



**Province of the
EASTERN CAPE
DEPARTMENT OF EDUCATIO**

**DIRECTORATE: CURRICULUM
FET PROGRAMMES**

**PROVINCIAL
SUBJECT IMPROVEMENT PLAN**

**LIFE SCIENCES
2013**

PROVINCIAL SUBJECT IMPROVEMENT PLAN FOR LIFE SCIENCES

1. GENERAL INFORMATION		
1.1	NAME OF SUBJECT PLANNER	NL MPONDWANA
	DESIGNATION	DEPUTY CHIEF EDUCATION SPECIALIST (DCES)
1.2	CONTACT DETAILS :	
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2. INTRODUCTION		
2.1	Purpose of the Provincial Subject Improvement Plan for 2013	To give guidance to Subject Advisors on how to manage their subject better in the districts thereby supporting teaching and learning and improving learner performance.
2.2	How will the Subject Improvement Plan be used?	Subject Advisors will model their district improvement plans on the Provincial Subject Improvement Plan taking into consideration their context.
2.3	My vision for my subject for 2013	<ul style="list-style-type: none"> To support new Subject Advisors so that they can understand their core duties and responsibilities To support, monitor all Subject Advisors on the delivery, implementation and moderation of Life Sciences NCS curriculum. To improve on the 2012 results from 63,5% to \pm 70% To monitor and support the 7 districts which attained below 60% in the final examinations, viz. Dutywa, Fort Beaufort, Graaff Reinet, King Williamstown, Qumbu, Sterkspruit and Uitenhage.

2.4	List 4 achievable/do-able goals set for my subject for the current school year	<ul style="list-style-type: none"> • Constant support to underperforming schools to eliminate Level 1 performance and increase the number of learners achieving Levels 2 – 7. • Improve the understanding on hypothesis testing for Grade 10 – 12 teachers by providing guidance to subject advisors and teachers. • Development of Practical examination Guidelines for Grade 11 Life Sciences teachers 	
2.5	Subject Pass rate pledge for Grade 12 for 2013 in each of the 23 districts	NAME OF DISTRICT	TARGET PASS RATE FOR 2013
		Butterworth	65,00
		Cofimvaba	83,4
		Cradock	68,0
		Dutywa	61,0
		East London	77,0
		Fort Beaufort	50,0
		Graaff Reinet	55,0
		Grahamstown	68,00
		King William's Town	63,0
		Lady Frere	74,2
		Libode	65,0
		Lusikisiki	70,3
		Maluti	83,9
		Mbizana	68,2
		Mount Fletcher	81,1
		Mount Frere	64,7
		Mthatha	78,9
		Ngcobo	76,0
		Port Elizabeth	71,2
		Queenstown	69,1

		Qumbu	61,8
		Sterkspruit	55,2
		Uitenhage	62,1

3. GENERAL AREAS REQUIRING INTERVENTION (Add to the list if necessary according to the needs of the subject)

3.1	Establishment of Provincial Subject Committee 2013 at the Annual Subject Advisors Indaba							
	Time frame: 11 – 13 February 2013							
	Name	Contact details			Designation			
		Cell	Fax	Email				
	Ms NL Mpondwana	082 083 6080	040 - 6084394	ntshantshampondwana@yahoo.com	Chairperson			
					Deputy Chairperson			
					Secretary			
					Additional member			
					Additional member			
				Additional member				
				Additional member				
3.2	Development of Committee Meeting agendas and reporting tools with timeframes							
Provincial Committee meeting dates	Proposed Agenda Items for discussion	Responsibility	Reporting tools	District Committee meeting dates	Proposed Agenda Items for discussion	Responsibility	Reporting tools	
11 – 13 Feb 13	<ul style="list-style-type: none">2013 prioritiesAnalysis of resultsOrientation of new Subject Advisors<ul style="list-style-type: none">➤ Documents➤ SBA➤ Reporting tools	Subject Planner & Provincial Committee	Agenda Minutes Attendance register	20 – 28 Feb 13	<ul style="list-style-type: none">2013 prioritiesAnalysis of resultsOrientation of new Subject Advisors<ul style="list-style-type: none">➤ Documents➤ SBA Reporting tools	SES, DCES	Agenda Minutes Attendance registers	
10 – 11 April13	<ul style="list-style-type: none">Analysis of district Term 1 reportsTerm 1 SBA moderationGrade 11 Practical	Subject Planner & Provincial Committee	Agenda Minutes Attendance register	02 – 03 May13	<ul style="list-style-type: none">Analysis of district Term 1 reportsTerm 1 SBA moderation	SES, DCES	Agenda Minutes Attendance registers	

		<div>Exam Guidelines</div> <ul style="list-style-type: none">Winter Schools				<ul style="list-style-type: none">Grade 11 Practical Exam GuidelinesWinter Schools		
	½ Yearly Meeting	Planning for second semester <ul style="list-style-type: none">SBA	Subject Planner & Provincial Committee	Agenda Minutes Attendance register	12 – 13 Aug 13	Planning for second semester SBA	SES, DCES	Agenda Minutes Attendance registers
	04 – 05 Sept 13	<ul style="list-style-type: none">Findings of Term 1& 2 Provincial SBA moderationFinal moderationReports on interventions	Subject Planner & Provincial Committee	Agenda Minutes Attendance register	17 -19 Sept 13	<ul style="list-style-type: none">Findings of Term 12 Provincial SBA moderationFinal moderationReports on interventions	SES, DCES	Agenda Minutes Attendance registers
	06 – 07 Nov 13	<ul style="list-style-type: none">Review of 2013Planning for 2014	Subject Planner & Provincial Committee	Agenda Minutes Attendance register	12 – 14 Nov 13	<ul style="list-style-type: none">Review of 2013Planning for 2014	SES, DCES	Agenda Minutes Attendance registers
3.3	List professional development needs for Subject Advisors (and Teachers) with timeframes							
	3.3.1 Reporting (templates)							
	3.3.2 Workshop for Grade 11 teachers on Practical Examination Guidelines							
	3.3.3 Improving SBA moderation – quality of tasks							
	How will the identified professional development needs be addressed?							
	ACTIVITY		RESPONSIBILITY			TIMEFRAME		
<ul style="list-style-type: none">Strengthening of District subject committees		Subject Advisor			20 – 28 Feb 2013 & ongoing			
<ul style="list-style-type: none">Improving SBA moderation		Subject Advisor			20 – 28 Feb 2013 & ongoing			
3.4	List teaching and learning techniques to be enhanced							
	3.4.1 Analysis of tasks according to Boom’s cognitive Levels							

	3.4.2 Answering higher order questions.		
	How will the teaching and learning methodologies identified be remediated together with timeframes		
	ACTIVITY	RESPONSIBILITY	TIMEFRAME
	• Analysis of questions according to Bloom's cognitive levels	Subject Advisors	Ongoing
	• Answering high order questions	Subject Advisors and expert teachers.	Ongoing
3.5	List moderation processes and procedures to be enhanced		
	3.5.1 School and District/Cluster moderation for Grade 10 – 12.		
	How will the moderation processes and procedures identified be remediated together with timeframes		
	ACTIVITY	RESPONSIBILITY	TIMEFRAME
	Improving school and district moderation.	Subject Advisor	20 – 28 Feb 13 & ongoing
3.6	List ways in which the interpretation of Policies and Guidelines is to be cascaded to Subject Advisors and teachers with timeframes		
	3.6.1 Orientation of Subject Advisors on managing the subject, supporting teachers and reporting.		
	3.6.2 Develop easily accessible documents e.g. Practical Examination Guidelines		
	How will the interpretation of Policies and Guideline be cascaded with timeframes		
	ACTIVITY	RESPONSIBILITY	TIMEFRAME
	• Orientation of Subject Advisors on managing the subject, supporting teachers and reporting	Subject Planner and Provincial Committee	11 – 13 February 2013
3.7	• Holding district committee and cluster meetings	Subject Advisor	Ongoing
	Identify Subject Planning needs (Work Schedule/ Annual Teaching Plan, Lesson Plans and Programme of Assessment) and how these will be accomplished with timeframes		
	3.7.1 Issuing a revised Grade 10 -12 Life Sciences Package for 2013 with work schedules (to be used with CAPS document)		
	How will the identified subject planning need be remediated together with timeframes		
	ACTIVITY	RESPONSIBILITY	TIMEFRAME
	• Orientation of new Subject Advisors	Subject Planner and Provincial Committee	11 – 13 February 2013
	• Mediation of 2013 Life Sciences Package & 2013 Subject Planning	Subject Planner	11 – 13 February 2013

3.8	List classroom practice (questioning techniques, record keeping, discipline etc) to be developed		
	3.8.1 Analysis of questions per cognitive levels, Specific Aims and content coverage (use of grid).		
	3.8.2 Moderation of tests and examinations papers.		
	How will the classroom practice identified be remediated together with timeframes		
	ACTIVITY	RESPONSIBILITY	TIMEFRAME
3.9	• Demonstration of the use of the analysis grid when setting tests and examination papers	Subject Planner and Subject Committee	Ongoing
	• Moderation of tests and examinations papers.	Subject Planner and Subject Advisors	11 – 13 February 2013 and ongoing
	Problem areas identified in the teaching of content (using SBA moderation reports, examiners reports, analysis of results, question by question analysis of Grade 12 Final examination question papers, memorandum discussion, interviews with chief markers and moderators)		
	3.9.1 Marking of graphs 3.9.2 Hypothesis testing 3.9.2 Human impact on environment – Grade 11		
	Suggested remediation for identified problem areas:		
3.10	ACTIVITY	RESPONSIBILITY	TIMEFRAME
	Workshop for Grade 10 teachers on graphs	Subject Advisors	March 2013
	Workshop for Grade 11 teachers on Human impact on environment	Subject Advisors	September 2013
	Problem areas identified in the setting of exam question papers and memoranda (using examiners reports, analysis of results, question by question analysis of Grade 12 Final examination question papers, memorandum discussion, interviews with chief markers and moderators)		
3.11	<ul style="list-style-type: none"> 3.10.1 Hypothesis Testing 3.10.2 Evolution: natural & artificial selection; human evolution; Population and community ecology; Genetically modified organisms (GMO's), protein synthesis, pedigree diagrams; application questions on brain, eye, temperature regulation 		
	Suggested remediation for identified problem areas		
	ACTIVITY	RESPONSIBILITY	TIMEFRAME
	Content workshops for Grade 10 – 12	Subject Advisors	February 2013, ongoing
	Hypothesis Testing workshop Grade 10 – 12	Subject Advisors	March 2013, ongoing
3.11	Problem areas identified in the moderation of School Based Assessment (SBA) using Department of Basic Education Moderation report and the Provincial Moderation Reports		
	3.11.1 School and District Levels of moderation: minimal quality moderation, it is mostly auditing and shadow marking.		

	3.11.2 Controlled Tests and June Examinations were not analyzed and inadequately moderated in many districts.					
	3.11.3 Poor implementation of some of the common tasks					
	3.11.4 Overuse of previous question papers with no adaptation of questions.					
	Suggested remediation of identified problem areas					
	ACTIVITY		RESPONSIBILITY		TIMEFRAME	
	• Capacitation of cluster leaders and Grade 10 – 12 teachers on proper marking and moderation.		Subject Advisors		Ongoing	
	• Moderation of common tasks like June Exams by selected expert teacher and Subject Advisor as per work schedule/ subject guidelines.		Subject Advisor and expert teacher/s		April/ May 2013	
	• Mediation of all common tasks and advising teachers on the proper use of previous question papers.		Subject Advisor and expert teachers		Ongoing	
3.12	Identify any co-curricular activities related to the subject that will be initiated or continued in 2013 and how information will be cascaded to subject advisors and teachers with timeframes					
	ACTIVITY	TIMEFRAME	TARGET GROUP	RESPONSIBILITY	METHOD OF ADVOCACY	WHAT WILL THE ACTIVITY ACHIEVE FOR THE SUBJECT?
	Develop LFSC quarterly newsletter	Quarterly issues three times a year	Teachers, Subject Advisors	Provincial Subject Committee, Subject Advisors	Subject Advisors to communicate with teachers.	Share expertise, results, motivate teachers, update on National and Provincial activities.
3.13	Explain how the coverage of curriculum content will be monitored and supported during the academic year with timeframes					
	ACTIVITY		RESPONSIBILITY		TIMEFRAME	
	• Monitoring of coverage of content prioritizing underperforming schools		Subject Advisors		Once/twice a term depending on the number of schools.	
3.14	Extra LTSM identified for usage					
	3.14.1 Mind the Gap Life Sciences Study Guide Grade 12					
	3.14.2 Life Sciences Support for Grade 12 Teachers					
	3.14.3 NCS CAPS Life Sciences Grade 10 – 12					
3.15	List equipment and resources available			3.1.5.3 Workshop material on Evolution, Biodiversity, etc.		
	3.15.1 CAPS Grade 10 - 12			3.1.5.4 Departmental websites: http://www.eccurriculum.co.za		
	3.15.2 Grade 10 – 12 Life Sciences Package 2013			http://www.ecexams.co.za ; http://www.thutong.doe.gov.za		

4. ANALYSIS OF RESULTS										
4.1	Percentage pass rate for 2012 (Grades 12) in each district									
	Grade 12									
Name of District	% pass rate	No of learners		No of learners		No of learners				
		Level 1 0 - 29 %	Level 2 30 - 39%	Level 3 40 - 49%	Level 4 50 - 59%	Level 5 60 - 69%	Level 6 70 - 79%	Level 7 80-100%		
Butterworth	60.6	992	767	429	210	86	27	9		
Cofimvaba	79.4	197	275	218	122	75	48	22		
Cradock	63.0	190	176	75	40	23	6	4		
Dutywa	56.4	937	573	359	190	65	24	6		
East London	72.1	861	744	569	424	242	147	100		
Fort Beaufort	39.8	679	239	125	56	24	4	0		
Graaff Reinet	50.0	247	100	77	28	18	16	8		
Grahamstown	63.8	200	154	92	57	28	14	7		
King William's Town	54.9	1,254	727	407	206	114	51	27		
Lady Frere	69.2	207	204	136	60	31	26	7		
Libode	59.9	1,275	835	579	349	89	43	12		
Lusikisiki	65.3	84	769	692	433	202	74	33		
Maluti	78.9	30	202	302	242	124	45	28		
Mbizana	63.2	83	594	464	291	147	70	30		
Mount Fletcher	76.1	14	171	227	163	95	45	13		

	Mount Frere	59.7	30	613	455	262	132	45	14	
	Mthatha	73.9	87	1,005	1,028	801	503	306	149	
	Ngcobo	71.0	37	285	309	210	103	43	22	
	Port Elizabeth	66.2	67	1,236	834	603	411	281	182	
	Queenstown	64.1	18	506	370	248	127	76	56	
	Qumbu	56.8	32	598	411	234	89	37	10	
	Sterkspruit	50.2	35	627	304	167	83	43	23	
	Uitenhage	57.1	35	576	321	187	126	68	50	
4.2	Comparison of the % pass rate to other years									
		GRADE	2012	≤ ≥	2011	≤ ≥	2010	Identified reasons for the decline or increase in the % pass rate		
	Butterworth	12	60.6	≤ 0,4	61	≤ 01	62	See section 4 below		
	Cofimvaba	12	79.4	≤ 7,2	86,6	≥ 16,3	70,3			
	Cradock	12	63.0	≤ 5,3	68,2	≤ 10,4	78,6			
	Dutywa	12	56.4	≤ 5,4	61,8	≤ 3,3	65,1			
	East London	12	72.1	≥ 4,7	67,4	≤ 5,5	72,9			
	Fort Beaufort	12	39.8	≤ 4,1	43,9	≤ 2,7	46,6			
	Graaff Reinet	12	50.0	≤ 11,1	61,1	≤ 5,4	66,5			
	Grahamstown	12	63.8	≤ 4,0	67,8	≤ 5,0	62,8			
	King William's Town	12	54.9	≤ 3,8	58,7	≥ 1,6	57,1			
	Lady Frere	12	69.2	≤ 0,1	69,3	≤ 1,3	70,6			
	Libode	12	59.9	≥ 11,1	48,8	≤ 6,7	55,5			
	Lusikisiki	12	65.3	≤ 1,8	67,1	≤ 7,1	74,2			

	Maluti	12	78.9	≤ 5,5	84,4	≥ 1,0	83,4	See section 4 below
	Mbizana	12	63.2	≤ 2,5	65,7	≤ 0,3	66.0	
	Mount Fletcher	12	76.1	≤ 1,4	77,5	≥ 10,0	67,5	
	Mount Frere	12	59.7	≤ 6,2	65,9	≤ 5,9	71,8	
	Mthatha	12	73.9	≤ 3,2	77,1	≥ 1,6	75,5	
	Ngcobo	12	71.0	≤ 13,4	84,4	≥ 5,8	78,6	
	Port Elizabeth	12	66.2	≤ 4,5	70,7	≥ 7,1	63,6	
	Queenstown	12	64.1	≤ 0,8	64,9	≥ 2,1	62,8	
	Qumbu	12	56.8	≤ 12,2	69,0	≥ 2,3	66,7	
	Sterkspruit	12	50.2	≤ 7,7	57,9	≤ 5,7	63,6	
	Uitenhage	12	57.1	≤ 3,5	60,6	≤ 7,0	67,6	
District intervention strategies								
	DISTRICT	INTERVENTION / S				TIMEFRAME	METHOD / HOW?	
	Butterworth	Increased support on application of content, interpreting various data, & terminology				Ongoing	Sessions with teachers & motivation of learners by SES	
	Cofimvaba	Motivate, access to more support material to sustain good results				Ongoing	Sessions with teachers by SES	
	Cradock	Increased support on application of content & interpreting various data & terminology				Ongoing	Sessions with teachers & motivation of learners by SES	
	East London	Motivate, access to more support material to sustain good results				Ongoing	Sessions with teachers by SES	
	Fort Beaufort	Interaction with District SES, and visit some of the schools below 60%				Ongoing	Meeting with LFSC teachers presentation on key issues	
	Graaff Reinet	Interaction with District SES, and visit some of the schools below 60%				Ongoing	Meeting with LFSC teachers presentation on key issues	
	Grahamstown	Increased support on application of content & interpreting various data & terminology				Ongoing	Sessions with teachers & motivation of learners by SES	
	Dutywa	Interaction with District SES, and visit some of the schools below 60%				Ongoing	Meeting with LFSC teachers presentation on key issues	
	King William's Town	Interaction with District SES, and visit some of the schools below 60%				Ongoing	Meeting with LFSC teachers presentation on key issues	

	Lady Frere	Increased support on application of content & interpreting various data & terminology	Ongoing	Sessions with teachers & motivation of learners by SES
	Libode	Increased support on application of content & interpreting various data & terminology	Ongoing	Sessions with teachers & motivation of learners by SES
	Lusikisiki	Increased support on application of content & interpreting various data	Ongoing	Sessions with teachers & motivation of learners by SES
	Maluti	Motivate, access to more support material to sustain good results	Ongoing	Sessions with teachers by SES
	Mbizana	Increased support on application of content & interpreting various data & terminology	Ongoing	Sessions with teachers & motivation of learners by SES
	Mount Frere	Increased support on application of content & interpreting various data & terminology	Ongoing	Sessions with teachers & motivation of learners by SES
	Mount Fletcher	Motivate, access to more support material to sustain good results	Ongoing	Sessions with teachers by SES
	Mthatha	Motivate, access to more support material to sustain good results	Ongoing	Sessions with teachers by SES
	Ngcobo	Motivate, access to more support material to sustain good results	Ongoing	Sessions with teachers by SES
	Port Elizabeth	Increased support on application of content & interpreting various data & terminology	Ongoing	Sessions with teachers & motivation of learners by SES
	Queenstown	Increased support on application of content & interpreting various data & terminology	Ongoing	Sessions with teachers & motivation of learners by SES
	Qumbu	Interaction with District SES, and visit some of the schools below 60%	Ongoing	Meeting with LFSC teachers presentation on key issues
	Sterkspruit	Interaction with District SES, and visit some of the schools below 60%	Ongoing	Meeting with LFSC teachers presentation on key issues
	Uitenhage	Interaction with District SES, and visit some of the schools below 60%	Ongoing	Meeting with LFSC teachers presentation on key issues
4.3	Questions in which the learners did not answer successfully			
	Paper 1: Q 1.2 and Q 1.3; Q 2.2; Q 3.1 – Q 3.3; Q 4.1 and Q 4.3		Paper 2: Q 2 and Q 4	
4.4	Suggested reasons (e.g. content was not taught, content not assessed during SBA)			
	i) Poor understanding of questions; ii) Not following instructions; iii) Poor understanding of some of the content suggesting that some sections were not taught or were rushed through iv) Inability to answer higher order questions requiring interpretation, analytical, synthesis skills			
4.5	Remedial action in identified challenge areas.			
	- Greater emphasis on finishing of prescribed content for each term;			

	<ul style="list-style-type: none"> - Examination style of questioning must be used in tests to familiarize learners with action verbs used in asking questions and to get used to the instructions in question papers and in any other tasks given to them; - Learners must be exposed to a lot of exercises where they analyze, interpret and synthesize data to develop these skills. 	
4.6	Questions in which learners did well	
	Paper 1: Q 1.1.1 & Q 1.4; Q 2.3; Q 3.2 Q 4.2	Paper 2: Q1 and Q 3.
4.7	Suggested reasons	
	i) Learners handled multiple choice questions better probably because they are used to this kind of questioning. ii) More candidates attempted the essay in both papers although the skill of differentiating between relevant and irrelevant information, still require attention. iii) A great improvement in drawing a line graph was noticeable.	
4.8	How can these reasons be translated into good practice for other areas of the curriculum?	
	Learners must be given a lot of exercises involving development of various skills and knowledge: reading, correct spelling of terms, following instructions, drawing of graphs and other diagrams, providing names of labels and their functions (use unlabelled diagrams like those in the Life Sciences Mind the Gap Study Guide – pages 94 – 115).	
4.9	Identified content which appeared in the exam paper which was not taught during the year in certain schools and districts.	
	The following content appeared to be poorly taught : Culling, Age-gender pyramids, human population, eye, brain, temperature regulation, human evolution, genetically modified organisms, natural and artificial selection.	
4.10	Implications of the coverage & non-coverage of content during the academic year	
	Not covering the specified content prescribed for each term put learners at a disadvantage, as they cannot answer some of the questions in the June and Trial examinations. The term tests in such cases do not sample all the work as prescribed in the work schedule for the grade. On the other hand, covering and revising the whole content during teaching enable learners to approach their work including SBA tasks, tests and examinations with confidence and a positive attitude of preparedness.	
4.11	How were the distribution of the four cognitive levels distributed across the range of questions in the Grade 11 and 12 final exam papers?	
	As per Subject Guidelines. The papers adequately covered the four cognitive levels and learning outcomes.	
4.12	How can this information in terms of the four cognitive levels determine remedial lesson planning?	
	Teachers must be familiarized with analysis of tasks according to the cognitive levels and the weightings of content areas.	

5. OUTLINE OF INTERVENTIONS FOCUSSING ON THREE IMPACT AREAS

	AREA	ACTIVITY	RESPONSIBILITY	TIME FRAME
1	PLANNING	<ul style="list-style-type: none"> Election of Subject Committees at school and district level and <ul style="list-style-type: none"> ➤ identify needs/problem content areas of each district/school ➤ identify underperforming schools (with below 60% pass rate in subject) ➤ develop a programme for each term/semester to support and monitor teachers especially in underperforming schools (also consult Chief Directorate Year Planner 2013). 	SES, DCES, CES	Jan - Feb 2013
		<ul style="list-style-type: none"> Identify schools without teachers and develop a support programme for affected learners. 	SESSs, DCESSs, in consultation with EDOs	Ongoing
		<ul style="list-style-type: none"> Work schedules for Grades 10 – 12 and making sure that the pacing of teaching is always on target so that even Paper 2 work is completed in all grades. <p>Note: CAPS in Grade 10 and 11 in 2013, NCS New content Grade 12 (2011) for the last year.</p>	Subject Committees, SESSs, DCESSs	Ongoing
		<ul style="list-style-type: none"> Ensure proper moderation of all tests and June examination, checking that these comply with subject guidelines and policy. 	Subject Committees, SESSs, DCESSs	Ongoing
		<ul style="list-style-type: none"> Identify new Content areas in Grade 10 & 11 CAPS and develop material for short workshops in every district/cluster. 	SESSs, DCESSs, Subject Committees	February 2013
		<ul style="list-style-type: none"> Identify problem Grade 12 content/skills areas during committee meetings, from the SBA moderations and Chief Markers' reports 2012 	SESSs, DCESSs, Subject Committees	February 2013

	AREA	ACTIVITY	RESPONSIBILITY	TIME FRAME	
		<p>Paper 1:</p> <ul style="list-style-type: none">• Terminology• Answering higher order questions in Section A and B.• Genetics<ul style="list-style-type: none">✚ Genetically modified organisms (GMO's)✚ Pedigree diagrams• Protein synthesis<ul style="list-style-type: none">✚ Application of codons and anticodons• Evolution<ul style="list-style-type: none">✚ Human evolution✚ Natural selection, artificial selection and the differences between the two. <p>Paper 2:</p> <ul style="list-style-type: none">• Terminology• Answering higher order questions• Application questions on brain, eye, temperature regulation• Population and community ecology:<ul style="list-style-type: none">- human population <p>Develop the following skills as well:</p> <ul style="list-style-type: none">• Formulation of hypothesis	<p>Workshops for teachers on:</p> <ul style="list-style-type: none">✚ Problem areas✚ Quality tests with analysis according to cognitive levels.✚ Expose learners to exemplars and opportunities to interpret; analyze higher order questions in all sections of work.✚ Improve teaching of terminology – learners to make their own glossary of terms assisted by their teachers and learn these terms rigorously.✚ Compilation of a list of action verbs and their meanings by Subject advisors & teachers for learners.✚ Expose learners to newspaper papers and magazines containing issues of human demand versus conservation of the natural resources using the following examples:<ul style="list-style-type: none">- the hunting industry- sustainable harvesting of natural resources✚ Teachers need to give learners opportunities to answer questions on the	<p>Subject Advisors, DCESS, Subject Committees</p>	<p>Feb – March 2013 Ongoing support</p>

	AREA	ACTIVITY		RESPONSIBILITY	TIME FRAME
		<ul style="list-style-type: none"> Drawing and interpretation of the pie chart (& other types of graphs) Following of instructions e.g. give answers in the form of a table when asked to tabulate, etc Doing simple calculations and supplying units where expected. 	<p>implications of further human population growth for the natural environment.</p> <p>✚ Each learner must have an instrument box with a protractor and compass.</p>		
		<ul style="list-style-type: none"> Acknowledge and encourage good effort by learners and teachers – provide awards and incentives. 		DCES, CES, Subject Advisors	Ongoing
		<ul style="list-style-type: none"> Supporting the worst performing schools through regular school visits. Develop mind maps / concept maps, power point presentations to summarize some topics. 		Subject Advisors, DCESS	Ongoing
		<ul style="list-style-type: none"> Intensify revision and doing activities on Evolution and difficult areas on Genetics during Winter School 2013. Intensify revision of the central nervous system, sense organs, temperature regulation during Spring school 2013. 		Subject Committees Subject Advisors, DCESS	March 2013
		<ul style="list-style-type: none"> Develop LFSC quarterly newsletter highlighting achievements in districts, support to teachers & subject advisors on LFSC matters and inputs from expert teachers. 		Subject Advisors, Provincial Committee	
2	TEACHING	a) Ensure that the time table reflects a minimum of 4hrs teaching time per week for Life Sciences in Grade 10 – 12.		Teachers, Subject Advisors, DCESS	Ongoing
		b) Encourage teachers to finish the prescribed content in all grades and in Grade 12 follow the Grade 12 Examination Guidelines strictly.		Teachers, Subject Advisors, DCESS	
		c) Discussion of 2012 final question papers and their memoranda highlighting content areas that need more attention.		Subject Advisors, 2012 Markers	Feb – March 2013
		d) Provide learners with activities which develop skills like describing, giving own views on issues/suggesting, interpreting various forms of data.		Subject Advisor, HOD, Teachers	Ongoing

	AREA	ACTIVITY		RESPONSIBILITY	TIME FRAME
		e) Ensure that teachers and learners are supported on how to formulate a hypothesis involving one or more variables from Grades 10 – 12. A hypothesis is a testable statement about a relationship involving two variables. When a hypothesis is formulated the following guideline should be used: <ul style="list-style-type: none"> • Mention two variables in the hypothesis: dependent and independent variables; • A hypothesis should state the relationship between the two variables; and • The hypothesis must be testable. 		Subject Advisor, HOD, Teachers	Ongoing
		f) Encourage debates on scientific issues to develop language skills in learners, more cooperative learning to develop listening, reading, speaking and writing skills.		HOD, Teachers, Subject Advisor, Subject Committees	Ongoing
		g) Encourage learners to develop key words/terminology lists after each section of work and to memorize these with understanding.		HOD, Teachers	Ongoing
		h) Use of school/ local environment, museums, nature reserves, etc. to enrich teaching and learning & to keep interest of learners in the subject.		Subject Advisors, HOD, Teachers.	Ongoing
		i) Regular support and monitoring of teaching, learning and assessment in schools especially underperforming schools.		Subject Advisors, SMT, HOD,	Ongoing
		j) Intensify support for teachers on teaching Evolution from Grade 10 - 12.		Subject Advisors	Ongoing
		k) Develop the skill of drawing and interpretation of various types of graphs from Grade 10 – 12.		Subject Advisors, HOD, Teachers	Ongoing
3	ASSESSMENT	Develop Subject Improvement plan	Provincial & District Subject Improvement Plans	Subject Advisor, Subject Committee, Teachers	Feb 2013
		Develop Provincial Common	Subject Advisors to mediate tasks to	Subject Advisors,	Feb – May

	AREA	ACTIVITY		RESPONSIBILITY	TIME FRAME
		tasks for the Programme of Assessment	teachers and monitor their implementation; Teachers should be encouraged to provide more tasks for the pool of tasks for Grades 10 – 12.	HOD, Teachers.	2013 Ongoing
		Improve SBA implementation - Train cluster leaders, teachers and SMT on SBA moderation.	Adapt 2012 training manual to capacitate teachers and SMT so as to improve standard of moderation	Subject Advisors	April, May 2013
		Continue to improve the standard of the Teacher Master file and Learner evidence file	Encourage the use of 2013 Life Sciences Package Grade 10 – 12 on organization of Teacher Master file and Learner Evidence of work.	Provincial Committee, SESs, DCES, HOD, Teachers	Jan-Feb 2013 Ongoing
		Ensure that exemplar question papers and newspaper supplements are made available to learners	Distribute exemplar question papers and newspaper supplements to all schools.	Subject Advisor, DCES, HOD, Teachers	Ongoing
		Regular support and monitoring of Teaching, Learning and Assessment.	Negotiated class visits especially to underperforming schools to improve teaching and learning.	SMT, HOD, DCES, Subject Advisor.	Ongoing
		Identify the most needy schools and areas that need improvement during SBA moderation.	<ul style="list-style-type: none"> Strengthen post moderation evaluation and feedback after every Cluster/ District/ Provincial moderation; Develop intervention strategies to support the most needy schools on SBA 	SMT, HOD, DCES, Subject Advisor, Cluster Leaders, Teachers	Ongoing