

**The function and role of the knowledge of anatomy during the lesson of grammar
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This project is based on teaching of the speech sounds in scientific aspects concentrating on interdisciplinary of sciences like biology/anatomy and language. The purpose of the work is to show the interrelation of speech organs and the organs of nutrition and to emphasize the operation of these organs during the formation of speech sounds. The aim of the work is to acquire the knowledge and have experiences in natural way with doing some experiments in order to make the children understand the learning is not only the process when you sit and read something. However the learning is the process to plan to know something in a new way like to do research work, to establish facts, and to draw conclusions. In other words the learning is to explore the outside world including construction and operation of our body like speech organs and the creation of the human speech and the basic of it as the formation of speech sounds.

The method and material is suitable for the secondary school students (9. class). The work is the draft of the lesson which is based on the topic mentioned above like speech organs and their functions.

The plan of the lesson is going to show the different steps of teaching method based on teaching speech organs.

The theme is: Organs of speech (The duration is one or two lesson. It is going to depend on the ability of the class. It is advised to solve the exercises with after each other.)

The starting point: Speaking about the human speech

1. Ask some questions in connection of the idea of speech. The aim of these is to develop the ability of problem solving of the students and to develop their logic thinking. These questions are based on their previous knowledge or studies.

What is speech? What is the language? Why is not the same the two ideas? Give examples! Try to think the foreign language as well.

2. The next exercise is based on the drawing conclusion as to create the definition of idea of speech on the basis of the illustration of the communication process of human beings on one hand and to comprehend the speech as the special physical fact like

one of the wave motions. So they can discover that the speech can occur in the communication process as the vibration of air and they can understand the interrelation of subjects like physics and grammar.

Look at the next figure (Figure 1.). The figure is showing the communication process. How can occur the speech in the communication procedure? Try to find out the definition of speech using the illustration.

3. The next step is a small research in order to understand the interrelation of respiration and speech and the formation of speech sounds. They also have to create the statement on the basis of their observations like the pronunciation of speech sounds is based on the exhalation.

The exercise:

Think of an event and try to create one sentence about it. Pronounce it. (The pronunciation is available when the teacher is allowing it to the student).

What is necessary in order to pronounce the sentence? How can we create the speech and the speech sounds?/What are we doing when we pronounce the speech sounds? How the lungs are operating?/What muscles have role in respiration procedure? What do you know about the respiration in biology?

4. The next step is based on the observation and analysis of the picture. The students can observe the way of the air from beginning the lungs as the speech sounds are created by the exhalation procedure.

The exercise:

Look at the picture! (Figure 2) What organs are belonging to the speech organs? List them and follow the way of the air! Do not forget that your starting point is the lungs.

5. The next exercise is based on the figure of the cavity of the mouth and nasal cavity. The children have to analyse the figure and to recognize that the organs of speech are almost the same as the organs of nutrition. In other words the speech organs have the have primary role in other function. For example the teeth are vital for chewing or the tongue is the organ of tasting. They also can observe the common point of trachea and oesophagus at the border of larynx. They also can have information about the speech sounds are formed in the cavity of the mouth or in the nasal cavity with

studying the operation of uvula, so they can distinguish the nasal and oral speech sounds.

The exercise:

Look and observe this figure! (Figure 3.) What organs can be seen here? What kind of role do they have in our life? Tell them with examples!

Where is the oesophagus? Where is trachea? Where do they cross each other? What conclusion can be drawn from this one?

Look at the uvula in the picture! The drawing is going to help you to understand its operation. Can you draw the conclusion in terms of formation of the speech sounds? Can you categorize these kind of speech sounds?

6. The next exercise is in connection with the operation of larynx. With the explanation of teacher the children also can have experience. They can understand the operation of different cartilages constructing the larynx including epiglottis which is closing the way of 'bit' when the person is swallowing it, and keeping back the bit from going into the trachea. The students can also feel Adam's apple as the part of the other cartilage called 'pajzporc' constructing the larynx.

The exercise:

Look at the figure (Figure 3 and 4.) which is showing the cross section of larynx on one hand and the lateral view of larynx on the other. Altogether with these two illustrations the children can exactly follow the operation of epiglottis. In the picture they also can see the different parts of larynx including the Adam's apple. In connection with it we can try them to feel it if we ask the students to put their pointers on their larynx.

7. The next step of this lesson is based on the comprehension of the operation of vocal cords. The aim of the next exercise is to categorize the speech sounds on the basis of the operation of vocal cords and to distinguish the vowels and consonants like voiced and unvoiced sounds. The children have to understand that the pronunciation of vowels and voiced consonants is based on the periodical movement of vocal cords but when we pronounce the unvoiced consonants this movement is not followed.

The exercise:

Put your pointers on your larynx and try to pronounce the following speech sounds: a, e, o, b, d z, and p t, sz (This can be solved in groups as well. In this case three groups are necessary and each groups can pronounce the sounds which are determined by the teacher.) On the basis of their pronunciation the students have to summarize their experiences and draw the conclusion in terms of the movement of vocal cords.

In order to buttress their comments and conclusions they have to follow the operation of vocal cords on the basis of the figure showing the different positions of them (Figure 5.).

We also use our palms in order to demonstrate the periodical movements of vocal cords. Firstly our palms are locked/sticked up closely together as the position of 'lock' of vocal cords. Because of the pressure of air coming from the lungs (which is situated below our palms) the muscles are not able to keep the vocal cords and they are going away from each other. This movement is illustrated with our palms again but now they are going away from each other. When the air is going up into the cavity of mouth (or into nasal cavity), the pressure is going down, consequently the vocal cords are going into their beginning position, so our palms are also going into the first position (when they are sticking up closely). We can also use palms to illustrate the position when the vocal cords are open and the air is going up into the cavity of mouth or nasal cavity, so the vocal cords do not have the periodical movements.

8. The next exercise is in connection with the formation of vowels and consonants. In order to group the vowels the children have to comprehend the movement of tongue in the cavity of mouth on one hand and the movement of labia/lips on the other. The children have to recognize the horizontal movement of the tongue and on the basis of it to distinguish the palate and velar vowels. They also have to recognize the vertical movements of the tongue as being in the lower, central or upper position and to define this kind of vowels. They also can observe the movement of lips and to define the vowels types of labial and illabial and with the pronunciation of vowels they also check the duration of them and distinguish the short and long vowel types.

The exercise:

Pronounce the following speech sounds:

a, o, u, e, ö, ü Why are they different from each other? (palate/velar vowels)

Now pronounce them:

a, e; o, ö; u, ü What is the difference among them? (vowels on the basis of the lower, central or upper position of the tongue).

Now pronounce these vowels:

a, o, ü, - á, e, í. How are they different from each other? (labial/illabial vowels)

And now pronounce them:

o-ó, u-ú, ü-ű, í-í What is the difference of them? (short/long)

In order to group the consonants the pronunciation is also advised. Firstly the children have to understand the method of formation of consonants and the idea of plosive, fricative, and they also have to comprehend the place of the formation and on the basis of it the different types of consonants like labials, dentals, palatals and guttural.

The exercise:

Pronounce these consonants:

b, d, g, p, t, k, and f, s, z, sz. What is the difference among them/between the two groups? Try to find out the rule in terms of the method of formation. Try to think of the operation of speech organs.

Now pronounce of these consonants:

b, p, m and d, t, s, sz, or g, k, j, and the last one is g: What is the difference among them? Try to think in terms of the place of their formation.

Summarizing.

At the end the children can have the summarize their experience and have to make some notes.