

Summary

Topic 6.1 Statistical Analysis

Subject	Year	Start date	Duration
Sports, exercise and health science	IB1	Week 1, September	2 weeks 2 hours

Course Part

Topic 6: Measurement and evaluation of human performance

Description

There are many different ways we can measure the performance of an athlete. In this unit we will look at different techniques for gathering data including how to design a fitness test and how to assess different studies. This information can then be used to compare the performance of individuals, develop training strategies or measure improvement. Students will learn how to interpret and analyse data. They will also learn about the different statistical tests and how each one is relevant for specific investigations.

Inquiry & Purpose

Inquiry / Higher Order Questions

Type	Inquiry Questions
Content-based	How can we use specific statistical tests to analyse and interpret data?

Curriculum

Aims

- 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 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

◇ Objectives

Demonstrate knowledge and understanding of

- facts, concepts and terminology
- methodologies and techniques
- communicating scientific information

Apply

- facts, concepts and terminology
- methodologies and techniques
- methods of communicating scientific information

Formulate, analyse and evaluate

- primary and secondary data

📖 Syllabus Content

Core

Topic 6: Measurement and evaluation of human performance

6.1 Statistical analysis

6.1.1 Outline that error bars are a graphical representation of the variability of data.

6.1.2 Calculate the mean and standard deviation of a set of values.

6.1.3 State that the statistic standard deviation is used to summarize the spread of values around the mean, and that within a normal distribution approximately 68% and 95% of the values fall within plus or minus one or two standard deviations respectively.

6.1.4 Explain how the standard deviation is useful for comparing the means and the spread of data between two or more samples.

6.1.5 Outline the meaning of coefficient of variation.

6.1.6 Deduce the significance of the difference between two sets of data using calculated values for t and the appropriate tables.

6.1.7 Explain that the existence of a correlation does not establish that there is a causal relationship between two variables.

ATL Skills

Approaches to Learning



Thinking

- In this unit, we will
 - ask students to formulate a reasoned argument to support their opinion or conclusion
 - give students time to think through their answers before asking them for a response
 - ask open questions
 - set students a task which required higher-order thinking skills (such as analysis or evaluation)
 - build on a specific prior task



Communication

- In this unit, we will
 - have students give an oral presentation without reading from their notes
 - encourage or require students to plan a response before they begin
 - ask students to formulate arguments clearly and coherently
 - encourage all students to contribute to discussions



Self-management

- In this unit, we will
 - set deadlines for students to meet
 - require students to revise and improve on work previously submitted
 - ask students to set their own learning goals
 - ask students to break down a larger task into specific steps
 - ask students to look for personal relevance in the subject matter
 - practise or discuss strategies to increase concentration
 - give students feedback on their approach to a task
 - model positive skills and behaviours such as being well organized and punctual
 - help students to learn from failures or mistakes
 - create an atmosphere where students do not think they have to get everything right first time
 - discuss planning and approaches to revision



Developing IB Learners

☆ Learner Profile



Thinkers



Communicators