

TEACHER'S GUIDE SHEET

MODULE	BIOMECHANICS FOUNDATIONS
DIDACTIC UNIT	A: MOVEMENTS
TITLE OF ACTIVITY/CLASS	<ul style="list-style-type: none"> • Understanding differences between Kinematics and Kinetics variables. • Understanding the concept of acceleration • Movements planes.
OBJECTIVES	<ul style="list-style-type: none"> • To reinforce the meaning of kinetic and kinematic variables. • To make sure that the relationship between acceleration and velocity has been properly understood. • To determine the movements planes and axis of the three movements proposed applying knowledge of movements planes and Euler's method.
LENGTH	30' OF CLASS MATERIAL IN TOTAL, including the workshop (movement planes)
PREVIOUS KNOWLEDGE REQUIRED	In order to fully understand the concepts explained during class, the student should revise in advance the pdf document associated to this didactic unit (A): Movements (Autonomous work section).
TECHNICAL NEEDS	<p>PC with software for the reproduction a power point presentation. Projector and screen to show contents appropriately to all the students during class.</p> <p>For performing activity 1: "Understanding differences between Kinematics and Kinetics variables", the teacher's computer, projector and screen are used.</p> <p>For performing activity 2: "Understanding the concept of acceleration", the teacher's computer, projector and screen are used.</p> <p>For the workshop: "movement planes", the teacher's computer, projector and screen are used. The group will need an appropriate space to perform the workshop.</p>



DESCRIPTION OF THE CLASS/ACTIVITY

A power point will be used by the teacher in order to guide the class:

1st part: UNDERSTANDING DIFFERENCES BETWEEN KINEMATICS AND KINETICS VARIABLES (5-10')

The teacher will introduce this activity remembering the definitions of both types of variables (slide 3). After that, the attached video will be shown to the class and then, the students should classify the variables exposed on the slides promoting debate.

2nd part: UNDERSTANDING THE CONCEPT OF ACCELERATION (10')

The teacher will introduce this activity remembering the definition of acceleration (slide 4) and solving any doubt if required. After that, the teacher will expose the activity (slide 5). Answers to each question should be agreed by the students promoting debate.

3rd part: WORKSHOP: MOVEMENT ASSESSMENT (10')

The teacher will introduce this workshop by means of the last slides of the power point presentation (slides 6-8), where basic instructions for the students are given.

Each group of students (composed by 3-4 students) should then organize itself and decide who the anatomical model of the group will be. Then, the teacher will describe the three movements (slide 7) and show the initial positions (slide 8).

Students should write their answers on the PDF file: "A.Movement_planes". Then, they compare their solutions with the solutions displayed by the teacher on slide 9.

In the case that students have any doubt, the teacher should solve it checking with the theoretical knowledge acquired in the autonomous work.

TASKS TO BE DEVELOPED BY THE STUDENT OUTSIDE OF CLASS (if required)

In order to fully understand the concepts explained during class, the student should revise in advance the pdf document associated to this didactic unit A: Movements (Autonomous work section)

EVALUATION METHODOLOGY

OPTIONAL (in case the teacher decides to evaluate the activity)

The teacher will collect the solution of the sheet of the Workshop from every group of students (before showing the solutions on the screen). Each of them should be properly identified by the students, who must have written down their full names in the specific space destined to do so.

The teacher will punctuate the answers given in terms of the correctness. 9 answers in total. The teacher can turn the final punctuation in a grade on a scale 0 to 10 just by making a simple rule of three; example:

$$\text{Final punctuation (from 0-10)} = (\text{raw points obtained} \times 10) / 9$$

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