

SPORTSHEALTH & DEPENDENCE V1 PRESENTATION

SPORTSHEALTH EDUCATIONAL GUIDE VERSION 1 IES MIGUEL DE CERVANTES



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SCIENCE

OBJECTIVES

1. Identify the main organs in the musculoskeletal system of vertebrates.
2. Understand the physiology and function of the main organs in the musculoskeletal system.
3. Assimilate new scientific vocabulary related to the musculoskeletal system.

MAIN QUESTIONS TO BE ANSWERED

- How do muscles and bones work to make movement possible?
- Which are the main organs involved in locomotion?
- Where are these organs in different vertebrate animals?

GROUPS AND TIME ORGANIZATION

GROUPS

- Groups of 4-5 students.

TIME ORGANIZATION

2 sessions:

- 1st session: arm anatomy.
- 2nd session: leg anatomy.

RESOURCES

- Organkits.
- Smartphone/video camera.
- Textbook/source of information.

ASSESSMENT AND EVALUATION

Final product:

- Video recorded by students in which they identify and explain the main muscles, bones and joints in the arm (1st session) and leg (2nd session).

TIPS & TRICKS

- Muscle/bone measurement could take place during the Biology session if necessary.

PROCESS OF WORK

- Explanation of the Organkit contents:
 - Organs included in the kit.
 - Anatomical structures.
 - Functions.
 - Specific vocabulary.
- The students identify the same organs and structures in their own body (*connected with PE*).
- The students record a video explaining the organs and structures included in the Organkit.

TECHNOLOGY & ENGINEERING

OBJECTIVES

1. Study the linear transmission mechanisms.
2. Identify the types of levers: 1st class, 2nd class and 3rd class.

MAIN QUESTIONS TO BE ANSWERED

- Where are the first, second or third degree levers in the human body?
- What elements of the musculoskeletal system are involved in a jump?
- Does a longer femur make it possible to jump higher?

GROUPS AND TIME ORGANIZATION

GROUPS

- Groups of 4-5 students (depending on the number of students in the group).

TIME ORGANIZATION

- 2 sessions.

GROUPS AND TIME ORGANIZATION

TIME ORGANIZATION

- 1st session: The teacher will provide a list of everyday objects for students, and they identify what type of lever is. Students will make a table and they will classify them in 1st, 2nd or 3rd class.
- 2nd session: Students will locate the three types of levers in the human body.

RESOURCES

- Sportshealth OrganKit
- Laptops
- Open source of information

ASSESSMENT AND EVALUATION

The activity will be assessed by a rubric in which the following points would be evaluated:

- Scientific vocabulary used during the activity.
- Accuracy and clarity of the explanation.
- Reliability of the sources from which the information has been obtained.

PROCESS OF WORK

- Study of the types of levers in the musculoskeletal system.
- Using the contents of the Organkit as a starting point, students must draw conclusions about the structures in the musculoskeletal system that play a main role in several physical activities (*connected with PE*).
- Students would answer several questions considering, according to levers theory, if there could be a relationship between some characteristics of the organs they have studied and the results in these physical activities.

PHYSICAL EDUCATION

OBJECTIVES

1. Identify the main organs in the musculoskeletal system of vertebrates.
2. To be able to reproduce the concepts worked on and assimilated with the "organkits": musculature, tendons, ligaments and main bone elements.
3. Identify and recognise the direct relationship between the musculoskeletal system and physical-sporting performance.

MAIN QUESTIONS TO BE ANSWERED

- Do you recognize the main structure of the human body?
- Can you reproduce these structures in your own body or in the bodies of your classmates?
- Do you know what your body scheme is?
- Could you identify and recognise the direct relationship between the musculoskeletal system and physical-sporting performance?

GROUPS AND TIME ORGANIZATION

GROUPS

- Groups of 4-5 students (depending on the number of students in the group).

TIME ORGANIZATION

- 1 session.

RESOURCES

- Sportshealth Organkit.
- Pencils for body use.
- Sports measuring equipment: stopwatch, tape measure, etc.

ASSESSMENT AND EVALUATION

- Use of a comparative anatomical model which has been approved as a meaningful sample.
- Use of standardised tables to compare the results obtained in each of the physical tests.
- Finally, an observation and note sheet is used for final reflection.

PROCESS OF WORK

- *Previously students have been studying and practising several physical activities: high jump, long jump, speed, flexibility, etc.*
- The session would begin revising the appropriate technique to be used in these type of activities.
- "Body painting" activity (*connected with Biology & Geology*) using the Organkit as a model to identify the main organs and structures involved in these activities.
- Finally, these physical activities would be carried out, recording the scores of each group member.

MATHS

OBJECTIVES

1. Measure complex geometric elements by dividing them into known shapes.
2. Study two-dimensional statistical variables and their parameters.
3. Analyze the correlation between different variables.

MAIN QUESTIONS TO BE ANSWERED

- Is there any correlation between the geometric measurements of the different bones and muscles?
- And between these measures and the results in sports tests?

GROUPS AND TIME ORGANIZATION

GROUPS

- Groups of 4-5 students (depending on the number of students in the group).

TIME ORGANIZATION

2 sessions:

- 1st session: measurement of geometric variables
- 2nd session: statistical study.

RESOURCES

- Sportshealth Organkit.
- Ruler and compass.
- Computer with spreadsheet.

ASSESSMENT AND EVALUATION

Final product:

- spreadsheet with statistical variables and graphs that analyse the correlation between variables.

PROCESS OF WORK

- Students would measure the length of the organs included in the Organkit and the same organs in their own body.
- A spreadsheet would be created by the students in which they would write down the length of the measured organs and the score of the physical activities (*session 3: PE*).
- From the data in the spreadsheet, students would create graphs in which every two variables would be correlated (i.e. length of femur-high jump score, etc.).
- Analysing the generated graphs, students must draw conclusions regarding the relationship between variables.

HISTORY

OBJECTIVES

1. Identify the main physical changes that happened during the process of evolution.
2. Be able to understand the correlation between the body and the environment.

MAIN QUESTIONS TO BE ANSWERED

- Were our ancestors able to perform physical activities like us?
- Did evolution change our physical characteristics? How?
- It's evolution a constant improvement?

GROUPS AND TIME ORGANIZATION

GROUPS

- Groups of 4-5 students (depending on the number of students in the group).

TIME ORGANIZATION

2 sessions

- 1st session: Students will read selected articles about the topic and draw their conclusions.
- 2nd session: Students will collect the data from the previous activities (from other subjects) and compare them with the data they had from our ancestors.

RESOURCES

- Computers / laptops.
- Some specialized articles printed.
- The conclusions from the other subjects.

ASSESSMENT AND EVALUATION

Final product:

- A global presentation of the conclusions (rating their ability to link them to the other subjects).

PROCESS OF WORK

- Students would design infographics based on the conclusions from researches about physical activity in evolutionary biology: hypothesise about the scores the ancestors of *Homo sapiens* would obtain in the physical activities carried out by the students.
- Students must consider whether a correlation can be established between the score in these physical activities and different populations in the world.

ENGLISH

OBJECTIVES

1. Organize short texts appropriate to the proposed communicative situation.
2. Use knowledge and strategies to improve the ability to communicate with support from other participants and digital media.
3. Guided implementation of strategies that facilitate and support the understanding and production of information and communication.

MAIN QUESTIONS TO BE ANSWERED

- What are the most relevant aspects of each subject related to the plastinated organ?
- How do I organize the information obtained from each subject to make a presentation that summarizes what we have learned during the different sessions worked?

GROUPS AND TIME ORGANIZATION

GROUPS

- Groups of 4-5 students (depending on the number of students in the group).

TIME ORGANIZATION

3 sessions:

- gathering of information and distribution of tasks to choose which tool is best suited to develop the oral presentation.
- group start-up and teacher advice
- Students' project presentations

RESOURCES

- Sportshealth Organkit.
- Notes/materials collected from the different subjects.
- Laptops.
- Interactive whiteboard.

ASSESSMENT AND EVALUATION

- A rubric that will evaluate the objectives set in each of the different subjects and their achievement, in addition to a correct use of the foreign language.

PROCESS OF WORK

- Students would give a presentation in English explaining the conclusions obtained from all sessions.
- Students will be encouraged to use the Organkit as a support to explain the results to the rest of the group.