education

Department of Education
REPUBLIC OF SOUTH AFRICA

NATIONAL CURRICULUM STATEMENT GRADES 10-12

SUBJECT: PHYSICAL SCIENCES

TEACHER TRAINING MANUAL 2006

CONTENTS

PROGRAMME

PERIOD: Monday to Friday

DURATION: 36 – 37 hours

5-DAY PROGRAMME FOR TEACHERS-

SESSION	ACTIVITY	TIME	DAY
1. Introducing the National Curriculum Statement (NCS) and the National Senior Certificate (NSC)	Activity 1: Introduction of participants	08:30 – 08:45	Monday
	Activity 2: Overview of the week	08:45 – 09:00	
	Activity 3: Introduction to the NCS and NSC	09:00 – 10:30	
	TEA BREAK	10:30 – 11:00	
1. Introducing the National Curriculum Statement (NCS) and the National Senior Certificate (NSC)	Activity 3: Introduction to the NCS and NSC	11:00 – 12:00	Monday
2. Introducing the Subject Statement	Activity 1: Introduction to Physical Science	12:00 – 13:00	Monday
	LUNCH BREAK	13:00 – 14:00	
2. Introducing the Subject Statement	Activity 1: Introduction to Physical Science	14:00 – 15:00	Monday
	Activity 2: Learning Outcomes and Assessment Standards	15:00 – 15:30	
	TEA BREAK	15:30 –16:00	
2. Introducing the Subject Statement	Activity 2: Learning Outcomes and Assessment Standards	16:00 – 18:30	Monday
2. Introducing the Subject Statement	Activity 3: Content and Context for attaining Assessment Standards	08:30 – 10:30	Tuesday
	TEA BREAK	10:30 – 11:00	
2. Introducing the Subject Statement	Activity 3 Cont.	11:00 –13:00	Tuesday
	LUNCH BREAK	13:00 – 14:00	
2. Introducing the Subject Statement	Activity 3 Cont.	14:00 – 15:30	Tuesday
	TEA BREAK	15:30 – 16:00	
2. Introducing the Subject Statement	Activity 4	16:00 – 18:00	Tuesday
2. Introducing the Subject Statement	Activity 4 Cont.	08:30 – 10:30	Wednesday
	TEA BREAK	10:30 – 11:00	
2. Introducing the Subject Statement	Activity 4 Cont.	11:00 – 13:00	Wednesday
	LUNCH BREAK	13:00 – 14:00	
2. Introducing the Subject Statement	Activity 4 Cont.	13:00 – 15:30	Wednesday
	TEA BREAK	15:30 – 16:00	
2. Introducing the Subject Statement	Activity 4 Cont.	16:00 – 17:30	Wednesday

3. Planning for teaching subjects in the NCS	Activity 1: Introduction to the planning cycle	08:30 – 09:00	Thursday
TEA BREAK 10:00 – 10:30			
3. Planning for teaching subjects in the NCS	Activity 2: Introduction to the Grade 11 Work Schedule	10:30 – 11:30	Thursday
	Activity 3: Critique the Grade 11 Work Schedule	11:30 – 13:00	
LUNCH BREAK 13:00 – 14:00			
3. Planning for teaching subjects in the NCS	Activity 3: Cont.	14:00 – 15:30	Thursday
TEA BREAK 15:30 – 16:00			
3. Planning for teaching subjects in the NCS	Activity 3: Cont.	16:00 – 17:30	Thursday
3. Planning for teaching subjects in the NCS	Activity 4: Report back	08:00 – 09:00	Friday
	Activity 5: Development of the first Lesson Plan for Grade 11	09:00 – 10:00	
TEA BREAK 10:00 – 10:30			
4. Annual assessment plan	Activity 1: introduction to Assessment in the NCS	10:30 – 10:45	Friday
	Activity 2: Programme of Assessment for Grade 10 and 11	10:45 – 12:00	
	Activity 3: Development of A grade 11 annual Assessment Plan	12:00 – 13:00	
LUNCH BREAK 13:00 – 14:00			

SESSION 1

Introducing the National Curriculum Statement (NCS) and the National Senior Certificate (NSC) (3-4 hours)

ACTIVITY 1: INTRODUCTIONS
Time Allocation: 15 minutes

- Facilitators and participants will be introduced.

ACTIVITY 2: OVERVIEW OF THE WEEK OF TRAINING / DOCUMENTS PROVIDED
Time Allocation: 30 minutes

FORM OF ACTIVITY: Presentation

RESOURCES: The 5-day training programme (PowerPoint)
A hard copy of each document referred to-

- National Senior Certificate Policy
- Subject Statement
- Subject Assessment Guidelines
- Learning Programme Guidelines
- National Protocol on Assessment
- Higher Education admission requirements

CONTENT:

- Training programme for the week and house rules
- Documents making up the National Curriculum Statement policy and documents supporting the National Curriculum Statement policy – purpose and status of each

ACTIVITY 3: INTRODUCTION TO THE NCS AND NSC
Time Allocation: 2 hours 15 minutes

Part 1

FORM OF ACTIVITY: Test and discussion

RESOURCES: PowerPoint Presentation, Laptop, and Data Projector

CONTENT:

- Focusing on the NCS and NSC

INSTRUCTIONS:

- Use the work sheet in Appendix 1 to answer the following questions.
- Discussion.

Part 2: **NCS and NSC**

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, a hard copy of each document referred to in the presentation-

- National Senior Certificate Policy
- Subject Statement
- Subject Assessment Guidelines
- Learning Programme Guidelines
- National Protocol on Assessment

CONTENT:

- Overview of the NCS, including principles and Critical and Developmental Outcomes
- National Senior Certificate: Requirements, structure and details

Part 3: **Requirements for Higher Education study**

FORM OF ACTIVITY: Open-book and presentation

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, HE admission requirement

CONTENT:

- Requirements for certificate, diploma and degree programmes

INSTRUCTIONS:

Introduction

- The facilitator will introduce the activity

Open-book activity

- Refer to Appendix 1
- Report back
- Discussion

SESSION 2 –

Introducing the Subject Statement (20 hours)

ACTIVITY 1: INTRODUCTION TO PHYSICAL SCIENCE

Time Allocation: 2 hours

Presentation:	20 minutes
Group Discussions:	45 minutes
Report back from each group:	45 minutes
Facilitator's wrap up:	10 minutes

FORM OF ACTIVITY: Presentation, group discussions, and report back.

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, and Subject Statement.

CONTENT:

- Overview of the subject: Definition, purpose and scope of the subject, and its origin.
- Learning Outcomes (LOs) for the subject.
- Critical Outcomes (COs) and Developmental Outcomes (DOs)

INSTRUCTIONS:

- Refer to pages 14-15 of the Subject Statement and discuss the relationship between Physical Sciences Learning Outcomes and Critical and Developmental outcomes.
- Discussion

ACTIVITY 2: LEARNING OUTCOMES AND ASSESSMENT STANDARDS FOR PHYSICAL SCIENCE

Time Allocation: 3 hours

Presentation:	20 minutes
Group Discussions:	1 hour 30 minutes
Report back from each group:	1 hour
Facilitator's wrap up:	10 minutes

FORM OF ACTIVITY: Presentation, analysis, group discussions, and report back.

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, Learning Programme Guidelines, and Syllabus

CONTENT:

- Learning Outcomes.
- Assessment Standards.

INSTRUCTIONS:

Part 1

- Divide into groups.
- Discuss the emphasis of each Learning Outcome.
- Discuss how the Learning Outcomes are related to each other.
- What is the best approach in teaching and learning the LOs?
- Report.
- Discussions.

Part 2

- Divide into groups.
- You are Allocated Assessment Standards per grade.
- Use templates in Appendix 2 to analyse the Assessment Standards by listing Skills, Knowledge and Values imbedded there in.
- On the same Appendix indicate progression of the Assessment Standards (skills, Knowledge and values) from one grade to another
- Report at plenary
- Discussions.

ACTIVITY 3: CONTENT FOR THE ATTAINMENT OF ASSESSMENT STANDARDS (Subject Statement pp 34-54)

Time Allocation: 5 hours 30 minutes

Presentation:	**30 minutes**
Group Discussions:	**2 Activities x 1 hour = 2 hours**
Report back from each group:	**2 hours**
Facilitator's wrap up and discussions on the content:	**1 hour**

FORM OF ACTIVITY: Presentation, analysis, group discussions, and report back.

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, Learning Programme Guidelines, and Syllabus.

CONTENT:

- Content for Physical Sciences Grades 10-12.
- Gap analysis.

INSTRUCTIONS:

- Divide into groups.
- Each group is allocated a knowledge area per grade.
- Each group analyses pages 34 – 53 of the Subject Statement and the content in Report 550 Physical Science syllabus
- Critique the provided gap analysis document in Appendix 3
- Report at plenary
- Discussions.

ACTIVITY 4: LEARNING AND TEACHING ACTIVITIES FOR PHYSICAL SCIENCE
Time Allocation: 5 hours

Presentation: 15 minutes
Group Discussions: 2.5 hours
Report back from each group: 2 hours
Facilitator's wrap up: 15 minutes

FORM OF ACTIVITY: Presentation, group discussions, presentations of different groups.

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, Learning Programme Guidelines, and Relevant Apparatus.

CONTENT:

- Content for Physical Sciences Grades 10-12.
- Possible contexts for Physical Sciences Grades 10-12.
- Design and presentation of activities.
- How these activities can be assessed.

INSTRUCTIONS:

Part 1

- Divide into six groups.
- Analyse the teaching and learning activities in Appendix 4.
- Use the table in Appendix 5 to critique the activity.
- Report at plenary.

Part 2

- Discuss improvements that can be made on the activities.
- Report at plenary.
- Discussions.

ACTIVITY 5: Recommendations and closure
Time Allocation: 30 minutes

- Wrap up presentation
- Discussion

SESSION 3 –

Planning for teaching subjects in the NCS (8 hours)

ACTIVITY 1: INTRODUCTION TO THE PLANNING CYCLE
Time Allocation: 30 minutes

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, and Data Projector

CONTENT:

- Three stages of planning
- Purpose, role-players and duration per stage
- Issues to consider when developing a Learning Programme
- Brief overview of the key activities and development process per stage

ACTIVITY 2: INTRODUCTION TO THE GRADE 11 AND 12 WORK SCHEDULE
Time Allocation: 1 hour

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: OHP of Grade 11 Work Schedule, OHP Projector, OHP Pens, OHP Sheets, Subject Assessment Guidelines, Learning Programme Guidelines, and Subject Statement

CONTENT:

- Elements of design
- Process of design
  - Integration: What, how and why?
  - Sequencing: What, how and why?
  - Pacing: What, how and why?
  - Suggested assessment tasks: What and why?
  - LTSM: What and why?

ACTIVITY 3: DESIGNING A WORK SCHEDULE
Time Allocation: 4 hours 30 minutes

FORM OF ACTIVITY: Interactive, report back and discussion

RESOURCES: Subject Statement, Learning Programme Guidelines, and Subject Assessment Guidelines

CONTENT:

- Work Schedule

I**NSTRUCTIONS:**

- Divide into groups.
- Each group is allocated a grade.
- Analyse the work schedule of your allocated grade as provided in the Learning Programme Guidelines
- Critique the work schedule using the work sheet in Appendix 6
- Report
- Discussion

ACTIVITY 4: DEVELOPMENT OF THE FIRST LESSON PLAN FOR GRADE 11
Time Allocation: 1 hour

FORM OF ACTIVITY: Presentation, interactive, report back and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, Subject Statement, and Learning Programme Guidelines

CONTENT:

- Grade 11and 12 Lesson Plan
  - Elements of design
  - Process of design

INSTRUCTIONS:

- Divide into groups.
- Each group is allocated a knowledge area.
- Use the template in Appendix 7 and design the first Lesson Plan that will be presented for the first 2-5 days of the school year according to the work Schedules critiqued in Activity 3.
- Report at plenary.
- Discussion.

SESSION 4 –

Annual assessment plan (5 hours)

ACTIVITY 1: INTRODUCTION TO ASSESSMENT IN THE NCS
Time Allocation: 30 minutes

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, and National Protocol on Assessment

CONTENT:

- Approach to assessment: Criteria-driven
- Recording process: Record one global mark / code per task and refer to the Subject Assessment Guidelines for guidance on how to arrive at the final mark for the subject
- Reporting process: 7 codes and percentages
- Portfolios: Teacher and learner

ACTIVITY 2: PROGRAMME OF ASSESSMENT FOR GRADES 10 AND 11
Time Allocation: 2 hour

FORM OF ACTIVITY: Presentation and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, and Subject Assessment Guidelines

CONTENT:

- Programme of Assessment for Grades 10 and 11 (Section 2 of the Subject Assessment Guidelines): Number of tasks
- Nature of tasks: Forms of assessment suitable to the subject (Section 3 of the Subject Assessment Guidelines) and suitable tools
- Weighting of tasks for the formal Programme of Assessment and mark allocation

ACTIVITY 3: DEVELOPMENT OF A GRADE 11 ANNUAL ASSESSMENT PLAN
Time Allocation: 2 hour

FORM OF ACTIVITY: Presentation, interactive and discussion

RESOURCES: PowerPoint Presentation, Laptop, Data Projector, and Subject Assessment Guidelines

CONTENT:

- Programme of Assessment for Grade 11: Tasks, topics, tools and dates
- Recording assessment.

INSTRUCTIONS:

Part 1

- Divide into groups
- Use the template in Appendix 8 and compile a Grade 10 / 11 / 12 annual assessment plan.
- Refer to Work Schedules in Session 3 and align the annual assessment plan with the assessment tasks listed in the Work Schedules.

ACTIVITY 4: Recommendations and closure
Time Allocation: 30 minutes

- Wrap up presentation
- Discussion

APPENDICES

APPENDIX 1

SESSION 1 – ACTIVITY 3 – PART 1

Make use of your knowledge of the NCS and related documents to answer the following questions.

- *Fill in the answers as quick as possible*
- *Keep answers short and to the point.*

No	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

SESSION 1 – ACTIVITY 3 – PART 3

Study the HE document and identify the requirements for certificate, diploma and degree programmes

HIGHER CERTIFICATE	DIPLOMA	BACHELOR'S DEGREE

APPENDIX 2

ANALYSIS OF ASSESSMENT STANDARDS – SESSION 2-ACTIVITY 3 – PART 2

ASSESSMENT STANDARD	SKILLS	KNOWLEDGE	VALUES

ASSESSMENT STANDARD	GRADE 10	GRADE 11	GRADE 12
	Skills	Skills	Skills
	Knowledge	Knowledge	Knowledge
	Value	Value	Value

APPENDIX 3

GAP ANALYSIS – SESSION 2-ACTIVITY 3 – PART 1

	Report 550	NCS	Gaps	Methodology	ICT	Assessment
G R A D E 10	Waves, Light; Sound Electricity; Chemical reaction of certain elements; Atomic structure; Acids, Bases and Salts; Chemical Reactions and Electricity; Ionic reactions; Heat and Work;	LO 1: Each knowledge area comprises of themes LO 2: Mechanics Motion in one dimension, Gravity and mechanical energy Waves, Sound and Light: Transverse pulse on a string or spring; Transverse waves; Geometrical optics Electricity and Magnetism: Magnetism; Electrostatics; Electric circuits Matter and materials: Observing, describing, classifying and using materials- a microscopic view; Particles substances are made of; The Atom: basic building block of all matter Chemical Change Physical and Chemical change; Representing chemical change Chemical Systems Global cycles; The hydrosphere LO 3: The contexts provide the means through which core concepts can be used to attain Assessment Standards Knowledge areas: Mechanics Waves, sound and light Electricity and magnetism Matter and materials Chemical change Chemical systems	New content: Fiber optics, Global cycles, hydrosphere Imported from Gr11&12: Vectors, Gravity, Mechanical energy, Mixtures, IMF, Retained content: Transverse waves, Light, Magnetism, Electricity, Periodic Table, Atomic Structure, Ionic solutions, Writing balanced chemical equations. Removed/Dropped: Sound, Lenses, Speed of light, Magnetic effect of current, Electromagnetic induction, Wet chemistry, Electrolysis, Heat and Work	LO1: In achieving this outcome, a practical approach to solving problems using the Scientific Method should be pursued. Apparatus and chemicals should be used to perform experiments and tests.	Through its very nature, Physical Sciences requires learners to handle data in the form of text, numbers, graphs, tables, and so on. This subject also requires learners to do research in the various media. To meet the learners present and future	All assessment should be criterion referenced LO1: The following forms of assessment could be used: Practical experiments Practical tests Research projects or investigations Case studies Assessment tools will mostly be Rubrics

	Report 550	NCS	Gaps	Methodology	ICT	Assessment
G R A D E 11	Vectors; Displacement-time, velocity-time relationship; Light; The Atom; The Periodic Table; Chemical Bonding, The Kinetic Model of Matter and Intermolecular Forces; Inorganic Chemistry	LO 1: Each knowledge area comprises of themes LO 2: Mechanics Force, momentum and impulse Waves, Sound and Light Geometrical optics; Longitudinal waves; Sound; Physics of music Electricity and Magnetism Electrostatics; Electromagnetism; Electric circuits Matter and Materials Electric properties of matter; Atomic combinations: molecular structure; Atomic nuclei; Ideal gases and thermal properties. Chemical Change Quantitative aspects of chemical change; Energy and chemical change; Types of reaction Chemical Systems Exploiting the lithosphere/Earth's crust; The atmosphere LO 3: The contexts provide the means through which core concepts can be used to attain Assessment Standards Knowledge areas: Mechanics Waves, sound and light Electricity and magnetism Matter and materials Chemical change Chemical systems	New content: Normal force, Torque, SALT telescope, Ultrasound, Standing waves in musical instruments, Capacitance, Wheatstone bridge, Semi-conductors, Oxidation number, Bond energy and length, VSEPR theory, Radioactivity, Mining and mineral processing, Global warming. Imported from Gr10&12: Impulse and momentum, Newton's laws of motion, Optics, Sound and longitudinal waves, Electrostatics, Electromagnetism, Electricity, E_p diagrams for exothermic and endothermic reactions, Reaction types: acid-base, redox, addition, substitution, elimination Retained content: Ideal Gases and KMT, Bonding models, Radio-activity, stoichiometry Removed/Dropped: Vectors, Light, Inorganic chemistry, Equations of motion, Development of atomic model, e^- filling of orbitals, valency	LO2: In achieving this outcome, co-operative learning strategies should be used to get learners to engage the content themselves. OBE methodologies such as the Jigsaw, Round Robin, Hot Potato, and so on, could be used to urge learners to recall, explain and apply knowledge. When required, the teacher should teach the learners.	needs, the following ICT skills are recommended: Ability to: Use Word Processors; Power Point; The Internet; E-mail; Equation editor; and the Spread sheets	LO2: The following forms of assessment could be used: Tests or examinations Assignments Research projects or investigations Case studies Assessment tools will mostly be marking memorandums linked to Rubrics. Checklists and observation sheets can also be used to assess "assessment for learning" activities.

G R A D E 12	Bodies in motion; Electrostatics; Electric Current; Reaction Rates and Chemical Equilibrium; Acids and Bases; Oxidation-Reduction and Electrochemical cells; Organic Chemistry	LO 1: Each knowledge area comprises of themes LO 2: Motion in two dimensions; Work, power and energy Waves, Sound and Light Doppler Effect; Colour; 2D and 3D wavefronts; Wave nature of matter Electricity and Magnetism Electrodynamics; Electronics; Electromagnetic radiation Matter and materials Optical phenomena and properties of materials; Organic molecules; Mechanical properties; Organic macromolecules Chemical Change Rate and extent of Reaction; Electrochemical reactions Chemical Systems Chemical industry-resources, needs and the chemical connection LO 3: The contexts provide the means through which core concepts can be used to attain Assessment Standards Knowledge areas: Mechanics Waves, sound and light Electricity and magnetism Matter and materials Chemical change Chemical systems	New content: Horizontal projectile motion, Oblique collisions, Doppler effect, Shock waves, Sonic boom, De Broglie wavelength, e^- microscope, Inductance, Electronics, Lasers, Substitution and elimination reactions, Hooke's Law, Organic macromolecules (plastics and biological), Chemical industries Imported from Gr. 10&11: Colour of light, Diffraction & interference, Electro-magnetic radiation, Transmission of light, Photoelectric effect, Electrolysis, Retained content: Work, Energy and Power, Organic Chemistry, Reaction rate, Electro-chemical cells, Chemical equilibrium, ac Removed/Dropped: Newton's laws of motion, Impulse and momentum, Gravitation, Electric current, Acids and bases, Redox reactions.	LO 3: In achieving this outcome, learners should be exposed to a variety of moral and ethical issues in their environment, which they evaluate and take decisions on. Issues such as Global warming, genetic engineering, cloning, HIV/AIDS, pollution, alcohol, drugs, and many more, can be used		LO 3: The following forms of assessment could be used: Assignments Research projects or investigations Case studies Practical experiments Assessment tools will mostly be Rubrics.

APPENDIX 4

TEACHING AND LEARNING ACTIVITY 1

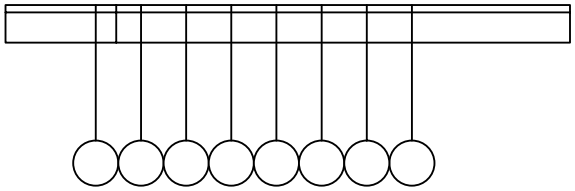
Demonstrating Action and Reaction (in a Swinging Pendulum)

1. Hang six or eight balls (wooden, plastic or brass) on a half-metre rule which is held horizontal by two clamps in retort stands so that the strings are parallel and the centres are at the same height and in line (as in the figure 1)

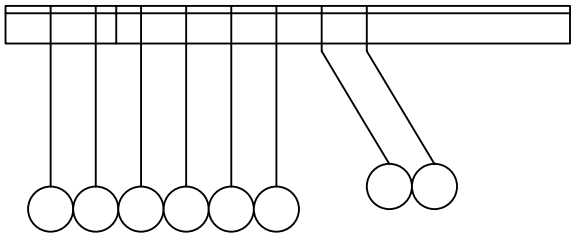
2. Move two balls together and release them to strike the rest head on.

   What happens to the rest of the stationary balls?

(a)



(b)



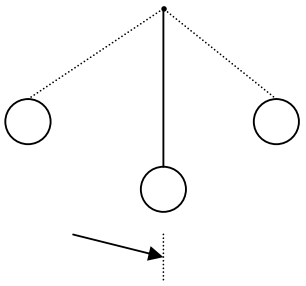
3. Repeat instruction 2 with one ball, and with three balls and even with four balls. Also repeat, this time releasing the balls from greater distances.

   Explain the results and compare the distances of displacement before and after collision

TEACHING AND LEARNING ACTIVITY 2

Measuring the Acceleration of free fall using the swinging pendulum

1. Tie a bob to a string.
2. Hang the string between two pieces of wood or between coins in a clamp on a retort stand.



Fiducial line

3. Measure the length of the string from the point of suspension to the middle of the pendulum bob.
4. Measure the fiducial line to be used in counting the swings. A swing or oscillation is performed in an interval when the bob is going in any on direction and again in that direction, past the line.
5. Allow the bob to swing for a number before starting counting down: 5, 4, 3, 2, 1, 0, when you start your stopwatch. Practice this a few times before starting the experiment.
6. Time the pendulum bob for at least 20 oscillations for any length of the pendulum. Repeat for the same length and record them. Calculate the period for one swing.
7. Repeat the timing for four other lengths "ℓ" of the pendulum and for each calculate the period T.
8. tabulate ℓ, and T^2
9. Plot a graph of ℓ against T^2 and measure the slope on the graph.

What is the slope equal to? Obtain g from the slope.

$$T = 2\pi \sqrt{(\ell/g)}$$

APPENDIX 5

EVALUATION TOOL –SESSION 2 – ACTIVITY 4 – PART 1

Use the table below to evaluate the Teaching and learning activity

CRITERIA	YES/NO	EXPLANATION FOR YOUR ANSWER
Does the activity address a specific LO or an integration of LOs?		
Does the activity address the any AS's in respect to knowledge?		
Does the activity address any AS's in respect to skills?		
Does the activity address any AS's in respect to Values?		
Does the activity indicate assessment clearly?		
Is the assessment indicated relevant?		
Is the LTSM used/indicated relevant?		

APPENDIX 6

EVALUATION TOOL – SESSION 3 – ACTIVITY 3

Use the table below to evaluate the work schedule.

EVALUATION	**YES/NO**	**EXPLANATION FOR YOUR ANSWER SUGGESTIOS FOR IMPROVEMENT**
Does the Work Schedule cover all the Assessment Standards		
Integration: Are the Assessment Standards appropriately linked?		
Are the Assessment Standards covered in sufficient detail and depth?		
Pacing: Is the time allocation across the 40 weeks appropriate?		
Sequencing: Is the content presented in the correct order?		
Are relevant LTSM listed?		

APPENDIX 7

LESSON PLAN TEMPLATE - SESSION 3 – ACTIVITY 4

<table>
<tr><td colspan="2">Subject: PHYSICAL SCIENCES</td><td colspan="2">Grade:</td><td colspan="4">Duration:</td></tr>
<tr><td colspan="2">Core Knowledge Area:
Theme:
Context:</td><td colspan="3">Learning Outcomes and Assessment Standards</td><td colspan="2">Critical and Development Outcomes</td></tr>
<tr><td colspan="3">Link with previous knowledge:</td><td colspan="4">Link with next knowledge:</td></tr>
<tr><td rowspan="2">Concepts</td><td rowspan="2">Teaching Strategy
Description of teaching and learning activities</td><td rowspan="2">Resources</td><td rowspan="2">Evidence of
Achievement</td><td colspan="2">Assessment Strategy</td><td rowspan="2">Time frame</td></tr>
<tr><td>Method</td><td>Tools</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="7">Enrichment:
Remedial:
Expanded opportunities:</td></tr>
</table>

APPENDIX 8

ANNUAL ASSESSMENT PLAN – SESSION 4 ACTIVITY 3– PART 1

SUBJECT: Physical Sciences GRADE: ______________ YEAR: ____________

TERM 1	TERM 2	TERM 3	TERM 4
LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:
LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:
LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool:	LO(s) and Topic: Form: Date: Duration: Tool: