

# International Baccalaureate Diploma Programme Subject Brief

Sciences:

## Environmental systems and societies – Standard level

First assessments 2010 – Last assessments 2016

The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced programme of education designed to prepare students aged 16 to 19 for success at university and life beyond. The DP aims to encourage students to be knowledgeable, inquiring, caring and compassionate, and to develop intercultural understanding, open-mindedness and the attitudes necessary to respect and evaluate a range of viewpoints.

To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. At least three and not more than four subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.

- I. Course description and aims
- II. Curriculum model overview

- III. Assessment model
- IV. Sample questions



## I. Course description and aims

The IB DP environmental systems and societies standard level course aims to provide students with a coherent perspective of the interrelationships between environmental systems and societies; one that enables them to adopt an informed personal response to the wide range of pressing environmental issues that they will inevitably come to face. Students' attention is constantly drawn to their own relationship with their environment and the significance of choices and decisions that they make in their own lives. It is intended that students develop a sound understanding of the interrelationships between environmental systems and societies, rather than a purely journalistic appreciation of environmental issues. The teaching approach strives to be conducive to students evaluating the scientific, ethical and socio-political aspects of issues.

The aims of the environmental systems and societies standard level course are to:

- promote understanding of environmental processes at a variety of scales, from local to global
- provide a body of knowledge, methodologies and skills that can be used in the analysis of environmental issues at local and global levels
- enable students to apply the knowledge, methodologies and skills gained

- promote critical awareness of a diversity of cultural perspectives
- recognize the extent to which technology plays a role in both causing and solving environmental problems
- appreciate the value of local as well as international collaboration in resolving environmental problems
- appreciate that environmental issues may be controversial, and may provoke a variety of responses
- appreciate that human society is both directly and indirectly linked to the environment at a number of levels and at a variety of scales.

## II. Curriculum model overview

Component	Recommended teaching hours
<b>Topic 1: Systems and models</b>	5
<b>Topic 2: The ecosystem</b>	31
<ul style="list-style-type: none"> <li>• Structure</li> <li>• Measuring abiotic components of the system</li> <li>• Measuring biotic components of the system</li> <li>• Biomes</li> <li>• Function</li> <li>• Changes</li> <li>• Measuring changes in the system</li> </ul>	

<b>Topic 3: Human population, carrying capacity and resource use</b>	39
<ul style="list-style-type: none"> <li>• Population dynamics</li> <li>• Resources—natural capital</li> <li>• Energy resources</li> <li>• The soil system</li> <li>• Food resources</li> <li>• Water resources</li> <li>• Limits to growth</li> <li>• Environmental demands of human populations</li> </ul>	
<b>Topic 4: Conservation and biodiversity</b>	15
<ul style="list-style-type: none"> <li>• Biodiversity in ecosystems</li> <li>• Evaluating biodiversity and vulnerability</li> <li>• Conservation of biodiversity</li> </ul>	
<b>Topic 5: Pollution management</b>	18
<ul style="list-style-type: none"> <li>• Nature of pollution</li> <li>• Detection and monitoring of pollution</li> <li>• Approaches to pollution management</li> <li>• Eutrophication</li> <li>• Solid domestic waste</li> <li>• Depletion of stratospheric ozone</li> <li>• Urban air pollution</li> <li>• Acid deposition</li> </ul>	
<b>Topic 6: The issue of global warming</b>	6
<b>Topic 7: Environmental value systems</b>	6

### III. Assessment model

Having followed the environmental systems and societies standard level course, students should achieve the following objectives.

- Demonstrate an understanding of information, terminology, concepts, methodologies and skills with regard to environmental issues.
- Apply and use information, terminology, concepts, methodologies and skills with regard to environmental issues.
- Synthesize, analyse and evaluate research questions, hypotheses, methods and scientific explanations with regard to environmental issues.
- Using a holistic approach, make reasoned and balanced judgments using appropriate economic, historical, cultural, socio-political and scientific sources.
- Articulate and justify a personal viewpoint on environmental issues with reasoned argument while appreciating alternative viewpoints, including the perceptions of different cultures.

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- Demonstrate the personal skills of cooperation and responsibility appropriate for effective investigation and problem solving.
- Select and demonstrate the appropriate practical and research skills necessary to carry out investigations with due regard to precision.

### Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External			80
Paper 1	Short-answer and data-based questions	1	30
Paper 2	<ul style="list-style-type: none"> <li>• Section A – analysis of data related to a case study</li> <li>• Section B – responses to two structured essay questions from a choice of four</li> </ul>	2	50
Internal			20
Practical scheme of work (PSOW)	<ul style="list-style-type: none"> <li>• A series of practical and fieldwork activities</li> </ul>	30	20

### IV. Sample questions

- With reference to a named ecosystem, identify one direct and one indirect threat to the ecosystem's biodiversity.
- Compare the attitudes towards the natural environment of two named contrasting societies, and discuss the consequences of these attitudes to the way in which natural resources are used.