KLiC Activity Scenario Template – Informal Setting

Activity title:

Fencing for beginners

Subject:

Informal Sports Activity

Student (Athlete) age:

All Ages

Estimated duration:

75 minutes (excluding setup time)

Learning content

- 10 minute warm up
- equipping proper fencing gear
- practice of new moves or review already learnt technique
- sparring
- stretches to finish
- 15 minute lesson review

Learning objectives

The aim of this scenario is to devise a method of training an amateur athlete or group of amateur athletes, with no prior knowledge in fencing. This scenario covers various different basic techniques, as well as fighting, styles with the Foil, Sabre and Épée. With the use of the KLiC SensVest technology the training can be developed to work with the athlete(s) on a more physical level to understand their strengths and flaws more easily, while the output of the sensing technology can be readily available to help correct those flaws and enhance the strengths.

Inquiry-based character (if applicable)

Questioning the correct stance and movement of the athlete by observing accelerometer readings, in an empirical way (e.g. looking at the salient features of the accelerometer outputs such as a “spike” rather than actual detailed measurements).

Applied technology (if any)

KLIC SensVest, with wrist and ankle accelerometers, communications base station with a Laptop and a projector.

Materials needed (if applicable)

Foil, Sabre or Épée. Floor mats, protective head gear, proper leg and torso coverings.

Description of Activities

Brief

At the beginning of the lesson the athletes will be set to warm up their muscles through a series of stretches, to ensure that no athlete will injure themselves during the course of the lesson. A brief explanation to the rules of Fencing will be given to any new participants.

Following the warm-ups, practicing of new moves or reviews of pervious techniques will then be spent with one of the students wearing the SensVest. During this time, observers will be able to see the collected data on the fly. The outputs can be explained in simple terms (a "spike" in the z axis might show vertical acceleration, i.e. a small jump). Depending on the confidence of the teacher on how well the students are performing the teacher will go over new techniques, whereas if they're not performing that well the teacher will revise previous techniques with them.

After the end of the demonstration, the student wearing the SensVest will be requested to remove it for sparring; this is to reduce chance of damage to the vest itself. This is then followed by stretches to finish the class and then a final 15 minute discussion.

The discussion will cover details about the recorded data from the SensVest. In an informal manner it will be explained how through the force applied to the swing of the sword in hand can be seen through the output graphs and how it can relate to the biological vital signs of the wearer. Questions will be answered during the course of the discussion.

Lesson Guidelines:

10 minutes	Warm ups with discussion of the Rules
5 minutes	Equipping fencing gear, everyone has basic kit and will only be trained with Foils for the first lesson
20 minutes	- Practicing the stance where a right handed person will always have their left leg behind them and vice versa for a left-handed person. - Then proceed to explain how to move backwards and forwards during combat and where legs should never cross. - How to hold the Foil and explanation of how to score a point one must hit the torso of the person with the tip of the Foil. - How to block an attack with a parry, this is where the defender will use their own blade to push the attacking blade out of the way to force the opponent to miss.
20 minutes	Sparring where the athletes break up into groups of two and will then practice what they have learnt against each other while the instructor observes their actions and give advice where suited.

5 minutes	Stretches to finish
15 minutes	Discussion about the results from the SensVest data and explain where athletes can improve their skills followed by a quick questionnaire for any observer, athlete and teacher to fill in making it clear in the feedback what they have learnt from the discussion.

Posture

In fencing an athlete is required to have good posture in order to perform the attacks and defend one's self. Unlike martial arts, Fencing is traditionally a sport and historically used for duels between nobility before the use of the pistol. In modern times, fencing is performed as a sport with specialised safety equipment to prevent injury. After putting on the protective equipment the athletes can start practicing. First the positioning of the athlete's feet is vital. If the athlete dominant hand is their right, then their leading foot is their right and vice versa for the left-handed athlete. The leading foot is kept in line with the facing direction the rear foot is kept pointing perpendicular to the facing direction and is used to brace the stance. Both knees are bent to allow for the athlete to take large steps rather than small ones. If the right hand is the dominant hand the left arm is held behind the body and used to keep balance where as the right arm is used for wielding the sword. When using the sword to perform various different attacks. Whenever the athlete moves, they're keep their dominant foot in front of them and the legs will only cross positions during special techniques but never during normal movement.

This posture is often referred to as "en guard". This means that the athlete performing the technique can move to any attack or block from this position.

Movement

When moving during fencing, one foot is to be on the ground at all times and you always lead with your dominant foot when moving forward and lead with your rear foot when moving backwards. Movement is often given in short steps with the right foot and then the left foot but the first foot must be firmly planted on the ground before the second foot is moved. This is in case during movement the athlete is attacked by his opponent the athlete will then be able to move backwards quickly in a hope to deflect the attack.

The Foil

The foil is the first and most basic weapon used in fencing. It has only a point, which was initially designed for stabbing the opponent but during the practice of the sport a special rubber cap has been placed at the end of the foil to prevent injury. It is a necessity that all athletes check the state of their foil before practice as during their use the rubber cap can degrade and the metal end of the foil can break through and injure the opponent. If this ever happens, the athlete using the foil will be blamed of the injury and disqualified from any tournament event, for not checking responsibly the safety of their equipment.

The foil is designed with two different grips. The first foil handle is a common straight handle and is held similar to a torch. The second handle (figure 1) is designed to allow more freedom of movement in the wrist. First place your thumb and index finger around the hook located on the left of grip as shown in the figure, then rest your ring and little finger on the cradle located on the right of the grip and lastly place your middle finger on the rest just above your ring finger which will then be in line with your index finger. With this grip the athlete can hold the foil more easily and allow it to be more of an extension of their arm. Additionally, it removes the weakness of the foil being pivoted at the guard and gives more strength in the control of the foil meaning more force would be required to block an attack.

Figure 1: Alternative Foil Handle

Each of the fencing weapons has a similar point system, but depending on the weapon different sections of the body are applicable for scoring. The only way to score against an opponent is to successfully land a strike on the torso area. Any strikes from the shoulders to the hands, the head and below the waist will not score any points. Additionally, you can only score with the foil if the tip of the blade makes contact with the torso; contact with the edge of the weapon does not count, and neither do glancing strikes.

The Lunge

The basic method to score a point against a target is to lunge forward. This is a rapid attack which is used to take the opponent off guard hopefully past their defences. This attack is initiated in two simultaneous parts. The first part involves the leg work of the attack, keeping the left foot firmly planted where it is the athlete must lift their right foot off the ground and then stretching their left leg out as far as they can land their right foot closer to the opponent. The second part involves the arms as well as the foil, during the push of the left leg and before the land of the right; the athlete stretches their right arm as far forward as they can to reach the opponent.

During the Lunge the SensVest technology can be used to capture the movement data of the athlete and be used to assess the performance of the attack.

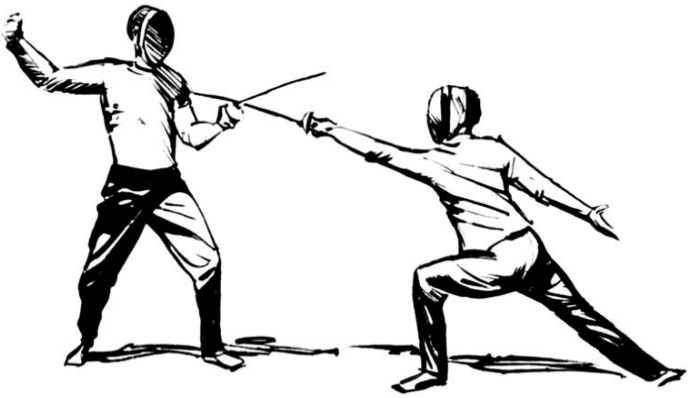

Figure 2: The Lunge

The Parry

The parry is the basic method of

deflecting a targets attack. The premise behind the parry is when an opponent is attacking the athlete will simply push the opponent's blade off target to prevent scoring. During the en guard state the athlete will move their blade from the elbow rather than the wrist to collide with the edge of the opponent's blade with their own and then continue to push it to the side. No foot work is required but can be used to distance themselves from the opponent to allow the athlete to easily perform the parry.

During the Lunge the SensVest technology can be used to capture the movement data of the athlete and be used to assess the performance of the attack.

SensVest Discussion

After the athletes have completed the lesson material a 15 minute discussion will be held to explain how the athletes can improve their performance with the use of the SensVest Technology. When a single athlete is wearing the SensVest with the wrist and ankle accelerometers the data will be captured and translated into a graph showing the X, Y and Z of the accelerometers. Indicating to the class what the orientation of the accelerometer when placed on the students body, the class will then be shown that when the student moves his arm forward the respective axis will show a spike of movement. Through this it can be shown how much force a student is putting into the movements and what direction it is travelling in.

Image References

http://upload.wikimedia.org/wikipedia/commons/thumb/1/14/Fencing_foil_valid_surfaces_2009.svg/120px-Fencing_foil_valid_surfaces_2009.svg.png
http://www.instructables.com/image/FJSLIHFF3SYP0SM/ReWire-an-Electric-Fencing-Foil.jpg
http://upload.wikimedia.org/wikipedia/commons/d/d7/Fencing_(PSF).png

Assessment (if applicable)

The purpose of this informal scenario is to encourage the understanding of salient features that can be recorded during training, in order to understand movement and force. No specific assessment recommendation is given, as the technology is there to support the trainer in illustrating technique in an empirical way.