Reading and Interpreting a Scientific Investigation – Life Sciences

THE ANSWER SERIES *Your Key to Exam Success*

Introductory information
Creates background and connection to curricular content and may give hints with regards to interpretation of questions.

Procedure
Detailed steps on how the investigation was conducted, e.g.:
- Sample size
- Duration
- Constant variables
- How measurements were taken

Sample size
Number of participants.
A larger sample is more reliable.

Results
Provided in table, graph or paragraph form.
Look for a relationship or trend between the two variables.

General TIPS and TRICKS
Use a highlighter when reading the question to indicate the constant variables.

Look out for large sample sizes/many groups or repetition in the procedure section to check how reliability was ensured.

People with Type I diabetes mellitus are usually insulin-dependent (must inject insulin to control their blood glucose levels). It has been determined that these people also lose their ability to secrete glucagon within five years of being diagnosed and they become glucagon deficient. During a stressful situation adrenalin is secreted, which has the same effect as glucagon on the blood glucose levels.

An investigation was conducted **to** determine the influence of **adrenalin** on the **blood glucose levels** of Type I diabetics who were also glucagon deficient.

The investigation was conducted as follows:

- **100 male patients** with Type I diabetes mellitus, who were also glucagon deficient, participated in the investigation.
- They were then given the same amount of food and water at the same time for a period of three days.
- Their blood glucose levels were measured on the third day.
- A solution with a low concentration of adrenalin was then administered intravenously (injected).
- After 20 minutes, the blood glucose level was measured again.
- The blood glucose levels before and after administering adrenalin were compared.

The results are shown in the table below.

BLOOD GLUCOSE LEVEL mg/dl	
BEFORE ADRENALIN	AFTER ADRENALIN
126	136

Aim of the investigation
Look for a '**TO**' i.e. '**to** determine…' , '**to** investigate…' , '**to** compare… '
The aim contains both variables and can be used for the hypothesis, variables and conclusion.

Dependent variable
the variable that is **measured**

Independent variable
the variable that is **manipulated**

Constant variables
Factors that were kept the same. This ensures that the investigation is valid.
IMPORTANT: These factors are noted here, but there may be other factors that **should also be kept constant**.

General TIPS and TRICKS
If a question asks for variables that **were kept constant** (past tense) – use the variables provided in the question.

If a question asks for variables that **should have been kept constant** (future tense) – suggest other factors that have NOT been mentioned.