Year 11 Science: Combining approaches: one stream investigated three ways

Name: _____ Date: _____

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

Practice

1. Three repeats of a fair test give 12 mg, 14 mg and 13 mg of algae. Find the mean.

2. A stream has an MCI of 104. Which class is it in?

3. A class identifies 12 kinds of invertebrate, and 3 of them are EPT kinds. Work out the percentage of EPT kinds.

4. In the fertiliser test, which jars are the control, and what are they for?

5. Give one thing the council data could not tell the class, which their own classifying and identifying could.

6. Write one sentence that links the pattern seeking and the classifying and identifying, with evidence, as an Excellence answer would.

Fix the mistake

7. Correct this statement: "My controlled variable is the amount of fertiliser."

8. Correct this statement: "I included the odd jar in the mean so all my data counts."

9. Correct this statement: "The fair test proves fertiliser is what is wrong with the stream."

10. Correct this statement: "For Excellence I wrote a summary of each investigation again."

Answer key (for parents and tutors)

1. Three repeats of a fair test give 12 mg, 14 mg and 13 mg of algae. Find the mean.
   (12 + 14 + 13) ÷ 3 = 13 mg.
2. A stream has an MCI of 104. Which class is it in?
   Good (100 to 119).
3. A class identifies 12 kinds of invertebrate, and 3 of them are EPT kinds. Work out the percentage of EPT kinds.
   3 ÷ 12 × 100 = 25%.
4. In the fertiliser test, which jars are the control, and what are they for?
   The 0-drop jars; they show how much algae grows from the stream water alone, so the extra growth in the other jars can be put down to the fertiliser.
5. Give one thing the council data could not tell the class, which their own classifying and identifying could.
   How healthy their own stream is: which animals actually live in it, and its own MCI.
6. Write one sentence that links the pattern seeking and the classifying and identifying, with evidence, as an Excellence answer would.
   For example: the council data showed urban streams score as low as 37, which led us to check our own urban stream, and its MCI of 86 with only 22% EPT kinds confirmed it follows the same pattern.
7. Correct this statement: "My controlled variable is the amount of fertiliser."
   That is the independent variable, the one you change; controlled variables are kept the same, such as water volume, light and temperature.
8. Correct this statement: "I included the odd jar in the mean so all my data counts."
   If a result is far from its repeats and you can find why (the jar was moved into the sun), leave it out of the mean and say so.
9. Correct this statement: "The fair test proves fertiliser is what is wrong with the stream."
   It shows nutrients increase algae in jars; to claim it for the stream you need nutrient readings from the stream itself.
10. Correct this statement: "For Excellence I wrote a summary of each investigation again."
    Excellence analyses the links: how one finding led to, supported or limited another, with evidence from each.