Table summarizing examples of the three variables and the areas where they can be applied.

Area	Dependent variable	Independent variable	Controlled variable
Food test	Not applicable	Not applicable	Not applicable
Diffusion	Rate of diffusion	All factors that affect the rate of diffusion e.g. temperature, size of the molecules, etc.	- Amount of water must be controlled such that it does not affect the dependent variable.
Osmosis	Change in length, mass of the potato cylinder Texture/size of the tissue cylinder.	Time for which the experiment is run.	- Amount of the solution used during the experiment. - Size of the tissue cylinder used - Surface area of the tissue cylinder
Enzyme activity In enzyme-controlled reaction, the effect of all variables can be determined by changing a single variable and measuring its effect on rate of reaction	Rate of reaction	Ph	Substrate concentration, enzyme concentration and temperature
Soil properties	All properties of soil e.g. soil Ph, water retention capacity, soil capillarity, humus content of the soil, air content of the soil etc.	Type of soil	Temperature, soil texture

Note: The mnemonics below can help summarize the above method of scientific investigation to ease in memorizing the steps that are involved during the scientific investigation.

At - Aim
Various - Variables
Hospitals - Hypothesis
Little - List of apparatus and materials
Prosy - Procedure
Prepare - Presentation of data
Animal - Analysis of data/explanation/interpretation
Concentrate - Conclusion from the investigation, recommendation and advice

In summary, the scientific method of investigation in P553/2/3 biology paper 2/3 item 1 will be scored and given the code as in the table below.

Skill	Code	Total score
1. Aim 2. Hypothesis (derived from the aim) and can either be positive or negative 3. Variables that is Dependent variable Independent variable Controlled variable NB: variable must be fully stated for the item taker to get 1 (one score) 4. List of apparatus and materials NB: 1- 4 will be scored and given their code as P_1, P_2, P_3, P_4 respectively	In general, 1- 4 is how you are planning to carry out your investigation So, it will be scored and coded as P	So, the total scores for planning, P^{max} will be 4 scores but in case the experiment has no variable, P^{max} will be 3 scores
5. Procedure In procedure, the examiners will check; i) Relevancy of your procedure ii) Correctness of your procedure iii) Coherence of your procedure iv) Control of variables in your procedure NB: (i) – (iv) will be scored and given their code as C_1, C_2, C_3, C_4 respectively	In general, (i) - (iv) is how logically and chronologically you are making your procedure to flow, so it will be scored and coded as C	So, the total scores for procedure, C^{max} will be 4 scores
6. Data/Results: the examiners will check; i) Presentation of results ii) Appropriateness, Correctness and accuracy of your results	In general, 6 will be coded as D	So, (i) and (ii) will have 2 scores each meaning that the total scores for data/results, D^{max} will be 4 scores.
7. Analysis/interpretation/explanation 8. Conclusion, recommendation and advice and here negative test or results will need more of recommendation and may be common in exams than positive test or results.	7 and 8 will be scored and coded as A/R	So, total scores for Analysis and recommendation, A/R^{max} will be 4 scores

NB: For examiners, P, C, D, A/R will be used as a scoring guide for item 1
For item 2, P553/2/3 Biology paper 2/3, item 2 will be scored and given the code as in the table below.

Skill	code	Total score
a)(i) (ii) (i) and (ii), identification The examiners will demand: kingdom, phylum and class then the reasons for identification and this the learner will be required to give relevant features for identification	In general, i) and ii) will be scored and coded as I_1	The total scores for I_1 will be 2 scores
b) Adaptation the examiners will look for structural adaptation of the specimen to ensure survival or function and this will check for understanding of the learner	In general, b) will be scored and coded as U_2	The total scores for U_2 will be 6 scores. 3 scores will go for relevant features to ensure survival/function 3 scores will go for explanation
c) Drawing and labelling the examiner will award scores for: T - title, M - magnification, N - neatness, A - accuracy, and O - outline of your drawing	In general, c) will be scored and coded as U_2	The total scores will be 6 scores So, T and M = 01 score N = 02 scores A and O = 03

NB: It is not a must that the total scores for Biology practical paper must be 30 scores because examiners are always flexible during the scoring process so take note of this since anything may happen. And this will not affect the performance of the learners since even if it is to be scored out of 10, it will still be scaled down to 3 meaning there is no difference.

Note that: This latest update, more of it has been captured in the new edition 2024 for both biology and chemistry so next year don't hesitate to make your order for more concerning practical books for the two subjects.
Thanks. I remain Mr. Eyen Emmanuel author of the book title based on experimental learning I hear, I forget, I see, I remember, I do and I understand.