


**TERM 1**
**LESSON PLAN 1  
PHYSICAL SCIENCES  
PHYSICS GRADE 12**

KNOWLEDGE AREA	SKILLS	TOTAL TIME: 3 DAYS
Unit	Skills for practical investigations	
Term	1	
Date	/ /20__	
Resource	Doc Scientia Textbook and Workbook Physical Sciences Grade 12 Physics Book 1 P. 11 – 32	
Time	3 days	
Core knowledge	<p><b>Skills needed for practical investigations (observation, precautions, data collection, data handling, tables, general types of graphs, analysis, writing conclusions, writing a hypothesis, identifying variables, for example independent, dependent and controlled variables).</b></p> <ul style="list-style-type: none"> <li>• Trace the historical development of a scientific principle or theory.</li> <li>• Identify an answerable question and formulate a hypothesis to guide a scientific investigation.</li> <li>• Design a simple experiment including appropriate controls.</li> <li>• Perform and understand laboratory procedures directed at testing a hypothesis.</li> <li>• Select appropriate tools and technology to collect precise and accurate quantitative data.</li> <li>• Correctly read a thermometer, a balance, metric ruler, graduated cylinder, pipette, and burette.</li> <li>• Record observations and data using the correct scientific units.</li> <li>• Export data into the appropriate form of data presentation (e.g. equation, table, graph, or diagram).</li> <li>• Analyse information in a table, graph or diagram (e.g. compute the mean of a series of values or determine the slope of a line).</li> <li>• Determine the accuracy and the precision of experimental results.</li> <li>• Analyse experimental results and identify possible sources of bias or experimental error.</li> <li>• Recognise, analyse and evaluate alternative explanations for the same set of observations.</li> <li>• Design a model based on the correct hypothesis that can be used for further investigation.</li> <li>• Define qualitative analysis and give a practical example.</li> <li>• Define quantitative analysis and give a practical example.</li> </ul>	





<b>Core knowledge</b>	<b>Guidelines for teachers</b> Historical development means the study of all the people that contributed towards, for instance, the concept of balanced equations or atomic theory. This section should be taught while the learners do an investigation themselves. The skills for practical investigations should also be discussed and practiced as a class at regular intervals throughout the year.		
	<b>Practical activities</b> Activity P. 28 – 29		
<b>Assessment methods</b>	<b>Class test</b>	<b>Control test</b>	<b>Research project</b>
	<b>Practical investigation</b>	<b>Class work</b>	<b>Building of models, posters or interviews</b>
<b>Resources</b>	Transparencies		
<b>Homework</b>	Exercise A P. 20 – 23 Exercise B P. 30 – 32		