BIOLOGY TRAINNING

ASSESSMENT OF BIOLOGY UNDER THE NEW LOWER SECONDARY CURRICULUM

Design of assessment will rely on the new curriculum syllabus

Assessment Reforms

Assessment Tools

i).**Content frame work** (checking competences, skills derived from Learning outcomes in the syllabus).

ii). **Test frame work** (to indicate the selected competences and mainly the element of construct to be assessed, 5-for theory paper and 2-for practical paper)

Paper 553/1 to have 7 test items, 3 test items section A and 4 items where a learner attempts 2

553/2 2 items which are compulsory

iii). And item specification table (shows the characteristics of items you are setting)

No longer questions but they are called items

iv). The scenario based item (both section A, or B)

Section A, constructed type of response tests,

i). Type of response

ii). Direction of response,

iii). Context of response/scenario

iv). The Time required to answer

v). Levels of ability

vi). Element of construct & and competences

NB. Scenarios should not deviate or make learners deviate from Biology

SCORING TOOLS

i). Assessment criteria

Contains

a). Basis of assessments

b). Level of performance (3,2,1,0)

c). Criteria (output)

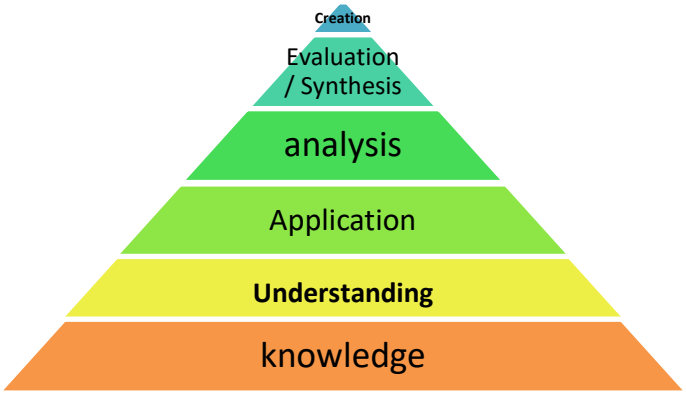
ii). Scoring guide (NB. No answers but they are called Responses)

a). Expected responses (multiple correct response)

CONTENT FRAME WORK

Purpose: Distributes all competences as derived from learning outcomes in the syllabus

NB. Competences are well distributed at different level of demand according to the revised "blooms Taxonomy"



REVISED BLOOMS' TAXONOMY (K,U,S,V,A)

1.	Theme; Topic:	Low level (**K,U)** K: Knowledge, recall of what was learnt U: Understands and can describe a scientific phenomena	Medium level (**AL,AN**) AL: Application of knowledge in learning process AN: Application of knowledge in new situation	High level (Ev/C) Ev: Evaluation C: Creation
2.	Diversity of Living things i). Introduction to Biology	a). Appreciates that. i). -Biology is the study of life **(K)** ii). -Life process are common to all living things, but they are manifested in different organisms differently **(U)**	b). Applies biology in day to day life(**AL,AN**) Scenario based situation	
3.	Diversity of living things ii).			

THEMES 12

TOPICS 36

Levels of ability

Scientific report as a product of investigation is a skill, whenever they tell learners to perform investigations or experiments

PRACTICAL/ learners should write the following

- Aim
- Hypothesis
- Variable
- List of requirement/planning
- Procedure
- Observation/Results
- Discussion of results/explanation
- Conclusion

Purpose

i) Indicate the element of construct to be assessed

ii) Provide competence to be assessed the element of construct

iii) Shows the highest level of demand for the items (4&5, AN/AL).

ELEMENTS OF CONSTRUCT (THE 5 ELEMENTS OF CONSTRUCT)

THEORY; P553/1

Element of construct one

Appreciates diversity of living things and sustainability of natural resources

Element of construct two

Understands how plants obtain and use nutrients to meet their requirements during which raw materials and products are carried to and from various organs involved

Element of construct three

Understands how mammals obtain and use nutrients to meet their energy requirements during which raw materials and products are carried to and from various organs involved

Elements of construct four

Appreciates how human body, coordinates various activities and adjust, to ensure normal functioning of body systems

Element of construct five

Appreciates how characteristics are inherited in living organisms passed to generations through, reproduction and manifested as organisms grow

BASIS OF ASSESSMENT OF ITEM EOC 2/ITEM 1

Element of construct	Basis	Criteria	Level of performance			
			03	02	01	00
Understands how plants obtain and use nutrients to their requirements during which raw materials and products are carried to	Organs/structures/processes involved and the challenges (s) in the context	Mentions organs/structures/processes involved	Mentions at least three organs/structures/ processes involved	Mentions at least two organs/structures/processes involved	Mentions at least one organs/structures/processes involved	Does not mention any (incorrect) organs/structures/ processes involved
		Identifies challenges in context	Identifies at least three challenges in context	Identifies at least two challenges in context	Identifies at least one challenges in context	Does not identify any (incorrect) organs/structures/ processes involved
	The roles/functions of different structures or processes involved	Explains roles/function of different structures or processes involved	Explains at least three roles/functions of different structures or processes involved	Explains at least two roles/functions of different structures or processes involved	Explains at least one roles/functions of different structures or processes involved	Doesn't explain any (incorrect) roles/functions of different structures or processes involved
	How (the plant overcomes or the processes which help in overcoming) the challenge	States how plants/ the activities that overcomes the challenge	States solution(s) to at least three challenges identified.	States solution(s) to at least two challenges identified.	States solution(s) to at least one challenges identified.	States no (or incorrect) solution(s) to challenges identified.
		Explains the role of the processes involved in overcoming the challenge	Explains the role of at least three processes involved in overcoming the challenge.	Explains the role of at least two processes involved in overcoming the challenge.	Explains the role of at least one processes involved in overcoming the challenge.	Explains incorrect/ mentions no processes involved in overcoming the challenge.

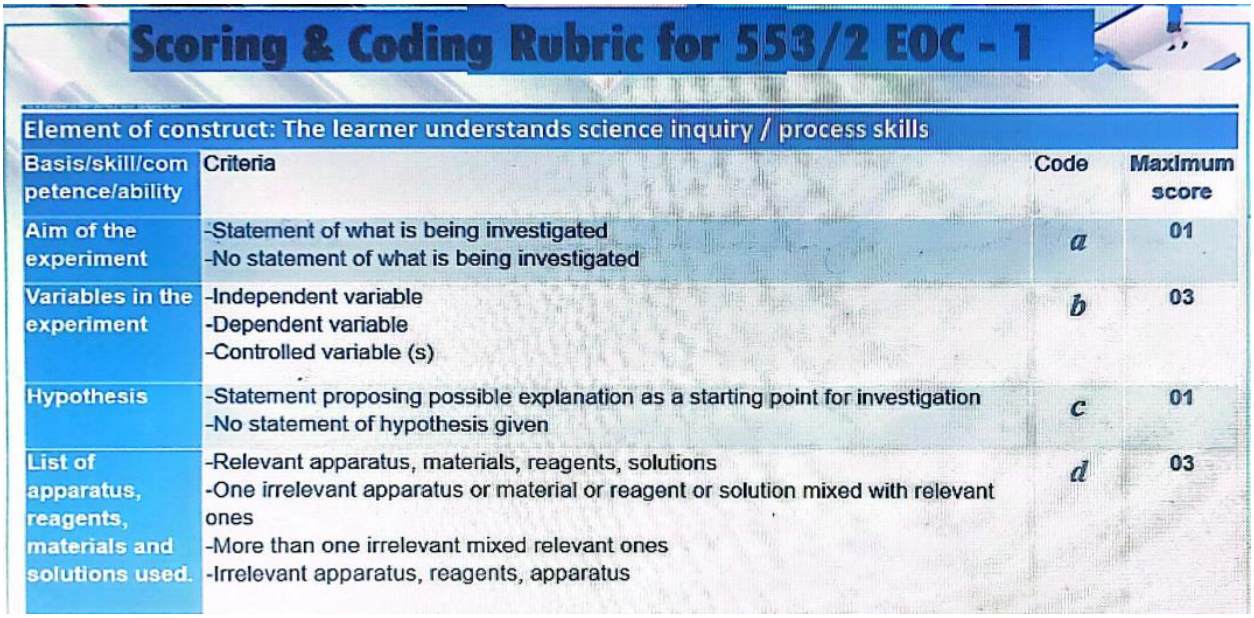
PRACTICAL: P553/2

Element of construct two

Appreciates Science inquire Skills in biology (Learners respond by making Reports)

Element of construct two

Understands structure and function of parts in organisms



Scoring & Coding Rubric for 553/2 EOC - 1

Element of construct: The learner understands science inquiry / process skills

Basis/skill/competence/ability	Criteria	Code	Maximum score
Aim of the experiment	-Statement of what is being investigated -No statement of what is being investigated	*a*	01
Variables in the experiment	-Independent variable -Dependent variable -Controlled variable (s)	*b*	03
Hypothesis	-Statement proposing possible explanation as a starting point for investigation -No statement of hypothesis given	*c*	01
List of apparatus, reagents, materials and solutions used.	-Relevant apparatus, materials, reagents, solutions -One irrelevant apparatus or material or reagent or solution mixed with relevant ones -More than one irrelevant mixed relevant ones -Irrelevant apparatus, reagents, apparatus	*d*	03

P553/1 Paper format

Section A

Attempt all questions from this section

Items will be set from the following Elements of construct (scenario questions)

EOC 2

1.

EOC 4

2.

EOC 5

3.

SECTION B

Learners Attempt two items from this Section each from a different Part

PART A (EOC3)

Choose and Respond to only one item

1.

2.

PART B (EOC 1)

Choose and Respond to only one item

1.

2.

P553/2 PRACTICALS

Sample Practical item 1

Item 1

A farmer would like to buy land to plant rice. Rice mostly grows well in water logged soils. She has two plots of land that have been suggested to her to make a choice. You are provided with soil sample A and B collected from the two plots.

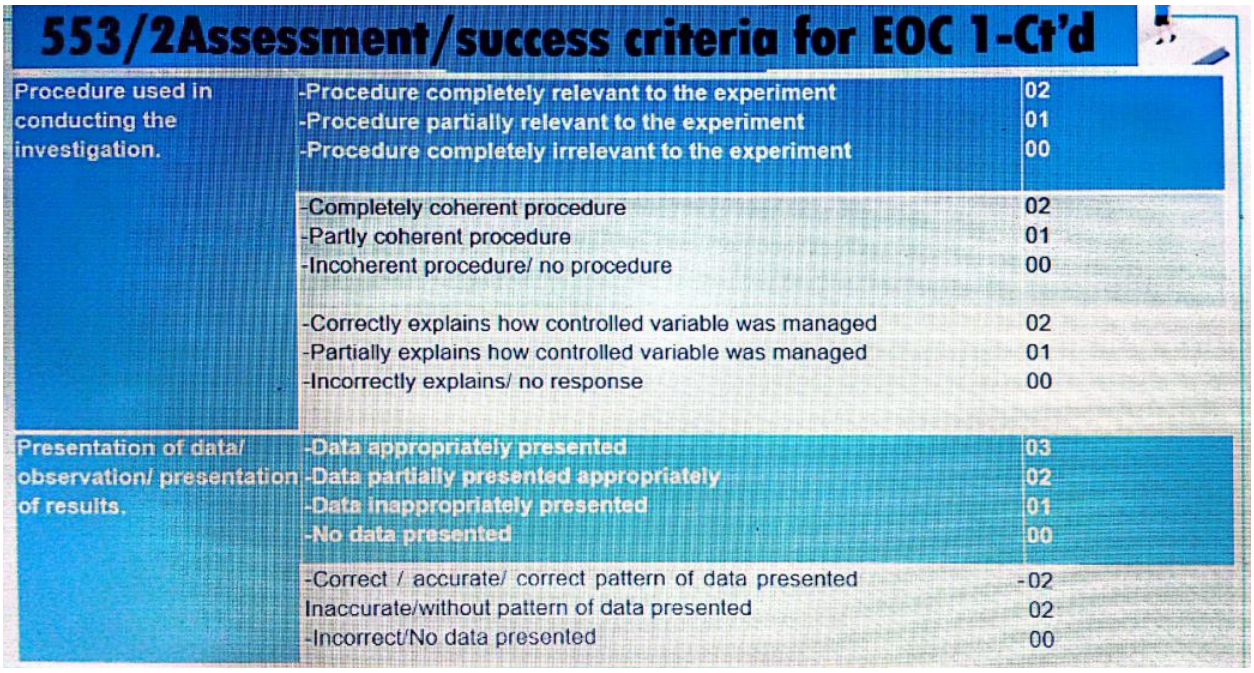
Task.

Carry out a scientific investigation on the soil samples to recommended the best plot for the farmer

Aim.
Hypothesis.
Variables
List of requirements
Procedure
Observations/results
Explanation/deduction/discussion of results.
Conclusion/recommendation

553/2Assessment/success criteria for EOC 1

Basis/skill/ competences	Criteria	Level of performance
Aim of the experiment	-Statement of what is being investigated -No statement of what is being investigated	01 00
Variables in the experiment	-Independent variable -Dependent variable -Controlled variable (s) *where necessary	01 01 01
Hypothesis	-Statement proposing possible explanation as a starting point for investigation -No statement of hypothesis given	01 00
List of apparatus, reagents, materials and solutions used.	-Relevant apparatus, materials, reagents, solutions for the experiment -One irrelevant apparatus or material or reagent or solution mixed with relevant ones -More than one irrelevant mixed relevant ones -Irrelevant apparatus, reagents, apparatus	03 02 01 00



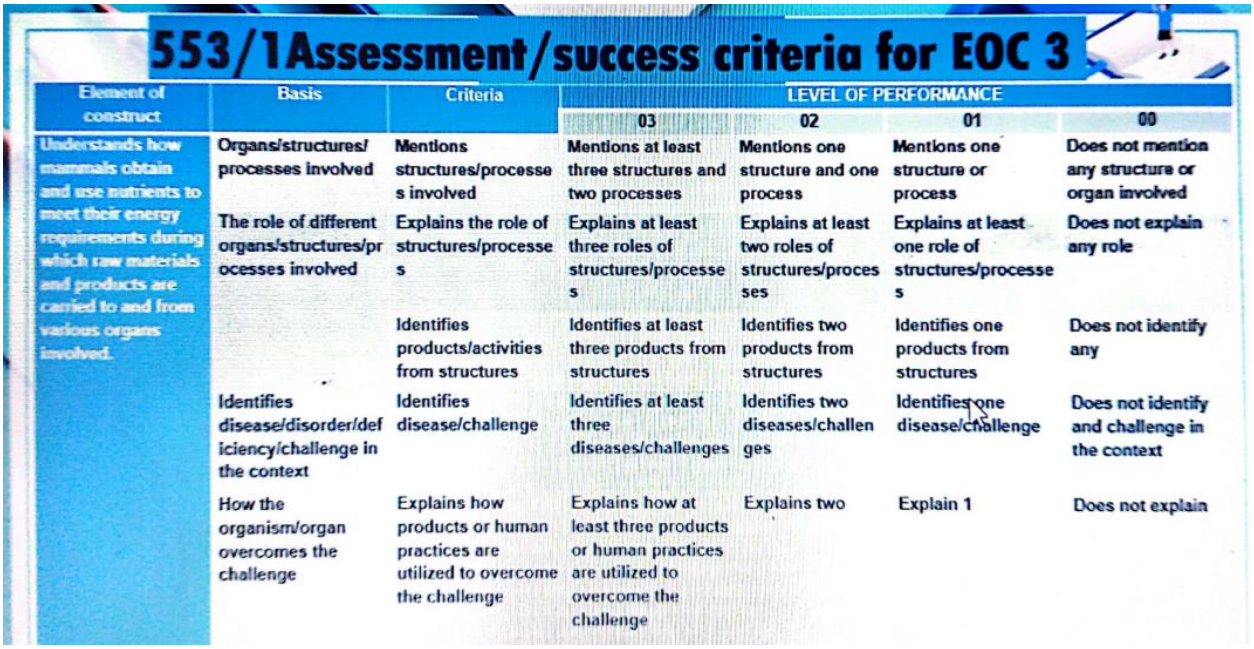
553/2Assessment/success criteria for EOC 1-Ct'd

Procedure used in conducting the investigation.	-Procedure completely relevant to the experiment -Procedure partially relevant to the experiment -Procedure completely irrelevant to the experiment	02 01 00
	-Completely coherent procedure -Partly coherent procedure -Incoherent procedure/ no procedure	02 01 00
	-Correctly explains how controlled variable was managed -Partially explains how controlled variable was managed -Incorrectly explains/ no response	02 01 00
Presentation of data/ observation/ presentation of results.	-Data appropriately presented -Data partially presented appropriately -Data inappropriately presented -No data presented	03 02 01 00
	-Correct / accurate/ correct pattern of data presented Inaccurate/without pattern of data presented -Incorrect/No data presented	-02 02 00

PART A (EO1)

1. Test Item one
   Response must have

- Aim(The aim of the experiment/investigation should clearly stated)
- Hypothesis (Null or Alternative hypothesis)
- Variables (independent variable, Dependent variable, and "controlled variable if applicable")
- List of requirement/planning (apparatus, items to be tested etc)
- Procedure (a well written procedure should be stated)
- Observation/Results
- Discussion of results/explanation (Appropriate presentation, correctness and accuracy of results)
- Conclusion



553/1Assessment/success criteria for EOC 3

Element of construct	Basis	Criteria	LEVEL OF PERFORMANCE			
			03	02	01	00
Understands how mammals obtain and use nutrients to meet their energy requirements during which raw materials and products are carried to and from various organs involved.	Organs/structures/ processes involved	Mentions structures/processes involved	Mentions at least three structures and two processes	Mentions one structure and one process	Mentions one structure or process	Does not mention any structure or organ involved
	The role of different organs/structures/processes involved	Explains the role of structures/processes	Explains at least three roles of structures/processes	Explains at least two roles of structures/processes	Explains at least one role of structures/processes	Does not explain any role
		Identifies products/activities from structures	Identifies at least three products from structures	Identifies two products from structures	Identifies one products from structures	Does not identify any
	Identifies disease/disorder/deficiency/challenge in the context	Identifies disease/challenge	Identifies at least three diseases/challenges	Identifies two diseases/challenges	Identifies one disease/challenge	Does not identify and challenge in the context
	How the organism/organ overcomes the challenge	Explains how products or human practices are utilized to overcome the challenge	Explains how at least three products or human practices are utilized to overcome the challenge	Explains two	Explain 1	Does not explain

PART B (EO2)

2. Test item 2 structure and function of parts of organisms

Assessment tool

a				
b				
c				
d				
e				
f				
g				
h				

ELEMENT OF CONSTRUCT	BASIS	CRITERIA	CODE	MAX. SCORE
Understands how mammals obtain and use nutrients to meet their energy requirements during which raw materials and products are carried to and from various organs involved.	Organs/structures/ processes involved	Mentions structures/processes involved	a	03
	The role of different organs/structures/processes involved	Explains the role of structures/processes	b	03
		Identifies products/activities from structures	c	03
	Identifies disease/disorder/deficiency/challenge in the context	Identifies disease/challenge	d	03
	How the organism/organ overcomes the challenge	Explains how products or human practices are utilized to overcome the challenge	e	03