SEC SYLLABUS (2016)

GEOGRAPHY SEC 15

SYLLABUS

Geography SEC 15	(Not available in September)
Syllabus	Paper 1 (2hrs) + Paper II (2hrs) + Fieldwork

Introduction

That study of geography enhances the student's awareness of man's global physical and human environment. This is achieved by means of geographic methods, including observation, data gathering and interpretative skills. The knowledge, understanding and skills obtained help the student to form proper values and attitudes, as well as to assess, interpret and attempt solutions to spatial socio-environmental problems. Therefore the student's role in
society will be more effective.

Aim

The syllabus aims at providing teachers of Geography a choice of materials which should suit a variety of teaching approaches. It also provides teachers and students with an opportunity to look at environmental problems both in Malta and abroad. Less Economic Developed Countries are included due to their geographical interactions with the developed world.
Assessment

Objectives

The examination will assess candidates' abilities in relation to three areas:

1. *Knowledge and understanding*
   Candidates are expected to:

   - recall specific facts in connection with the syllabus content;
   - show understanding of geographical concepts, ideas, principles contained in the syllabus and their application in the context of the physical and human environments;
   - show understanding of the spatial patterns and interactions within these environments; and
   - demonstrate locational knowledge applied to the Maltese Islands and the rest of the world including Less Economic Developed Countries.

2. *Skills*
   Candidates are expected to:
   - observe, record, classify and interpret data collected in the field or from secondary sources, to form conclusions and communicate ideas.
   - Read, interpret and use maps, photos and statistical data; and
   - Represent geographical information in simple map form (sketch-maps), graphs or diagrams, and to write in a coherent manner.

3. *Values and Attitudes*
   Candidates are expected to:
   - demonstrate awareness of environmental issues in terms of the conservation and the protection of both the physical and the human environments; and
   - form reasonable judgements in relation to environmental issues of a geographical nature.

Scheme of Assessment

The examination will consist of two papers of two hours' duration each and an assessment of two short Geography Fieldwork Reports. Both papers will be set in English and candidates are

expected to answer in good English. The Fieldwork Reports must also be submitted in English. Orderly presentation and appropriate spelling of key geographical terms are necessary.

Exam Papers:
Paper I (80 marks) will consist of 10 compulsory structured questions testing the candidates' knowledge and understanding of the whole syllabus content as well as a range of geographical skills. Candidates have to answer all questions.

Question 1 will be based on the material contained in unit 1 of this syllabus, that is on reading and interpretation of Topographic Maps (Survey Maps). A list of Conventional Map Symbols will be provided with the map. This question will carry a total of 16 marks.

Question 2 will consist of a world outline map, on the Mercator or Molweide projection. Candidates will be tested on the recall of facts, related to locational knowledge listed in unit 2 of this syllabus as well as specific application related to units 3 to 19 in the syllabus. Question 2 will also carry 16 marks. In the remaining 8 structured questions candidates will be tested on the knowledge and understanding of the whole syllabus content as well as a range of geographical skills such as analysis and interpretation of data, drawing and labelling of diagrams, interpretation of weather maps and satellite images. These questions will carry a total of 48 marks.

Paper II (100 marks) There will be two versions of Paper II. Candidates are required to indicate on the registration form which Paper II they wish to sit for. No change in the choice of paper will be allowed after the registration period.
Paper IIA and IIB will be divided into two sections.

Section A will consist of four questions based on the material contained in the units 3, 4, 5, 6, 7, 8, 9, 10 and 11 of this syllabus. Candidates will be required to answer any two questions from Section A. Each question carries 25 marks.

Section B will also consist of four questions from which candidates will be required to answer any two. Each question carries 25 marks. Questions in Section B will be based on the material contained in units 12, 13, 14, 15, 16, 17, 18 and 19 of this syllabus.

Questions in Paper IIB will be easier than those in Paper IIA.

The use of non-programmable calculators and geometrical instruments is permitted in both papers.

Fieldwork Reports (10 marks each) The Geography Fieldwork Reports have to be two individual reports concerning two different aspects of geography and from two different locations. These should be compiled during the candidate's course of studies and assessed by the teacher.
The Reports should be available at the candidate's school for moderation by the Markers' Panel. The school
assessments (the total sum of both Fieldwork Reports) should reach the MATSEC Examinations Board on a date set by the MATSEC Support Unit. Candidates may be called for an interview relating to their Fieldwork Reports.

Each Geography Fieldwork Report should be between 800 and 1000 words long and should include relevant and well-annotated illustrations, based on observations in the field. Candidates

are expected to observe, investigate and record geographical phenomena in an urban, rural or coastal environment. A wide choice of fieldwork experiences is available in Appendix I.

When assessing the candidates' Fieldwork Reports, the teacher/Markers' Panel will look for evidence that the candidates have:

- stated the aims and objectives of the fieldwork;· made observations and collected data;
- included relevant illustrations (graphs, sketches, maps, photographs, tables, etc.);·
- summarised and evaluated their findings; and
- presented their work clearly, neatly and in an orderly fashion.

At this level fieldwork in schools can be organised on a class basis so the location may be common for all students but differentiation in assessment would come out after careful consideration of the way the above criteria are presented in their individual reports.

Private candidates who left school before 1994 will not be expected to present their Fieldwork Report/s. Their mark will be obtained by pro-rating of the written papers. Candidates who studied the subject at school and are re-sitting the subject as private candidates may carry forward the Fieldwork report mark from the previous session. If this is prior to 2011 the candidate will be allowed to present one Fieldwork Report of 1500 and 2000 words as in previous syllabuses. Candidates who have never studied the subject at school but have prepared the Fieldwork Reports privately will be expected to present their Fieldwork Reports to the MATSEC Board. Private candidates may be called for an interview about their work.

Results
Candidates sitting for Paper I and Paper IIA may qualify for grades 1, 2, 3, 4 or 5. The results of candidates
who do not obtain at least a grade 5 shall remain Unclassified (U).

Candidates sitting for Paper I and Paper IIB may qualify for grades 4, 5, 6 or 7. The results of candidates who do not obtain at least a grade 7 shall remain Unclassified (U).

Grade 1 corresponds to the following levels of attainment:

A Knowledge about locations and places
The student is able to:
Show very evident knowledge of a very wide range of geographical vocabulary, theories and issues
Describe and explain correctly relationships and correlations among different environmental factors
Identify and compare many features, forms and patterns from maps, diagrams, photographs and graphs

B Understanding characteristics of the Earth's major physical systems and their interaction
The student is able to:
Show a very thorough understanding of the workings of the natural systems and cycles
Explain and analyse extensively the interrelationships among the natural systems and cycles
Analyse and interpret most causes and effects of the interactivity of the natural systems and cycles

C Understanding relationships between human activities and physical processes
The student is able to:

Explain and analyse the distribution patterns in human activities and natural processes
Explain and analyse the interdependence of people, places and environments
Set many local, national and international facts and figures within a geographical context

D Acquisition of techniques, skills and competences to be utilised in a geographical enquiry
The student is able to:
Conduct an out-of-school fieldwork exercise
Compare, interpret and analyse maps, photos and graphs
Create graphs and maps necessary for geographical enquiry
Discuss geographical themes and theories
Show great awareness of the environment to be protected and enhanced
Investigate well an issue through visual aids and quantitative methods
Make thorough pro-active use of ICT for the geographical enquiry

Grade 5 corresponds to the following levels of attainment:
A Knowledge about locations and places
The student is able to:
Show very good knowledge of much of the geographical vocabulary
Describe, in a very satisfactory way, the geographical features, forms and patterns
Identify many geographical features, forms and simple patterns from maps or photographs

B Understanding characteristics of the Earth's major physical systems and their interaction
The student is able to:
Express and comment, in some detail, the workings of some natural systems and cycles
Comment about the interrelationships among some natural systems and cycles
Analyse some causes and results of the interactivity of some natural systems

C Understanding relationships between human activities and physical processes
The student is able to:
Understand and explain the distribution patterns in human activities and natural processes
Understand and explain the interdependence of people, places and environments
Set some local and national facts and figures within a geographical context

D Acquisition of techniques, skills and competences to be utilised in a geographical enquiry
The student is able to:
Work within a team in an in-school fieldwork exercise
Compare and interpret maps, photos and graphs necessary for geographical enquiry
Discuss geographical themes and theories
Show great awareness of the environment to be protected and enhanced
Illustrate a topic through sketches and through simple quantitative methods
Make some pro-active use of ICT for the geographical enquiry

Grade 7 corresponds to the following levels of attainment:

A Knowledge about locations and places
The student is able to:
Show knowledge of a limited and basic geographical vocabulary
Recall and use the knowledge acquired
Recognise some features and forms on maps and photographs

B Understanding characteristics of the Earth's major physical systems and their interaction

The student is able to:
Show a simple understanding of the general workings of a natural system or cycle
Explain in a simple way the interrelationships among two natural systems or cycles
Comment about some causes and some results of the interactivity of natural systems

C Understanding relationships between human activities and physical processes
The student is able to:
Show a simple understanding of some location of human activities and natural processes
Demonstrate a simple understanding of the interdependence of people, places and environments
Set some local facts and figures within a geographical context

D Acquisition of techniques, skills and competences to be utilised in a geographical enquiry
The student is able to:
Follow a simple in-school fieldwork exercise
Interpret simple maps and photos necessary for geographical enquiry
Communicate verbally basic geographical messages and ideas
Show basic awareness of the environment to be protected and enhanced
Illustrate a topic through simple sketches
Make simple use of information technology for geographical enquiry

The Syllabus

1. Reading and Interpretation of Topographic Maps (Survey Maps)	Basic cartographic skills: scales, measurement of distances and areas, map symbols, grid references, direction, map enlargement and reduction, shape contours, section drawing and intervisibility and gradients. Recognition of landforms resulting from river, ice and marine erosion. Interpretation of settlements, urban/rural landuse patterns, communication patterns and location of economic activity.
2. Locational Knowledge	1. The location of all seven continents and five oceans. 2. Awareness of the 24 different Time Zones in the world and calculation of Time (plus or minus from Greenwich Meridian). Important lines of latitude: Equator, Tropic of Cancer, Tropic of Capricorn, Arctic Circle, Antarctic Circle. 3. The location of these major seas; the Gulf of Mexico, Caribbean Sea, North Sea, Baltic Sea, Caspian Sea, Mediterranean Sea, Red Sea, Persian Gulf, Arabian Sea, Bay of Bengal, Coral Sea. 4. The major Ocean Currents: the Northern and Southern Equatorial Currents,the North Pacific, Californian, Peruvian, Kuro Siwo in the Pacific Ocean, the Gulf Stream, North Atlantic Drift, Labrador, Brazil and Benguela Current in the Atlantic Ocean. 5. The major Fold Mountain Systems: the Rockies, Andes, Alps, Atlas, Drakensberg, Himalayas, Australian Alps. 6. The major Volcanoes: Mauna Kea, Mauna Loa, Mt. St Helens, Mt. Pelèe, Mt. Cotopaxi, Mt. Chimborazo, Mt. Nevado del Ruiz, Mt. Vesuvius, Mt.Etna, Mt. Kilimanjaro, Mt. Krakatoa,, Mt. Pinatubo, Mt.

	Fujiyama, Montserrat, Tristan da Cunha, Surtsey. 7. Major tectonic plates: Pacific Plate, Nazca Pate, North American Plate, South American Plate, Antarctic Plate, Juan de Fuca Plate, African Plate, Eurasian Plate, Indo-Australian Plate. 8. Location of hot deserts: Californian, Arizona, Atacama, Sahara, Namib, Kalahari, Arabian, Thar, Gobi, Australian. 9. Distribution of major world biomes: Tundra, Taiga (coniferous forests), Temperate Deciduous Forests, Temperate Grasslands, Mediterranean, Hot Desert, Tropical Rainforests, Savanna grasslands. 10. These major rivers: St. Lawrence, MacKenzie, Mississippi, Missouri, Colorado, Orinoco, Amazon, Parana, Rhône, Rhine, Danube, Volga, Indus, Ganges, Hwange-Ho, Yangtse, Murray-Darling, Nile, Zambezi, Niger and Congo. 11. Location of major HEP stations: Aswan High Dam, Three Gorges Dam, Itaipu. 12. The location of these countries and their capital cities: a. All the Mediterranean countries. b. All the EU countries. c. These countries: Canada, USA, Mexico, Brazil, Argentina, Venezuela, Sudan, Democratic Republic of Congo, South Africa, Kenya, Egypt, Saudi Arabia, Iraq, Iran, India, China, Japan, Indonesia, Russia, Bangladesh, Australia. 13. The location of these major ports: Vancouver, Seattle, San Francisco, Los Angeles, New York, Caracas, Rio de Janeiro, São Paulo, Buenos Aires, Rotterdam, Antwerp, Barcellona, Marseilles, Trieste, Genoa, Valletta, Istanbul, Port Said, Cape Town, Mumbai, Madras, Singapore, Hong Kong, Shangai, Tokyo, Osaka-Kobe, Sydney, Melbourne.
3. The Earth as a Planet	The movements (rotation and revolution) of the Earth. Effects of the Earth's rotation – day and night. Effects of the Earth's revolution – (a) the seasons; (b) the varying lengths of day and night. Lines of longitude and latitude – how they are measured. Locating the main lines of longitude and latitude – Prime meridian (Greenwich) (0o), International Date Line (180o), Equator (0o), North Pole (90oN), South Pole (90oS), Tropic of Cancer (23½oN), Tropic of Capricorn (23½oS), Antarctic Circle (66½oS), Arctic Circle (66½oN). Locating places using latitude and longitude. Longitude and time. Standard time zones and the International Date Line.
4. Rocks and Soils	Formation, characteristics, uses and examples of Igneous, Sedimentary and Metamorphic rocks. Permeability of rocks. Limestone (Karst) characteristic landforms

	and formation; swallow holes, resurgence, dry valleys, limestone pavements, bedding planes, joints, clints, grykes, caverns, stalactites, stalagmites and pillars. Quarrying –benefits and problems, Rocks of the Maltese Islands: origin, basic properties and uses of the 5 strata of rock. **Weathering:** The differences between physical, chemical and biological weathering. The processes of freeze-thaw/frost shattering, exfoliation and limestone solution. **Soil**: Soil profile (Horizons A,B,C). Formation and properties of soil (air, water, organic matter and mineral particles). Water movement in the soil –leaching and capillary action. **Soil erosion and management:** Natural causes of soil erosion. Common farming practices which lead to soil erosion. Soil conservation.
5. Plate Tectonics	Structure of the earth: core, mantle and crust (continental and oceanic crust). Convection currents in the mantle and the idea of continental drift. Major Plates of the Earth's crust. The movement of the Earth's plates – constructive boundaries, destructive boundaries and conservative boundaries. Plate movements and the formation of fold mountains. The relationship between earthquakes, volcanoes and plate boundaries. **Earthquakes:** The causes of earthquakes: focus, epicentre and seismic waves. Measurement of earthquakes: the Richter Scale. Effects of an Earthquake – short and long-term impact– social, economic and environmental impact. Resisting earthquakes Case studies: Kobe earthquake, 1995. Tsunami of SE Asia, 2004. **Volcanoes:** Formation and features of composite cone, acid and basic lava volcanoes – crater, secondary or parasitic cone, lava tube, magma chamber, side vents. Volcanic activity: active, dormant and extinct volcanoes. Predicting and preparing for volcanic eruptions. The hazards and benefits of volcanoes. Case Studies: Mount St Helens USA. 1980. Mount Etna (Sicily).
6. The Hydrological Cycle and Rivers	Processes, flows and stores in the hydrological cycle. Sources of water in the Maltese Islands: Reverse Osmosis Plants and Underground water. The drainage basin as a system: inputs,

	throughputs and outputs. The drainage basin – source, mouth, tributary, confluence, water-shed, main river. Factors affecting the rate of a river's discharge. Processes of river erosion – abrasion or corrasion, solution or corrosion, hydraulic action and attrition. Processes by which a river transports its load: traction, saltation, suspension and solution. River landforms in the uplands – formation of V-shaped valleys, gorges, interlocking spurs, waterfalls and rapids. The river and its valley in the lowlands: formation of meanders, ox-bow lakes, flood plain, levées, and deltas (arcuate and bird's foot). Human activities in rivers and their valleys **Flooding:** Causes of flooding. Flood hydrographs. Flood management. Case studies: River flooding in Bangladesh. Flood control – the Three Gorges Dam.
7. Coasts	Wave motion – the swash and backwash Different types of waves – constructive and destructive waves. The process of coastal erosion – abrasion, hydraulic action, attrition and corrosion/solution. Coastal features created by erosion: cliff recession, wave-cut platforms, notches, headlands and bays, caves, arches, stacks and stumps, with specific reference to coastal localities in the Maltese Islands. Wave transport – longshore drift. Coastal features created by deposition: beaches, spits, bars, tombolos and sand dunes. Physical management of the coast: (sea walls, groynes, boulder barrier, beach nourishment).
8. Glacial Landscapes	The Ice Age. Processes of ice erosion – abrasion, plucking and freeze-thaw weathering (frost shattering) Processes that lead to the formation of glacial features – hanging valleys, corries (cirques/cwms), pyramidal peaks (horns), truncated spurs, arêtes, U-shaped glacial troughs, ribbon lakes. Types of moraine – ground, lateral, medial and terminal. Features of glacial deposition – erratics and drumlins. Land use in glacial areas (farming, forestry, water supply, HEP and tourism).
9. Hot Deserts	Desert environment: rainfall and temperature characteristics. Weathering: the effects of exfoliation. Water as an agent in the formation of desert scenery (wadis, playas, isolated hills – inselbergs, mesas and buttes). Landforms produced by wind: deflation hollows, rock pedestals, yardangs and zeugens, and sand dunes (barchans).

10. Weather and Climate	Recording and interpreting the elements of weather and climate – temperature, humidity, rainfall, pressure, wind speed and direction. Temperature and rainfall graphs. How to find out the: mean daily temperature, daily range of temperature, mean monthly temperature, mean annual temperature and the mean annual range of temperature. Interpretation of synoptic charts/ simple weather maps and simple satellite photos. **Factors affecting temperature:** Latitude, maritime effect, altitude, prevailing winds and ocean currents. **Rainfall:** Convectional, frontal and relief or orographic rainfall. **Depressions and Anticyclones:** Weather sequence of a typical depression. Winter and summer anticyclones. Tropical storms: formation and effects. **Microclimate of an Urban Area:** Temperature (urban heat island), air quality (photochemical smog), precipitation and wind. Climate of the Maltese Islands: distribution and reliability of rainfall, mean temperatures and prevailing winds). Case Study: Katrina 2005
11. World Climates and Ecosystems	**Ecosystems:** How an ecosystem works. Basic processes of an ecosystem: flow of energy and the recycling of nutrients. Distribution of major climatic types. **Tropical Rainforest:** Equatorial climate. Appearance (vegetation levels) and adaptation of the vegetation. Rainforest water and nutrient cycle. Case Study: Causes and effects of deforestation in the Amazon Rainforest. Sustainable Forestry. **Tropical Savanna Grasslands:** Tropical Continental Climate. Appearance and adaptation of the vegetation. Case Study: Desertification in the Sahel. **Mediterranean:** Mediterranean type of Climate. Natural Vegetation: Woodland and scrub (maquis and garigue).

	Adaptation of the vegetation to the summer drought. Destruction of the natural vegetation by deforestation, grazing animals and fire. **Tropical Desert Climate:** Climate characteristics. How plants and wildlife survive in tropical deserts. **Monsoon Climate:** Climate characteristics with special reference to the Indian sub-continent.
12. Population	Physical and Human factors affecting the distribution of population. World Population Growth. Population growth in LEDCs. The demographic transition model. Population Structure. Case Studies: Brazil – distribution and density. China: controlling population growth. Italy: an ageing population. **Migration:** Types of migration. Voluntary and forced migration. Pull and Push factors. Migration between countries. Impacts of migration. Rural-urban migration and counterurbanisation. Case Studies: Immigrants into California. Migrant workers – Turks in Germany. Refugees: on Mediterranean beaches
13. Settlement	Site, situation and function. Classification of settlements (hierarchies) – Rural or Urban, Population Size, Functions and Sphere of Influence. Factors affecting the location of settlements (e.g. water supply, defense, shelter). Settlement shape: dispersed, nucleated and linear. Location, appearance and landuse characteristics of the three major urbanzones – the CBD, Inner City and Residential suburbs. Arrangements of landuse zones in cities –urban landuse models – Burgess and Hoyt. Changing cities – changes in the CBD, in the inner city and at the rural-urban fringe. Problems and solutions of urban transport.
14. Urbanisation	Growth of world cities – mega-cities. Causes of Urbanisation. Rural push factors and urban pull factors. Differences in Urbanisation between LEDCs and MEDCs. Urban problems in LEDCs. Patterns of urban landuse in LEDCs - features of shanty towns or

	squatter settlements. Shanty town improvements. Case Studies: Urban growth in São Paolo and Rio de Janeiro. Cairo – Primate city.
15. Industrial activity	Classification of economic activities – Primary, Secondary, Tertiary and Quaternary Comparing employment structures – triangular graphs. Industry as a system: inputs, processes and outputs. Factors affecting industrial location. Industrial change – deindustrialisation (decline in primary and in manufacturing industries) – South Wales or the Rhine –Ruhr industrial region as an example. The role of footloose industries. High technology industry –the M4 corridor in the UK. Global Industry: multinational or transnational corporations (TNCs). Positive and negative impacts of globalisation. Emergence of newly industrialised countries (NICs) – The Pacific Rim. Case Studies: Industry in Osaka-Kobe conurbation. Industry in São Paolo.
16. Agriculture	Farming as a system with inputs, processes and outputs. Types of farming – arable, pastoral and mixed - subsistence and commercial - extensive or intensive - shifting or sedentary. Physical, human and political factors affecting farming. Improved technology. Organic farming. EU Agricultural Policy (CAP). The Green Revolution: high yield varieties, irrigation, appropriate technology and land reform. Environmental impact of farming; use of chemicals, loss of wildlife habitat, removal of hedgerows/rubble walls, drainage of wetlands. Rice farming in India. Dairy farming in Denmark. Farming, food supply and famine. Case Studies: Farming reform in the Mezzogiorno. Farming in Brazil – Shifting cultivation and plantations. Intensive market gardening in the Netherlands.

17. Tourism	Reasons for the increase in tourism. Different types of tourism: cultural, religious, coastal, sports, shopping, mountain, ecotourism. Social, economic and environmental impact of tourism. Tourism in Malta: analysing data (total number of tourists per year / month, tourists by nationality, average nights per person). Positive and negative impacts. Malta's attractions. Case studies: Mountain resort – Courmayeur. Safaris in Kenya.
18. World Development	The development gap; the North-South divide. Measuring development – indicators of development – economic and social indicators e.g. GNP, mortality rate, life expectancy, literacy rate, housing, diet etc.). The Human Development Index (HDI). Causes and consequences of inequalities in world development. Trading blocs – tariffs and quotas – (EU, NAFTA, LAFTA, OPEC, ASEAN). Types of aid: bilateral, multilateral, voluntary and emergency aid. The benefits and problems of aid Case Studies: Countries with different levels of development - Japan and Kenya. Difference within countries: Italy.
19. Energy Resources	World energy consumption: the demand for resources. **Non-renewable energy resources:** Coal, oil, natural gas, nuclear - advantages and disadvantages. Fuelwood and the cycle of environmental deprivation in LEDC's. Impacts of energy demand: Global Warming – causes and effects. Impacts of energy demand: Acid Rain. Case Study: Oil and the Environment Trans-Alaskan oil pipeline and the Exxon Valdex oil spill (1989). **Renewable energy resources:** Hydro-electric power, Solar, Geothermal, Wind, Tidal, Biogas/biomass –advantages and disadvantages. Case Study: an HEP station e.g. Itaipu or Aswan High Dam. Sustainable energy resources – energy efficiency.

Appendix I

Fieldwork

Introduction

Modern educational thinking envisages practical work as an essential component of a number of subjects at

secondary school level. In the case of Geography, fieldwork is a natural component of the subject and this
explains its inclusion in the syllabus along with the requirement of two Fieldwork Reports as a compulsory part
of the SEC examination in the subject.

General Considerations

1. The following notes on geographical fieldwork involving students should not be considered as being complete in themselves. They are only guidelines and teachers are at liberty to devise a programme using their own techniques.

2. A fieldwork programme may be undertaken during a specified number of 45-minute sessions or as a
school-based exercise or during a whole day outing, all depending on the topic chosen.

- 3. When planning fieldwork, teachers should keep in mind a number of.
- Permission must be obtained from heads of school to leave school with students on particular days and time.
- Suitable arrangements should be made with other members of staff whose timetable may be affected.
- Parents of students taking part in fieldwork must be notified in good time and their written consent obtained beforehand.
- If fieldwork is to take place away from school, transport arrangements must be made beforehand.

4. Good fieldwork practice should result in enjoyable experiences to both students and teachers BUT this will only occur if the fieldwork programme is well planned.

5. A fieldwork programme should encompass three separate activities:

- the pre-field trip preparation (in class);
- the field trip; and
- the field trip follow-up, in the form of class discussion and analysis of data collected in the field.

(i) The pre-field trip preparation session

Preparing students on the theoretical part of the topic chosen so that they become familiar with the body of knowledge, including relevant terminology.
Preparing relevant handouts (maps, questionnaires, data sheets, etc), and familiarising students with their proper use.

Giving students clear instructions on what they are required to do (either individually or as a group) when in the field.
Giving students a checklist of equipment that they are expected to take with them in the field, e.g. fieldboard, writing material, paper, measuring tape and others.
Teachers are to familiarise themselves beforehand with the selected area for fieldwork

(ii) The field trip

Safety of students whether in urban or rural settings.
Good relations with outsiders (e.g. when interviewing people).

Respect for private/public property.
Good behaviour at all times.
Carrying of a simple first-aid kit.

(iii) The field trip follow-up

Writing and sending letters of thanks to outsiders (if involved).
Organising a programme of class activities:

- discussing/analysing information/data collected in the field;
- helping students to write down conclusions reached;
- examining sketches, maps, and photos for relevance;
- giving hints to students on how to write a report of the required length, namely between 800 and 1000 words.

Choice of Topic

Since the Fieldwork Reports are a compulsory part of the examination, the geography teacher should be aware
that a wide choice of fieldwork experiences is available. These can be classified into:

1. (a) Rural fieldwork
   (b) Urban fieldwork
   (c) Fieldwork in coastal areas
2. Weather observation

1. (a) RURAL FIELDWORK

This can include a variety of activities with different purposes, namely:

(i) Settlement Pattern Study

This can take place after detailed studies in class of settlement patterns (nucleated, linear, dispersed ...) and of models of settlement growth (Burgess' Concentric Theory ...).
Students can then apply their knowledge to actual observation of a particular village, e.g. Dingli, Siggiewi, Mellieha, depending on the vicinity of the school.
Consideration of the factors affecting settlement growth is to be included in the report.
Use of a good village map will be helpful in drawing a sketchmap of the village with its various zones, in the
practical use of scale and in detailed description. A photocamera would also be very helpful.

(ii) Agricultural Land-use

This can follow a study in class of the various factors that affect agriculture, such as types of rocks, relief, aspect, types of soil, climate, water supply.
The teacher can opt to make a study of a particular Maltese farm (farmhouse and its fields).
Students may also be taken to a countryside area where a large expanse of fields can be observed.
Students should notice how different types of crops could grow in different types of soil.
A sketchmap and a detailed transect study of a small area can be done.
Soil erosion and its effects may be considered. Typical Mediterranean features of soil conservation, such as rubble wall, wind-breaks, terraced field, and rotation farming may be studied.
The observation of physical geography should be an integral part of agricultural land-use study e.g. effects of chemical weathering on Upper Coralline Limestone. N.B.

(iii) Micro-biogeography

What does biogeography mean? How are plants and animals adapted to the environment they grow in? The idea of an ecosystem. These concepts can all be tackled in detail in a particular area, e.g. part of Buskett Gardens or the Nature Reserve at Ghadira for a study of the saline marshland ecosystem.

The use of equipment such as quadrats, soil thermometers, transect ropes as well as cameras will be handy.

(b) URBAN FIELDWORK

Like rural fieldwork this can also include a variety of activities in a choice of towns or cities. The use of published maps and the drawing of sketchmaps is recommended.

(i) Settlement pattern study

E.g. linear growth at Fgura, Santa Lucia; rectilinear planned growth at Valletta.
Study of the site and situation of settlement is very important in drawing sketch maps.
Applications of urban models.

(ii) Functions of settlement

E.g. tourist resort, port, industrial area. The factors affecting settlement growth and development should be considered.

A good idea would be to choose an urban area within close reach of the school where a variety of functions can be studied.

(iii) Traffic problems and solutions

E.g. traffic congestion at rush hours; very busy roads in a town and why they are so; focus of communications; traffic nodes; traffic-free shopping areas (pedestrian precincts).
Fieldwork exercises here can include traffic-censuses; traffic-flow diagrams; questionnaires to shopkeepers whose shops are situated on main roads.

(iv) Shopping activities in various parts of a city

E.g. in the C.B.D., in a side-street. In this way the shopping facilities, attractions, and customers can be assessed by means of questionnaires or by observation of particular types of shops within limited time-spans, e.g. 30 minutes.

A group of students can be taken to observe the number of customers entering a pharmacy in Republic Street and another group in St John Street, Valletta. Results can later be discussed in class and recorded in verbal and graphical form, e.g. bar- graphs, linegraph, pie-chart.

(c) FIELDWORK IN COASTAL AREAS

There are several areas which present fieldwork possibilities for the teacher. Three of them are:

- A survey of coastal erosion.
- A survey of coastal deposition.
- A survey of coastal man-made structures.

A number of techniques can be employed and the choice of method will depend on the teacher's own preferences. One such technique is the collection of data by students by following a series of questions given in a handout.

The questions will be answered only after having observed and worked out the problem set in each question. This can be referred to as the Questionnaire Technique. The number of questions required depends on the amount of information needed to be collected. The use of this technique is illustrated below by means of the following:

Questionnaire on coastal deposition (the beach at Ghadira Bay is here taken as a model)

NOTE: The work could be done by groups, each under a group leader, investigating a different part of the beach;
each group would have its own handout.

Examples of questions that could be answered by students investigating deposition:

(1) Are the waves surging onto the beach coming at right angles/obliquely?
(2) Is there any evidence of long-shore drifting?
(3) Is any sand being carried along with the 'swash'?
(4) Do you notice any sand being washed back with each back-swash?
(5) Is there any difference in sand grain size between sand on the foreshore and sand on the backshore?
(6) If this difference exists, what are the reasons?
(7) What part would the wind play in transporting sand grains to the backshore?
(8) Use the trowel to find out the depth of the sand at different distances from the waterline.
(9) What are your conclusions?
(10) How far does the sand stretch inland from the waterline?
(11) Is there any evidence of storm-wave action in the deposition of sand at the backshore?
(12) Is there any salt-tolerant vegetation on/near the beach?
(13) Describe the vegetation (including trees) and draw a sketch of a twig (do not cut).
(14) Is this vegetation playing any part in helping/obstructing deposition?
(15) Would you like to suggest any ideas regarding vegetation on/near the beach?

2. WEATHER OBSERVATION

Aims:

(a) To develop the students' capabilities to observe and record data correctly. Observation may be done either with or without the aid of instruments. In this way students should be able to relate theory (i.e. what has been learnt in class or through books) to practice.

(b) The efficiency of scientific methods, outside the confines of a laboratory can also be tested. Readings taken can be analysed and the results proved or contradicted by merely observing the weather elements.

Method
The exercise consists in collecting a sufficient body of data over a given period and using these to reach a number of conclusions. It is these conclusions that should form the essence of the fieldwork report.

Physical setting where to conduct weather observations:
Usually the school grounds are sufficient for the observation of the weather phenomena. However, if the school
grounds are not suitable for all or several of the observations, then a suitable/quiet/safe place in the village/town where the school is situated may be chosen. If a micro-climatic study is to be carried out, then the teacher should normally have a wide choice of locations.

Apparatus

(a) Certain basic instruments (e.g. thermometer and barometer) are essential; others may be made at home, e.g. anemometer, rain gauge.

(b) Duplicated sheets with instructions and what to observe; also where/how to write down the information/data.

Time/Duration:
Collecting enough weather data may require a number of observations throughout a given period, which may take several days or weeks when the weather exhibits interesting behaviour. No reasonable conclusions may be reached without sufficient data. A particular observation/recording session may not necessarily take long.

Illustrations:
These may take the form of:
(a) Straightforward drawings/sketches; e.g. graphs, wind roses.
(b) Photographs e.g. of clouds.
(c) Record sheets such as one-week sheets where observed weather is recorded in symbols.

What/where/how to observe:
(a) Temperature:
Test air temperatures (using thermometer) of different locations (e.g. in the shade, in exposed areas, etc.) at different times of day.
Test effect of building on temperature.
Test grass temperature.
(To draw conclusions, various readings must be taken in the same location on different occasions.)

(b) Humidity:
Simple observation: how long does a wet piece of cloth take to dry?
It is better to use a wet-bulb thermometer.
Observe the environment: Is there any dew on metals, grass and others?
Compare class records with official ones for the particular day.

(*c) Rainfall:*
Take the opportunity of each rainy day to measure rainfall for that particular day (school day) using a rain gauge.
Use absorbent paper to test intensity of rain during a brief period, e.g. 15 seconds.
Record duration of rain showers. Describe the precipitation, e.g. heavy shower, drizzle and others.

(d) Atmospheric Pressure:
Use barometer (household instrument will do) at different times of day.
How much do other weather elements support the barometric reading?
Check with official records.

(e) Wind
Observe/record wind direction.
Observe/record wind speed from an unhindered location.
Note effect of building on wind direction/force.
References to the Beaufort Scale may help in drawing conclusions.

(f) Clouds:

Amount in oktas (individual estimates by students may be worked out as class means).
Types of cloud.
Heights and shapes.
Class records/conclusions to be corroborated with official records.

(g) Visibility:

Distance at which fixed objects may be recognised.
Presence of any fog/mist.

Preparation

(a) Theoretical work on weather to be covered beforehand.
(b) Skills to be mastered:
(i) Compass points;
(ii) Correct use of instruments;
(iii) Interpretation of Beaufort Scale;
(iv) Recognition of cloud types;
(v) Correct use of record sheets.
(c) Handouts containing instructions, information and so on.
(d) Ensure that instruments, especially home-made ones, operate fairly correctly.
(e) A visit to the Meteorological Office, Luqa (by appointment) may help to motivate students