suit your needs.

### **Each TeachAssist resource contains:**

- Student worksheet with practical instructions and activities.
- Technicians' equipment list for a class of 30 students.
- Reference to allow trouble-free ordering of materials and resources.

A summary table links each resource to the National Curriculum programme of study which allows TeachAssist practical activities to be quickly included into lesson plans and schemes of work.

If you require other booklets in the series, please telephone the Griffin Education sales team or send your request to the following address:-

Griffin Education  
Bishop Meadow Road  
Loughborough  
Leicestershire LE11 5RG

## STUDENT WORKSHEET



### Important information:

Follow all the safety instructions that your teacher gives you.

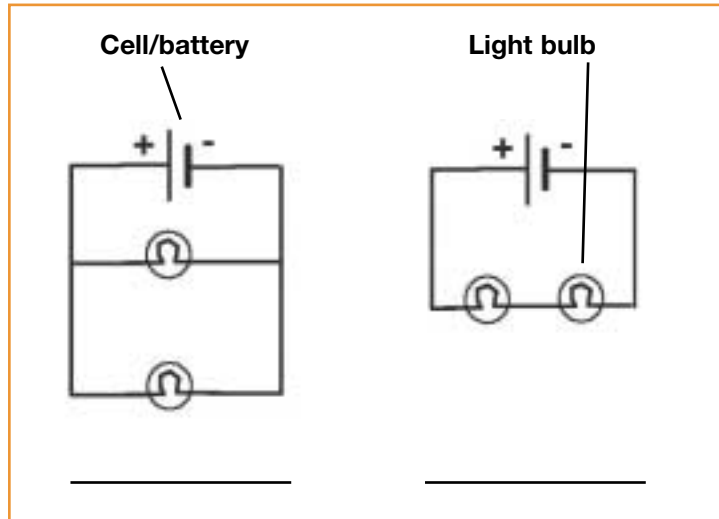
### Electrical circuits

An electrical circuit contains a power source (battery) and components such as light bulbs. They can be connected in series or parallel.

**Series:** components join end-to-end.

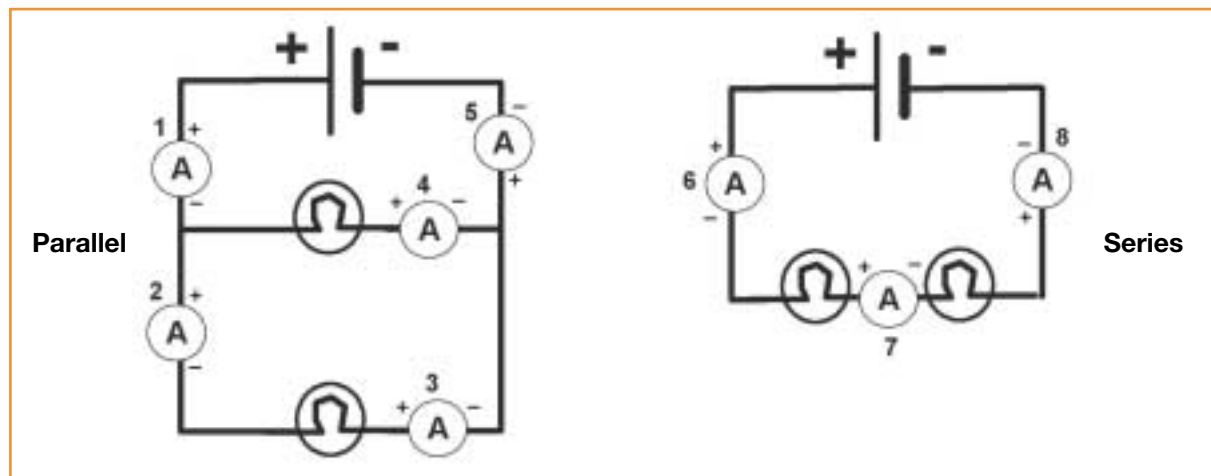
**Parallel:** component in branches from a main loop.

The circuit diagrams show a series and a parallel circuit. Label them with the correct name.



### Measuring current in a circuit

1. Set up the parallel circuit (without the ammeters).
2. Connect your ammeter into position 1. Make a note of the current.
3. Repeat this for all the other positions.
4. Make up the series circuit and use the ammeter to measure the current in positions 6, 7 and 8.



- Draw out the circuits and put the current that you measured next to each of the ammeter positions.
- Is the flow of current different in series and parallel circuits?
- Can you see any patterns to the current in each circuit?

**TECHNICIANS' EQUIPMENT LIST**

**QCA Unit 7J: Electrical circuits**

<b>Date:</b>	<b>Room</b>	<b>Time/Period:</b>
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<b>Equipment</b> Class of 30 pupils, working in pairs.	<b>Quantity</b>	<b>Check</b>	<b>Out</b>	<b>Back</b>
Battery / Cells	15			
Bulbs and holders	30			
Ammeter	15			
Leads and connectors (7 per group)	15			



**Important Information:**

- The activity contains procedures that can be hazardous. It should not be performed unless an appropriate risk assessment has been made.
- Remind students for the need to connect ammeters with the correct polarity.
- The ratings of ammeters, bulbs and connectors should be chosen according to the power source used.

## ORDER REQUISITION

Equipment	Griffin Catalogue No.	Page	Unit cost (£)	No.	Cost (£)
Bulbs, 1.5V, 0.2A (pack of 10)	ECL-120-030Y	405	5.55		
Bulb holders (pack of 12)	ECL-400-H	84	9.10		
Ammeter (0-1A, dc)	EHA-380-010L	407	7.00		
Leads and connectors , 4mm plugs, black PVC covered (pack of 5)	ECF-331-070E	404	17.95		
Total cost					
VAT					
Order total					

Complete the order form above and place your order with Griffin Education in your usual way. Prices are correct at time of print, please contact the Griffin Sales office or check on the Griffin Education website for the latest prices.

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**By email:** griffin@fisher.co.uk  
**On-line:** www.griffineducation.co.uk

## SUMMARY TABLE

QCA unit	KS3 NC programme	Y7 TeachAssist	Activity	Relevant experience from Key stage 2
<b>7A: Cells</b>	Sc1.2f Sc2.1a	1	How to use a microscope and prepare an onion epidermis slide	Use of hand lenses and basic microscopes. Plants and animals, including internal body organs and plant structures
<b>7C: Environments and feeding relationships</b>	Sc1.2g	2	Using a data logger to monitor environmental conditions	Some use of data loggers How organisms are suited to their environment
	Sc1.1a,c,d Sc1.2h,k,o	3	Wood lice in choice chambers	Asking questions and designing a fair test How organisms are suited to their environment
	Sc2.5b,e	4	Organisms and food chains in leaf litter	How organisms are suited to their environment Food chains as a feeding relationship
<b>7E: Acids and alkalis</b>	Sc3.3d	5	Finding the pH using universal indicator solution	Little or no previous coverage of pH
	Sc1.2g Sc3.3e	6	Using a data logger to monitor changes in pH when an acid is added to an alkali	Some use of data loggers Identification of patterns and trends
	Sc3.3e	7	Investigating the neutralisation of acids with antacid tablets	Use of tables and line graphs to represent data Mixing materials can lead to a change
<b>7F: Simple chemical reactions</b>	Sc3.3a	8	Reactions of metals with acids	Describing how materials change when mixed or heated and how irreversible changes produce new materials
<b>7H: Solutions</b>	Sc1.2a Sc3.1h	9	Purifying salt from rock salt	Use of dissolving, filtering and evaporation to separate mixtures
	Sc3.1h	10	Simple distillation	Knowledge of evaporation as a separation technique
	Sc3.1h	11	Paper chromatography of ink	Separation of colours in food colourings such as sugar-coated sweets
<b>7I: Energy resources</b>	Sc1.2f	12	Using the Bunsen burner	Possible use of methylated spirit burners or candle-burners
	Sc4.1c Sc4.5a,e	13	Demonstrating solar energy: solar cells and absorption of heat energy by different surfaces	Little or no previous coverage of energy
	Sc4.5a	14	Finding the energy content of foods	Little or no previous coverage of energy
<b>7J: Electrical circuits</b>	Sc4.1a	15	Current in series and parallel circuits	Construction of series circuits from circuit diagrams
<b>7K: Forces and their effects</b>	Sc1.2f,g,j,k Sc4.2b	16	Extension of springs and elastic bands	Push and pull in springs Testing elastic band catapults. Some may have extended bands with masses Measurement of forces and weight