

KS3 Resistance Investigation

Aim: The aim is to _____

Equipment:

Prediction: I predict _____

Method: Write a step-by-step method. Remember to include all of the equipment listed and describe how you would use it.

Results:

Length of Wire (cm)	Voltage (V)	Current (A)	Resistance (Ω)
20	3		
40	3		
80	3		
80	3		
100	3		



Conclusion: What did you find out from the investigation?

Which length of wire do you recommend the farming company use? Explain your answer.

Evaluation: Write about how you could improve the investigation.

To improve the investigation next time, I could...

What were the variables in this experiment?

independent variable	
dependent variable	
control variable	

What was the biggest difficulty you had with this experiment and how could you overcome it?

What would be the advantage of comparing your results with other people's?



KS3 Resistance Investigation Answers

Aim: The aim is to find the length of wire that has the least resistance.

Equipment:

1 power pack, ammeter, three circuit wires, varying lengths of copper wire (20, 40, 60, 80, 100cm), crocodile clips.

Prediction: I predict Students will have their own answers.

Method: Write a step-by-step method. Remember to include all of the equipment listed and describe how you would use it.

Student answers may vary.

Step 1 – Collect the equipment.

Step 2 – Attach two of the circuit wires to the power pack. Place the opposite end of one of the wires that are attached to the power pack into the ammeter.

Step 3 – Attach the remaining circuit wire to the ammeter.

Step 4 – Place the crocodile clips onto each end of the circuit wires that are not connected to anything.

Step 5 – Place the crocodile clips onto each end of the copper wire.

Step 6 – Set the power pack to 3V. Warning: when the power pack is switched on, the wires can become hot. Take the reading from the ammeter swiftly and then turn the power pack off. Do not leave it on as it may melt the wire.

Results: Students will have their own answers.

Length of Wire (cm)	Voltage (V)	Current (A)	Resistance (Ω)
20	3		
40	3		
80	3		
80	3		
100	3		



Conclusion: What did you find out from the investigation?

Students answers will vary. They should find that the longer the wire, the more resistance. The shorter the wire, the lower the resistance. Students should use their own results to support their answer where possible.

Which length of wire do you recommend the farming company use? Explain your answer.

Students answers will vary.

Evaluation: Write about how you could improve the investigation.

To improve the investigation next time, I could...

Students will have their own answers.

What were the variables in this experiment?

independent variable	The length of the wire.
dependent variable	The resistance in each wire.
control variable	The method and equipment.

What was the biggest difficulty you had with this experiment and how could you overcome it?

Students will have their own answers.

What would be the advantage of comparing your results with other people's?

To ensure that the results are repeatable.

