Year 11 Science: A physics investigation: planning and processing evidence

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. A class drops a tennis ball from different heights and measures how high it bounces. Name the independent variable, the dependent variable and two controlled variables.

2. A group timed 10 swings of a pendulum as 14.2 s, 14.4 s and 12.9 s, and they think they miscounted once. Find the mean period and its uncertainty.

3. A spring's total length was measured with masses from 0 g to 300 g hung on it. The best-fit line passes through (0 g, 12.0 cm) and (300 g, 18.0 cm). Find the gradient, and say whether length is proportional to mass.

4. A class measured the current through different resistors from the same battery pack: 10 Ω gave 0.59 A, 20 Ω gave 0.30 A, 30 Ω gave 0.20 A and 40 Ω gave 0.15 A. Name the relationship and give the evidence.

5. Explain why timing 10 swings and dividing by 10 gives a better period than timing one swing.

Fix the mistake

6. Correct this statement: "Joining each point to the next with a ruler to make a zigzag graph."

7. Correct this statement: "The graph goes up in a straight line, so the quantities are proportional."

8. Correct this statement: "Averaging all three repeats, including the reading that was clearly a mistake."

9. Correct this statement: "Gradient = 4.0, with no unit."