

**NATIONAL QUALIFICATIONS CURRICULUM SUPPORT**

# Biology

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## Environmental Biology

### Student Monograph

[ADVANCED HIGHER]

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**First published by the Scottish Consultative Council on the Curriculum 2000**  
**Second impression published by Learning and Teaching Scotland 2000**  
**Electronic version 2001**

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**Acknowledgement**

**Learning and Teaching Scotland gratefully acknowledge this contribution to the Higher Still support programme for Biology. The author and publisher wish to record their thanks to Routledge for permission to reproduce the following figures from Allan Jones, *Environmental Biology* (1997): Figures 2.7; 3.1–3.7; 3.15; 3.16; 4.1A; 4.4; 5.6; 6.8; 7.6; 7.7; B3.4; B4.3; and to Jim Stafford, Biology Editor, of the Higher Still Development Unit.**

**ISBN 1859558526**

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## ***PREFACE***

This publication has been prepared to support the new Advanced Higher Biology unit entitled Environmental Biology. Its content follows the structure of the unit as outlined in the course specification from the SQA but much of its content derives from the book *Environmental Biology* written by Allan Jones and published by Routledge in 1997 specifically for students and staff at this level. This volume is, therefore, recommended to those who wish to obtain an extended version of the material contained in this document. Grateful thanks is offered to Routledge for the permission to adopt this approach and for the reproduction of a number of figures from this text. Throughout, I have tried to avoid quoting references within the text but the selected bibliography contains a list of some relevant reading sources together with some comment on their content and relevance.

### **Introduction**

The environment and its ecosystems have political, economic and ethical dimensions because of their impact on the human species. It is the study of environmental biology that provides the scientific basis for the understanding of such issues and for our stewardship of the environment. As environmental resources are finite, this unit considers the biological processes that result in the flow of energy and the circulation of materials through ecosystems. Emphasis is placed on decomposition because of its key role in the recycling of materials. Interactions within ecosystems are considered in relation to abiotic and biotic factors, the latter at both intraspecific and interspecific levels. These interactions should be approached from the point of view of ecological advantage and evolution based upon the costs and benefits of such interactions. The principle of change in ecosystems is considered in connection with human influence on the environment. Throughout the unit, ecosystems should be studied to illustrate the course content: local systems should be studied to provide fieldwork experience but other, more global systems also merit study. Information technology now brings numerate analysis within the scope of classwork, and opportunities to analyse collected and received information from such sources should be taken.