KS3 Resistance Investigation

Aim: The aim of the investigation is to... _____

Equipment: List all the equipment that you will be using in the practical today.

Prediction: I predict that in the investigation... _____

Method: Write a step-by-step method for the practical investigation. The first two steps have been completed for you.

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 – _____

Step 4 – _____

Step 5 – _____

Step 6 – _____

_____

_____

Results:

Length of Wire (cm)	Voltage (V)	Current (A)	Resistance (Ω) = Voltage (V) ÷ Current (A)
20	3		
40	3		
60	3		
80	3		
100	3		

Conclusion: Write about what you found out from the practical. Remember to use your results to support your answer.

From the practical investigation, I found out... _____

_____

_____

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

I recommend that the farming company use the _____cm wire. I have suggested this length because... _____

_____

_____

Evaluation: 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 of the investigation is to... **find the length of wire that has the least resistance.**

Equipment: List all the equipment that you will be using in the practical today.

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

Prediction: I predict that in the investigation... **Students will have their own answers.**

Method: Write a step-by-step method for the practical investigation. The first two steps have been completed for you. **Students answers may vary from below.**

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) = Voltage (V) ÷ Current (A)
20	3		
40	3		
60	3		
80	3		
100	3		

Conclusion: Write about what you found out from the practical. Remember to use your results to support your answer.

From the practical investigation, I found out... **Student's 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.

I recommend that the farming company use the _____cm wire. I have suggested this length because... **Student's answers will vary. They should suggest that the shortest wire will have the least resistance.**

Evaluation: 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.