



<u>FACULTY</u>	: Education
<u>DEPARTMENT</u>	: Childhood Education
<u>CAMPUS</u>	: SWC
<u>MODULE</u>	: TEACHING METHODOLOGY AND PRACTICUM: SCIENCE AND TECHNOLOGY (MPSCTB3)
<u>SEMESTER</u>	: Second
<u>EXAM</u>	: November 2020

<u>ASSESSOR(S)</u>	: MRS M PENN		
<u>MODERATOR</u>	: MR ML MOLAOI (UJ)		
<u>DURATION</u>	: Take-home Exam	<u>MARKS</u>	: 100

NUMBER OF PAGES: 5 PAGES

INSTRUCTIONS:

1. Answer ALL THE QUESTIONS.
 2. Number your answers clearly.
 3. This paper will be released on blackboard in the assessment folder 48 hours before the due date of submission.
 4. Your work should be typed in Times New Romans/Arial font, 1.5 spacing and must include a cover page with your details.
 5. A declaration of authenticity must be submitted with your exam submission.
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QUESTION 1: The curriculum and Lesson planning

The Natural Sciences and Technology Curriculum and Assessment Policy Statement (CAPS) aims to provide learners with opportunities learn science and technology holistically. There are three specific aims in the Natural Sciences and Technology CAPS document.

- 1.1 State the three (3) specific aims of the curriculum (3)
- 1.2 Describe three (3) learning objectives that you will use in achieving the above stated aims when teaching any aspect of the topic “electricity” in grade 6. (6)
- 1.3 Plan a lesson using any Natural Sciences and Technology topic of your choice by answering the following questions below. (See checklist in Appendix A for guidelines).
 - 1.3.1. What is the main aim of the lesson? (1)
 - 1.3.2. What is the central question(s) that the lesson will answer? (1)
 - 1.3.3. Write at least three (3) learning objectives for the lesson. (3)
 - 1.3.4. State three (3) questions that you will pose to ascertain learners’ prior knowledge. (3)
 - 1.3.5. State at three (3) teaching and three (3) learning activities that the teacher and learners will engage in during the interactive phase of the lesson. (6)
 - 1.3.6. Write down three (3) main questions you will use to assess the attainment of learning objectives. (3)
 - 1.3.7. Describe the activity/ies you will use in concluding and consolidating your lesson. (4)

[30]

QUESTION 2: Pedagogical Content Knowledge

PCK is “the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organised, represented, and adapted to the diverse interests and abilities of the students, and presented for instruction” (Shulman, 1987, p. 8).

2.1 Explain the seven (7) types of basic knowledge that a teacher must have. (14)

2.2 Inquiry-based learning is primarily a pedagogical approach, developed during the discovery-learning era of the 1960s as a response to traditional forms of instruction—where people were required to memorise information from instructional materials (Bruner, 1961).

Critically discuss the learning processes learners engage in during inquiry-based learning. (16)

[30]

Question 3: Designing and integrating teaching resources

In the advent of the fourth industrial revolution, an era where “man and machine are becoming one”, it is important that teachers are trained on how to use relevant Information and Communication Technologies (ICTs) to facilitate the science learning for classrooms of the future.

3.1 Critically discuss some of the reasons for the strong emphasis on ICT integration in science education. (10)

3.2 Discuss the challenges associated with ICT integration. (10)

[20]

Question 4: Assessment

Assessment is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what learners know, understand, and can do with their knowledge as a result of educational

experiences; the process culminates when assessment results are used to improve subsequent learning. (*Huba & Freed, 2000*)

4.1 Explain how to use the following types of assessments as they apply to the teaching of Natural Sciences and Technology in grade 6.

4.1.1. Diagnostic assessments.

4.1.2. Baseline assessments.

4.1.3 Systemic assessments. (12)

4.2 Explain four (4) principles of a good assessment. (8)

[20]

TOTAL: 100

Appendix A: LESSON PLAN EVALUATION CHECKLIST

Aspects of the lesson plan	Mark allocated
Main aim of the lesson in relation to the topic should be clearly stated	1 mark
Central question (s) that the lesson should be related to the aim and have.	1 mark
SMART lesson objectives (related to the topic) For the Knowledge domain, the hands-on domain and the affective domain are accurately stated using verbs according to orders of the revised Bloom's taxonomy like define, discuss, describe, analyse, explain, justify, etc	3 marks
Three clear questions that will provoke learners' baseline or prior	3 marks

knowledge are clearly written out.	
State three (3) teaching and three (3) learning activities that the teacher and learners will engage in during the interactive phase of the lesson. Activities should work toward the attainment of lesson objectives.	6 marks
Three (3) main questions that will assess attainment of each of the learning objectives of the lesson.	3 marks
A detailed description of the activity/ies you will use in concluding and consolidating your lesson.	4 marks

*****The marking of extract lesson plans using this checklist is primarily to establish students' are able to identify the main activities that must be achieved in planning the lesson. A mark of 0.5 may be allocated in instances where the student provides a partial response and 0 mark for those sections that are not completed. In the case of assessments, higher other questioning should be evident.***

Total (21 Marks)