



# **Managing Environmental Resources**

## **Starter pack**

## **Intermediate 1, Intermediate 2 and Higher**

A guide for teachers and lecturers who deliver or are thinking of delivering Managing Environmental Resources at Intermediate 1, Intermediate 2 and Higher.

The information in this document includes external website links.

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# Introduction

Managing Environmental Resources is an ideal course to help in the delivery of a curriculum for excellence. It takes learning outdoors, encourages social responsibility and is cross-curricular, as well as encouraging literacy and numeracy.

The course is highly relevant to all students as it can highlight local issues to increase interest. There is not a huge body of facts to be learned, but a range of principles to build on work which has been covered at Primary School. It can be used towards attaining Eco-school status and is recognised as part of the Science Baccalaureate suite of subjects. The Environment is a growth area for employment and hopefully this could benefit MER students.

MER can be delivered at Access 1, 2 and 3, Intermediate 1 and 2 and Higher. This starter pack is going to focus on Intermediate 1 and Intermediate 2/Higher courses.

The Units at Intermediate 1 are:

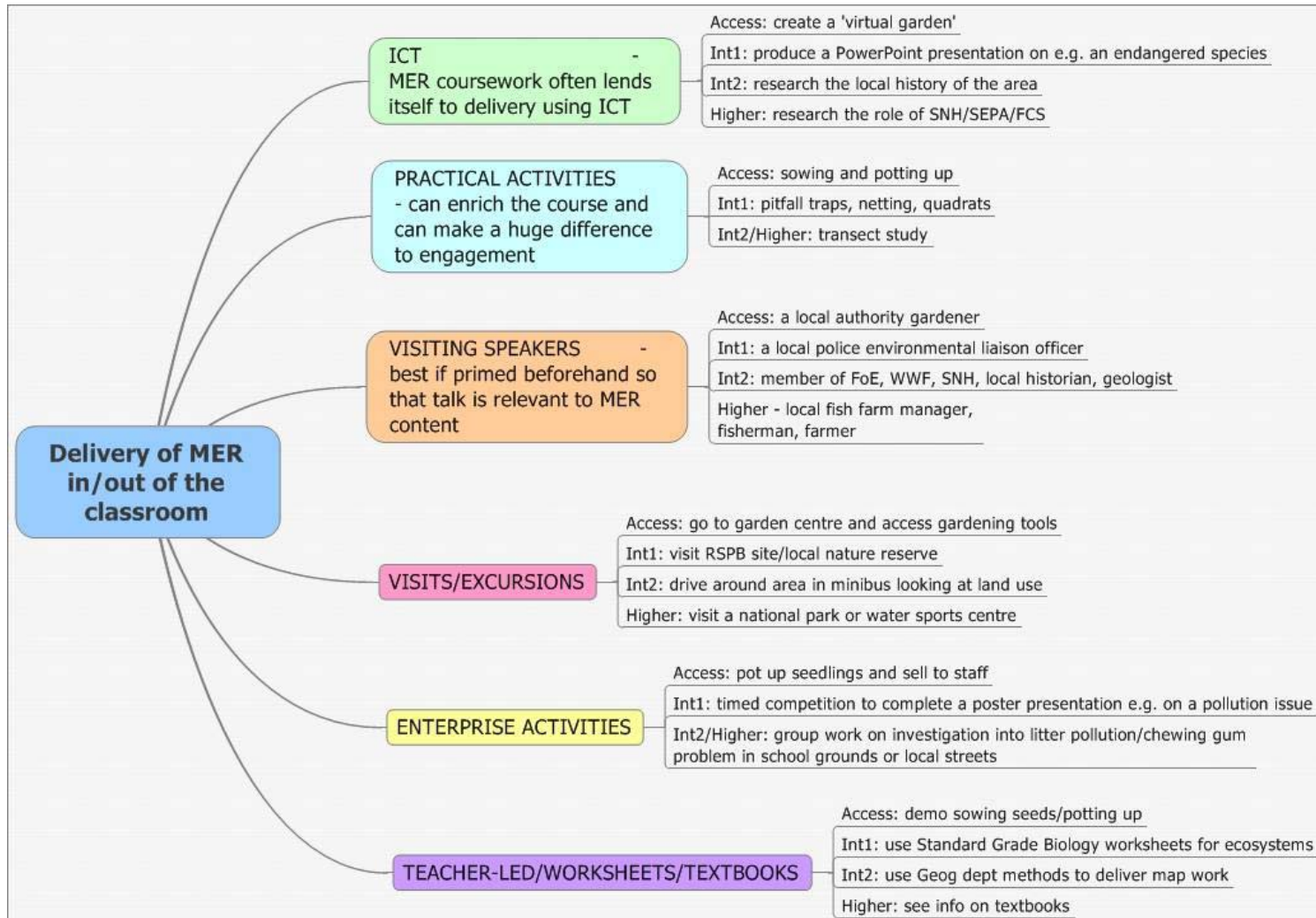
- ◆ Environmental Issues
- ◆ Ecosystems
- ◆ Land Use

The Units at Intermediate 2 are:

- ◆ Natural Resource Use
- ◆ Ecosystems
- ◆ Local Environment

The Units at Higher are:

- ◆ Natural Resource Use
- ◆ Investigating Ecosystems
- ◆ Land Use in Scotland



## Intermediate 1 — Resources

There are revision sheets covering the whole course on the LTS website: <http://www.ltscotland.org.uk>. These include activity sheets which cover all the learning outcomes of the course and are highly recommended.

Use local resources to give a unique personal perspective to this course, one where candidates can relate to their own environment.

Use the local area, playing fields or urban park for field studies. Local newspapers and websites highlight local issues. Visiting speakers, eg Ranger, Council Environmental Officer, Angling Club Representative, MSP and many others can inform and enthuse.

There is no course textbook. Standard Grade Geography, Biology and Science books can all be used. The Standard Grade worksheets from the Environment Unit in Science and from the Biosphere Unit in Biology are also useful.

Past papers are available on the SQA website: [www.sqa.org.uk](http://www.sqa.org.uk)

YouTube is an excellent source of materials, eg the words Chernobyl and Scottish Ecosystems give a variety of clips to cover the learning outcomes. Other Government websites have case studies and statistics.

The following books are all recommended for borrowing from the appropriate department:

Book	ISBN
Brian Knapp, <b>Caring For Our Environment</b> . Atlantic Europe Publishing <a href="http://www.CurriculumVisions.com">www.CurriculumVisions.com</a>	(2004) 1-86214-396-X (2010) 1-86214-668-3
James Fullarton (2008) <b>Standard Grade Biology, with answers</b> . Hodder & Stoughton <a href="http://www.hoddereducation.co.uk">www.hoddereducation.co.uk</a>	(2008) 0-340-97125-5
Kenneth MacLean & Norman Thomson, <b>Scotland's Changing Landscapes</b> . Hodder & Stoughton <a href="http://www.hoddereducation.co.uk">www.hoddereducation.co.uk</a>	0-340-65500-3

<b>Content Statement</b>	<b>Book Reference</b>	<b>Past Paper Question</b>
Types of Environment		The first part of Q1 in any past paper
Effects of human activity on the local environment	S Grade Torrance	Q3 2010 Q7a 2010 Q2 2010
Effects of human activity on the global environment		Q3c 2010 Q4e 2010 Q6 2009 Q9b,c 2010
Initiatives for the protection of the environment		Q4bii 2010 Q1d 2008
Organisations for the protection of the environment		Q2b 2010 Q8d 2009
Legislation for the protection of the environment		Q1c 2010 Q9f 2009
Inter-relationships of an ecosystem	S Grade Torrance	Q5 2010 Q2 2009
Physical components of an ecosystem		Q6 2010 Q2a 2009
Biological components of an ecosystem	S Grade Torrance	Q6 2010 Q9a 2010 Q5 2009
Principal features of local land and water use		Q8 2010 Q4 2009
Requirements of local land or water- based industry		Q8 2010 Q1 2009
Factors influencing land or water-based industries		Q8 2010 Q1 2009
The role of land or water-based industry in the local economy		Q8 2010

## Unit 1

# Teaching Resources: Unit 1 — Natural Resource Use — Intermediate 2 and Higher

### Textbooks

- |   |  |         |
|---|--|---------|
| a | KG is New Key Geography by David Waugh and Tony Bushell (Nelson Thornes) ISBN 978-0-7487-6581-2      | INT 2   |
| b | NWW is The New Wider World by David Waugh (Nelson) ISBN 0-17-434314-0                                | Int 2/H |
| c | ME is Managing Environments in Britain & Ireland by John Chaffey, Hodder & Stoughton ISBN 0340655593 | H       |
| d | CE is Changing Environments by Sue Warn & Michael Naish, Longman ISBN 0582429811                     | H       |
| e | ES is Environmental Studies AS/A2 by Richard Genn, Nelson Thornes ISBN 9781408513903                 | H       |

### Articles in SNH publications

The Nature of Scotland — four issues a year.

### Websites

Worth investigating for examples of issues/solutions: [www.guardian.co.uk/environment](http://www.guardian.co.uk/environment) also [www.snh.org.uk/snhi](http://www.snh.org.uk/snhi).

### DVDs

- a Sustainable Development — Environment. Channel 4 learning - [planet.com](http://planet.com) (Topics – water, biodiversity, natural resources and recycling, energy, cars, what a waste)
- b Countryfile BBC1 which can be purchased on DVD

### Past exam papers

Questions relevant to the topic. (Question, Level, Year)

Topic	Textbook	DVD/BBC video clip/You tube clip	Websites
<b>Resources and Sustainability</b> Renewable and non renewable resources  <b>Life Cycle Analysis (H)</b>	KG pages 244–245 (Int 2)  <b>Q5 Int 2 2003</b> <b>Q1 Int 2 2004</b> <b>Q1 Int 2 2010</b> <b>Q2 H 2009</b>		<a href="http://www.gdrc.org/uem/lca/life-cycle.html">http://www.gdrc.org/uem/lca/life-cycle.html</a>
What is sustainable development?		DVD TV choice — Sustainable development	

Topic	Textbook	DVD/BBC video clip/YouTube clip	Websites
<p><b>Examples of sustainable practice in the domestic home</b></p> <p>The promotion of recycling schemes resulting from Agenda 21–3R's.</p> <p><b>Recycling schemes in Germany &amp; Switzerland</b></p> <p>Waste minimization — landfill tax</p>	<p><a href="http://www.selectbrochure.com/pub/59/">http://www.selectbrochure.com/pub/59/</a></p> <p><b>QA Section 2 Int 2 2010</b>  <b>Q4 Int 2 2009</b>  <b>Q1 H 2007</b>  <b>Q1 H 2009</b></p> <p>P&amp;K Waste Awareness Issues &amp; solutions booklet including legislation – Resource pack for schools 3–18 curriculum.</p> <p><b>Q2 Int 2 2004 (landfill)</b>  <b>Q2 H 2006 (NWP)</b></p>	<p><a href="http://www.bbc.co.uk/learningzone/clips/recycling-and-the-incineration-of-waste/1577.html">http://www.bbc.co.uk/learningzone/clips/recycling-and-the-incineration-of-waste/1577.html</a></p> <p>recycling in Germany  <a href="http://www.youtube.com/watch?v=7KZ4vXyr6f0">http://www.youtube.com/watch?v=7KZ4vXyr6f0</a>  <a href="http://www.youtube.com/watch?v=zUzFJMEDemE&amp;feature=channel">http://www.youtube.com/watch?v=zUzFJMEDemE&amp;feature=channel</a></p>	<p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/makeadifference/schools/threes.asp">http://www.ltscotland.org.uk/wetherandclimatechange/makeadifference/schools/threes.asp</a></p> <p>Zero Waste Plan (2010)  <a href="http://www.zerowastescotland.org.uk/">http://www.zerowastescotland.org.uk/</a>  <a href="http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/">http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/</a>  Waste-1/wastestrategy  <a href="http://www.ltscotland.org.uk/schoolsglobalfootprint/index.asp">http://www.ltscotland.org.uk/schoolsglobalfootprint/index.asp</a></p>

Topic	Textbook	DVD/BBC video clip/YouTube clip	Websites
<p><b>How has farming affected the environment?</b> Examples of sustainable practices in rural areas — farming</p> <p><b>Agri-environmental schemes such as Environmentally Sensitive Areas (ESAs), Nutrient Sensitive Areas (NSA's) (H)</b></p>	<p>KG 206–7 (Int 2) KG page 208–9 (int 2) NWW pages 96–7 CE pages 170–2 (H)</p> <p><b>Q5 Int 2 2005</b> <b>Q6 Int 2 2010 (Corncrake)</b> <b>Q7 H 2005</b> <b>Q5 H 2006</b> <b>Q9A H 2007</b> <b>Q8A H 2008 (crafting)</b> <b>Q8B H 2008 (organic farming methods)</b></p> <p>Q4 Int 2 2007 (farm diversification) Q8 H 2006 (CAP) Q2 H 2010 Q9B H 2010 (CAP)</p>	<p>Country file TV programme</p> <p>BBC1 Panorama — Britain's disappearing wildlife. 3<sup>rd</sup> Sept 2010</p>	<p><a href="http://www.bumblebeeconservationtrust.co.uk/index.htm">www.bumblebeeconservationtrust.co.uk/index.htm</a></p> <p><a href="http://news.bbc.co.uk/panorama/hi/front_page/newsid_895000/8950389.stm">http://news.bbc.co.uk/panorama/hi/front_page/newsid_895000/8950389.stm</a></p>

Topic	Textbook	DVD/BBC video clip/YouTube clip	Websites
<p><b>Examples of sustainable practices in rural areas — Forestry</b></p> <p>Replanting, restocking, encouraging biodiversity, multi use. Chips for biofuel — Stevens Croft</p> <p>Eco-labelling — Forestry Stewardship Council (FSC) (H)</p>	<p>ME - Chapter 5 — managing forests &amp; woodlands — case study Galloway Forest pages 82–96</p> <p><b>Q1 Int 2 2006</b>  <b>Q4 Int 2 2006</b>  <b>Q3 H 2005</b>  <b>Q3 H 2009</b>  <b>Q2 H 2010</b></p>	<p>Pressure Points video — forestry</p> <p><a href="http://www.fsc.org/video.html">http://www.fsc.org/video.html</a></p>	<p><a href="http://www.forestry.gov.uk/scotland">http://www.forestry.gov.uk/scotland</a></p> <p>Case study — Glenlivet Estate  <a href="http://www.thecrownestate.co.uk/our_portfolio/rural/glenlivet.htm">http://www.thecrownestate.co.uk/our_portfolio/rural/glenlivet.htm</a></p> <p>Stevens croft —  <a href="http://www.scotland.gov.uk/News/Releases/2008/03/19100101">http://www.scotland.gov.uk/News/Releases/2008/03/19100101</a></p>
<p><b>Examples of sustainable practices in industry</b></p> <p>tourism, leisure &amp; recreation</p>	<p>Commercial Ecotourism; basking shark watching — SNH The Nature of Scotland — Summer 2010</p> <p><b>Q8A H 2008</b></p>		

Topic	Textbook	DVD/BBC video clip/YouTube clip	Websites
<p><b>Examples of sustainable practices in industrial &amp; manufacturing industries</b></p> <p>quarrying</p> <p><b>Environmental legislation — duty of care, polluter pays principle (H)</b></p> <p>waste minimisation — landfill, dumping, waste incineration</p>	<p><b>Q1 Int 2 2006 (demolition)</b> <b>Q1 Int 2 2008</b></p> <p>P&amp;K Waste Awareness Issues &amp; solutions booklet including legislation — Resource pack for schools 3–18 curriculum.</p> <p><b>Q4 Int 2 2005</b> <b>Q4 Int 2 2008</b> <b>Q8A H 2005</b> <b>Q3 H 2007</b> <b>Q8A H 2008</b> <b>Q2 H 2009</b></p>		<p><a href="http://www.pkc.gov.uk/recycling">www.pkc.gov.uk/recycling</a></p>

Topic	Textbook	DVD/BBC video clip/You tube clip	Websites
<b>Examples of sustainable practices in aquaculture</b>	Q9A H 2009	<p> <a href="http://www.youtube.com/watch?v=dkGIW4qHzkQ">http://www.youtube.com/watch?v=dkGIW4qHzkQ</a>  <a href="http://www.youtube.com/watch?v=9I19QVS1VM0&amp;feature=related">http://www.youtube.com/watch?v=9I19QVS1VM0&amp;feature=related</a>            Country file 28th Nov 2010            BBC 1 a clip on aquaculture — John Craven investigates 'Fish Farming' covered all environmental issues plus supply and demand.  <b>DVD — CH4 - Programme 1 and 3 Hugh's Fish Fight (Programme 1 = Tues 11<sup>th</sup> Jan 2011, Programme 3 Thurs 13<sup>th</sup> Jan 2011)</b> </p>	

### Int 2 Books

Eco Action — Energy of the Future, Heinemann ISBN 978-0-431-02984-8

Plant Under Pressure series – Energy, Raintree Publishers ISBN 878-1-844-54985-0

ED - Energy Debate — Wind power, Wayland ISBN 9780750250238

Biomass, Wayland ISBN 9780750250207

Nuclear. Wayland ISBN 780750250184

Water, Wayland ISBN 9780750250214

Solar, Wayland ISBN 9780750250191

Coal, Gas, Oil, Wayland ISBN 9780750250221

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p><b>Natural Resources and Energy</b></p> <p>Renewable and non renewable sources of energy</p>	<p>NWW pages 106–113 <b>QA Section 2 Int 2 2003</b> <b>Q2 Int 2 2010</b></p>	<p>DVD — Sustainable Development — Environment</p>	<p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/energy/index.asp">http://www.ltscotland.org.uk/wetherandclimatechange/energy/index.asp</a></p> <p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/energy/renewable/geothermal.asp">http://www.ltscotland.org.uk/wetherandclimatechange/energy/renewable/geothermal.asp</a></p> <p><a href="http://environment.nationalgeographic.com/environment/global-warming/geothermal-profile/">http://environment.nationalgeographic.com/environment/global-warming/geothermal-profile/</a></p> <p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/energy/renewable/biomass.asp">http://www.ltscotland.org.uk/wetherandclimatechange/energy/renewable/biomass.asp</a></p> <p><a href="http://www.biomassenergycentre.org.uk/portal/page?_pageid=76,15049&amp;_dad=portal&amp;_schema=PORTAL">http://www.biomassenergycentre.org.uk/portal/page?_pageid=76,15049&amp;_dad=portal&amp;_schema=PORTAL</a></p> <p><a href="http://www.darvill.clara.net/alternerg/biomass.htm">http://www.darvill.clara.net/alternerg/biomass.htm</a></p> <p><a href="http://www.scottishrenewables.com/">http://www.scottishrenewables.com/</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p><b>Energy sources used in ELDC's compared to EMDC's &amp; their main use</b></p> <p>Main energy source ELDC's — wood, dung, biogas India &amp; China – coal or HEP (Three Gorges)</p> <p><b>Main source in EMDC's — fossil fuels, nuclear, Eg nuclear/France, geothermal/Iceland. Biofuel/Sweden, wind power/Denmark</b></p> <p>Energy use per head in ELDC compared to EMDC</p>	<p>ED books listed above</p> <p><b>Q2 Int 2 2003</b> <b>Q6 Int 2 2003</b> <b>QA section 2 Int 2 2006</b> <b>Q3 Int 2 2008</b> <b>Q2 Int 2 2009</b> <b>Q2 Int 2 2010</b></p> <p>Q2 H 2005 Q2 H 2007 Q2 H 2008 Q8B H 2010</p>		

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p><b>Environmental impacts of using fossil fuels on the environment</b></p> <p>Disturbance to landscape — pit bings</p> <p><b>Disturbance to habitats — open cast mining</b></p> <p>Disturbance to sea bed — oil platforms</p> <p><b>Power stations in Scotland that use fossil fuels — Cockszie (East Lothian), Longannet (Fife) Stornoway and Lerwick A and B (Shetland)</b></p>	<p>KG page 246</p> <p><b>QA section 2 Int 2 2008</b> <b>Q9B H 2009</b></p> <p>Oil spillage Opt B Int 2 2007</p> <p><b>Q6 H 2004</b> <b>Q1 H 2008</b></p>	<p>Landward Episode 23 (2010) — restoration of Dunfermline's open cast mine <a href="http://www.bbc.co.uk/programmes/p0096d6c">http://www.bbc.co.uk/programmes/p0096d6c</a></p>	<p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/energy/fossilfuels.asp">http://www.ltscotland.org.uk/wetherandclimatechange/energy/fossilfuels.asp</a></p> <p>Loch Fitty, Dunfermline case study <a href="http://www.thecourier.co.uk/News/Fife/article/6115/loch-fitty-mining-plan-could-create-52-jobs.html">http://www.thecourier.co.uk/News/Fife/article/6115/loch-fitty-mining-plan-could-create-52-jobs.html</a></p> <p><a href="http://news.stv.tv/scotland/east-central/202734-fife-loch-could-be-drained-and-used-as-mine/">http://news.stv.tv/scotland/east-central/202734-fife-loch-could-be-drained-and-used-as-mine/</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p><b>Global warming</b> — greenhouse gases, sources. Impacts of greenhouse gases from burning fossil fuels</p> <p><b>Disturbance to wildlife &amp; biodiversity from acid rain (local, national &amp; international)</b></p> <p>Disturbance to wildlife &amp; biodiversity from Global warming</p> <p><b>Is carbon capture a solution?</b></p>	<p>NWW pages 204-5</p> <p><b>Q8 Int 2 2003</b> <b>QA section 2 Int 2 2005</b> <b>Q3 H 2006</b></p> <p>NWW page 202</p> <p><b>KG pages 115-7 (int 2)</b></p> <p>Section B Int 2 2003 Q3 Int 2 2007 Section B Int 2 2009 Q3 H 2004</p>	<p>DVD — An Inconvenient Truth Film — The Age of Stupidity</p> <p><a href="http://www.bbc.co.uk/learningzone/clips/fossil-fuels/4413.html">http://www.bbc.co.uk/learningzone/clips/fossil-fuels/4413.html</a></p> <p><a href="http://www.bbc.co.uk/learningzone/clips/causes-of-climate-change/1491.htm">http://www.bbc.co.uk/learningzone/clips/causes-of-climate-change/1491.htm</a></p> <p>Hunterston power station plans. guardian.co.uk — Tues 3<sup>rd</sup> August 2010 BBC news website — 2<sup>nd</sup> June 2010</p> <p>DVD TV Choice — Global warming Tipping Point</p>	<p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/climatechange/index.asp">http://www.ltscotland.org.uk/wetherandclimatechange/climatechange/index.asp</a></p> <p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/climatechange/inscotland/biodiversity.asp">http://www.ltscotland.org.uk/wetherandclimatechange/climatechange/inscotland/biodiversity.asp</a></p> <p><a href="http://www.rspb.org.uk/climate/wildlife/index.aspx">http://www.rspb.org.uk/climate/wildlife/index.aspx</a></p> <p><a href="http://www.rspb.org.uk/ourwork/casework/details.aspx?id=tc:m:9-227932#">http://www.rspb.org.uk/ourwork/casework/details.aspx?id=tc:m:9-227932#</a></p> <p><a href="http://www.scottishpower.com/carbon_capture_storage/default.asp">http://www.scottishpower.com/carbon_capture_storage/default.asp</a></p> <p><a href="http://www.snh.gov.uk/climate-change/impacts-in-scotland/">http://www.snh.gov.uk/climate-change/impacts-in-scotland/</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p><b>Nuclear energy</b></p> <p>Nuclear power stations in Scotland are Hunterston A and B (Ayrshire) and Torness (East Lothian).</p> <p><b>Pros and Cons of nuclear power, eg Chernobyl &amp; risk to human lives</b></p> <p>Dounreay — decommissioning issues and contamination of beaches</p>	<p>KG page 247</p> <p><b>Q6 Int 2 2006</b> <b>Opt A section 2 Int 2 2008</b></p> <p>Nuclear. Wayland</p>	<p>DVD —</p> <p>Video clip on Chernobyl —  <a href="http://www.bbc.co.uk/mediaselector/check/media/avdb/news_web/video/9012da68003fc60/09012da68003fd8b?size=16x9&amp;news=1&amp;nbram=1&amp;nbwm=1&amp;bbram=1&amp;bbwm=1&amp;bgc=6699CC">http://www.bbc.co.uk/mediaselector/check/media/avdb/news_web/video/9012da68003fc60/09012da68003fd8b?size=16x9&amp;news=1&amp;nbram=1&amp;nbwm=1&amp;bbram=1&amp;bbwm=1&amp;bgc=6699CC</a></p>	<p><a href="http://www.ltscotland.org.uk/wetherandclimatechange/energy/nuclearpower.asp">http://www.ltscotland.org.uk/wetherandclimatechange/energy/nuclearpower.asp</a></p> <p><a href="http://www.darvill.clara.net/alternerg/nuclear.htm">http://www.darvill.clara.net/alternerg/nuclear.htm</a></p> <p><a href="http://www.bbc.co.uk/learningzone/clips/what-is-the-best-way-to-provide-energy-in-the-future/1446.html">http://www.bbc.co.uk/learningzone/clips/what-is-the-best-way-to-provide-energy-in-the-future/1446.html</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p>Reasons for increase in demand for renewables</p> <p><b>Reducing use of non-renewable resources</b></p> <p>Promotion of renewable technologies — Scottish government</p> <p><b>Scottish Renewables Obligation (SRO)</b></p>	<p>Q1 Int 2 2007</p> <p><b>Q7 Int 2 2005</b> <b>Q6 Int 2 2008</b></p>	<p><b>DVD — Sustainable Development – Environment</b></p> <p>TV programme — Scotland Green Power</p>	<p><a href="http://www.ltscotland.org.uk/weatherandclimatechange/energy/renewable/introduction.asp">http://www.ltscotland.org.uk/weatherandclimatechange/energy/renewable/introduction.asp</a></p> <p><a href="http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/climatechangeact">http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/climatechangeact</a></p> <p><a href="http://www.ltscotland.org.uk/weatherandclimatechange/makeadifference/government/renewables.asp">http://www.ltscotland.org.uk/weatherandclimatechange/makeadifference/government/renewables.asp</a></p> <p><a href="http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-sources/19185">http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-sources/19185</a></p> <p>Steven’s Croft – biomass plant <a href="http://news.bbc.co.uk/1/hi/scotland/south_of_scotland/7695508.stm">http://news.bbc.co.uk/1/hi/scotland/south_of_scotland/7695508.stm</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Website
Targets set by International Agenda 21  Kyoto	KG 250-1		<a href="http://www.ace.mmu.ac.uk/eae/sustainability/Older/Agenda21.html">http://www.ace.mmu.ac.uk/eae/sustainability/Older/Agenda21.html</a>  <a href="http://www.ltscotland.org.uk/wetherandclimatechange/makeadifference/agreements.asp">http://www.ltscotland.org.uk/wetherandclimatechange/makeadifference/agreements.asp</a>  <a href="http://unfccc.int/kyoto_protocol/items/2830.php">http://unfccc.int/kyoto_protocol/items/2830.php</a>

Topic	Textbook	Website
<p>Energy efficiency initiatives — Making a personal contribution to reducing electricity used. Make a difference.</p>	<p>Countryfile – 20<sup>th</sup> Nov 2009 BBC1 = wool used to insulate entire village</p> <p><b>QA section 2 Int 2 2007</b> <b>Q8B H 2010</b></p>	<p><a href="http://www.ltscotland.org.uk/schoolsglobalfootprint/index.asp">http://www.ltscotland.org.uk/schoolsglobalfootprint/index.asp</a></p> <p><a href="http://www.eonenergy.com/At-Home/Going-Green/Energy-Saving-Advice/Interactive-House/">http://www.eonenergy.com/At-Home/Going-Green/Energy-Saving-Advice/Interactive-House/</a></p> <p><a href="http://www.ltscotland.org.uk/weatherandclimatechange/energy/savingenergy.asp">http://www.ltscotland.org.uk/weatherandclimatechange/energy/savingenergy.asp</a></p> <p><a href="http://www.energysavingtrust.org.uk/scotland/Scotland-Welcome-page/At-Home">http://www.energysavingtrust.org.uk/scotland/Scotland-Welcome-page/At-Home</a></p> <p><a href="http://www.sepa.org.uk/climate_change/solutions/play_your_part.aspx">http://www.sepa.org.uk/climate_change/solutions/play_your_part.aspx</a></p> <p><a href="http://actonco2.direct.gov.uk/home.html">http://actonco2.direct.gov.uk/home.html</a></p> <p><a href="http://www.eonenergy.com/NR/rdonlyres/A6B980E5-CBEA-4923-9014-D51CFFD43C45/0/100Ways24ppLeafletAW.pdf">http://www.eonenergy.com/NR/rdonlyres/A6B980E5-CBEA-4923-9014-D51CFFD43C45/0/100Ways24ppLeafletAW.pdf</a></p> <p><a href="http://www.scotland.gov.uk/Topics/Business-Industry/Energy/make-the-difference">http://www.scotland.gov.uk/Topics/Business-Industry/Energy/make-the-difference</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p><b>Wind farms — onshore</b></p> <p>Disturbance to landscape during construction</p> <p><b>Disturbance to wildlife &amp; reduced biodiversity during construction</b></p> <p>Disturbance to wildlife after construction</p>	<p>KG page 248-9</p> <p><b>Wind power, Wayland</b></p> <p>Article: Sea change on horizon — SNH Winter 2009</p> <p><b>QA section 2 Int 2 2004</b> <b>Q5 H 2004</b></p>	<p><a href="http://www.bbc.co.uk/learningzone/clips/how-wind-energy-produces-electricity/6616.html">http://www.bbc.co.uk/learningzone/clips/how-wind-energy-produces-electricity/6616.html</a></p> <p><a href="http://www.bbc.co.uk/learningzone/clips/wave-power-hydroelectricity-and-wind-farms/475.html">http://www.bbc.co.uk/learningzone/clips/wave-power-hydroelectricity-and-wind-farms/475.html</a></p> <p>DVD Scottish Power Renewables — Blacklaw wind farm (2008)</p> <p><a href="http://www.bbc.co.uk/learningzone/clips/from-coal-to-wind-power-at-the-black-law-coal-mine-scotland/7412.html">http://www.bbc.co.uk/learningzone/clips/from-coal-to-wind-power-at-the-black-law-coal-mine-scotland/7412.html</a></p>	<p><a href="http://www.darvill.clara.net/alternerg/wind.htm">http://www.darvill.clara.net/alternerg/wind.htm</a></p> <p><a href="http://www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/">http://www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/</a></p> <p><a href="http://www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/marine-renewables/">http://www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/marine-renewables/</a></p> <p><a href="http://www.snh.gov.uk/planning-and-development/renewable-energy/offshore-wind/">http://www.snh.gov.uk/planning-and-development/renewable-energy/offshore-wind/</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Website
<p><b>Wave/tidal power</b></p> <p>Disturbance to seascape with surface turbines</p>	<p>Q2 H 2005</p>	<p><a href="http://www.bbc.co.uk/learningzone/clips/plans-for-a-tidal-energy-farm-for-waters-off-the-coast-of-scotland/7052.html">http://www.bbc.co.uk/learningzone/clips/plans-for-a-tidal-energy-farm-for-waters-off-the-coast-of-scotland/7052.html</a></p> <p>Countryfile BBC1 24/05/2009 — examines tidal energy scheme in Northern Ireland</p>	<p><a href="http://www.ltscotland.org.uk/weatherandclimatechange/energy/renewable/waveandtidal.asp">http://www.ltscotland.org.uk/weatherandclimatechange/energy/renewable/waveandtidal.asp</a></p> <p><a href="http://www.darvill.clara.net/alternerg/wave.htm">http://www.darvill.clara.net/alternerg/wave.htm</a></p> <p><a href="http://www.guardian.co.uk/environment/interactive/2010/mar/16/uk-tidal-wave-technologies">http://www.guardian.co.uk/environment/interactive/2010/mar/16/uk-tidal-wave-technologies</a></p> <p><a href="http://www.pelamiswave.com/">http://www.pelamiswave.com/</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Websites
<p><b>Hydro electric power</b></p> <p>Adv &amp; Disadv</p>	<p>KG page 247</p> <p><b>Q3 Int 2 2004</b> <b>Q7 H 2010</b></p>	<p>TV BBC1 — Making Scotland's Landscape — Water/HEP (2010)</p>	<p><a href="http://www.darvill.clara.net/alternerg/hydro.htm">http://www.darvill.clara.net/alternerg/hydro.htm</a></p> <p><a href="http://www.visitcruachan.co.uk/">http://www.visitcruachan.co.uk/</a></p> <p><a href="http://www.energysavingtrust.org.uk/Generate-your-own-energy/Hydroelectricity">http://www.energysavingtrust.org.uk/Generate-your-own-energy/Hydroelectricity</a></p> <p><a href="http://www.ltscotland.org.uk/weatherandclimatechange/energy/renewable/hydroelectric.asp">http://www.ltscotland.org.uk/weatherandclimatechange/energy/renewable/hydroelectric.asp</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Website
<p><b>Fuel and transport</b></p> <p>Effects of exhaust fumes from transport</p> <p>Use of catalytic convertors, reducing car use and implementing strategic management plans</p>	<p>Q1 Int 2 2010</p> <p><b>Q9 H 2005</b> <b>Q7 H 2009</b> <b>Q1 H 2010</b></p>	<p><a href="http://www.bbc.co.uk/learningzone/clips/hydrogen-fuel-cells/6011.html">http://www.bbc.co.uk/learningzone/clips/hydrogen-fuel-cells/6011.html</a></p> <p>DVD — V choice — Biofuel from Brazil. Sugar: Alternative energy source.</p> <p>Pressure Point video — Edinburgh traffic congestion — reasons &amp; suggested solutions</p> <p><a href="http://www.bbc.co.uk/learningzone/clips/reducing-air-pollution-from-traffic/1578.html">http://www.bbc.co.uk/learningzone/clips/reducing-air-pollution-from-traffic/1578.html</a></p> <p>Sustrans <a href="http://www.youtube.com/watch?v=kr6U4DiFOHk&amp;feature=related">http://www.youtube.com/watch?v=kr6U4DiFOHk&amp;feature=related</a></p> <p>Sustrans &amp; the environment — <a href="http://www.youtube.com/watch?v=x54wiCLANWU&amp;feature=related">http://www.youtube.com/watch?v=x54wiCLANWU&amp;feature=related</a></p> <p>DVD — Sustainable Development — Environment</p>	

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Website
<p><b>Natural Resources and Energy</b></p> <p>Where to find information on the role and aims of local, national and international agencies responsible for sustainable development</p> <ul style="list-style-type: none"> <li>◆ Local Authority and Agenda 21</li> <li>◆ BAP's &amp; LBAP's</li> <li>◆ Scottish Government Policies</li> <li>◆ Statutory Organisations – SNH, SEPA</li> <li>◆ EU Parliament initiatives, policies &amp; legislation</li> <li>◆ International conferences — Kyoto, Copenhagen</li> </ul>	<p>Q6 Int 2 2007 (LBAP's)</p> <p><b>Q1 H 2006</b> <b>Q8B H 2008</b> <b>Q8A H 2010</b></p>		<p><a href="http://www.ace.mmu.ac.uk/eae/sustainability/Older/Agenda21.html">http://www.ace.mmu.ac.uk/eae/sustainability/Older/Agenda21.html</a></p> <p><a href="http://www.snh.gov.uk/">http://www.snh.gov.uk/</a> <a href="http://www.sepa.org.uk/">http://www.sepa.org.uk/</a></p> <p><a href="http://www.ltscotland.org.uk/weatherandclimatechange/makeadifference/agreements.asp">http://www.ltscotland.org.uk/weatherandclimatechange/makeadifference/agreements.asp</a></p> <p><a href="http://unfccc.int/kyoto_protocol/items/2830.php">http://unfccc.int/kyoto_protocol/items/2830.php</a></p>
<p>Voluntary organizations and environmental pressure groups contributing to research evidence &amp; promoting sustainable use</p> <ul style="list-style-type: none"> <li>◆ RSPB</li> <li>◆ WWF</li> </ul>			<p><a href="http://www.rspb.org.uk/">http://www.rspb.org.uk/</a></p>

Topic	Textbook	DVD/BBC video clip/ YouTube clip	Website
<b>Water</b>	Q7 Int 2 2004  <b>QB section 2 Int 2 2008</b>	Britain's Dirty Beaches (Panorama)  Aquaculture — BBC1 Country file — 28/11/2010	<a href="http://www.snh.gov.uk/climate-change/ocean-acidification/">http://www.snh.gov.uk/climate-change/ocean-acidification/</a>

## Unit 2

# Teaching Resources: Unit 2 — Ecosystems — Intermediate 2 and Higher

### Text Books

- |   |   |       |
|---|---|-------|
| a | Standard Grade Biology by James Torrance (Hodder Gibson) 3rd edition ISBN 978-0-340-78957-5   | Int 2 |
| b | Intermediate 2 Biology by James Torrance (Hodder Gibson) 2nd edition - ISBN 978-0-340-91207-2 | Int 2 |
| c | Higher Grade Biology by James Torrance (Hodder & Stoughton) 1st edition – ISBN-0-340-53611-x  | H     |
| d | New Higher Biology by James Torrance (Hodder Gibson) ISBN 0-340-74319-0                       | H     |
| e | SNH soils book ISBN 1-85397-120-2   |       |
| f | Environmental Science by Kevin Byrne, is a useful background for deliverers                   |       |

### DVDs

- a Planet Earth BBC (2006) by David Attenborough
- b Life (2009) by David Attenborough

### YouTube

Highly recommended, eg Kruger National Park, Chernobyl

<b>Topic</b>	<b>Textbook</b>	<b>Past paper question</b>	<b>Website</b>
1 Ecosystems, Habitats and Communities Examples of ecosystems		Int 2 Q5 2008	<a href="http://www.snh.gov.uk/about-scotlands-nature/habitats-and-ecosystems/">http://www.snh.gov.uk/about-scotlands-nature/habitats-and-ecosystems/</a>  <a href="http://www.ltscotland.org.uk/nationalqualifications/resources/g/nqresource_tcm4481726.asp">http://www.ltscotland.org.uk/nationalqualifications/resources/g/nqresource_tcm4481726.asp</a>  <a href="http://www.ltscotland.org.uk/nationalqualifications/resources/g/nqresource_tcm4465917.asp">http://www.ltscotland.org.uk/nationalqualifications/resources/g/nqresource_tcm4465917.asp</a>
Concept of ecosystems (Int 2, 2.1)	A — Chapter 1 & 2  B — Chapter 7		
Sampling (Int 2, 2.5)		H Q5 2010 H Q4 2009	
Indicator species, levels of biodiversity, and detrimental human activities (Int 2 2.7)	B — Chapter 7	H Q5 2010 Int 2 Q5 2009	
Complex keys		H Q3 2010 H Q4 2006 Int 2 Q5 2009	

Topic	Textbook	Past paper question	Website
2 Nature and properties of soils. Practical soil investigation.		H Q4 2010 H Q4 2009	<a href="http://www.snh.gov.uk/about-scotlands-nature/rocks-soils-and-landforms/scotlands-soils/">http://www.snh.gov.uk/about-scotlands-nature/rocks-soils-and-landforms/scotlands-soils/</a>  <a href="http://www.snh.org.uk/teachingspace/whattodo/schoolgrounds/Soil_Sampling.asp">http://www.snh.org.uk/teachingspace/whattodo/schoolgrounds/Soil_Sampling.asp</a>
Techniques used to measure abiotic factors (ensuring validity of data)	A — Chapter 1	Int 2 Q5 2010	
Biotic factors			

<b>Topic</b>	<b>Textbook</b>	<b>Past paper question</b>	<b>Website</b>
<b>3</b> Dynamics of ecosystems. Food chains, webs and pyramids (Int 2, 2.2)	B Chapter 6	H Q3 2010 H Q4 2007 Int 2 Q5 2009	
Energy conversion and transfer (Int 2, 2.3)	A, B and C	H Q4 2006 Int 2 Q3 2009	
Cycling of nutrients (Int 2, 2.4)	A — Chapter 2	H Q4 2010 Int 2 Q5 2006	
Effects of abiotic factors	A — Chapter 1 B — practical activity & report on woodlice pg 144/5	H Q5 2007	
Effects of biotic factors	C		
Population dynamics	C	H Q4 2004	
The principles of succession on land and aquatic ecosystems .	C — Chapter 34		

Topic	Textbook	Past paper question	Website
4 The effect of human activities (Int 2, 2.6)	A, B and C	H Q5 2009 H Q5 2006 Int 2 Q6 2010	

## Unit 3

# Teaching Resources: Unit 3 — Land Use in Scotland and the Local Environment — Intermediate 2 and Higher

## DVDs

### a 'Making Scotland's Landscape' 5 part series – BBC 1 Prof Iain Stewart

- ◆ **Part 1 Land** — In this first programme, he uncovers how, over thousands of years, the actions of mankind and the climate nearly led to the downfall of Scotland's trees and forests. It was only in the 18th century that man realised the extent of the damage to timber stocks, and measures were taken to re-populate the landscape. The impact was profound, but not everyone agreed with the results. Useful website [Isle of Eigg](http://www.isleofeigg.net) (www.isleofeigg.net).
- ◆ **Part 2 Trees** — For centuries, the beauty and drama of Scotland's landscape has been regarded by most visitors as natural. But in 1950, an eminent ecologist concluded the Highlands had been devastated. Once it was rich and diverse he said, but humans had destroyed it and in the process created what he described as a wet desert. Professor Iain Stewart discovers how man made the proverbially beautiful Highlands.
- ◆ **Part 3 Sea** — Professor Stewart reveals how hearts and not heads have ruled the least understood landscape of them all - the sea. The public's emotions have played a key role in the fate of Scotland's maritime creatures and the upshot has been a form of lottery. While some species like seals and sea birds have been protected, others - like cod - have been fished nearly out of existence.
- ◆ **Part 4 Water** — As 'natural' icons, Scotland's rivers and lochs represent how the nation imagines itself. However as Professor Iain Stewart discovers, the only thing that happens naturally is rain. As soon as it hits the ground, it is ours and we do with it what we will. Today there are scarcely any rivers or natural large bodies of water left untouched by human activity. This is the story of how Scotland's waters became some of the most managed on earth. Useful websites [Loch Sloy](http://www.arrocharheritage.com) (www.arrocharheritage.com) [Walk Highlands: Blackwater Dam](http://www.walkhighlands.co.uk) (www.walkhighlands.co.uk).

- ◆ **Part 5 Climate** — During the Industrial Revolution, Scottish scientists and engineers helped unwittingly set off a chain of events that today we know as climate change - a process that is transforming our atmosphere and warming our planet. Professor Iain Stewart looks at how Scotland is on the verge of another revolution: the transformation of a carbon economy to a green one. Useful websites - [RSPB: Cubin Sands \(www.rspb.org.uk\)](http://www.rspb.org.uk) [Galloway Forest Park \(www.forestry.gov.uk\)](http://www.forestry.gov.uk) [Undiscovered Scotland:Bathgate \(www.undiscoveredscotland.co.uk\)](http://www.undiscoveredscotland.co.uk) [Grind of Navir \(www.landforms.eu\)](http://www.landforms.eu).

b **'Men of Rock' 3 part series BBC 1 Geologist Iain Stewart**

- ◆ Part 1 — Deep Time
- ◆ Part 2 — Moving Mountains
- ◆ Part 3 — The Big Freeze

# Question paper structure

## MER Intermediate 1

Structured questions      **80** marks  
Time                              1 ½ hours

### Knowledge and Understanding

There are 3 units which must be sampled equally and all of the content statements of the first column in the specifications must be sampled. The questions must be based on the second column of the specification document.

In practice, 17 to 19 marks are allocated to each unit.

### Problem Solving

There are two areas:

- a Selection and presentation of information and
- b Conclusions and explanations

About 25 marks are allocated to problem solving, with usually 6 marks to more complex questions.

The external exam paper normally has 9 questions, which include:

- i Type of environment — straightforward question to allow candidates to settle.
- ii Interpretation — covers PS (a).
- iii Land use — based on a Scottish industry.
- iv Food web — based on a Scottish ecosystem.
- v Graph interpretation.
- vi Investigation — practical skills are assessed here.
- vii Two different graph completions — line/bar/pie.
- viii Other questions usually based around any up to date environmental issues.

## MER Intermediate 1 Exam

### Knowledge and Understanding

#### Unit 1 Environmental Issues

Content Statement	Question number and mark allocation	Sub-total	Total
1			
2			
3			
4			
5			
6			

#### Unit 2 Ecosystems

Content Statement	Question number and mark allocation	Sub-total	Total
1			
2			
3			

#### Unit 3 Land Use

Content Statement	Question number and mark allocation	Sub-total	Total
1			
2			
3			
4			

### Problem Solving

Type	Question number and mark allocation	Sub-total	Total
a selection/ presentation			
b conclusion/ explanation			

#### Paper Analysis Summary

K U	P S	Total

## **MER Intermediate 2**

Total Marks     **100** (Structured questions **90** marks, Extended Response **10** marks )  
Time                2 hours

### **Knowledge and Understanding**

There are 3 units which must be sampled equally and all of the content statements of the first column in the specification document must be sampled. The questions must be based on the second column of the specifications.

In practice, about 20 marks are allocated to each unit.

### **Problem Solving**

There are four areas:

- a    Selection and presentation of information and
- b    Calculations
- c    Conclusions and explanations
- d    Predictions

About 30 marks are allocated to problem solving, with about 6 marks to more complex questions.

The external exam paper has two sections. The first normally has 8 structured questions (90 marks worth) which include:

- i     A map Question, worth about 20 marks.
- ii    An interpretation — covers PS (a) and can integrate across all units.
- iii   Land use — based on a Scottish industry.
- iv    Food web — based on a Scottish ecosystem.
- v     Graph interpretation.
- vi    Investigation — practical skills are assessed here.
- vii   One graph completion — line/bar /pie/climate.
- viii  Other questions usually based on any up to date environmental issues.

In the second section there is a choice of extended response — worth 10 marks. Candidates must choose one from a choice of three.

The three options are based on the three units, Natural Resource Use, Ecosystems and the Local Environment.

## MER Intermediate 2 Exam

### Knowledge and Understanding

#### Unit 1 Natural Resource Use

Content Statement	Question number and mark allocation	Sub-total	Total
1			
2			
3			
4			
5			
6			
7			
Option A			

#### Unit 2 Ecosystems

Content Statement	Question number and mark allocation	Sub-total	Total
1			
2			
3			
4			
5			
6			
7			
Option B			

#### Unit 3 Local Environment

Content Statement	Question number and mark allocation	Sub-total	Total
1			
2			
3			
4			
5			
6			
Option C			

## Problem Solving

Type	Question number and mark allocation	Sub-total	Total
a selection/ presentation			
b calculation			
c conclusion			
d prediction/ generalisation			

## Paper Analysis Summary

K U	P S	Extended Response	Total
		10	

## MER Higher

Total Marks     **110** (Structured questions **80** marks, Two Essays **30** marks, 15 each)  
Time                2 ½ hours

### Knowledge and Understanding

There are 3 units which must be sampled and all of the content statements of the first column in the course specification must be sampled. The questions must be based on the second column of the specification.

In practice, between 22 and 26 marks are allocated to each unit.

**NB** When Knowledge and Understanding, Problem solving and Extended Response questions are considered, the allocation of marks to each unit is between 35 and 37.

### Problem Solving and Practical abilities

There are four areas:

- a    Selection and presentation of information and
- b    Calculations
- c    Conclusions and explanations
- d    Predictions and generalisations

About 11 marks are allocated to problem solving, with about 5 marks to be more complex questions and no more than 5 marks involve calculations.

The external exam paper has two sections. The first normally has 7 structured questions (80 marks worth) which include:

Two questions on each unit of the course and one additional question on the unit which is not represented in section B of the paper. Questions are presented in the order of units as presented in the specification.

In the second section, both questions offer a choice of alternative each based on the same unit. The first extended response is structured and divided into subsections. The second one is unstructured and based on a different unit. Both questions are worth 15 marks each.

## MER Higher Exam

### Knowledge and Understanding

#### Unit 1 Natural Resource Use

Content Statement	Question number and mark allocation	Sub-total	Ext Resp	Total
1				
2				
3 i, ii, iii, iv, v				
4				
5				
6 i, ii, iii				
7				

#### Unit 2 Ecosystems

Content Statement	Question number and mark allocation	Sub-total	Ext Resp	Total
1				
2				
3 i, ii, iii, iv, v, vi, vii				
4				

#### Unit 3 Land Use in Scotland

Content Statement	Question number and mark allocation	Sub-total	Ext Resp	Total
1				
2				
3				
4				
5				

### Problem Solving

Type	Question number and mark allocation	Sub-total	Total
a selection/ presentation			
b calculation			
c conclusion			
d prediction/ generalisation			

#### Paper Analysis Summary

K U	P S	Ext Response 1	Ext Response 2	Total
		15	15	

# MER Intermediate 2 — Writing Essays

In the external exam there is always one question requiring extended writing. This essay type question is worth 10 valuable marks. Usually, but not always, it is divided into two or three sections. All sections must be attempted.

The answer should follow the format of the question.

For example if the question is in two parts a) and b) the answer should be in two separate paragraphs. Check that each sentence is relevant to the appropriate part of the essay.

Essays or sections of an essay should have:

- ◆ A brief introduction — one sentence will do.
- ◆ Information in detail related to the title or section of the essay.
- ◆ Good descriptive sentences or explanations. These generally get one mark.
- ◆ Examples where possible.
- ◆ A summary sentence as a conclusion.

Avoid repeating points, marks are never awarded for waffle.

There should be sketch maps or diagrams where these are relevant.

## **MER Intermediate 2 — Essay Questions**

In the external SQA exam there is always one essay question for 10 marks.

There are always three essay options, one from each unit of the course.

**Option A** is based on the Natural Resource unit.

**Option B** is based on the Ecosystems unit.

**Option C** is based on the Local Environment.

The essays which have come up in past papers are listed below.

## MER Intermediate 2 — Essay Questions on Unit 1 — Natural Resource Use 2000–2010

2000	<b>A</b>	(a) Describe some of the possible environmental effects of producing energy from:	
		(i) oil;	5
		(ii) uranium.	5
		(b) Describe some of the changes in UK energy production in the last fifty years.	5
2001	<b>A</b>	Describe the effects of the following forms of pollution:	
		(a) Acid rain	5
		(b) Sewage	5
2002	<b>A</b>	Write notes on sustainable development in relation to:	
		(a) recycling;	5
		(b) energy production.	5
2003	<b>A</b>	Write notes on the changes in the use of natural resources to generate electricity for the UK over the past 40 years.	10
2004	<b>A</b>	(a) Describe the effects that wind farms have on:	
		(i) landscape;	2
		(ii) wildlife and biodiversity.	3
		(b) Describe the role of wind farms in energy production.	5
2005	<b>A</b>	Write notes on:	
		(a) greenhouse gases and their environmental effects caused by increasing greenhouse gas production;	5
		(b) ways to reduce greenhouse gas production.	5
2006	<b>A</b>	With reference to a named economically less developed country (ELDC) and a named economically more developed country (EMDC) describe:	
		(a) the sources of energy;	5
		(b) the major uses of energy.	5

2007	<b>A</b>	Discuss the ways in which energy demand can be reduced by initiatives at:	
		(a) a national level;	5
		(b) a personal level.	5
2008	<b>A</b>	Describe the possible environmental effects of generating electricity using:	
		(a) coal;	5
		(b) uranium.	5
2009	<b>A</b>	Describe:	
		(a) how acid rain is formed;	4
		(b) the environmental effects of acid rain;	3
		(c) ways of reducing acid rain.	3
2010	<b>A</b>	Using the following headings, describe how the use of non-renewable resources can be reduced:	
		(a) Recycling	6
		(b) Environmental education programmes	2
		(c) Energy efficiency schemes	2

## MER Intermediate 2 — Essay Questions on Unit 2 — Ecosystems 2000–2010

- 2000 **B** With reference to any ecosystem you have studied, discuss:
- (a) energy loss in food chains; 5
  - (b) habitat destruction; 5
  - (c) conservation in practice. 5
- 2001 **B** With reference to your local area, describe the contributions made by Agenda 21 to the following:
- (a) Biodiversity 5
  - (b) Environmental educational programmes 5
- 2002 **B** Describe the role of the following in a **named ecosystem**:
- (a) Producers 5
  - (b) Decomposers 5
- 2003 **B** Write notes on:
- (a) acid rain; 5
  - (c) fertiliser run off. 5
- 2004 **B** With reference to any ecosystem you have studied, describe:
- (a) energy capture by photosynthesis; 5
  - (b) energy flow and loss. 5
- 2005 **B** Write notes on the carbon cycle. You may include a diagram if you wish. 10
- 2006 **B** For a freshwater loch ecosystem:
- (a) discuss changes in the ecosystem caused by human activities; 5
  - (b) describe conservation measures that could be taken to minimise these changes. 5
- 2007 **B** Discuss the effects of:
- (a) oil spillage in a named ecosystem; 5
  - (b) sewage in a named ecosystem. 5

2008	<b>B</b>	Describe:	
		(a) the possible causes of freshwater pollution;	5
		(b) the role of indicator species in detecting water pollution.	5
2009	<b>B</b>	Describe:	
		(a) what is meant by an ecosystem;	5
		(b) methods of sampling plants and animals in an ecosystem.	5
2010	<b>B</b>		
		(a) Describe the Nitrogen Cycle	5
		(b) Discuss the use of fertilizers	5

## MER Intermediate 2 — Essay Questions on Unit 3 — The local Environment 2000–2010

- 2000 **C** With reference to an investigation you have carried out in your local environment, describe:
- (a) how you identified the natural features of the landscape; 5
  - (b) the weather data which you could collect; 5
  - (c) a conflict of interest and how it could be resolved. 5
- 2001 **C** With reference to an investigation you have carried out in a built environment, describe:
- (a) how you carried out your investigation; 4
  - (b) the land uses you identified; 3
  - (c) the historical influences in the development of your area. 3
- 2002 **C** With reference to an investigation into the local environment, describe:
- (a) how weather data is collected and measured; 5
  - (b) land use specific to leisure and recreational activities. 5
- 2003 **C** From an investigation of your local area, describe:
- (a) its geology; 5
  - (b) how humans have altered the landscape. 5
- 2004 **C** With reference to an investigation you have carried out, describe:
- (a) land uses in your named area; 5
  - (b) a conflict of interest resulting from a change in local land use, and how it could be resolved. 5
- 2005 **C** With reference to your local area:
- (a) describe the techniques which you could use to gather information on tourism; 5
  - (b) describe the natural and man-made features that attract tourists to the area. 5
- 2006 **C** With reference to an investigation you have carried out:
- (a) describe how weather data may be measured; 5
  - (b) describe a water based local industry. 5

2007	<b>C</b>	Describe:	
		(a) the historical influences in the development of your area;	5
		(b) how you carried out this investigation.	5
2008	<b>C</b>		
		(a) Describe how you would investigate the flora (plants) in your area.	5
		(b) Plant species can be categorised as cultivated, wild, native, naturalised or weed. Categorise your local <b>animal</b> species giving one named example in each category.	5
2009	<b>C</b>	Describe:	
		(a) recreational land uses in your named local area;	5
		(b) a conflict of interest between local groups of people and its resolution.	5
2010	<b>C</b>	With reference to an investigation in your area:	
		(a) describe how you carried out a land use survey;	5
		(b) discuss the results you obtained from the land use survey.	5

# MER Higher — Writing Essays

In the external exam there are always two extended response questions, both worth 15 marks each. Alternative topics are offered for both questions, usually based on the same unit. All sections must be attempted and the answer should follow the format of the question.

The first extended response question is structured and usually divided into sub-sections. It is important that candidates keep to the structure outlined for them e.g. by using sub-headings, distinct paragraphs or by using (a), (b), (c).

The second extended response question is unstructured and is based on a different unit. Candidates are expected to provide their own outline and parameters.

The number of marks allocated for each sub-section indicates the minimum number of distinct points which must be described and/or explained and/or exemplified.

You may find it useful to ‘acclimatise’ your brain to the essay questions by looking at these at the start of the exam, before you start Section A. Even while you are working on the rest of the paper, your brain will start networking the facts required to answer the essay questions and this should make the process easier.

Always plan your answer before you start writing. Make a list of bullet points or key words and then plan the order they will be discussed in your answer. This will give you some idea of the extent of your knowledge and help you to sequence your essay once you start writing. NB do not consider a list of bullet points alone as a satisfactory answer.

Essays or sections of an essay should have:

- ◆ A brief introduction
- ◆ Detailed information relating to the title or section of the essay
- ◆ Good descriptive sentences or explanations
- ◆ Examples where possible
- ◆ A conclusion

An introduction helps clarify in your mind that you understand what the essay is about. Make an effort to set out each point with a statement that connects it to the essay topic: it is good practice to include part of the essay stem in the sentence, where appropriate.

In the structured essay, the topic area may be very narrow and the number of points that can be made strictly limited. Aim to put each key point in a separate sentence rather than linking groups of facts together.

The unstructured essay is more open-ended but again you should be clear about the topic areas to which you are responding: if you are asked to ‘describe examples and evaluate’ then you should make sure that you cover both the description and

evaluation. The topics for the unstructured essay tend to be more far ranging than the structured essay but you will still need to meet the requirements with a sufficient number of factual statements.

Avoid repeating points and don't waffle. Using sketch maps or diagrams can save a lot of time and writing, but they should be relevant and you should always refer to them in your text.

Finally, read over your essay and see if it 'flows. Make any adjustments and/or last minute additions quite clear. If there is no room in the body of work to insert additions, you can write these at the end of the work and use asterisks and/or numbers to indicate where they should be located.

The essays topics which have come up in past papers are listed below.

## MER Higher — Essay questions on Unit 1 Natural Resource Use 2000–2010

- 2000 **A** Changes in global average temperature currently give cause for concern.
- (a) Describe how fossil fuel use contributes to global warming. (5)
  - (b) Explain how international decisions taken during and after 1992 could influence enhanced global warming. (5)
  - (c) Describe local community initiatives which could influence enhanced global warming. (5) [15 marks]
- 2001 **B** Describe and evaluate examples of good practice in the use of natural resources and the management of waste in a European context. [15 marks]
- 2002 **B** Describe recent progress in the UK towards sustainable development under the following headings:
- (a) Transport (5)
  - (b) Energy production (5)
  - (c) Agenda 21 initiatives (5) [15 marks]
- 2003 **A** Discuss the positive and negative issues involved in recycling:
- (a) domestic organic waste; (5)
  - (b) glass bottles; (5)
  - (c) plastic containers. (5) [15 marks]
- B** Discuss the advantages and disadvantages of energy production from:
- (a) wind; (5)
  - (b) nuclear sources; (5)
  - (c) water. (5) [15 marks]
- 2005 **A** Discuss how industrial practices have been improved to help reduce pollution problems under the following headings:
- (a) Control of emissions and effluents (5)
  - (b) Environmental legislation (5)
  - (c) Introduction of sustainable management practices (5) [15 marks]
- B** Discuss the ways in which biodiversity can be affected, and the consequences for ecosystems of the following:
- (a) waste disposal (5)
  - (b) aquaculture practices (5)
  - (c) the impact of voluntary organisations (5) [15 marks]

- 2006 **B** Discuss the impact on Scotland's environment of government policies and legislation. [15 marks]
- 2008 **A** Discuss the impacts on the environment of the following:  
(a) crofting (5)  
(b) ecotourism (5)  
(c) waste disposal (5) [15 marks]
- B** Discuss how the following can support sustainability:  
(a) organic farming methods (5)  
(b) industrial practices (5)  
(c) Local Agenda 21 (5) [15 marks]
- 2009 **B** Describe power generation in Scotland, its conflicts and positive and negative impacts on the environment and the local community. [15 marks]
- 2010 **A** Discuss initiatives supporting sustainable development under the following headings:  
(a) The role of one statutory organization (5)  
(b) Local Biodiversity Action Plans (LBAPs) (5)  
(c) Recycling schemes (5) [15 marks]
- B** Discuss sustainability in relation to energy issues under the following headings:  
(a) Sources and uses of energy in ELDCs compared to EMDCs (5)  
(b) Waste incineration (5)  
(c) Domestic practices (5) [15 marks]

## MER Higher — Essay questions on Unit 2 Ecosystems 2000–2010

- 2000 **B** Some Scottish habitats are internationally important as they represent a large proportion of the European or world resource. Blanket bogs are an example of such a valuable resource.
- (a) Describe how blanket bogs are formed. (5)
  - (b) Describe the adaptations shown by organisms in blanket bog communities. (5)
  - (c) Explain how blanket bogs can be managed to minimize threats from effects of human activities. (5) [15 marks]
- 2001 **A** Describe the nitrogen cycle under the following headings:
- (a) Nitrification (5)
  - (b) Nitrogen fixation (5)
  - (c) How humans can affect the nitrogen cycle (5) [15 marks]
- 2002 **A** Describe how you would investigate a habitat of your choice under the following headings:
- (a) Collection of data (5)
  - (b) Analysis of the information obtained (5)
  - (c) Interpretation and evaluation of the results (5) [15 marks]
- 2003 **A** Describe the negative effects of fertilizers and pesticides on a named ecosystem, and explain how these effects could be reduced. [15 marks]
- 2004 **A** Describe the processes that contribute to the cycling of nitrogen in ecosystems. [15 marks]
- B** Describe and evaluate the sampling methods and measurements of abiotic factors used in the study of a named ecosystem. [15 marks]
- 2005 **A** Describe and account for the energy dynamics in a named ecosystem. [15 marks]
- 2006 **A** Discuss population dynamics in a named ecosystem and the changes arising from succession. [15 marks]
- 2007 **A** Describe improving rural practices and management of farming to reduce detrimental impacts on the environment. [15 marks]
- B** Describe the natural carbon cycle and the impacts on the environment of human activities associated with it. [15 marks]

- 2009 **A** Discuss feeding relationships under the following headings:
- (a) Food pyramids (5)
  - (b) Symbiotic associations (5)
  - (c) The impact of human activities (5) [15 marks]
- B** Discuss population dynamics under the following headings:
- (a) Predator/prey relationships (5)
  - (b) Density dependent factors (5)
  - (c) The impact of human activities (5) [15 marks]

## MER Higher — Essay questions on Unit 3 Land Use in Scotland 2000–2010

- 2000 **A** In recent years, mountain areas have increasingly been used for a range of recreational activities. Give an account of how this increase in recreational use has conflicted with conservation and suggest how these conflicts could be resolved. [15 marks]
- B** Give an account of the factors that have led to increased food production in the UK since 1950. [15 marks]
- 2001 **B** Discuss the conflicts that can arise from changes in land use associated with the rural urban fringe. Your answer should include consideration of:
- (a) aspects of the built environment such as out-of-town shopping centres, housing developments and transport infrastructure; (7)
  - (b) access to the countryside and other urban-rural community interactions. (8)
- [15 marks]
- 2002 **A** Discuss the role of the Scottish Environmental Protection Agency (SEPA) in the protection and improvement of the environment. [15 marks]
- B** The Common Agricultural Policy (CAP) was reformed substantially in 1992. Discuss why the CAP reforms were necessary and describe the reforms which were put in place and how successful they have been. [15 marks]
- 2003 **B** Describe current and possible future conflicts arising from the use of a loch for recreational activities within a named National Park. [15 marks]
- 2004 **A** Describe the changes that have taken place in land/water use in Scotland under the following headings:
- (a) Major historical changes (5)
  - (b) Urbanization (5)
  - (c) Leisure and recreation (5)
- [15 marks]
- B** Discuss improvements made in the sustainable use of resources in:
- (a) forestry; (5)
  - (b) transport; (5)
  - (c) tourism. (5)
- [15 marks]

- 2005 **B** Describe the effects of increasing use of transport on the Scottish environment and possible solutions to the problems encountered. [15 marks]
- 2006 **A** Discuss the changes in land use arising from:  
 (a) past/historical influences; (7)  
 (b) leisure and tourism. (8) [15 marks]
- B** Discuss the positive impacts on the environment arising from:  
 (a) changes in the Common Agricultural Policy (CAP) (8);  
 (b) conservation agencies. (7) [15 marks]
- 2007 **A** Discuss the impact of urbanization in Scotland under the following headings:  
 (a) Changing land use (5)  
 (b) Effects on natural resources (5)  
 (c) Conflicts arising from new developments (5) [15 marks]
- B** Discuss the role of Scottish Natural Heritage (SNH) under the following headings:  
 (a) As a statutory organisation (5)  
 (b) As an advisory organisation for land managers (5)  
 (c) As a public resources (5) [15 marks]
- 2008 **A** Describe the techniques used and the findings for an investigation carried out on a named land or water use. [15 marks]
- B** Describe the effects of leisure and recreational activities in a named national park and how negative impacts can be lessened by park management strategies. [15 marks]
- 2009 **A** Describe the management of aquaculture, its conflicts and the positive and negative impacts on the environment and the local community. [15 marks]
- 2010 **A** *The Land Reform (Scotland) Act 2003 established a statutory right of responsible access to land and inland waters.*  
 Describe the impacts on the environment arising from the Scottish Access Code and the responsibilities incurred by both users and stewards. [15 marks]
- B** Describe the reforms associated with the Common Agricultural Policy (CAP) and the implications on the scale and diversity of agricultural land use in Scotland. [15 marks]