



**ZIMBABWE**

**MINISTRY OF PRIMARY AND SECONDARY EDUCATION**

**GEOGRAPHY NON-FORMAL SYLLABUS**

**LEVEL 3**

**2016- 2022**

Curriculum Development Unit

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Mount Pleasant  
Harare

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## **1.0 ACKNOWLEDGEMENTS**

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- United Nations Educational Scientific Cultural Organisation (UNESCO)

## **1.0 PREAMBLE**

### **1.1 INTRODUCTION**

The level 3 syllabus is designed to consolidate competences already acquired in the study of geography. It seeks to produce learners with requisite skills to transform their local, national, regional and global geographical space. This will raise awareness of environmental management, resource distribution and utilisation for the benefit of Zimbabwean citizens. The syllabus seeks to nurture in learners positive attitudes, values, practical competences and skills that enable them to participate in the development of the country and the world at large. It enables critical evaluation in learners by developing solutions and skills leading to sustainable development. The syllabus recognises individual talents and special education needs.

### **1.2 RATIONALE**

The Level 3 Geography syllabus will equip learners with skills to comprehend spatial distribution patterns, processes and interactions of phenomena. It is designed to make learners appreciate diversity, valuation, utilisation and sustainability of resources. The learning area gives an opportunity to learners to manipulate geographical data and make informed judgements in their day to day experiences.

The Geography Syllabus enables learners to develop the following skills:-

- Communication and investigation
- Graphicacy and numeracy
- Cartography
- Critical thinking
- Technology and innovation
- Problem solving
- Decision making

### **1.3 SUMMARY OF CONTENT**

The geography learning area comprises both physical and human aspects. It also covers fieldwork, map interpretation skills and graphicacy.

## **1.4 METHODOLOGY AND TIME ALLOCATION**

This syllabus takes into account learner centred approaches and methods. The choice of teaching methods and approaches should be guided by the principles of inclusivity, relevance, specificity, gender sensitivity and respect. The following approaches and methods are recommended in the teaching and learning of geography:-

### **1.4.1 Approaches**

The syllabus proposes the use of the concentric, systems, integrated approaches and the integrated approach.

**The concentric approach:** It recommends teaching geography starting from the local environment, then move to the whole of Zimbabwe, Southern African Development Community region, rest of Africa and the World.

**Systems Approach:** It involves the study of inter-relationships of various components in the environment which make up the whole. The focus is on the inputs, processes and outputs and feedback in a given system.

**The integrated approach:** It recommends that related topics should be taught together rather than in Isolation.

**The quantitative approach:** It involves the use of deductive methods and research.

### **1.4.2 Methodology**

. The following are suggested methods of teaching and learning geography:

- Demonstrations
- Field work
- Presentations
  
- Games
- Simulations
- Debates and Quiz
- Laboratory work and experiments
- Group work and discussions
- Role-play
- Case studies
- Project based learning

- Educational tours
- Discovery learning

**NB. The above suggested methods should be enhanced by the application of orthodidactic principles and multi -sensory approaches to teaching. These include tactility, concreteness, individualisation, self-activity, totality and wholeness. Teachers are encouraged to address the learners' residual senses**

### **1.4.3 Time Allocation**

Ten (10) periods of 40 minutes per week should be allocated for adequate coverage of the syllabus. The teachers should allocate time appropriately for learners with individual special education needs. Educational tours should be undertaken at least once a year.

## **1.5 ASSUMPTIONS**

It is assumed that learners:

- have enterprise skills
- have knowledge of map interpretation and graphicacy
- have mastered basic physical and human geography concepts
- have some grasp of GIS and remote sensing skills

- have knowledge of natural resources and can positively interact with their environment.

## **1.6 CROSS-CUTTING THEMES**

This phase will develop in learners, an in-depth understanding of:

- environmental issues
- safety and health issues
- disaster risk management
- enterprise
- sexuality, HIV and AIDS
- heritage
- climate change
- financial literacy
- gender
- technology

## **2.0 PRESENTATION OF SYLLABUS**

The Geography Syllabus is a single document covering Forms 5 - 6.

### **3.0 AIMS**

The aims of the syllabus are to:

- 3.1 develop in learners skills of observation, recording, analysis and interpretation of geographical phenomena
- 3.2 develop in learners an in-depth understanding of Zimbabwean, African and World environmental issues
- 3.3 equip learners with practical Geographic Information Systems and Remote Sensing skills
- 3.4 promote an appreciation of the diversity of cultural issues
- 3.5 develop in learners skills of sustainably using their resources
- 3.6 nurture self-sustained citizens with enterprise skills

### **4.0 SYLLABUS OBJECTIVES**

By the end of this learning phase learners should be able to:

- 4.1 demonstrate practical Geographic Information Systems and Remote Sensing Skills for describing the spatio - temporal distribution of phenomena
- 4.2 evaluate the causes, effects and solutions related to natural and human induced disasters
- 4.3 analyse the physical and human environmental phenomena of their locality, Zimbabwe, Africa and the world
- 4.4 solve key global environmental issues
- 4.5 demonstrate knowledge of geographical data collection, illustration, analysis and interpretation
- 4.6 examine the diversity of indigenous knowledge systems and their impact on the environment
- 4.7 design sustainable economic projects

## **5.0 TOPICS**

- 5.1. Geographic Information Systems and Remote Sensing
- 5.2 Geo-statistical analysis and presentation
- 5.3 Environmental management
- 5.4 Atmospheric processes and phenomena
- 5.5 Hydrology and fluvial processes
- 5.6 Biogeography
- 5.7 Geomorphology
- 5.8 Population and migration
- 5.9 Settlement dynamics
- 5.10 Agricultural production and food security
- 5.11 Mining and mineral beneficiation
- 5.12 Industrial dynamics
- 5.13 Energy sources and development
- 5.14 Transport systems and trade

## 5.15 Regional inequalities and development

# 6.0 SCOPE AND SEQUENCE

## 6.1 TOPIC 1: Geographic Information Systems and Remote Sensing

- Coordinates, coordinate systems and map projection
- Global Positioning Systems (GPS) and remote sensing system
- Conceptual models of geographic space
- Geo-referencing and spatial data capture
- Image: acquisition, structure, resolution and interpretation

## **TOPIC 2: Geo-Statistical Analysis and Presentation**

- Levels of measurement
- Univariate and bivariate statistics
- Graphs and maps
- Research techniques
- Spatial interpolation and measures of spatial autocorrelation

## **Topic 3: Environmental Management**

- Environmental degradation
- Environmental Impact Assessment
- Environmental management projects

#### **Topic 4: Atmospheric Processes and Phenomena**

- The Earth-atmosphere energy budget
- Weather processes and phenomena
- Air masses
- Micro-climates
- Climate change
- Climatic hazards and mitigation

#### **Topic 5: Geomorphology**

- Plate Tectonics
- Rock weathering and slope development

- Tropical landform development
- Geomorphological hazards

## **Topic 6: Hydrology and Fluvial Processes**

- The drainage basin system
- Rainfall-discharge relationships within drainage basins
- River channel processes and landforms
- River flooding and mitigation

## Topic 7: Biogeography

- Factors affecting vegetation distribution
- Plant succession
- Biogeochemical cycles and Gersmehl diagrams
- Tropical and temperate biomes: biodiversity and adaptation
- Soil forming factors, soil profiles and soil catenas
- Measurement of soil characteristics
- Sustainable management of ecosystems

## Topic 8: Population and Migration

- [Population indicators](#)
- [Population growth](#)
- [Population-resource relationships](#)
- [Population, health and diseases](#)

- [Migration](#)
- [Population policies](#)

## **Topic 9: Settlement dynamics**

- Site and location of settlements
- Settlement hierarchy
- Growth points
- Land reform and resettlement
- Functions of rural and urban settlements
- Rural-urban interaction
- Urbanisation and counter-urbanisation
- Urban morphology
- Settlement development

- Spheres of influence
- Delimitation of the CBD
- Rural and urban landuse planning

## **Topic 10: Agricultural Production and Food Security**

- Factors affecting agricultural production
- Agricultural location
- Farming systems in the tropics
- The Green Revolution
- Land Reform and food security in Zimbabwe

- Value addition and Agribusiness
- Climate change and other threats to food security
- Responses to climatic change

## **Topic 11: Mining and Mineral Beneficiation**

- Mining legislation and mining policies in Zimbabwe
- Environmental Impact Assessment in mining
- Prospecting methods and mineralogy
- Small and large scale mining enterprises
- Impact of mining and mitigation
- Value addition and beneficiation methods
- Marketing of minerals
- Safety and health in mining

## **[Topic 12: Industrial Dynamics](#)**

- [Industrial location and relocation](#) in Zimbabwe
- Industrial linkages and agglomeration
- Small and [medium scale enterprises](#) (SMEs) in Zimbabwe
- [Hi-tech industries](#)
- [Tourism industry](#)

### **Topic 13: Energy Sources and Development**

- Sources of energy in Zimbabwe
- Clean sources of energy
- Global distribution of energy sources
- Global trends in energy use
- Sustainable management of energy sources

### **Topic 14: Transport Systems and Trade**

- Transport systems and networks in Zimbabwe
- Transport enterprise
- Trade policies in Zimbabwe and their impact on trade
- Current trends in Zimbabwean trade
- Global inequalities and solutions in trade flows
- Factors influencing global trade patterns
- Trade opportunities in the local area

### **Topic 15: Regional Inequalities and Development**

- Indicators of economic development
- Regional inequalities

# 7.0 COMPETENCY MATRIX

## LEVEL 3 SYLLABUS

<b>OPIC</b>	<b>OBJECTIVES</b> Learners should be able to:	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
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<p>Coordinates, coordinate systems and map projections</p>	<ul style="list-style-type: none"> <li>• locate features using the different coordinate types</li> <li>• distinguish the major coordinate systems</li> <li>• Project a vector layer from one coordinate system to another</li> </ul>	<ul style="list-style-type: none"> <li>• Geographic coordinates</li> <li>• Plane coordinates</li> <li>• Polar coordinates</li> <li>• Universal Transverse Mercator (UTM) coordinate system</li> <li>• Forward projection</li> <li>• Inverse projection</li> <li>• Examples of forward projections (cylindrical, conical and azimuthal)</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying different coordinate types on both digital and hard copy maps</li> <li>• Distinguishing the major coordinate systems</li> </ul> <p>Projecting a vector layer from one coordinate system to another</p>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• GIS software (QGIS, ILWIS, Arcmap, Arcview)</li> <li>• Computers</li> <li>• Hard copy Surveyor General maps</li> </ul> <ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• GIS software (QGIS, ILWIS, Arcmap, Arcview)</li> <li>• Computers</li> <li>• Hard copy Surveyor General maps</li> </ul>
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<p>Global Positioning Systems (GPS) and remote sensing system</p>	<ul style="list-style-type: none"> <li>• mark location using GPS</li> <li>• navigate using GPS</li> <li>• identify possible error in GPS position.</li> <li>• Identify the importance of each component of the remote sensing system in image acquisition</li> <li>• Predict the reflectance associated with key target material</li> </ul>	<ul style="list-style-type: none"> <li>• Trilateration</li> <li>• Sources of GPS error</li> <li>• Components of the remote sensing system (radiation, atmosphere, target, sensor and image)</li> <li>• Reflectance properties of selected target material (vegetation, bare ground, water and built surfaces)</li> </ul>	<ul style="list-style-type: none"> <li>• Marking location using GPS in the field</li> <li>• Navigating in the field using GPS</li> <li>• Collecting data in the field using GPS</li> <li>• Displaying collected vector data in a GIS</li> <li>• Illustrating the remote sensing system on diagrams</li> <li>• Identifying the reflectance associated with key target material such as vegetation, bare ground, water and built</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Hand held GPS set/ Smart phone</li> <li>• GIS software (QGIS, ILWIS, Arcmap, Arcview)</li> <li>• Computers</li> <li>• Hard copy Surveyor General maps</li> <li>• Satellite images (free online)</li> <li>• Internet for downloading images</li> <li>• GIS software (QGIS, ILWIS, Arcmap, Arcview)</li> <li>• Computers</li> <li>• Ordinance</li> </ul>
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			surfaces <ul style="list-style-type: none"> <li>• Interpreting spectral signatures of target material</li> </ul>	survey maps
Conceptual models of geographic space	<ul style="list-style-type: none"> <li>• distinguish between vector and raster models</li> <li>• use appropriate model for a given geographic dataset</li> </ul>	<ul style="list-style-type: none"> <li>• Vector data model (point, line, polygon)</li> <li>• Raster data model</li> </ul>	<ul style="list-style-type: none"> <li>• Visualising (distinguishing) vector data in a GIS</li> <li>• Visualising raster data in a GIS</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• GIS software (QGIS, ILWIS, Arcmap, Arcview)</li> <li>• Computers</li> <li>• Braille material and equipment</li> <li>• Talking books</li> <li>• Hard copy Surveyor General maps</li> </ul>
Geo-referencing and spatial data	<ul style="list-style-type: none"> <li>• Geo-reference a scanned/</li> </ul>	<ul style="list-style-type: none"> <li>• Geo-referencing</li> <li>• Measurement of Geo-reference error [Root</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying ground control points</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Scanner</li> </ul>

capture	<p>embossed hard copy map</p> <ul style="list-style-type: none"> <li>• capture spatial data from the map using on-screen digitisation</li> <li>• produce a map layout from the captured vector data</li> </ul>	<p>Mean Square Error (RMSE)]</p> <ul style="list-style-type: none"> <li>• Resampling</li> <li>• Digitisation and associated error</li> </ul>	<ul style="list-style-type: none"> <li>• Geo-referencing a scanned/ embossed hard copy map in a GIS</li> <li>• Calculating geo-referencing error using the RMSE</li> <li>• Resampling the georeferenced image</li> <li>• Digitising selected features</li> <li>• Producing a map layout in a GIS</li> </ul>	<ul style="list-style-type: none"> <li>• Braille material and equipment</li> <li>• Talking books</li> <li>• GPS</li> <li>• GIS software (QGIS, ILWIS, Arcmap, Arcview)</li> <li>• Computers</li> <li>• Hard copy Surveyor General maps</li> </ul>
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<p>Images</p>	<ul style="list-style-type: none"> <li>• Distinguish passive and active sensors</li> <li>• Identify image bands based on the electromagnetic spectrum</li> <li>• Distinguish image space and feature space</li> <li>• distinguish spatial, temporal and spectral resolutions</li> <li>• select the ideal remote sensing data for specific analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Passive and active sensors</li> <li>• Multispectral scanners</li> <li>• Electromagnetic spectrum</li> <li>• Image space</li> <li>• Feature space</li> <li>• Resolution: <ul style="list-style-type: none"> <li>- Spatial resolution</li> <li>- Temporal resolution</li> <li>- Spectral resolution</li> </ul> </li> <li>• Colour theory and remote sensing images</li> <li>• Colour composites (natural, pseudo-natural and false colour)</li> <li>• Interpretation based on image characteristics (size, shape and</li> </ul>	<ul style="list-style-type: none"> <li>• Distinguishing passive and active sensors</li> <li>• Identifying bandwidths from selected multispectral scanners</li> <li>• Drawing the electromagnetic spectrum</li> <li>• Distinguishing feature and image space</li> <li>• Explaining types of resolutions</li> <li>• Choosing the best remote sensing data to use in solving a given situation based on resolution</li> </ul>	<ul style="list-style-type: none"> <li>• Satellite images (free on the internet)</li> <li>• Internet connection</li> <li>• Satellite data with different spatial, temporal and spectral resolution.</li> <li>• Surveyor General maps</li> <li>• Satellite image (free online).</li> <li>• Internet connection for downloading satellite images</li> <li>• GIS software (QGIS, ILWIS, Arcmap, Arcview)</li> <li>• Computers</li> <li>• Talking books</li> </ul>
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	<ul style="list-style-type: none"> <li>• apply the colour theory in visualising satellite images</li> <li>• visualise satellite images using selected colour composites</li> <li>• interpret images based on image characteristics</li> </ul>	<p>context)</p>	<ul style="list-style-type: none"> <li>• Visualising satellite data using colour composites</li> <li>• Interpreting satellite data using image characteristics</li> </ul>	
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**TOPIC 1:** Geographic Information Systems and Remote Sensing

**TOPIC 2:** Geo-statistical analysis and presentation

<b>TOPIC</b>	<b>OBJECTIVES</b> Learners should be able to:	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
Levels of measurement	<ul style="list-style-type: none"><li>• distinguish the levels of measurement</li><li>• determine the range of statistical analyses that can be done on each data type</li></ul>	<ul style="list-style-type: none"><li>• Nominal data</li><li>• Ordinal data</li><li>• Interval data</li><li>• Ratio data</li><li>• Cyclic data</li><li>• Statistical analyses that can be done on the data types</li></ul>	<ul style="list-style-type: none"><li>• Distinguishing the levels of measurement</li><li>• Determining the range of statistical analyses that can be done on each data type</li></ul>	<ul style="list-style-type: none"><li>• Recommended textbooks</li><li>• Scientific/talking calculators</li><li>• Computers</li></ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Univariate statistics and bivariate statistics	<ul style="list-style-type: none"> <li>• describe geographic data using simple univariate measures of central tendency</li> <li>• apply univariate statistics to solve geographic subjects</li> <li>• describe geographic data using bivariate statistics</li> <li>• apply bivariate statistics to solve geographic issues</li> </ul>	<ul style="list-style-type: none"> <li>• Mean</li> <li>• Median</li> <li>• Mode</li> <li>• Frequency</li> <li>• Quartiles</li> <li>• Standard deviation</li> <li>• Probability</li> <li>• Testing for normality</li> <li>• Hypotheses setting and testing</li> <li>• Correlation (Spearman and Pearson's Correlation)</li> <li>• Simple linear regression</li> </ul>	<ul style="list-style-type: none"> <li>• Collecting geographic data in the field (e.g. temperature, rainfall and elevation)</li> <li>• Summarising the data using selected measures of central tendency</li> <li>• Testing hypotheses</li> <li>• Collecting geographic data in the field such as temperature, rainfall and population</li> <li>• Testing for correlation using relevant statistics</li> <li>• Performing a regression</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Scientific/talking calculators</li> <li>• Computers</li> <li>• Statistical software [e.g. R software, JAWS software, Statistical Package for Social Scientists (SPSS), Statistica]</li> <li>• Braille material and equipment</li> <li>• Talking book</li> <li>• Recommended textbooks</li> <li>• Scientific/talking calculators</li> <li>• Computers</li> <li>• Statistical software (e.g., R software, JAWS Software: SPSS, Statistica</li> <li>• Braille material and equipment</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Graphs and maps	<ul style="list-style-type: none"> <li>• present geographic data on graphs</li> <li>• present geographic data on maps</li> <li>• describe geographic data using other relevant diagrams</li> </ul>	<ul style="list-style-type: none"> <li>• Graphs such as histograms, bar graphs, line graphs, pie charts, scatter graphs</li> <li>• Geographic diagrams such as choropleth maps, dot maps, proportional circles, population pyramids</li> <li>• Map layouts</li> </ul>	<ul style="list-style-type: none"> <li>• Presenting geographic data using relevant graphs, diagrams or maps</li> <li>• Interpret graphs and maps</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Scientific/talking calculators</li> <li>• Computers</li> <li>• Statistical software (e.g., R software, JAWS software SPSS, Statistica)</li> <li>• Braille material and equipment</li> <li>• Talking book</li> <li>• Graph/embossed paper</li> <li>• Hard copy maps</li> <li>• GIS software (e.g. QGIS, ILWIS, Arcmap,</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
				Arcview)
Research techniques	<ul style="list-style-type: none"> <li>• Apply research techniques in solving geographical issues</li> </ul>	<ul style="list-style-type: none"> <li>• Research techniques:               <ul style="list-style-type: none"> <li>- Problem identification</li> <li>- Hypothesis formulation</li> <li>- Data collection</li> <li>- Results presentation and analysis</li> <li>- hypothesis testing</li> <li>- Conclusion and recommendations</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Explaining research techniques</li> <li>• Applying research techniques in solving real geographic problems</li> </ul>	<ul style="list-style-type: none"> <li>• Talking books</li> <li>• Data collection tools</li> <li>• Local environments</li> <li>• Talking calculators</li> <li>• Resource persons</li> <li>• SPSS software</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Spatial interpolation and measures of spatial autocorrelation	<ul style="list-style-type: none"> <li>• collect data on continuous geographic variables in the field</li> <li>• apply basic spatial interpolation techniques to describe continuous geographic phenomena</li> <li>• explain the importance of spatial</li> </ul>	<ul style="list-style-type: none"> <li>• Ordinary interpolation</li> <li>• Inverse Distance Weighting (IDW) interpolation</li> <li>• spatial autocorrelation indices: <ul style="list-style-type: none"> <li>- Moran's I</li> <li>- Gearie's C</li> </ul> </li> <li>• Importance of spatial autocorrelation tests in geographical analyses</li> </ul>	<ul style="list-style-type: none"> <li>• Collecting data on continuous geographic variables in the field</li> <li>• Interpolating the data in class using ordinary interpolation</li> <li>• Interpolating the data in class using IDW interpolation</li> <li>• Collecting data on continuous geographic</li> </ul>	<ul style="list-style-type: none"> <li>• Talking books</li> <li>• Scientific calculators</li> <li>• Computers</li> <li>• Hard copy maps</li> <li>• GIS software such as QGIS, ILWIS, Arcmap, Arcview</li> <li>• Talking calculators</li> <li>• Talking books</li> <li>• Scientific calculators</li> <li>• Computers</li> <li>• Hard copy maps</li> <li>• GIS software such as QGIS, ILWIS, Arcmap, Arcview</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
	<p>autocorrelation in geographic analysis</p> <ul style="list-style-type: none"> <li>• apply relevant statistics to test for spatial autocorrelation</li> </ul>		<p>variables in the field</p> <ul style="list-style-type: none"> <li>• Testing for spatial autocorrelation using the Moran's I index</li> <li>• Testing for spatial autocorrelation using the Gearie's C index</li> </ul>	

**TOPIC 3:** Environmental management

<b>TOPIC</b>	<b>OBJECTIVES</b> Learners should be able to:	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
Environmental degradation	<ul style="list-style-type: none"> <li>• describe environmental pollution and degradation</li> <li>• identify types of environmental pollution and degradation</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental pollution:               <ul style="list-style-type: none"> <li>- Water</li> <li>- Land</li> <li>- Air</li> <li>- Sight/visual</li> <li>- Noise</li> </ul> </li> <li>• degradation               <ul style="list-style-type: none"> <li>- soil</li> <li>- land</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• carrying out a research in a polluted area</li> <li>• Contrasting types of pollution and degradation in urban and rural areas</li> </ul>	<ul style="list-style-type: none"> <li>• Local environment</li> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Print and electronic media showing polluted environments</li> <li>• Resource persons</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
	<ul style="list-style-type: none"> <li>• outline causes of pollution</li> <li>• identify effects of pollution in rural and urban areas</li> <li>• evaluate mitigatory measures of pollution</li> <li>• outline causes of environmental degradation</li> <li>• identify effects of environmental degradation in rural and urban areas</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental pollution               <ul style="list-style-type: none"> <li>- Causes</li> <li>- Effects</li> <li>- Mitigation</li> </ul> </li> <li>• Indigenous knowledge systems (IKS)</li> <li>• Environmental degradation               <ul style="list-style-type: none"> <li>- Causes</li> <li>- Effects</li> <li>- Mitigation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Describing causes and effects of degradation in their locality</li> <li>• Measuring level of pollution of selected parameters such as temperature, pH, turbidity, e-coli</li> <li>• Evaluating control measures of pollution</li> <li>• Documenting and applying IKS in their locality.</li> </ul>	<ul style="list-style-type: none"> <li>• Local environment</li> <li>• Recommended textbooks</li> <li>• Print and electronic media showing polluted environments</li> <li>• Talking books</li> <li>• Resource persons</li> <li>• Local environment</li> <li>• Recommended textbooks</li> <li>• Print and electronic media showing degraded environments</li> <li>• Talking books</li> <li>• Resource persons</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
	<ul style="list-style-type: none"> <li>evaluate mitigatory measures of degradation</li> </ul>	<ul style="list-style-type: none"> <li>Indigenous knowledge systems (IKS)</li> </ul>	<ul style="list-style-type: none"> <li>Describing causes and effects of degradation in their locality</li> <li>Evaluating control measures of degradation</li> <li>Adopting and reclaiming a degraded environment as a voluntary community project</li> <li>Documenting and applying IKS in their locality</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<a href="#">Environmental Impact</a>	<ul style="list-style-type: none"> <li><a href="#">conduct an EIA of a</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Stages of EIA</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Visiting the project area</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Local environment</a></li> <li><a href="#">Resource person</a></li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
<a href="#">Assessment</a>	<ul style="list-style-type: none"> <li>• <a href="#">development project in their local area</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Scoping and screening</a></li> <li>• <a href="#">Identification of impact</a></li> <li>• <a href="#">Mitigation measures</a></li> <li>• <a href="#">Environmental monitoring plan</a></li> <li>• <a href="#">Preparation of EIA document</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Collecting relevant data</a></li> <li>• <a href="#">Suggesting mitigatory measures</a></li> <li>• <a href="#">Preparation of EIA project</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">from EMA</a></li> <li>• <a href="#">EMA Act 20:27</a></li> <li>• <a href="#">Talking books</a></li> </ul>
<a href="#">Environmental management projects</a>	<ul style="list-style-type: none"> <li>• <a href="#">conduct an environmental management project in their local area</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Problem identification and justification</a></li> <li>• <a href="#">Project proposal</a></li> <li>• <a href="#">Monitoring</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Conducting any one of the following projects in their local area: waste management/</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Local environment</a></li> <li>• <a href="#">Print and electronic media showing polluted environments</a></li> <li>• <a href="#">Talking books</a></li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
		<a href="#">and evaluation</a>	<a href="#">land reclamation/ reforestation</a> <ul style="list-style-type: none"> <li>• <a href="#">Compiling a project report</a></li> </ul>	

**TOPIC 4:** Atmospheric processes and phenomena

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
The Earth-atmosphere energy budget	<ul style="list-style-type: none"> <li>• differentiate diurnal from nocturnal solar radiation for a given day</li> <li>• illustrate heat transfer from areas of excess heat to areas of heat deficit.</li> <li>• explain methods of heat transfer from areas of excess to areas of deficit</li> </ul>	<ul style="list-style-type: none"> <li>• Variations in diurnal and nocturnal solar radiation</li> <li>• Global energy transfer               <ul style="list-style-type: none"> <li>- Vertical transfer</li> <li>- Lateral transfer</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Simulating solar radiation for day time and night time in a given day</li> <li>• Demarcating areas with heat excess from those with heat deficit</li> <li>• Outlining the methods of heat transfer</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Torch or light bulb</li> <li>• The globe.</li> <li>• Oblique plastics</li> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• The globe</li> <li>• Torch or light bulb</li> </ul>
Weather processes and phenomena	<ul style="list-style-type: none"> <li>• contrast atmospheric stability and instability to</li> </ul>	<ul style="list-style-type: none"> <li>• Atmospheric stability and instability:               <ul style="list-style-type: none"> <li>- Theories of raindrop formation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Illustrating atmospheric stability and instability (ELR,</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
	show different weather phenomena	- Types of precipitation	DALR, SALR and FALR)	
Air masses	<ul style="list-style-type: none"> <li>• distinguish air masses according to their source regions</li> <li>• explain modification of air masses from source regions</li> <li>• examine the effects of air masses</li> <li>• explain weather associated with cyclones and</li> </ul>	<ul style="list-style-type: none"> <li>• Characteristics of air masses</li> <li>• Modification of air masses</li> <li>• Effects of air masses</li> <li>• Air masses affecting Zimbabwe</li> <li>• Cyclones and anticyclones</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying source regions of different air masses.</li> <li>• Identifying surface pressure systems from remotely sensed data</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• World map</li> <li>• Satellite images</li> <li>• Computer</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
	anticyclones			
Microclimates	<ul style="list-style-type: none"> <li>describe the development of microclimates</li> <li>explain the effects of microclimates</li> <li>compare temperature and rainfall in microclimates and their adjacent areas</li> </ul>	<ul style="list-style-type: none"> <li>microclimates such as urban heat island, land and sea breezes, forested areas</li> </ul>	<ul style="list-style-type: none"> <li>Explaining the development of microclimates</li> <li>discussing effects of microclimates</li> <li>distinguishing temperature and rainfall in microclimates and their adjacent areas</li> </ul>	<ul style="list-style-type: none"> <li>Videos</li> <li>climatic records of urban areas</li> <li>SPSS software</li> <li>Talking books</li> <li>Scientific and talking calculators</li> </ul>
Climate change	<ul style="list-style-type: none"> <li>explain the causes of climate change</li> <li>discuss the effects of climate</li> </ul>	<ul style="list-style-type: none"> <li>Causes of climatic change: <ul style="list-style-type: none"> <li>Natural climatic changes</li> <li>Anthropogenic climatic changes (Global warming)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>describing causes of climate change</li> <li>Discussing effects of El Nino and La Nina to</li> </ul>	<ul style="list-style-type: none"> <li>World atmospheric circulation map</li> <li>Talking books</li> <li>Local environment</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
	<ul style="list-style-type: none"> <li>change</li> <li>• evaluate climate change mitigation and adaptation measures</li> </ul>	<ul style="list-style-type: none"> <li>• El Nino</li> <li>• La Nina</li> <li>• Effects of climate change</li> <li>• Climate change mitigation and adaptation</li> </ul>	<p>Zimbabwe, Southern Africa and the World.</p> <ul style="list-style-type: none"> <li>• Analysing the effects of global warming</li> <li>• Assessing climate change mitigation and adaptation measures</li> </ul>	
Climatic hazards and mitigation	<ul style="list-style-type: none"> <li>• explain the causes of weather and climatic hazards</li> <li>• discuss the effects of weather and climatic hazards</li> </ul>	<ul style="list-style-type: none"> <li>• Weather and Climatic hazards: <ul style="list-style-type: none"> <li>- Drought</li> <li>- Floods</li> <li>- Tropical cyclones/ tornados/ hurricanes/ typhoon</li> <li>- Heatwaves</li> </ul> </li> <li>• Causes and effects of weather and climatic</li> </ul>	<ul style="list-style-type: none"> <li>• discussing the causes and effects of weather and climatic hazards</li> <li>• Suggesting mitigatory measures to climatic</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Videos</li> <li>• Talking books</li> <li>• Maps</li> <li>• Satellite images</li> <li>• Simulation models</li> </ul>

<b>TOPIC</b>	<b>OBJECTIVES Learners should be able to:</b>	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
	<ul style="list-style-type: none"> <li>• assess the effectiveness of adaptation and mitigatory measures</li> </ul>	hazards <ul style="list-style-type: none"> <li>• Adaptation and mitigatory measures</li> </ul>	hazards	

**TOPIC 5: Geomorphology**

<b>TOPIC</b>	<b>OBJECTIVES Learners should be able to:</b>	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
Plate tectonics	<ul style="list-style-type: none"> <li>• distinguish features related to constructive and destructive plate</li> </ul>	<ul style="list-style-type: none"> <li>• Constructive and destructive plate boundaries</li> <li>• Tectonic processes and related features:               <ul style="list-style-type: none"> <li>- Earthquakes</li> <li>- Vulcanicity</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Modelling fold mountains using the digital elevation model</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Computer with GIS software like ArcView,</li> </ul>

	boundaries	<ul style="list-style-type: none"><li>- Folding</li><li>- Faulting</li></ul>	(DEM) <ul style="list-style-type: none"><li>• Simulating tectonic processes</li></ul>	QGIS <ul style="list-style-type: none"><li>• Animations</li></ul>
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<p>Rocks and weathering and slope development</p>	<ul style="list-style-type: none"> <li>• justify weathering types according to different climatic conditions</li> <li>• explain non climatic factors affecting weathering</li> <li>• Identify different slope profiles</li> <li>• evaluate processes of slope development</li> </ul>	<ul style="list-style-type: none"> <li>• weathering types in different climatic conditions</li> <li>• non climatic factors affecting weathering <ul style="list-style-type: none"> <li>- rock characteristics</li> <li>- relief</li> <li>- vegetation</li> <li>- human influence</li> </ul> </li> <li>• Factors affecting slope forms</li> <li>• Slope development processes</li> </ul>	<ul style="list-style-type: none"> <li>• Illustrating weathering types on the Peltier diagram</li> <li>• Discussing non climatic factors affecting weathering</li> <li>• Identifying weathering types on exposed rocks</li> <li>• Illustrating pediplanation, peneplanation, etchplanation</li> <li>• Measuring slope angle, slope height</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks <ul style="list-style-type: none"> <li>• Talking books</li> <li>• Peltier diagram</li> <li>• Rock samples</li> <li>• Local environment</li> </ul> </li> <li>• Recommended textbooks <ul style="list-style-type: none"> <li>• Talking books</li> <li>• Nearby stream/landforms</li> <li>• Ranging rods, tape measure,</li> <li>• Clinometer</li> <li>• Hammer</li> </ul> </li> </ul>
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Tropical landform development	<ul style="list-style-type: none"><li>• Discuss theories of inselberg formation</li><li>• Explain landform development in limestone regions</li><li>• Identify characteristics of resultant landforms</li></ul>	<ul style="list-style-type: none"><li>• theories of inselberg formation</li><li>• karst landscapes</li><li>• duricrusts</li></ul>	<ul style="list-style-type: none"><li>• Discussing theories of inselberg formation</li><li>• Describing landform formation in limestone landscapes</li><li>• Sketching tropical landforms</li></ul>	<ul style="list-style-type: none"><li>• Recommended textbooks</li><li>• Talking books</li><li>• DEM i.e. Zimdem</li></ul>
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<p>Geomorphological hazards</p>	<ul style="list-style-type: none"> <li>• explain the distribution of hazards resulting from mass movements</li> <li>• discuss the causes and effects of hazards resulting from mass movements</li> <li>• assess the effectiveness of mitigatory and adaptation measures</li> </ul>	<ul style="list-style-type: none"> <li>• hazards resulting from mass movements such as mud flows, landslides and rock falls</li> <li>• Causes</li> <li>• Effects</li> <li>• Mitigation</li> </ul>	<ul style="list-style-type: none"> <li>• Mapping/ sketching the distribution of hazards resulting from mass movements</li> <li>• Discussing causes and effects of hazards resulting from mass movements</li> <li>• Evaluating mitigatory and adaptation measures</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Maps</li> <li>• Satellite images</li> <li>• Media</li> </ul>
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**TOPIC 6:** Hydrology and fluvial processes

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
The drainage basin system	<ul style="list-style-type: none"> <li>• analyse the drainage basin system</li> <li>• evaluate the sustainable management of ground water sources</li> </ul>	<ul style="list-style-type: none"> <li>• The drainage basin system:               <ul style="list-style-type: none"> <li>- Inputs</li> <li>- Processes/ flows</li> <li>- Outputs</li> <li>- Stores</li> </ul> </li> <li>• Ground Water               <ul style="list-style-type: none"> <li>- Occurrence</li> <li>- Quantity and quality</li> <li>- Sustainable management of ground water</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Illustrating the drainage basin system</li> <li>• Testing ground water quality</li> <li>• Surveying ground water occurrence using IKS and scientific methods</li> <li>• Afforestation/ reforestation of the drainage basin area</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended Textbooks</li> <li>• Talking Books</li> <li>• Local rivers/ Drainage basins</li> <li>• Water testing kit</li> <li>• Indigenous resources</li> <li>• Resource persons</li> <li>• Indigenous tree seedlings such as Mitohwe/ Uxakuxaku</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Rainfall - discharge relationships within drainage basins	<ul style="list-style-type: none"> <li>• analyse rainfall-discharge relationships within drainage basins</li> <li>• manage drainage basin</li> </ul>	<ul style="list-style-type: none"> <li>• Interpretation of storm hydrographs</li> <li>• Stream morphometry               <ul style="list-style-type: none"> <li>- Stream ordering</li> <li>- Stream density</li> <li>- Stream intensity</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Measuring various fluvial parameters</li> </ul> <p><b>NB: to be done under teacher supervision for safety and health</b></p> <ul style="list-style-type: none"> <li>• Drawing storm hydrographs</li> <li>• Hypotheses testing for relationships</li> <li>• Calculating stream morphometry</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended Textbooks</li> <li>• Talking Books</li> <li>• Measuring instruments such as rain gauge, river discharge gauging station</li> <li>• MS Excel /Graph paper</li> <li>• SPSS software</li> <li>• Ordnance survey maps</li> <li>• Cartwheel (measuring wheel)</li> <li>• GPS</li> </ul>

TOPIC	OBJECTIVES Learners should be able to:	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
River channel processes and landforms	<ul style="list-style-type: none"> <li>• relate processes and landforms to each section of the long profile</li> <li>• calculate channel efficiency of local streams</li> </ul>	<ul style="list-style-type: none"> <li>• river processes</li> <li>• River landforms</li> <li>• Channel efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Carrying out a Field work</li> <li>• Drawing sketch sections and sketch maps</li> <li>• Measuring wetted perimeter</li> <li>• Calculating channel efficiency</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended Textbooks</li> <li>• Talking Books</li> <li>• Zimbabwe digital elevation model (Zimdem)</li> <li>• Data recording sheets, pens, pencils,</li> <li>• measuring wheel</li> <li>• animations</li> </ul>
River flooding and mitigation	<ul style="list-style-type: none"> <li>• explain river flooding</li> <li>• identify effects of river flooding</li> </ul>	<ul style="list-style-type: none"> <li>• river flooding <ul style="list-style-type: none"> <li>- causes</li> <li>- effects</li> <li>- control</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Developing and testing hypotheses on the occurrence of floods</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended Textbooks</li> <li>• Talking Books</li> <li>• Computer</li> </ul>

<b>TOPIC</b>	<b>OBJECTIVES</b> Learners should be able to:	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
	<ul style="list-style-type: none"> <li>• assess mitigatory measures</li> </ul>		<ul style="list-style-type: none"> <li>• Interpreting river regimes</li> </ul>	programmes such as MS Excel and SPSS software

### Topic: 7 Biogeography

<b>TOPIC</b>	<b>OBJECTIVES</b> Learners should be able to :	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
Factors affecting vegetation distribution	<ul style="list-style-type: none"> <li>• explain factors affecting vegetation distribution</li> </ul>	<ul style="list-style-type: none"> <li>• factors affecting vegetation distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing factors affecting vegetation distribution</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Local environment</li> <li>• Talking</li> </ul>

				books
Plant succession	<ul style="list-style-type: none"> <li>• outline sequence of plant succession</li> <li>• describe types of primary plant succession</li> <li>• explain secondary succession</li> </ul>	<ul style="list-style-type: none"> <li>• Priserre</li> <li>• Types of Primary succession</li> <li>• Secondary succession</li> </ul>	<ul style="list-style-type: none"> <li>• Conducting a study on secondary plant succession after a fire/ deforestation</li> <li>• Researching on primary succession such as lithosere</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Local environment</li> <li>• Talking books</li> </ul>

<p>Biogeochemical cycles and Gersmehl diagrams</p>	<ul style="list-style-type: none"> <li>• illustrate the carbon and nitrogen cycles</li> <li>• describe carbon and nitrogen cycles</li> <li>• draw the Gersmehl diagram</li> <li>• identify the compartments of nutrients cycles</li> <li>• apply nutrients cycles to tropical biomes</li> </ul>	<ul style="list-style-type: none"> <li>• Biogeochemical cycles: <ul style="list-style-type: none"> <li>- carbon,</li> <li>- nitrogen</li> <li>- oxygen</li> </ul> </li> <li>• Gersmehl diagram of nutrients cycling <ul style="list-style-type: none"> <li>- Compartments of nutrient cycles</li> <li>- Nutrients cycling in tropical biomes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Drawing the carbon and nitrogen cycles</li> <li>• Assessing effects to changes of flows in the Gerschmel model in their local area</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended Textbooks <ul style="list-style-type: none"> <li>• Local area</li> <li>• Electronic and print media showing different biomes</li> </ul> </li> <li>• Recommended Textbooks <ul style="list-style-type: none"> <li>• Local area</li> <li>• Electronic and print media showing different biomes</li> </ul> </li> </ul>
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<p>Biomes: biodiversity and adaptation.</p>	<ul style="list-style-type: none"> <li>• outline inputs of tropical biomes</li> <li>• identify the adaptation of tropical plants to their environment</li> <li>• explain the characteristics of each tropical biome</li> <li>• describe the concept of biodiversity</li> <li>• measure plant diversity in their locality</li> <li>• explain ways by which plants and animals adapt to climatic conditions in each biome</li> </ul>	<ul style="list-style-type: none"> <li>• Tropical biomes: <ul style="list-style-type: none"> <li>- rainforest</li> <li>- hot desert</li> <li>- savanna</li> <li>- grassland</li> <li>- temperate</li> </ul> </li> <li>• Biodiversity <ul style="list-style-type: none"> <li>- Measurement of plant species: plant height, crown height and crown width</li> </ul> </li> <li>• Plant and animal adaptation to prevailing climatic conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Studying the characteristics of a tropical grassland biome in their locality</li> <li>• Quadrant sampling</li> <li>• Measuring of plant characteristics</li> <li>• Presenting data on graphs</li> <li>• Analysing data</li> <li>• researching ways by which plants and animals adapt to climatic conditions in the local environment</li> <li>• Drawing sketch diagrams showing structure of tropical biomes</li> </ul>	<ul style="list-style-type: none"> <li>• Local area</li> <li>• Recommended textbooks</li> <li>• Electronic and print media showing tropical biomes and wild life</li> <li>• Tourism video clips e.g. of Serengeti National Park</li> <li>• Recommended textbooks</li> <li>• Electronic and print media showing tropical biomes</li> </ul>
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<p>Soil forming factors, soil profiles and soil catenas</p>	<ul style="list-style-type: none"> <li>• explain Jenny's formula of soil forming factors</li> <li>• conduct fieldwork on soil profiles</li> <li>• describe the soil catena</li> </ul>	<ul style="list-style-type: none"> <li>• Jenny's formula of soil forming factors</li> <li>• Soil catenas</li> </ul>	<ul style="list-style-type: none"> <li>• Drawing soil profiles</li> <li>• Drawing a soil catena</li> <li>• Carrying out fieldwork on soil profile</li> <li>• Carrying out fieldwork on soil catena</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Local area</li> <li>• Talking books</li> </ul>
<p>Measurement of soil characteristics</p>	<ul style="list-style-type: none"> <li>• collect sample soil</li> <li>• measure soil parameters</li> <li>• present data on graphs</li> <li>• analyse soil data</li> </ul>	<ul style="list-style-type: none"> <li>• Soil parameters: <ul style="list-style-type: none"> <li>- Texture</li> <li>- Structure</li> <li>- pH</li> <li>- Moisture content</li> <li>- Organic content</li> <li>- Soil colour</li> <li>- Depth</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Collecting soil samples</li> <li>• Measuring soil parameters</li> <li>• Drawing graphs</li> <li>• Analysing data</li> </ul>	<ul style="list-style-type: none"> <li>• Their locality</li> <li>• Talking books</li> <li>• Soil sampling equipment and testing kit</li> <li>• Graph paper</li> <li>• Scientific and talking</li> </ul>

				calculators
Sustainable management of ecosystems	<ul style="list-style-type: none"> <li>• outline ways of conserving tropical biomes</li> <li>• plant school woodlots</li> <li>• evaluate measures that have been used to conserve tropical ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>• Management of ecosystems: <ul style="list-style-type: none"> <li>- Against commercial logging</li> <li>- Against veld fires and poaching</li> <li>- Against human encroachment</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Establishing school woodlots</li> <li>• Forming an environmental club</li> <li>• Forming fire- fighting committee</li> <li>• Keeping small wild animal species such as quail birds</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Resource persons from EMA, forestry commission, parks and wildlife management</li> <li>• Local environment</li> <li>• Talking books</li> </ul>

### TOPIC 8: Population and Migration

TOPIC	OBJECTIVES L earners should be able to :	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
<ul style="list-style-type: none"> <li>• Population indicators</li> </ul>	<ul style="list-style-type: none"> <li>• calculate the indicators of</li> </ul>	<ul style="list-style-type: none"> <li>• Population Indicators such as :</li> </ul>	<ul style="list-style-type: none"> <li>• Calculating indicators of</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> </ul>

	<p>population</p> <ul style="list-style-type: none"> <li>• assess the importance of population indicators</li> </ul>	<ul style="list-style-type: none"> <li>- Birth rate</li> <li>- Death rate</li> <li>- dependency</li> </ul>	<p>population</p> <ul style="list-style-type: none"> <li>• Explaining factors affecting population indicators</li> <li>• Carrying out a survey on birth and death rates in the local community</li> <li>• Discussing the importance of population indicators</li> </ul>	<ul style="list-style-type: none"> <li>• Talking Books</li> <li>• Scientific and talking calculators</li> <li>• Media</li> <li>• Resource persons such as from ZimStat, PSI</li> <li>• Local community</li> </ul>
<ul style="list-style-type: none"> <li>• Population Growth</li> </ul>	<ul style="list-style-type: none"> <li>• explain the causes of population growth</li> <li>• assess the impact of population growth on development.</li> </ul>	<ul style="list-style-type: none"> <li>• Positive and Negative effects of population growth</li> <li>• Trends in Population growth [Demographic Transition Model (DTM)]</li> <li>• Determinants of</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing positive and negative effects of population growth.</li> <li>• Explaining the trends in population growth.</li> <li>• Debating the impact of</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Media</li> <li>• Talking books</li> <li>• ZimStat</li> <li>• Census reports</li> <li>• Educational</li> </ul>

		<p>economic development</p> <ul style="list-style-type: none"> <li>• Impact of population growth on development</li> </ul>	<p>population growth on development</p> <ul style="list-style-type: none"> <li>• Touring a resource strained community</li> </ul>	<p>tours</p>
<ul style="list-style-type: none"> <li>• Population-resource relationships</li> </ul>	<ul style="list-style-type: none"> <li>• discuss overpopulation, underpopulation and optimum population</li> <li>• explain population-resource relationships using relevant theories</li> <li>• explain the relationships between population density and resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Overpopulation, under population and optimum population.</li> <li>• Thomas Malthus and Ester Boserup theories</li> <li>• Population density versus Resources:</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing population-resource relationships.</li> <li>• Applying Malthus and Boserup theories in explaining population-resource relationships</li> <li>• Evaluating Malthus and Boserup theories</li> <li>• Touring an overpopulated community</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Educational tours</li> <li>• Local community</li> <li>• ZimStat population maps</li> </ul>

<ul style="list-style-type: none"> <li>• Population, health and diseases</li> </ul>	<ul style="list-style-type: none"> <li>• identify diseases that affect population.</li> <li>• outline the effects of diseases</li> <li>• explain scientific ways of combating diseases.</li> <li>• assess indigenous ways of preventing and curing diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Diseases that affect population: <ul style="list-style-type: none"> <li>- Cholera</li> <li>- Tuberculosis</li> <li>- Malaria</li> <li>- Ebola</li> <li>- HIV/AIDS</li> <li>- Cancer</li> </ul> </li> <li>• Prevention and cure</li> <li>• Indigenous knowledge systems (IKS)</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing causes of diseases</li> <li>• Discussing prevention and cure</li> <li>• Researching on prevalent diseases in the community</li> <li>• Designing information material on diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking Books</li> <li>• Ministry of Health and Child Care flyers, pamphlets and posters</li> <li>• Resource persons</li> <li>• Videos</li> </ul>
<p>Migration</p>	<ul style="list-style-type: none"> <li>• Explain the forms of migration</li> <li>• Describe the trends in migration</li> <li>• Describe patterns of migration</li> <li>• Assess applicability of migration models</li> <li>• Describe the</li> </ul>	<ul style="list-style-type: none"> <li>• Types of migration</li> <li>• Migration trends</li> <li>• Patterns of migration</li> <li>• Models of migration</li> <li>• Causes of migration</li> <li>• Impact of migration</li> </ul>	<ul style="list-style-type: none"> <li>• Debating on forms of migration</li> <li>• Discussing migration trends</li> <li>• Discussing patterns of migration</li> <li>• Assessing applicability of</li> </ul>	<ul style="list-style-type: none"> <li>• Talking books</li> <li>• Media</li> <li>• Maps</li> <li>• Animations</li> </ul>

	<p>causes and impact of migration</p> <ul style="list-style-type: none"> <li>• Evaluate the impact of migration</li> </ul>		<p>migration models</p> <ul style="list-style-type: none"> <li>• Discussing the causes and impact of migration</li> </ul>	
Population policies	<ul style="list-style-type: none"> <li>• Explain pro and anti natalist theories with reference to relevant countries</li> <li>• Evaluate the impact of population policies to the economies of countries</li> </ul>	<ul style="list-style-type: none"> <li>• Pro and anti natalist theories</li> <li>• Population policies in countries such as Zimbabwe, China, Sweden and Germany</li> <li>• Impact of population policies</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing pro and anti natalist theories</li> <li>• Discussing population policies of different countries</li> <li>• Assessing the impact of population policies</li> </ul>	<ul style="list-style-type: none"> <li>• Talking books</li> <li>• Media</li> <li>• Population policy documents</li> </ul>

| **TOPIC 9: Settlement Dynamics**

TOPIC	OBJECTIVES Learners should be able to :	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Site and location of settlements	<ul style="list-style-type: none"> <li>• identify factors influencing site and location of settlements</li> <li>• explain the site and location of settlements</li> </ul>	<ul style="list-style-type: none"> <li>• Site of settlements</li> <li>• Location of settlements</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing factors affecting site and location of settlements</li> <li>• Assessing the suitability of the site and location of settlements in the local community</li> <li>• Planning the expansion of a local settlement</li> <li>• Touring resettlement areas</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Media</li> <li>• Talking books</li> <li>• Local community</li> <li>• Maps</li> </ul>
Settlement hierarchy	<ul style="list-style-type: none"> <li>• explain how settlements are classified</li> <li>• classify settlements according to</li> </ul>	<ul style="list-style-type: none"> <li>• criteria for classifying settlements: <ul style="list-style-type: none"> <li>- population size</li> <li>- function</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Touring a local settlement to identify functions</li> <li>• Discussing characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Local settlement</li> <li>• Talking books</li> <li>• Maps</li> <li>• Resource persons</li> </ul>

	<p>their ranks</p> <ul style="list-style-type: none"> <li>• discuss settlement classification theories</li> </ul>	<ul style="list-style-type: none"> <li>• settlement classification theories: <ul style="list-style-type: none"> <li>- primacy</li> <li>- binary</li> <li>- rank size rule</li> <li>- nearest neighbour analysis</li> </ul> </li> </ul>	<p>of the settlement</p> <ul style="list-style-type: none"> <li>• Notes on classes of settlements according to population size: <ul style="list-style-type: none"> <li>- Village</li> <li>- Service centre</li> <li>- Growth point</li> <li>- Town</li> <li>- City</li> <li>- Conurbation</li> </ul> </li> </ul>	
Growth points	<ul style="list-style-type: none"> <li>• describe the concept of growth points</li> <li>• explain</li> </ul>	<ul style="list-style-type: none"> <li>• Growth points</li> <li>• Reasons for establishing growth points</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying characteristics of growth points</li> <li>• Touring a local</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Growth points</li> </ul>

	<p>reasons for establishing growth points</p> <ul style="list-style-type: none"> <li>• evaluate the growth point policy in Zimbabwe</li> </ul>	<ul style="list-style-type: none"> <li>• Rate of development of growth points</li> </ul>	<p>growth point to assess function, population and infrastructure</p> <ul style="list-style-type: none"> <li>• Initiating projects to accelerate growth using local resources</li> <li>• Proposing measures for future growth</li> </ul>	<ul style="list-style-type: none"> <li>• Ordinance maps</li> <li>• Growth point policy document</li> </ul>
Land reform and Resettlement	<ul style="list-style-type: none"> <li>• Explain the importance of land Reform programmes on settlement development</li> </ul>	<ul style="list-style-type: none"> <li>• Land Reform induced settlements in Zimbabwe <ul style="list-style-type: none"> <li>- A1 settlements</li> <li>- A2 settlements</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Debating the impact of land reform on settlement development</li> <li>• Touring a local resettlement farm to identify settlement</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Print Media</li> <li>• Resource persons</li> <li>• Talking books</li> <li>• Resettled areas</li> </ul>

		s	patterns and services	
<ul style="list-style-type: none"> <li>• Functions of rural and urban settlements</li> </ul>	<ul style="list-style-type: none"> <li>• Explain the functions of rural and urban settlements</li> </ul>	<ul style="list-style-type: none"> <li>• Rural and urban settlements</li> </ul>	<ul style="list-style-type: none"> <li>• Touring a rural or urban settlement to identify functions</li> <li>• Tabulating and presenting data on functions</li> <li>• Mapping settlement functions in a GIS or manually</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Local settlements</li> <li>• Talking books</li> <li>• GIS software</li> <li>• Hand held GPS receivers</li> <li>• computer</li> </ul>
<ul style="list-style-type: none"> <li>• Rural-urban interaction</li> </ul>	<ul style="list-style-type: none"> <li>• describe rural-urban interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Relationships between rural and urban settlements</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing interrelationships between rural and urban settlements</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> </ul>
<ul style="list-style-type: none"> <li>• Urbanisation</li> </ul>	<ul style="list-style-type: none"> <li>• outline causes</li> </ul>	<ul style="list-style-type: none"> <li>• causes and</li> </ul>	<ul style="list-style-type: none"> <li>• planning</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended</li> </ul>

<p>tion and counter-urbanisation</p>	<p>of urbanisation and counter urbanisation</p> <ul style="list-style-type: none"> <li>• explain the impacts of urbanisation</li> <li>• evaluate solutions to urbanisation and counter urbanisation problems</li> </ul>	<p>effects of:</p> <ul style="list-style-type: none"> <li>- urbanisation</li> <li>- counter-urbanisation</li> </ul> <ul style="list-style-type: none"> <li>• solutions to urbanisation and counter-urbanisation problems</li> </ul>	<p>possible expansion areas</p> <ul style="list-style-type: none"> <li>• evaluating the impact of urbanisation</li> <li>• Debating on solutions to urbanisation and counter urbanisation problems</li> </ul>	<p>textbooks</p> <ul style="list-style-type: none"> <li>• Talking books</li> <li>• Local area</li> </ul>
<p>Spheres of influence</p>	<ul style="list-style-type: none"> <li>• explain how the sphere of influence is determined.</li> <li>• discuss the importance of spheres of influence</li> <li>• delimit the</li> </ul>	<ul style="list-style-type: none"> <li>• Determining the sphere of Influence</li> <li>• Importance of the sphere of influence.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrating spheres of influence.</li> <li>• Fieldwork on delimiting the sphere of influence of a local service centre</li> <li>• Discussing the</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Resource persons</li> <li>• Talking books</li> <li>• Local service centre</li> </ul>

	sphere of influence		importance of spheres of influence.	
Delimitation of the CBD	<ul style="list-style-type: none"> <li>delineate the aerial extent of the CBD.</li> </ul>	<ul style="list-style-type: none"> <li>CBD</li> <li>Central Business District Indices</li> <li>Descriptive methods such as traffic lights, pedestrian and vehicle flows</li> </ul>	<ul style="list-style-type: none"> <li>Delineating the CBD.</li> <li>Fieldwork such as traffic lights, pedestrian and vehicle counts</li> </ul>	<ul style="list-style-type: none"> <li>Recommended textbooks</li> <li>Maps</li> <li>Talking books</li> <li>Local urban area</li> </ul>
Rural and Urban Land use Planning	<ul style="list-style-type: none"> <li>identify planning techniques for rural and urban land use.</li> <li>apply the techniques of land use planning.</li> </ul>	<ul style="list-style-type: none"> <li>Planning techniques</li> <li>Aspects of environmental design</li> </ul>	<ul style="list-style-type: none"> <li>Planning land uses using GIS/maps</li> <li>Designing Models of rural and urban areas.</li> </ul>	<ul style="list-style-type: none"> <li>Recommended textbooks</li> <li>GIS software</li> <li>Talking books</li> <li>Maps</li> </ul>

**TOPIC 10:** Agricultural production and food security

TOPIC	OBJECTIVES Learners should be able to :	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Factors affecting agricultural production	<ul style="list-style-type: none"> <li>• Identify the factors affecting agricultural production.</li> <li>• explain the factors affecting agricultural production.</li> </ul>	<ul style="list-style-type: none"> <li>• factors affecting agricultural production.</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing factors affecting agricultural production.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Resource persons</li> </ul>
Agricultural Location	<ul style="list-style-type: none"> <li>• describe the location of Agricultural activities.</li> <li>• explain theories of agricultural location</li> <li>• assess the applicability</li> </ul>	<ul style="list-style-type: none"> <li>• Agro-ecological regions of Zimbabwe</li> <li>• Theories of Agricultural location e.g. the Von Thunen theory</li> </ul>	<ul style="list-style-type: none"> <li>• Touring a local farming area to assess the applicability of agricultural theories.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Resource persons</li> <li>• Talking books</li> <li>• Local farming area</li> </ul>

	of theories of agricultural location.			
Farming systems in the tropics	<ul style="list-style-type: none"> <li>• identify farming systems in the tropics.</li> <li>• describe the characteristics of farming systems.</li> <li>• explain the importance of the farming systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Subsistence farming systems: <ul style="list-style-type: none"> <li>- Shifting cultivation</li> <li>- Pastoral nomadism</li> <li>- Communal farming</li> </ul> </li> <li>• Commercial farming systems: <ul style="list-style-type: none"> <li>- Dairy farming</li> <li>- Horticulture</li> <li>- Cattle ranching</li> <li>- Plantation/ estates</li> </ul> </li> <li>• Major cereal crops such as maize, wheat, rice</li> </ul>	<ul style="list-style-type: none"> <li>• Touring of local farms and identifying activities at the farms.</li> <li>• Discussing characteristics of each farming system.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Resource persons</li> <li>• Talking books</li> <li>• Local area</li> </ul>
The Green Revolution	<ul style="list-style-type: none"> <li>• describe the techniques adopted to increase food</li> </ul>	<ul style="list-style-type: none"> <li>• Green Revolution: <ul style="list-style-type: none"> <li>- Biochemical changes</li> <li>- Mechanical changes</li> <li>- Socio-economic changes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Discussing the Green Revolution techniques.</li> <li>• Debating on the success of the</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Local area</li> </ul>

	<p>production.</p> <ul style="list-style-type: none"> <li>• assess the success of the Green Revolution.</li> </ul>		<p>Green Revolution.</p> <ul style="list-style-type: none"> <li>• Demonstrating Green Revolution techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Indigenous seeds</li> <li>• Media</li> <li>• Resource persons</li> </ul>
Land Reform and Food Security in Zimbabwe	<ul style="list-style-type: none"> <li>• Explain the importance of the need for land reform in Zimbabwe</li> <li>• Evaluate the contribution of land reform to food production</li> </ul>	<ul style="list-style-type: none"> <li>• Land Reform Programme in Zimbabwe.</li> <li>• Trends in food production since year 2000</li> </ul>	<ul style="list-style-type: none"> <li>• Touring a local resettlement area.</li> <li>• Discussing the contribution of land reform to food production.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Media</li> <li>• Resource persons</li> <li>• Resettlement area</li> <li>• ZimStat</li> </ul>
Value addition and Agri-business	<ul style="list-style-type: none"> <li>• Explain the forms and importance of agri-business</li> </ul>	<ul style="list-style-type: none"> <li>• Forms of agri-business</li> <li>• Value addition in agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing forms and importance of agri-business</li> <li>• Discussing the importance of</li> </ul>	<ul style="list-style-type: none"> <li>• Media</li> <li>• Resource Person</li> <li>• Exhibition shows</li> </ul>

	<ul style="list-style-type: none"> <li>• Explain forms of value addition in agriculture</li> <li>• Assess the role of value addition in agri-business.</li> </ul>		<p>value addition in agriculture.</p> <ul style="list-style-type: none"> <li>• Debating the role of value addition in agriculture</li> <li>• Exhibiting value added products at Agricultural Exhibitions</li> </ul>	
Climate change and other threats to food security	<ul style="list-style-type: none"> <li>• Describe the threats to food security</li> <li>• Assess the impact of climate change to food security.</li> </ul>	<ul style="list-style-type: none"> <li>• Threats to food security: <ul style="list-style-type: none"> <li>- Climate Change</li> <li>- Global warming</li> <li>- Droughts</li> <li>- Floods</li> <li>- Pests and Diseases</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Researching on climate change</li> <li>• Discussing the impact of threats to food security.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Videos</li> <li>• Media</li> <li>• Talking books</li> </ul>

Responses to climatic change in Agriculture	<ul style="list-style-type: none"> <li>• explain ways of increasing agricultural production in the face of climatic change</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change mitigation: <ul style="list-style-type: none"> <li>- Indigenous crops</li> <li>- Conservation farming</li> <li>- Post harvesting techniques</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating the mitigatory</li> <li>• measures to climatic change</li> <li>• Growing appropriate indigenous crops to the region</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Videos</li> <li>• Media</li> <li>• Talking books</li> <li>• Resource persons</li> </ul>
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**TOPIC 11: Mining and mineral beneficiation**

<b>TOPIC</b>	<b>OBJECTIVES</b> Learners should be able to	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
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<p>Mining legislation and mining policies in Zimbabwe</p>	<ul style="list-style-type: none"> <li>• Outline the steps taken to gain mining rights of a claim</li> <li>• Summarise the main contents of each Act</li> <li>• Evaluate the effects of policies on mining.</li> </ul>	<ul style="list-style-type: none"> <li>• Mines and Minerals Act</li> <li>• Environmental Management Act</li> <li>• Minerals marketing corporation of Zimbabwe Act</li> <li>• Precious stones trade Act</li> <li>• Kimberly Process</li> </ul>	<ul style="list-style-type: none"> <li>• Explaining the process of acquiring a mine claim</li> <li>• Interpreting the Acts</li> <li>• Researching on the impacts of policies on mining</li> </ul>	<ul style="list-style-type: none"> <li>• Mines and Minerals Act</li> <li>• Environmental Management Act</li> <li>• Minerals marketing corporation of Zimbabwe Act</li> <li>• Precious stones trade Gold Trade Act</li> <li>• Zimbabwe mining development corporation Act</li> </ul>
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<p>Environmental Impact Assessment in mining</p>	<ul style="list-style-type: none"> <li>• analyse importance of EIA in mining projects</li> <li>• determine impacts of mining projects on the environment</li> <li>• perform an EIA on a hypothetical mining project</li> </ul>	<ul style="list-style-type: none"> <li>• Importance of EIA</li> <li>• The EIA process: <ul style="list-style-type: none"> <li>- Public consultation</li> <li>- Scoping and screening</li> <li>- Identification of impacts</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Discussing the impacts of EIA on mining</li> <li>• Carrying out an EIA on a mining project</li> <li>• Visiting a nearby mining area such as mineral panning sites, sand abstraction area to assess impacts on the environment</li> </ul>	<ul style="list-style-type: none"> <li>• Relevant software (e.g. Quantum GIS Arcmap and Arcview)</li> <li>• Computer</li> <li>• mining area such as mineral panning sites, sand abstraction areas</li> <li>• EIA policy document</li> <li>• Resource persons</li> </ul>
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<p>Prospecting methods and mineralogy</p>	<ul style="list-style-type: none"> <li>• identify minerals that co-occur in Zimbabwe</li> <li>• describe physio-chemical properties of the main minerals of Zimbabwe</li> <li>• Perform testing of samples of ores using different methods</li> </ul>	<ul style="list-style-type: none"> <li>• Physio-chemical properties of the main minerals of Zimbabwe such as cleavage, colour, specific gravity, hardness</li> <li>• Co-occurrence of minerals</li> <li>• IKS prospecting methods</li> <li>• Ultra violet prospecting</li> <li>• Geochemical testing</li> <li>• Geophysical testing</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying minerals that co-occur</li> <li>• Examining the physio-chemical properties of minerals</li> <li>• <b><u>NB</u> Teachers should ensure safety of learners when using tools and chemicals</b></li> <li>• Reflecting mineral presence using ultra violet light</li> <li>• Testing mineral ore physically and chemically</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• metal detector</li> <li>• Moh's scale of hardness</li> <li>• hammer</li> <li>• mineral ore samples</li> <li>• Local environment</li> <li>• Resource persons</li> <li>• Colour charts metal detector</li> <li>• mineral ore samples</li> <li>• Local environment</li> </ul>
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<p>Small and large scale mining enterprises</p>	<ul style="list-style-type: none"><li>• draw up a proposal of a mining enterprise</li><li>• assess the successes and failures of a mining project</li></ul>	<ul style="list-style-type: none"><li>• Mining business</li><li>• Contribution of mining projects to the Zimbabwean economy</li></ul>	<ul style="list-style-type: none"><li>• Compiling a cost-benefit analysis of a mining project</li><li>• Field work at a mine</li></ul>	<ul style="list-style-type: none"><li>• Recommended textbooks</li><li>• Mine</li><li>• Resource persons</li><li>• Talking books</li></ul>
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<p>Impact of mining and mitigation</p>	<ul style="list-style-type: none"> <li>• Assess the impact of mining.</li> <li>• Evaluate the solutions to impacts of mining.</li> </ul>	<ul style="list-style-type: none"> <li>• Impact of mining</li> <li>• Mitigation on impact of mining</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying the impact of mining on the surrounding community.</li> <li>• Suggesting mitigatory measures to impacts of mining</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Recommended textbooks</li> <li>• Recommended textbooks</li> <li>• A mine and its surrounding environment</li> <li>• Resource persons</li> <li>• Talking books</li> </ul>
<p>Value addition and Beneficiation methods</p>	<ul style="list-style-type: none"> <li>• Describe different types of beneficiation processes</li> <li>• Separate sample mineral ores using different separation methods</li> </ul>	<ul style="list-style-type: none"> <li>• Beneficiation methods: Crushing and grinding; drying, gravity separation, magnetic separation, floatation separation and smelting</li> <li>• Diamond</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying beneficiation methods</li> <li>• Adding value to sample mineral ores using different beneficiation</li> </ul>	<ul style="list-style-type: none"> <li>• Recommendation textbooks</li> <li>• Talking books</li> <li>• Mineral samples</li> <li>• Shakeable table</li> <li>• Separation chemicals</li> </ul>

	<ul style="list-style-type: none"> <li>• Explain the value addition process of diamonds</li> <li>• Match separation methods to mineral ores</li> </ul>	cutting and polishing		
Marketing of minerals	<ul style="list-style-type: none"> <li>• Outline the legislation governing mineral sale in Zimbabwe</li> <li>• Examine the procedure followed in selling minerals in Zimbabwe</li> <li>• Determine the demand of a mineral</li> </ul>	<ul style="list-style-type: none"> <li>• Mineral marketing legislation</li> <li>• Sale of minerals within Zimbabwe</li> <li>• Exporting of processed minerals</li> <li>• Market research for minerals</li> </ul>	<ul style="list-style-type: none"> <li>• Compiling legislation documents governing mineral marketing</li> <li>• Carrying out a market research for a mineral of choice</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Resource persons</li> <li>• Relevant legislation</li> <li>• Media</li> <li>• Talking books</li> </ul>
Safety and health in mining	<ul style="list-style-type: none"> <li>• identify diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Diseases associated</li> </ul>	<ul style="list-style-type: none"> <li>• Researching on diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks/ talking books</li> </ul>

	<p>related to mining</p> <ul style="list-style-type: none"> <li>• evaluate solutions to mining hazards</li> <li>• construct a model of safe shaft walls</li> </ul>	<p>with mining</p> <ul style="list-style-type: none"> <li>• Mining hazards and mitigation</li> <li>• Safety and health project</li> </ul>	<p>associated with mining</p> <ul style="list-style-type: none"> <li>• Devising measures taken to reduce mining hazards</li> <li>• Designing safe mining rig model</li> <li>• Constructing a model of the internal mine support structures</li> </ul>	<ul style="list-style-type: none"> <li>• Relevant materials</li> <li>• Resource persons</li> <li>• Safety Health and Environmental (SHE) Policy</li> <li>• Occupational Safety Health and Management Systems (OSHAS)</li> </ul>
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## TOPIC 12: Industrial Dynamics

TOPIC	OBJECTIVES Learners should be able to :	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Industrial location and relocation in Zimbabwe	<ul style="list-style-type: none"> <li>• describe the theories of industrial location.</li> </ul>	<ul style="list-style-type: none"> <li>• Theories of industrial location such as Weber's theory</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing theories of industrial location.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Media</li> </ul>

	<ul style="list-style-type: none"> <li>• assess the applicability of theories of industrial location in Zimbabwe.</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial relocation in Zimbabwe</li> </ul>	<ul style="list-style-type: none"> <li>• Debating the applicability of the theories</li> <li>• Discussing the reasons for industrial relocation in Zimbabwe</li> </ul>	<ul style="list-style-type: none"> <li>• Local industries</li> <li>• Maps</li> </ul>
Industrial linkages and agglomeration	<ul style="list-style-type: none"> <li>• explain industrial linkages and agglomeration.</li> <li>• assess the importance of industrial linkages and agglomeration.</li> </ul>	<ul style="list-style-type: none"> <li>• Backward and forward linkages</li> <li>• Economies and diseconomies of scale.</li> </ul>	<ul style="list-style-type: none"> <li>• Illustrating backward and forward linkages</li> <li>• Discussing importance of industrial linkages and agglomeration.</li> <li>• Touring of local industries</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Resource persons</li> <li>• Talking books</li> <li>• Local industries</li> </ul>
Small and medium scale enterprises (SME) in	<ul style="list-style-type: none"> <li>• describe the nature of small and medium</li> </ul>	<ul style="list-style-type: none"> <li>• Small and medium scale enterprise</li> </ul>	<ul style="list-style-type: none"> <li>• Touring local SMEs to capture their</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Videos</li> </ul>

Zimbabwe	<p>scale enterprise.</p> <ul style="list-style-type: none"> <li>• evaluate the importance of small and medium scale enterprise to the growth of the economy.</li> </ul>	<ul style="list-style-type: none"> <li>• Contribution of SMEs to the growth of the economy.</li> </ul>	<p>characteristics</p> <ul style="list-style-type: none"> <li>• Assessing the role of SMEs to the economy.</li> </ul>	<ul style="list-style-type: none"> <li>• Resource persons</li> <li>• Talking books</li> <li>• SMEs</li> </ul>
Hi-tech industries	<ul style="list-style-type: none"> <li>• describe hi-tech industries.</li> <li>• evaluate the importance of hi-tech industries to the economy of the country.</li> </ul>	<ul style="list-style-type: none"> <li>• Hi-tech industries such as manufacturing of computers and related electrical gadgets.</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing the location of hi-tech industries and their importance to the economy of the country.</li> <li>• Touring hi-tech industries.</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Resource persons</li> <li>• Talking books</li> </ul>
Tourism Industry	<ul style="list-style-type: none"> <li>• Explain the importance of tourism industry.</li> <li>• Describe trends</li> </ul>	<ul style="list-style-type: none"> <li>• Importance of Tourism</li> <li>• Trends in Tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Touring at least two major tourist centres</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Resource</li> </ul>

	<p>in tourism in Zimbabwe.</p> <ul style="list-style-type: none"> <li>• Investigate ways of improving tourist attractions in the local area</li> </ul>	<ul style="list-style-type: none"> <li>• Local tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Discussing the importance of tourism.</li> <li>• Planning tourist developments</li> <li>• Suggesting ways of improving tourism infrastructure</li> <li>• Marketing of local tourist attractions</li> <li>• Developing tourist centres at schools/ local area</li> </ul>	<p>Persons</p> <ul style="list-style-type: none"> <li>• Tourist resort</li> <li>• Zimbabwe Tourism Authority (ZTA) maps</li> </ul>
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**TOPIC 13: Energy sources and development**

<b>TOPIC</b>	<b>OBJECTIVES</b> Learners should be able to	<b>CONTENT</b>	<b>SUGGESTED NOTES AND ACTIVITIES</b>	<b>SUGGESTED RESOURCES</b>
Sources of energy in Zimbabwe	<ul style="list-style-type: none"> <li>• identify actual and potential energy sources in Zimbabwe</li> <li>• explore opportunities for new energy sources</li> </ul>	<ul style="list-style-type: none"> <li>• Potential energy sources</li> <li>• Actual energy sources</li> </ul>	<ul style="list-style-type: none"> <li>• Locating areas with potential and actual sources using remote sensing</li> <li>• Assessing the need to explore potential energy sources</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• GIS tools</li> <li>• Remote sensing tools</li> <li>• Maps</li> </ul>

<p>Clean sources of energy</p>	<ul style="list-style-type: none"> <li>• analyse the environmental impact of using dirty sources of energy</li> <li>• identify gadgets that can be used for the generation of clean energy</li> <li>• draw up a proposal on green energy generation</li> <li>• devising gadgets that can be used for the generation of clean energy</li> </ul>	<ul style="list-style-type: none"> <li>• Clean sources of energy</li> <li>• Equipment used for generation</li> <li>• Project proposal</li> <li>• Equipment for generating clean energy</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying sources of energy that are ideal for the local area</li> <li>• Demonstrating how the gadgets are used</li> <li>• Justifying the project proposal</li> <li>• Demonstrating the use of the devised equipment (gadget)</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Solar energy equipment such as lanterns, solar panels, battery, regulators</li> <li>• Biogas digester</li> <li>• Wind farm</li> <li>• Jatropha</li> </ul>
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<p>Global distribution of energy sources</p>	<ul style="list-style-type: none"><li>• Describe the distribution of major sources of energy (like oil, uranium and coal)</li><li>• Assess the impact arising from the scarcity of oil and uranium</li><li>• Analyse the changing patterns in energy uses</li></ul>	<ul style="list-style-type: none"><li>• Distribution of major sources of energy</li><li>• The impact of unequal distribution of oil</li><li>• Global changes in energy uses.</li></ul>	<ul style="list-style-type: none"><li>• Researching on the distribution of major energy sources</li><li>• Mapping areas of major energy source</li><li>• Constructing graphs on trends</li></ul>	<ul style="list-style-type: none"><li>• Energy conserving bulbs</li></ul>
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<p>Global trends in energy use</p>	<ul style="list-style-type: none"> <li>• Assess the use of clean energy sources</li> <li>• Discuss the factors affecting the trends in the use of energy</li> <li>• Assess the control of oil by OPEC and nuclear by the United Nations</li> </ul>	<ul style="list-style-type: none"> <li>• International control of oil and uranium resources</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating the role of OPEC and United Nations in controlling oil and uranium respectively</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended texts books</li> <li>• Talking books</li> <li>• Media</li> <li>• UN and OPEC documents</li> <li>• Maps</li> </ul>
<p>Sustainable management of energy sources</p>	<ul style="list-style-type: none"> <li>• Evaluate the ways of conserving energy reserves</li> <li>• Devise measures of sustainable use of energy</li> </ul>	<ul style="list-style-type: none"> <li>• Ways of conserving energy resources</li> <li>• Sustainable use of energy in Zimbabwe</li> </ul>	<ul style="list-style-type: none"> <li>• Designing an energy conserving device</li> <li>• Applying ways of conserving energy in local communities</li> </ul>	<ul style="list-style-type: none"> <li>• Talking books</li> <li>• Media</li> <li>• Maps</li> <li>• Relevant material for energy saving device design</li> </ul>

## TOPIC 14: Transport systems and trade

TOPIC	OBJECTIVES Learners should be able to	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Transport systems and networks in Zimbabwe	<ul style="list-style-type: none"> <li>• explain the distribution of transport systems</li> <li>• assess the factors affecting the transport network</li> <li>• evaluate the impact of the nature of transport systems on development</li> <li>• calculate network indices to determine transport route characteristics</li> </ul>	<ul style="list-style-type: none"> <li>• Distribution of transport systems</li> <li>• Purposes of transport systems</li> <li>• Factors affecting transport network</li> <li>• Impact of transport systems</li> <li>• Transport network indices</li> </ul>	<ul style="list-style-type: none"> <li>• Mapping major transport routes of Zimbabwe</li> <li>• Examining the purposes of the patterns</li> <li>• Determining the traffic flows of local routes through traffic counts</li> <li>• Computing the transport indices such as beta index</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Transport route maps</li> <li>• GPS/ GIS</li> <li>•</li> </ul>
Transport enterprise	<ul style="list-style-type: none"> <li>• draw up a project proposal of a</li> </ul>	<ul style="list-style-type: none"> <li>• Transport business</li> </ul>	<ul style="list-style-type: none"> <li>• Proposing transport enterprise project</li> </ul>	

	<p>transport business enterprise</p> <ul style="list-style-type: none"> <li>• design a road network to ease connectivity problems</li> </ul>	<p>opportunities</p> <ul style="list-style-type: none"> <li>• Road network design enterprise</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a road network to ease connectivity problems</li> </ul>	
Trade policies in Zimbabwe and their impact on trade	<ul style="list-style-type: none"> <li>• Identify trade policies in Zimbabwean trade</li> <li>• Evaluate the impact of policies on trade</li> </ul>	<ul style="list-style-type: none"> <li>• Trade policies</li> <li>• Impact of the policies</li> </ul>	<ul style="list-style-type: none"> <li>• Examining different trade policies</li> <li>• Role play on the impacts of policies on traders</li> </ul>	<ul style="list-style-type: none"> <li>• Trade policy documents in Zimbabwe</li> <li>• Cheap Used products like cars, clothes and shoes</li> </ul>
Current trends in Zimbabwean trade	<ul style="list-style-type: none"> <li>• Distinguish forms of trade in Zimbabwe</li> <li>• Evaluate the factors influencing trade flows in Zimbabwe</li> </ul>	<ul style="list-style-type: none"> <li>• Cross border trade</li> <li>• Large scale trading</li> <li>• Inequalities in trading patterns</li> </ul>	<ul style="list-style-type: none"> <li>• Drawing up a cost-benefit analysis on environmental and socio-economic impacts of foreign cheap and used goods</li> </ul>	<ul style="list-style-type: none"> <li>• Mineral and agricultural produce samples</li> <li>• Imported goods such as cars, clothes, groceries</li> <li>• Local value</li> </ul>

<p>Global inequalities and solutions in trade flows</p>	<ul style="list-style-type: none"> <li>• identify major exports and imports of Zimbabwe</li> <li>• assess the effects of balance of trade of Zimbabwe on the economy</li> <li>• propose ways of improving balance of trade</li> </ul>	<ul style="list-style-type: none"> <li>• Imports and exports</li> <li>• Value addition and beneficiation</li> <li>• Balance of trade</li> <li>• Improving balance of trade</li> </ul>	<ul style="list-style-type: none"> <li>• Researching on imported goods and services at their school and immediate community</li> <li>• Devising methods of solving unfavourable balance of trade through value addition</li> </ul>	<p>added products such as baskets, mats</p> <ul style="list-style-type: none"> <li>• Animations</li> <li>• Talking books</li> <li>• Media</li> <li>• Maps</li> </ul>
<p>Factors influencing global trade patterns</p>	<ul style="list-style-type: none"> <li>• explain factors influencing trade</li> </ul>	<ul style="list-style-type: none"> <li>• Factors influencing trade: <ul style="list-style-type: none"> <li>- transport networks</li> <li>- trading blocks</li> <li>- ideology</li> <li>- consumption patterns</li> </ul> </li> <li>• historical factors</li> </ul>	<ul style="list-style-type: none"> <li>• Describing factors that influence trade</li> </ul>	

Trade opportunities in the local area	<ul style="list-style-type: none"> <li>• design a trade enterprise project</li> <li>• defend the viability of a designed trade enterprise</li> </ul>	<ul style="list-style-type: none"> <li>• Trade enterprise</li> <li>• Cost-benefit analysis of a trade enterprise</li> </ul>	<ul style="list-style-type: none"> <li>• Drawing a cost-benefit analysis of a trade enterprise project</li> <li>• Justifying viability of a trade enterprise</li> </ul>	
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### TOPIC 15: Regional inequalities and development

TOPIC	OBJECTIVES Learners should be able to	CONTENT	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Indicators of economic development	<ul style="list-style-type: none"> <li>• determine the level of development of the immediate local area using</li> </ul>	<ul style="list-style-type: none"> <li>• Indicators of economic development</li> <li>• Advantages and disadvantages of each indicator</li> <li>• Regional inequalities in: <ul style="list-style-type: none"> <li>- Zimbabwe</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Analysing the usefulness of each indicator</li> <li>• Carrying out an economic survey of the immediate</li> </ul>	<ul style="list-style-type: none"> <li>• Recommended textbooks</li> <li>• Talking books</li> <li>• Local area</li> <li>• Resource persons</li> <li>• ZimStat reports</li> </ul>

	<p>indicators of development</p> <ul style="list-style-type: none"> <li>• assess the advantages and disadvantages of each indicator</li> </ul>	<ul style="list-style-type: none"> <li>- Africa</li> <li>- World</li> </ul>	<p>local area</p>	<ul style="list-style-type: none"> <li>• Relevant journal</li> </ul>
<p>Regional inequalities</p>	<ul style="list-style-type: none"> <li>• describe regional inequalities</li> <li>• explain the causes of regional disparities</li> <li>• evaluate solutions to regional disparities</li> <li>• investigate regional disparities in</li> </ul>	<ul style="list-style-type: none"> <li>• Causes of regional inequalities</li> <li>• Impact of regional disparities</li> <li>• Solutions to the regional disparities</li> </ul>	<ul style="list-style-type: none"> <li>• Explaining the core-periphery concept</li> <li>• Outlining the causes of Regional disparities</li> <li>• Surveying the regional disparities in Zimbabwe</li> <li>• Assessing solutions to</li> </ul>	

	Zimbabwe		regional inequalities	
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## 8.0 ASSESSMENT

### 8.1 Assessment Objectives

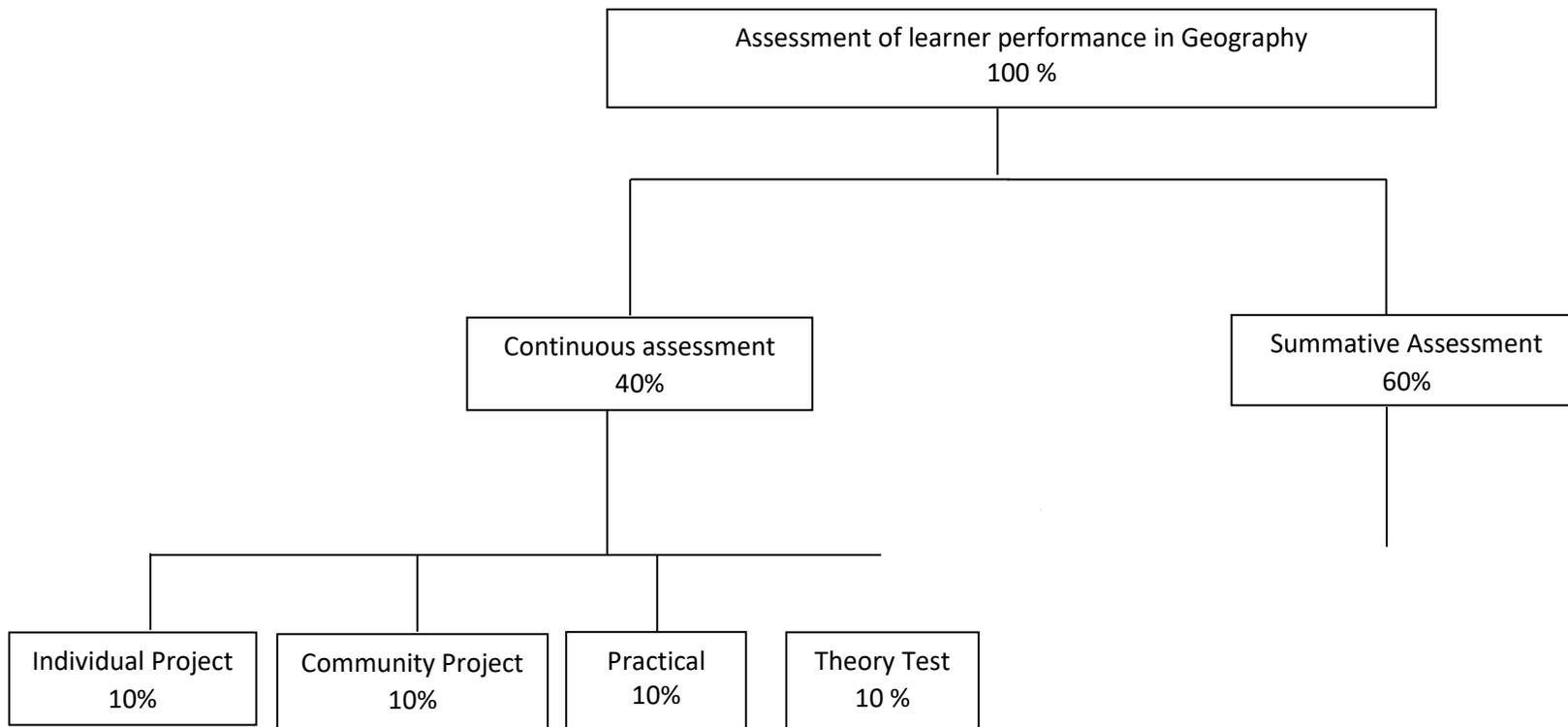
Learners will be assessed on their ability to demonstrate:

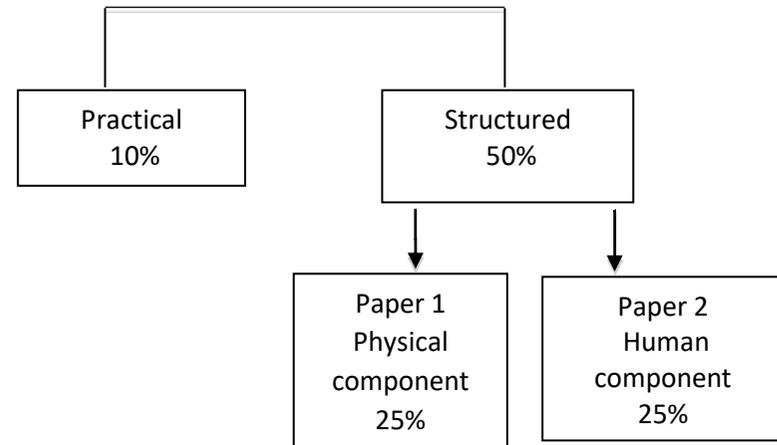
- Knowledge and understanding:
  - Recall, recognize and use geographical terms and definitions
  - Processes underlying physical and human landscapes and spatial patterns
  - How landscapes and patterns change
  - Environmental inter-relationships
- Skills and their application:
  - Comprehensive skills of observation, recording, interpretation and analysis.
  - Use of secondary sources of data.

- Drawing and interpreting tables, graphs, charts and diagrams.
- Selecting, using and communicating information (research results) and conclusions effectively
- Judgement and decision making:
  - The role of values, perceptions and decision making in evolution of patterns in Human Geography.
  - How to use geographical principles and concepts in interpreting situations at various scales.
  - How to prepare, justify and evaluate solutions to environmental and socio-economic problems.
- Community engagement (Hunhu/Ubuntu):
  - Ability to work in a group
  - Volunteerism and responsible citizenship
  - Innovativeness
  - Honesty and reliability
  - Integrity
  - Tolerance and mutual respect

## **8.2 Scheme of Assessment**

The assessment in Geography will be based on 40% continuous assessment and 60% summative assessment. Arrangements, accommodation and modifications must be visible in both continuous and summative assessment to enable learners with special needs to access assessment and receive accurate performance measurement of their abilities.





### 8.3 ASSESSMENT FORMAT

ASSESSMENT COMPONENT	WEIGHTING
Continuous assessment	40%
Summative	60%

### 8.3.1 Continuous Assessment

<b>ASSESSMENT MODE</b>	<b>FREQUENCY</b>	<b>FORM 5 WEIGHTING</b>	<b>FORM 6 WEIGHTING</b>	<b>TOTAL WEIGHTING</b>
Individual Research project	1 per year	5%	5%	10%
Community project	1 per year	5%	5%	10%
Practical	1 per year	5%	5%	10%
theory tests	1 per term	5%	5%	10%

Candidates will design and carryout individual research project work on any part of the syllabus. The research project must emphasise both theoretical and practical aspects of Geography. A project report of 2 500 to 3000 words should be prepared and submitted by candidates.

Candidates are also required to participate in communal projects that solve prevailing community problems. These should demonstrate soft skills as inculcated in Hunhu/Ubuntu. Practical experiments in the field or in the laboratory will also form an integral part of continuous assessment.

<b>Paper</b>	<b>Paper type</b>	<b>Marks</b>	<b>Duration</b>	<b>Weighting</b>
1	Structured – free-response and data response on Physical components	100	3 hours	25%
2	Structured – free-response and data response on Human components	100	3 hours	25%
3	Practical	75	3 hours	10%
<b>TOTAL</b>		<b>275</b>	<b>9 hours</b>	<b>60%</b>

### **8.3.2 Summative Assessment**

#### **Description of papers**

The examination will consist of 3 papers: paper 1, paper 2 and paper 3 which are all compulsory

### **Paper 1 Structured, physical component**

Duration: three hours

The paper consists of 10 structured questions, each marked out of 25 to give a total of 100. Two questions will be set per topic from which candidates will answer any four.

### **Paper 2: structured human component**

Duration: Three hours

The paper consists of ten structured free-response and data-response questions. Each marked out of 25 to give a total of 100. Each topic will contribute at least one question. Candidates will answer any four.

### **Paper 3: Practical Paper**

Duration: Three hours

The paper consists of Seven questions. The paper will be based on experiments, investigations, observations and calculations. Full instructions will be given where unfamiliar material or techniques are required. Section A will be a compulsory question on statistics. Section B will have three questions on mapping from which candidate will choose one. Section C will have three questions on research techniques from which candidates will answer one. Each question will be marked out of 25 to give a total of 75.

## 8.4 Specification Grid

<b>Skill</b>	<b>Paper 1</b>	<b>Paper 2</b>	<b>Paper 3</b>
Knowledge and comprehension	25%	25%	20%
Skills (including practical) and their Application	50%	50%	40%
Judgement and decision making	25%	25%	40%
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

## 8.5 CONTENT SPECIFICATION GRID

### 8.5.1 Paper one

	<b>Skill 1 knowledge with understanding</b>	<b>Skill 2 Skills and their application</b>	<b>Skill 3 Judgement and decision making</b>	<b>Total questions</b>	<b>% Skill weighting</b>
Paper 1 Physical Component	25%	50%	25%	10	25%
Paper 2 Human component	25%	50%	25%	10	25%
Paper 3 Practical	20%	40%	40%	7	10%
Continuous assessment	20%	40%	40%		40%
	<b>90</b>	<b>180</b>	<b>130</b>		<b>400%</b>
<b>Weighting</b>	<b>22,5%</b>	<b>45%</b>	<b>32,5%</b>		<b>100%</b>

### 8.5.2 Paper Three

<b>Content</b>	<b>Number of questions</b>
Section A: Statistics	1
Section B: Mapping 2. Topographical Map 3. Geographic Information System (GIS) 4. Remote Sensing	1 1 1
Section C: Research techniques 5. physical component 6. human component 7. mitigation and adaptation	1 1 1
<b>Total</b>	<b>7</b>