



STEAM & Sports

Lesson 2 - Gathering knowledge of human posture

Gathering knowledge of human posture

Concept

This lesson engages students in gathering information of human posture by using various books and the internet. The goal is to develop the ability to research about the human posture, the usage of methods of confirming a bad posture, and what kind of bad postures exist inside of their own classroom, the importance of a maintaining a healthy lifestyle, particularly by being physically active and avoiding bad habits that can worsen the posture. Students will:

- (Biology) Understand how different muscles are connected with bones, tendons and joints in order to create a natural posture.
- (Chemistry) Observe how hormones through puberty can have impact on growth and even worsening the posture.
- (Physical Education) Learn how to do postural screening in order to find out various bad postures.
- (Art & Photography) Document and analyze their information through looking and photographing during postural screening

Learning objectives and Outcomes

Upon completion of this lesson, students will know:

1. Parts of the human body, the most common bad postures, their names
2. How to properly distinguish the bad postures

After this lesson, students will be able to:

3. Gather information through books and internet
4. Work collaboratively to gather information
5. Document and analyze the information through images and using the postural screening method
6. Use the information through an application to create a graphic representation of results



Methodology

1. Information gathering
2. Distinguish various bad postures and the use of screening to gather information
3. Reflection and discussion on posture

Educational standards in connection with sports

- Understanding the role of posture in everyday life.
- Learning about the importance of research to understand various health problems such as bad posture in students.
- Practicing teamwork and thinking through verbal communication and visual contact during the postural screening exercise.
- Learning to use the data gathered through postural screening in an application to get results and being able to interpret the results.

This lesson includes elements of these school subjects

1. Biology
2. Chemistry
3. Physical Education
4. Art & Photography
5. Informatics

Timeframe

45 min

Students Age

10-15 years

Material needed

1. Biology books, PC / laptop / phone for using the internet to gather information and later to use for analyzing data gathered through postural screening test.
2. Notebooks in which to write the gathered information from books and internet. Information gathered from screening.
3. Phones to photograph / record postures

Short description of the content

Students will use books and the internet to find basic information about human posture, what are the parts of the body and what bad postures exist. They will have to learn the basic way of postural screening with guidelines that will help them and that allow them to notice bad posture and how they can use the method on each other. After understanding the method they will use it on each other in order to gather information of themselves, their class and their posture. After they gather the information they will use an application to analyze the information gathered and to have summary of bad postures in their class. They will then discuss their experience of the lesson and what they have learned from it.

Sequence of Lesson

Engage (10 min):

- Discussing about the basic anatomy of human body, parts of the body. How the body uses muscles to create balance while walking, sitting and doing various movements in life and sports.
- Understanding how a healthy posture looks like through visual demonstration and or pictures.
- Discussing how carrying heavy bags to and from school in different ways can harm the posture and how puberty can affect the posture with the sudden growth of the entire body caused by hormones.



Explore (40-60 min):

- Students work in teams to gather information about bad postures
- As they gather the information they write them down.
- After gathering the information they discuss about the bad postures, the usual signs of them and are presented with the postural screening method which can allow them to see various bad postures.
- The postural screening is done in frontal and sagittal plane meaning the student looks the front side and back side of another student as well as the left and right side of the student. Students are given guidelines that they use. They can imagine lines going through the body and by seeing asymmetry in the lines they can easily spot certain abnormalities. In frontal plane front side they imagine a line going from the top of the head downwards to the feet, a line going from shoulder to shoulder, a line going across the hips and a line going across the knees and they look how the head is positioned (if it's rotated or leaning on one side), position of shoulders (if one shoulder is higher or lower than the other one), position of the upper body (is it leaning on one side), position of the legs (if the legs are in valgus or varus position meaning the knees cave inside or spread outside). On the back side of frontal plane they can spot the same things. If a student bends over in hip joint while standing they could even notice the positioning of the spine in case there exists scoliotic posture or scoliosis. In the sagittal plane the same method of an imaginary line is used and the usual things to watch are: if the head is in protraction or retraction meaning if the head is tilted forward or tilted back. As they are going down the line they can spot if the shoulders close or open. If the shoulders are distant from the imaginary line in a way that they close the chest that means the person can have kyphotic bad posture. If the shoulders are distant from the imaginary line in a way that they widely open and retract the back it can mean the person has lordotic bad posture. Continuing to move down the imaginary line students can notice if someone has an anterior or posterior pelvic tilt meaning the pelvis is rotating / tilting more to the front or to the back. At legs they can notice if there exists a hyperextension of the knees and can notice if a person is flat footed if they are barefoot during the postural screening.
- In teams they use the method on each other with given guidelines and write down the signs of a bad posture (if there is one or even more)
- The most basic thing to see is if there is a kyphotic, lordotic or scoliotic bad posture but extra effort from students should also be complimented and valued.

Elaborate (10 min):

- Student groups present their gathered postural screening information to other groups
- All the groups together accumulate the data and use it in an application to create a statistic / graph showing the percentage of bad postures

Evaluate (5 min):

- Students reflect on their teamwork, postural screening experience, and knowledge gained.
- Discuss how various habits (such as sitting, using mobile phone, carrying weight in unnatural way etc.) can badly influence postural changes and how physical activity can positively influence posture.

Lesson Developer

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Tips for age group differentiation (for older/younger kids than indicated in the lesson)

Younger students can research about the basic parts of the human body, they can draw pictures of stick figures as an assignment and next to the lines that would be parts of the body they will write the part of the body (for example the line of a upper limb can be described with "arm" and "hand", while the bottom part can be described with "leg" and "foot". Most important thing is that they learn what parts of the body exist and where they are located.

Older students can either use a stick figure or a picture of a human body to type various muscles next to it. They don't have to research and write down all the muscles, just the usual ones that are mentioned the most (example the arm part of the body is known for triceps and biceps muscles, the leg part of the body is known for the quadriceps and hamstring muscles). Here we have a deeper understanding of the body by knowing what kind of muscles exist depending on the part of the body.

To which SDG(s) does the lesson relate most



SDG 4: Quality Education

the students are gaining knowledge that can really help them change their postural problems and with that improve their quality of life. Not only the knowledge of solving postural problems but the knowledge of the basic human anatomy.



SDG 5: Gender Equality

In this lesson everyone is equal. Both male and female students can actively and happily work without any disadvantages.

What Inclusivity and Accessibility measures can or should the teacher take for this lesson

Students that have trouble reading, writing or typing should get adaptations that will help them do the lesson easier - for reading maybe bigger font, simple and / or bolded text. If they have problems with writing or typing they can express orally and even have someone from the class type / write for them. Also it should be ensured that everyone is able to access the workplace where the lesson is. Everyone should be able to participate in whatever way they can. If someone has too much difficulty in understanding the task they can draw the lesson (draw the human body, stick figures).

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