

# International Baccalaureate Diploma Programme Subject Brief

## Sciences: Sports, exercise and health science

First assessments: SL – 2014; HL - 2018



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. Approaches to teaching and learning (ATL) are deliberate strategies, skills and attitudes that permeate the teaching and learning environment. In the DP students develop skills from five ATL categories: thinking, research, social, self-management and communication.

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) 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, activity, service—are compulsory and central to the philosophy of the programme.



These IB DP subject briefs illustrate four the following key course components

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

- III. Assessment model
- IV. Sample questions

### I. Course description and aims

Sports, exercise and health science (SEHS) is an experimental science course combining academic study with practical and investigative skills. SEHS explores the science underpinning physical performance and provides the opportunity to apply these principles. The course incorporates the disciplines of anatomy and physiology, biomechanics, psychology and nutrition. Students cover a range of core and option topics, and carry out practical (experimental) investigations in both laboratory and field settings. The course offers a deeper understanding of the issues related to sports, exercise and health in the 21st century and addresses the international dimension and ethics related to both the individual and global context.

Apart from being worthy of study in its own right, SEHS is good preparation for courses in higher or further education related to sports fitness and health, and serves as useful preparation for employment in sports and leisure industries.

Both the SL and HL have a common core syllabus, internal assessment scheme, and overlapping elements in the options studied. While the skills and activities are common to all students, HL requires additional material and topics within the options.

Through studying any of the group 4 subjects, students should become aware of how scientists work and communicate, and the variety of forms of the “scientific method” with an emphasis on a practical approach through experimental work. In this context, the aims of SEHS is for students to:

- appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
- acquire a body of knowledge, methods and techniques that characterize science and technology
- apply and use a body of knowledge, methods and techniques that characterize science and technology

- develop an ability to analyse, evaluate and synthesize scientific information
- develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
- develop experimental and investigative scientific skills including the use of current technologies
- develop and apply 21st century communication skills in the study of science
- become critically aware, as global citizens, of the ethical implications of using science and technology
- develop an appreciation of the possibilities and limitations of science and technology
- develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

### II. Curriculum model overview

Syllabus component	Recommended teaching hours	
	SL	HL
<b>Core</b>	<b>80</b>	
• Anatomy		7
• Exercise physiology		17
• Energy systems		13
• Movement analysis		15
• Skill in sports		15
• Measurement and evaluation of human performance.		13

<b>Additional higher level (AHL)</b>		<b>50</b>
• Further anatomy		7
• The endocrine system		7
• Fatigue		6
• Friction and drag		8
• Skill acquisition and analysis		9
• Genetics and athletic performance		7
• Exercise and immunity.		6
<b>Options (Two of four)</b>	<b>30</b>	<b>50</b>
• Optimizing physiological performance		
• Psychology of sports		
• Physical activity and health		
• Nutrition for sports, exercise and health.		
<b>Practical work</b>	<b>40</b>	<b>60</b>
• Investigations	20	40
• Group 4 project	10	10
• Individual investigation (internal assessment)	10	10
<b>Total teaching hours</b>	<b>150</b>	<b>240</b>

### The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge. The emphasis is on interdisciplinary cooperation and the scientific processes.

## III. Assessment model

It is the intention of this course that students are able to fulfill the following assessment objectives:

- 1. Demonstrate knowledge and understanding of:**
  - facts, concepts, and terminology
  - methodologies and techniques
  - communicating scientific information.
- 2. Apply:**
  - facts, concepts, and terminology
  - methodologies and techniques
  - methods of communicating scientific information.
- 3. Formulate, analyse and evaluate:**
  - hypotheses, research questions and predictions
  - methodologies and techniques
  - primary and secondary data
  - scientific explanations.
- 4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.**

About the IB: For nearly 50 years, the IB has built a reputation for high-quality, challenging programmes of education that develop internationally minded young people who are well prepared for the challenges of life in the 21st century and are able to contribute to creating a better, more peaceful world.

For further information on the IB Diploma Programme, and a complete list of DP subject briefs, visit: <http://www.ibo.org/diploma/>.

Complete subject guides can be accessed through the IB online curriculum centre (OCC) or purchased through the IB store: <http://store.ibo.org>.

For more on how the DP prepares students for success at university, visit: [www.ibo.org/recognition](http://www.ibo.org/recognition) or email: [recognition@ibo.org](mailto:recognition@ibo.org).

## Assessment at a glance

Type of assessment	Format of assessment	Time (hours)		Weighting of final grade (%)	
		SL	HL	SL	HL
External		3	4.5	80	80
Paper 1	<b>SL:</b> 30 multiple choice questions on the core. <b>HL:</b> 40 multiple choice questions on the core and the AHL.	0.75	1	20	20
Paper 2	One data-based and several short answer questions  <b>SL:</b> one extended response question.  <b>HL:</b> two of four extended response questions.	1.25	2.25	35	35
Paper 3	Several short answer questions in each of the two options. <b>HL:</b> additional extended response questions.	1	1.25	25	25
<b>Internal</b>		10	10	20	20
<b>Individual investigation</b>		10	10	20	20

## IV. Sample questions

- At rest, the arterio-venous oxygen difference is approximately 5 mL of oxygen per 100 mL of blood. What happens to this figure when someone participates in moderately intense exercise?
- Outline the general characteristics that are common to muscle tissue.
- **(HL only)** outline the term talent.
- **(HL only)** explain factors that may affect progression through the stages of talent evolution for an athlete according to Bloom (1985) and Cole (1999).
- **(HL only)** outline talent transfer from gymnastics to high board diving.