

BOURNE
ACADEMY

BTEC NATIONAL IN APPLIED SCIENCE

6TH FORM INDUCTION DAY 2026

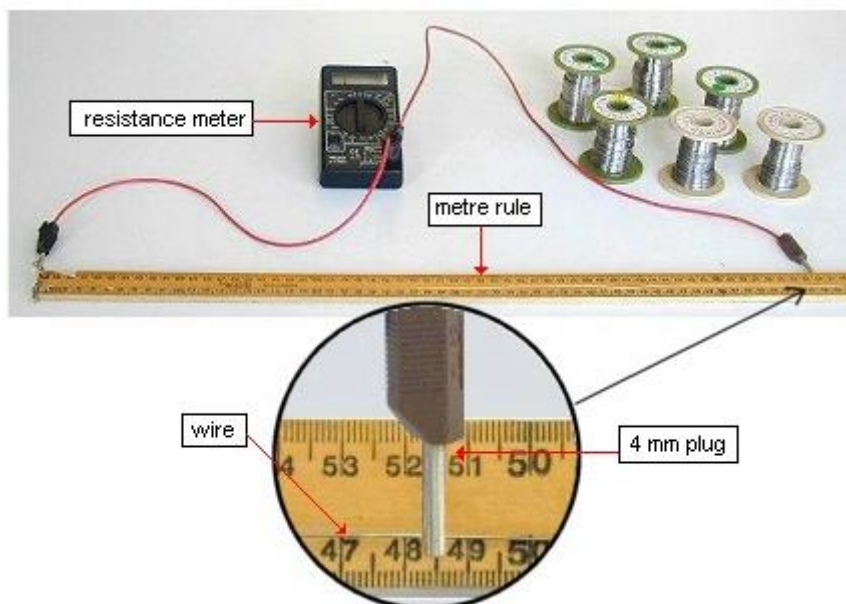
Name: _____

19th June 2026

Practical activity

Resistance in a wire – Changing the length of the wire.

In this experiment you can investigate some of the factors that affect the resistance of a metal wire.



In this activity you are going to measure the resistance of the wire using an ohmmeter to measure the resistance of the wire. (You could use an ammeter and a voltmeter and then calculate the resistance using Ohm's Law equation $V = I \times R$).

Planning your experiment

Write a plan making sure you consider:

- The variables you are going to investigate and how you can make your experiment a fair test?

Independent variable - _____

Dependent variable - _____

Control variables - _____

- Over what range are you going to make measurements and how many measurements you should make? Look at the data on the next page.

- Why choose this range?

- Explain how you can make sure that measurements for the length of the wire are as accurate as possible.

- In an actual experiment are there any safety precautions you should take?

- Try to predict what your experiment will show and give a scientific reason for your prediction.

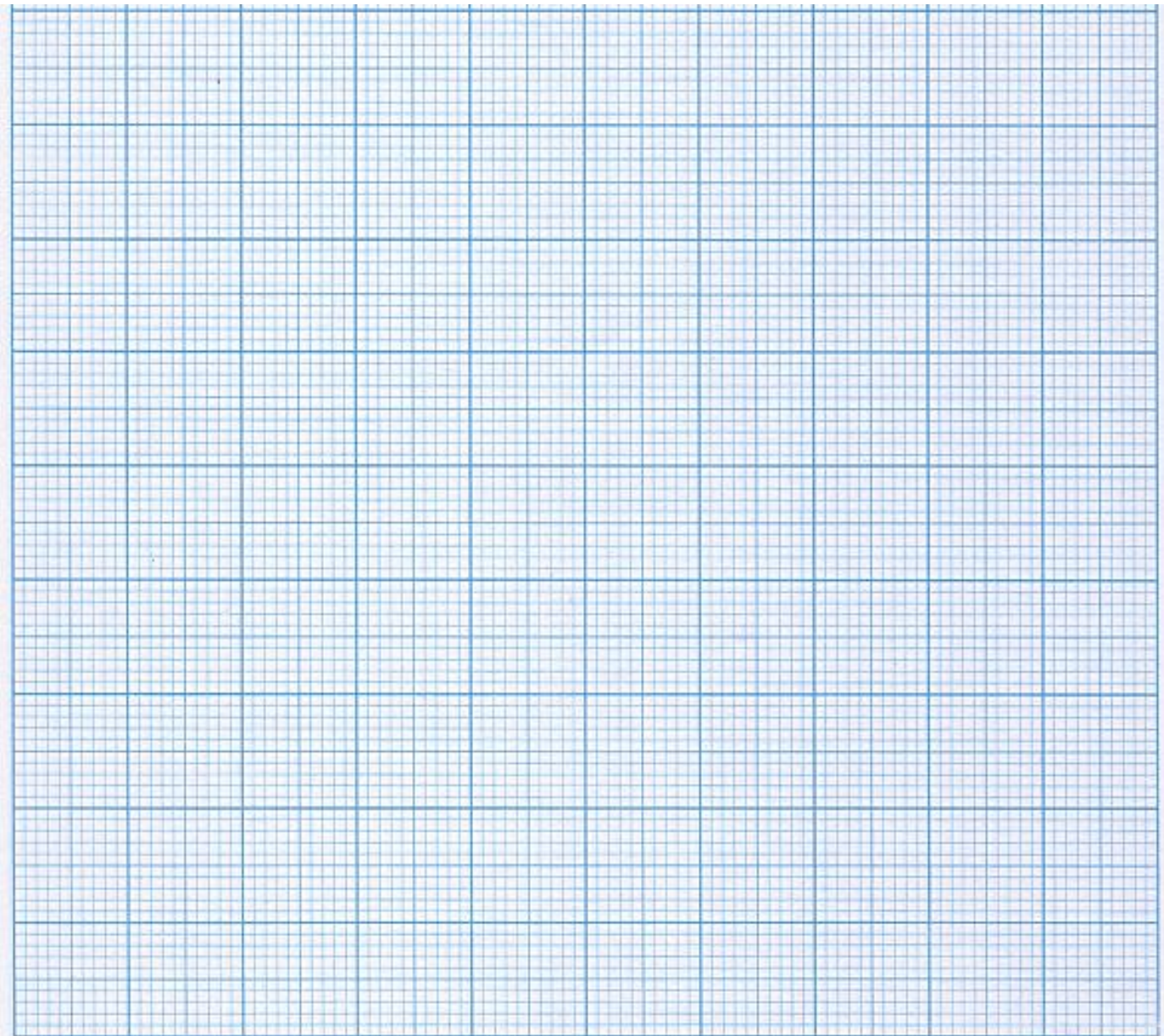
Obtaining evidence

Due to the time of the session I will provide you with some results.

Analysing your results

The best way to display your results is in the form of a graph. (Remember that all graphs should have titles and the axes should have labels and units)

Length (cm)	Potential difference (V)	Current (A)	Resistance (Ω)
100	4.71	0.08	
90	4.63	0.08	
80	4.51	0.09	
70	4.41	0.10	
60	4.26	0.12	
50	4.09	0.14	
40	3.88	0.16	
30	3.54	0.20	



Written analysis

- Describe any trends or patterns in your results. Describe what the line on the graph shows.

- What scientific knowledge can you use to explain this?

- Would you expect your graphs to go through the origin?

- Why?

- Do the results support your prediction?

- How can these results be improved?

BTEC Assignment Brief

Qualification	Pearson Level 3 Alternative Academic Qualification BTEC National in Applied Science (Extended Certificate)
Unit number and title	Induction day Resistance of a wire practical
Learning aim	To bridge some of the gap between KS4 and KS5 scientific knowledge
Assignment title	Preparation for Applied science BTEC
Assessor	Mrs S Ferrara
Issue date	June 2026
Hand in deadline	September 2026

Vocational Scenario or Context	You are a new student to the world of KS5 BTEC. Your task is to be as prepared as you possibly can be and ready to start your course in September.
--------------------------------	--

Induction day (Practical Coursework Unit 4 Resistance in wire)	In this experiment you can investigate some of the factors that affect the resistance of a metal wire, plot a graph and analyse your results.
---	---

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
D1	Evaluate the accuracy of the circuit techniques used and suggest improvements.
M1	Use a circuit to measure the variation of resistance with length of a wire.
P1	Identify variables in order to accurately measure the resistance of a wire.

Sources of information to support you with this Assignment	GCSE Physics Revision "Required Practical 3: Resistance" https://www.youtube.com/watch?v=YsZeZotYVag <i>Above is an example of a website. There are many more and you will need to access more than the suggestions above to complete this work correctly.</i>
---	---