

UDK 376.37

BBK 4457

GSNTI 14.29.29

Code VAK 13.00.03

Z. A. Repina

Ekaterinburg, Russia

LOGOPEDIC WORK TOWARDS FORMATION OF THE PHONEMIC SYSTEM OF VOWELS IN CHILDREN WITH OPEN RHINOLALIA

Abstract. The article describes a scientifically-based technology of formation of the phonemic system of vowels in children with congenital cleft lip and palate (rhinolalia). From the very birth of the child, the congenital cleft lip and palate interfere with the development and functioning of his organs of speech (tongue, lips, jaw, soft palate and vocal apparatus) and leads to malfunction of speech kinesthesias and articulation control. The children cannot reproduce linguistic phonological oppositions in articulation movements. Thus, when pronouncing vowel sounds they tend to mix up articulations by height, backness and labialization; consonants are mixed up in reference to manner and place of articulation.

Inability to reproduce linguistic phonological oppositions in articulation movements and incomplete kinesthetic (articulation) perception of speech sounds bring about their inadequate oral comprehension; that is why collection of concrete phonetic images of words is difficult in these conditions and considerable problems arise with normal acquisition of the phonemic system of the language by the child.

In view of the mechanisms of underdevelopment of the phonemic system of the language in children with rhinolalia, rehabilitation program presupposes five interrelated parts: 1) formation of linguistic phonological oppositions in articulation movements; 2) development of kinetic-kinesthetic foundation of articulation movements and control; 3) corrective treatment of the phonemic system of the language skills; 4) formation of phonemic, intonation and morphological awareness, habits and skills of speech sound analysis; 5) development of cognitive processes in the sphere of language acquisition.

Keywords: rhinolalia; logopedics; phonemic awareness; speech awareness; phonemic perception; intonation awareness; children with congenital cleft lip and palate; anatomico-physiological impairments; speech kinesthesia; speech sounds; sound perception; logopedic work.

About the author: Repina Zoya Alekseevna, Candidate of Pedagogy, Professor.

Place of employment: Department of Logopedics and Diagnostics of Dysontogenesis, Institute of Special Education, Ural State Pedagogical University.

E-mail: log@uspu.ru.

In our previous publication, we began to describe the content of work towards formation of the vocal function by means of phono-logorhythmics, the aim of which is to restore the functional interconnection of all three parts of the voice producing apparatus (see: scientific-methodological journal *Special Education*. 2017, № 1 (45). Pp. 81—94).

The sonorants *m* and *n* are widely used to develop the voice sonority and modulation. The work is organized according to the following plan:

– finding the moment of central vocal activity while pronouncing the sound *m*. The head is slightly bent; the pronunciation of the sound *m* should be light, natural and pass through the resonator;

– feeling the voice with the fingers on the nose wings, lips, chest and forehead while pronouncing the sound *m*;

– increase of the force and width of sound while pronouncing the syllable *my* (*m-m-m-m-my*);

– feeling the voice with the fingers while pronouncing the syllable *my* (*m-m-m-m-m-my*);

– increase of the force and width of sound while pronouncing the syllable *ym* (*ym-m-m-m-m*);

– feeling the voice with the fingers while pronouncing the syllable *ym* (*ym-m-m-m-m*);

– increase of the force and width of sound while pronouncing the sound *m* in the intervocalic position *ymy* (*y-m-m-m-m-my*).

Practicing pronunciation of the sound *n* is organized according to the same plan. Then, the voice sonority and modulation is practiced in words and sentences with the sounds *m* and *n*. And the sounds *m* and *n* must be pronounced long and recitatively:

– мак (*m-m-m-мак*);

– мам, мам, молока бы нам (*m-m-мам-m-m, m-m-мам-m-m, m-m-m-молока бы n-n-нам-m-m*).

Phonation gymnastics with massage of biologically active points

Continued from: Special Education. — 2017. — № 1. — Pp. 81-94.

© Repina Z. A., 2017

are used to develop the voice sonority and modulation (E. M. Chareli, see: Figure 1).

The method of point massage (acupuncture) may be used: press your index finger lightly against the point and massage with circular

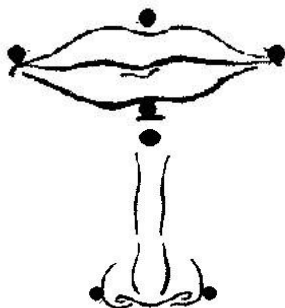


Figure 1. Biologically active points (according to E. M. Chareli)

- Pronounce with a drawl *мам* (*м-м-мам-м-м*), making a bend forward (head, neck and shoulders relaxed). Take the initial position and read the text checking up the sound of your voice.
- Pronounce with a drawl *мам* (*м-м-мам-м-м*), turning your head to the right, to the left, and then to the initial position; read the text.
- Pronounce with a drawl *мам* (*м-м-мам-м-м*), throwing your head back, bending it, and then taking the initial position; read the text.
- Pronounce with a drawl *мам* (*м-м-мам-м-м*), massaging the biologically active points (Fig. 1).

movements 8-9 times (3-6 sec.) clockwise and anticlockwise.

Exercises:

- Pronounce the sound *м* (*м-м-м-м*) with a drawl, simultaneously tapping your fingers on the nostrils. Do so three times running.

Pronounce the sounds *м, н*, massaging the biologically active points shown in the picture on the left.

Pronounce the sounds *м, н*, massaging the biologically active points shown in the picture on the left.

- Pronounce the sound *м* with a drawl, massaging the biologically active points.
- Pronounce the sound *м* with a drawl with the vowels *э, о* (*мэм, мом*), turning your head to the right, to the left, and then to the initial position. Then read a short text.

The same procedure is used to practice closed syllables with the sound *н* (*нан, нэн, нон*).

Development of phonic respiration. Children with congenital cleft lip and palate are characterized by velopharyngeal insufficiency. The exhaled airflow coming out simultaneously through the nose and mouth wanes quickly and does

not produce enough pressure necessary for various articulation closures, which becomes one of the causes of severe sound production violations. Therefore, much attention during the pre-surgical period is paid to the development of the skill to direct the exhaled airflow through the mouth and to the force and length of exhalation. The peculiarity of this work consists in the fact that the development of phonic breathing is conducted parallel to the formation of the ability to take the corresponding articulatory positions and teaching correct sound production. The child's attention is constantly attracted to the direction of airflow and the position of the articulatory organs during exhalation (for example, to the tip of the tongue). It is necessary to attract the child's attention to the character of the exhaled airflow (smooth, long or jerky).

In the post-surgical period, the work over phonic breathing development is continued: the skills already acquired are reinforced and perfected, and new skills are learned. After uranoplasty, the work on phonic breathing development begins with practicing properly directed exhalation. The exercise called "spitting" is used for this purpose: the child put the tip of the tongue a little way out, holds it with the lips, and then tries to spit. In order to make the exercise a bit easier, it is possible to press the wings of the tongue with the fingers. Ac-

quisition of properly directed exhalation will provide in the future enough intraoral air pressure to produce consonant sounds. Having formed the skill to direct the airflow through the mouth, we can pass on to the development of diaphragmatic breathing. To begin with, it is recommended to try to trigger diaphragmatic breathing by imitating. For this purpose, the teacher may ask the child to put his hand to the teacher's side of the body simultaneously feeling the child's breathing with his hand. Feeling the movement of the teacher's ribs during inhalation and imitating it, the child switches over to diaphragmatic breathing.

If the child cannot master the given technique, development of diaphragmatic breathing should begin with exercises in a lying position. The child lies on the back, and the logopedist explains that while inhaling, the abdominal wall and the lower parts of the chest are raised; while exhaling, they are smoothly pulled in; and then follows a pause during which the muscle groups relax. Training is accompanied by visual and tactile stimulation support: the child puts one hand on the stomach, and the other one – on the chest. To the count 1, 2 he inhales through the nose and protrudes the belly like a balloon; to the count 3, 4, 5, 6, the child makes enhanced exhalation; to the count 7 he makes a pause. Dur-

ing the first stage of the exercise, when the child inhales to the count 1, 2, the logopedist presses the abdominal wall stimulating deep exhalation. Then the child performs these movements by himself. The exercise is done 3-4 times a day with 5 breathing cycles at a time. Later, diaphragmatic breathing is practiced in the sitting and standing positions, and then – while moving. And it is not only length and smoothness that are taught but also strong jerky exhalation which stimulates more evident movements of the abdominal wall and the diaphragm. Thus, the child sticks the belly out like a balloon and applies separate pressing movements to the abdominal wall exhaling the air in portions (producing interrupted or jerky exhalations).

Specification and formation of vowel phonemes. The significance of the vowel phonemes acquisition is substantiated by the following factors.

- Children with rhinolalia can hardly differentiate a vowel in the word.
- Being the simplest ones in terms of articulation, vowel sounds are acquired easily and serve as a basis for the development of the skills of phonemic analysis.
- After due training, vowel sounds activate the muscles of the posterior pharyngeal wall and the palatoglossal arches, which is important for the voice timbre normalization.

- Systematic exercises with vowel sounds perform the function of speech gymnastics facilitating the development of coordinated movements of the organs of speech, phonic breathing and voice.

Training begins with practical acquisition of the pronunciation of the vowel sounds *a* and *ə*. This is due to the fact that the sounds *a* and *ə* are opposed both in their articulation and acoustically; they allow fixing the tip of the tongue at the lower front teeth and direct the exhaled airflow into the front parts of the oral resonator. What is more, both sounds are non-labialized, which allows visual control of the position of the back and the tip of the tongue in the oral cavity. In the course of further training, the vowel articules are formed in the following succession: *o, u, y, ɪ, я, e, ě, ю* (the definitions accepted in the methods of teaching languages are used in our article).

Training on vowel pronunciation includes teaching to reproduce the articulation of the sound and to perform oral exhalation with whisper and low voice phonation. While doing this, it is necessary to control the force and direction of the exhaled airflow. For example, the child is asked to open the mouth wide, fix the tip of the tongue at the front lower teeth and make an exhalation with whisper phonation (escape of airflow is checked with a strip of paper put near the mouth of

the child). With the lips and the tongue in this position, we should get the whisper sound *a*. At this time, the logopedist loudly pronounces the sound *a*. Then the child pronounces the sound first with the nasal passages closed, then closed and open in turn, and, finally, with the nasal passages open. The exhalation with the articulation of the sounds *э, o, u, y, ы, u* is practiced in the same way.

Acquisition of the articulatory setting for the sound *u* allows passing on to teaching the articulation of the vowel sounds of the second set – *я, е, ё, ю*. They are formed by combining *j* with vowels (A. G. Ippolitov): *я (j + a), е (j + э), ё (j + o), ю (j + y)*. The child is asked to exhale the air through the mouth simultaneously performing two kinds of motions of the lips: from a smile, to pass on to the lip positions characteristic of the vowels *a (u + a), э (u + э), ё (u + o), y (u + y)*.

In this way, showing the articulatory positions of the vowel sounds before the mirror, the logopedist forms slightly exaggerated prolonged pronunciation of these sounds by the child. First, the sounds are pronounced in a whisper (the child learns to listen to himself and to reduce the nasal tone), and then in a low voice. This is explained by the fact that in the process of speech production, the pharynx of the child with congenital cleft lip and palate is unnaturally raised, which reduces the airflow through the mouth and increases the level of nasality. Training to pro-

nounce sounds in a whisper and in a low voice facilitates lower position of the pharynx. Moreover, temporary exclusion of phonation from articulation helps to teach the child not only to lower the pharynx but also to keep the tongue in a flat position. Vocal exercises play an important role in lowering the pharynx.

In order to create salient associative images of *the positions of the lips* in the articulation of vowel sounds, their articulatory positions are associated with the corresponding visual symbols:

- pictures of girls who show various “articulatory images of the lip positions” and like to sing songs (for example, Ann sings the song “A”, and Ulya sings the song “Y”, etc.). The girls wear red dresses with rings – which symbolizes the fact that vowel sounds are always voiced;
- cards-symbols of the vowel sounds (see: Fig. 2).

The symbols give the child a cue what vowel sound is being pronounced. At the same time they remind that the lips should be involved in pronunciation.

The articulation of vowels is taught in the process of phonetical rhythmic:

- [a] — stretch the arms forward and to the sides;
- [y] — smooth movements of both arms forward;
- [o] — smooth movements of both arms to the sides and overhead;

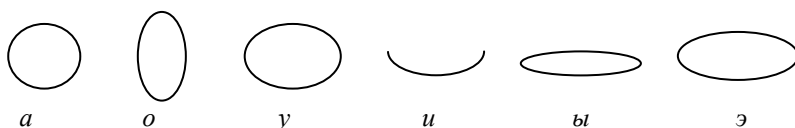


Fig. 2. Cards-symbols of the vowel sounds.

- [и] — smooth movements of both arms to the sides;
- [э] — smooth movements of both arms to the sides and downward;
- [ы] — squat with clenched fists and arms bent at the elbows.

Then the vowels are practiced in combination with the consonants pronounced correctly accompanied by the movement of the arms:

- knocking of the fists on the table (for example, *na-na-na*);
- simultaneously with the movements of the index finger (for example, the finger “bows”: *na-na-na*; the finger sways “as a clock”: *na-na-na*).

Reinforcement of the normative pronunciation of each vowel sound begins with realization of the basic elements of articulation. The children are offered the tasks:

- to identify the sound by mute articulation, that is by the lip position of the logopedist;
- to recognize the sound the lip position of which is shown in the picture and to pronounce it;
- to look at the oral image of the sound which is being mutely articulated by the logopedist and to reproduce it before the mirror;
- to compare the pronunciation of the sound with the model;

- to pronounce the sound before the mirror and to identify the position of the lips in its articulation;
- to draw the profile of the articulation of the sound learned and to pronounce it.

In the work on reinforcement of articulation, the child’s attention is constantly drawn to the sound of the phoneme which is being learned. The pupil is asked to listen to the speech of the surrounding people, to compare his pronunciation with that of the logopedist by ear, and, in case of difference, to make the necessary corrections. Video recording should be actively used at this stage (the child can see the articulation and hears the sound at the same time).

Algorithm of reinforcement of vowel sounds articulation

- To listen to the recording of the sound pronounced by the logopedist.
- To listen to the recording of the sound reproduced by the child.
- To compare the working variant (child’s speech) with the model (logopedist’s speech).
- To listen to the recording of the words in which the vowel sound is in a strong position.
- To listen to the recordings of short texts in which the vowel

sounds are pronounced as if they were in strong positions.

In this way, the articulatory and acoustic images of each vowel sound are gradually made more specific. After the acoustic-articulatory characteristics of all vowels have been learnt, we may offer exercises aimed to form the ability to recognize the given sound among other ones.

Exercises on sound recognition:

– say if a certain sound, for example *a* is present in the following vowel sequences: *ay, au, ao, aoy, oyu, yoa, yau*;

– say if a certain sound is present in the given words (at first, the vowel is in the strong position);

– choose the pictures, the names of which contain a certain sound.

In the course of learning vowel sounds *a, ə, o*, it is necessary to develop kinesthetic (articulatory) differentiation. The ability to differentiate the lip positions kinesthetically is formed first on the vowels *a — o*, because they need different lip positions for their pronunciation.

Exercises on kinesthetic differentiation:

● Identify the sound *a* by the mute articulation of the logopedist. What position do the lips occupy in the pronunciation of the given sound?

● Identify the sound *o* by the mute articulation of the logopedist. What position do the lips occupy in the pronunciation of the given sound?

● Identify the first and the second sounds in the sequences *ao, oa* by the mute articulation of the logopedist.

● Pronounce the sound *a* before the mirror and identify what position the lips occupy in the pronunciation of the given sound.

● Pronounce the sound *o* before the mirror and compare it with the model. What position do the lips occupy in the pronunciation of the given sound?

● Pronounce the sounds *ao* together before the mirror. Do the lips occupy the same position in their pronunciation?

The skill of kinesthetic differentiation of the position of the lips in the pronunciation of the vowels *a — ə, a — y, a — u, u — y, u — o* is learned in the same way. The visual support (mirror) should be gradually excluded. In this way, children are step-by-step prepared for phonetical analysis. First, simpler forms of analysis are used: to single out sounds in a sequence of 2-3 vowels, to identify the number and order of vowels in clusters of sounds; to single out the stressed vowel in the beginning of the word. Salient articulation before the mirror serves as visual support in this case. In the process of learning vowel sounds, it is necessary to express them by letters, to teach to find the letter corresponding to the sound and, vice versa, lay out letters to denote sound sequences. It is

highly recommended to use the method of tokens.

During the post-surgical period, the logopedist tries to bring the approximated pronunciation of the child to the norm, to get rid of the nasal voice timbre interfering with precise differentiation of the sounds. As far as during the post-surgical period children, in the majority of cases, cannot use the new anatomical opportunities of their vocal apparatus, differentiate between oral and nasal exhalation and raise the soft palate during phonation, the work focuses on:

a) activation of the muscles of the soft palate and normalization of the articulatory motor skills, especially those of the tip and back of the tongue;

b) correction of the inadequately formed skills of phonic breathing. And the main task is to achieve strong oral exhalation and, which is still more important, to teach to differentiate between oral and nasal exhalation. The first stages of training were aimed at creation of the conditions for normalization of the phonetical aspect of speech and much attention was paid to exercises on articulation and phonic breathing disregarding the work on concrete sounds. The subsequent stages involve the principle of simultaneous training on phonic breathing, voice and articulation directly in the process of sound production development.

Simultaneous work on phonic breathing, voice and articulation aimed at normalization of pronunciation of vowel sounds is realized in the following way.

Algorithm of simultaneous work on phonic breathing, voice and articulation on the example of the sound *a*.

- The vowel *a* is practiced in articulation only: the mouth is open wide, the tip of the tongue is at the front lower teeth (control – mirror).

- The articulation of the vowel *a* is accompanied by exhalation without phonation. The following conditions are to be observed:

- 1) exercises are done first with the nasal passages closed, then closed and open in turn, and, finally, with the nasal passages open;

- 2) uneven (jerky) and prolonged escape of airflow directed towards a certain object is practiced, because the work on the vowel sounds creates the foundation for further learning of the consonant sounds differing in the manner of articulation: occlusive, fricative, occlusive-constrictive, affricates, etc.;

- 3) much attention is attributed to the perception of the airflow through the tactile (exhaling on the palm) and optical (movement of the strip of paper, fogging of a mirror or another glassy surface) senses. The child works out the adequate exhalation by comparing the force and duration of the exhaled airflow

produced by the logopedist with his own exhalation.

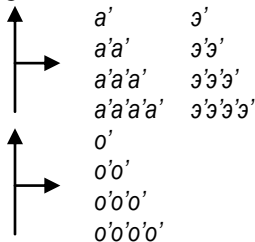
- The articulation of the sound *a* is accompanied by exhalation and whisper phonation with aspiration ($\rightarrow h$ ——— *a*).

- The articulation of the sound *a* is accompanied by exhalation with whisper and then low voice phonation with aspiration ($\rightarrow h$ ——— *a*). Such purposive prolongation of the exhalation phase creates the conditions for reduction of nasality.

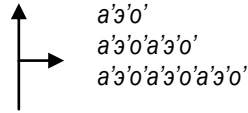
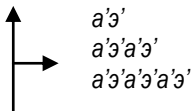
To activate the muscles of the soft palate, it is necessary to pass on to the work on the vowel sounds with a hard glottal attack with pauses between the vowels.

Exercises for practicing pronunciation of vowels with a hard glottal attack:

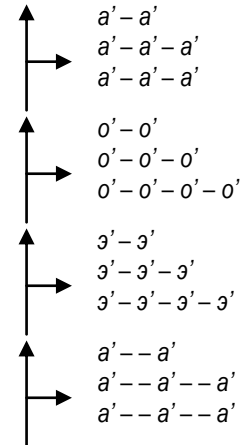
- Each vowel is pronounced with a hard glottal attack:



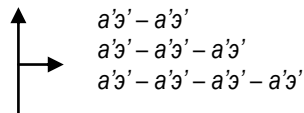
- Vowel sounds are practiced in various combinations with a hard glottal attack:



- Vowel sounds are pronounced with a hard glottal attack with pauses lasting 1-3 seconds between the vowels:



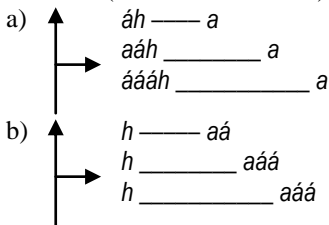
- Vowel sounds are pronounced in various combinations with a hard glottal attack with pauses lasting 1-3 seconds:



Thus, soft and hard glottal attacks should be practiced separately.

In order to teach the child to control muscle tension and relaxation, it is necessary to plan exercises aimed at pronunciation of sounds with glottal attack followed by

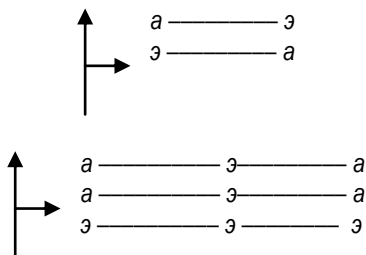
gradual transition to aspiration, and, vice versa, with aspiration followed by glottal attack (see Schemes a and b).



After the soft palate muscles have become flexible enough, the vowel sound *a* is practiced mainly in the prolonged phase of exhalation (aspiration) with obligatory control of the exhaled airflow;

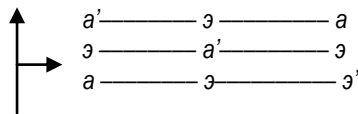
– the vowel sound *a* is pronounced long with soft exhalation in the chest register (↑→*a* ———).

After acquisition of pronunciation of isolated vowels in the chest register, we can pass on to practicing singing joint pronunciation of clusters of first two and then three vowels, as it is shown in the schemes below:



Such exercises represent a certain kind of gymnastics of the soft palate muscles and enhance their flexibility. It would be also useful to practice combinations of vowel sounds shifting the stress, which

facilitates auditory attention and memory. The following scheme illustrates these exercises:



Schoolchildren with rhinolalia often mix up sounds and letters *o* — *a* (they write *вроч*), *y* — *o* (they write *кокля*), *ы* — *и* (*сады* — *саду*), *a* — *я* (*пад* — *ряд*), *o* — *e* (*нос* — *нес*), *ю* — *e* (*бирюза* — *береза*), *y* — *ю* (*лук* — *люк*).

In this connection, it is necessary to explain to the children the significative function of vowel phonemes in order to prevent writing errors.

To develop skills of control, demonstration of the significative function of vowel phonemes is carried out on concrete material:

– two object cards (e.g., *сок* — *сук*) are given, and the phonetical analysis of the corresponding words is done;

– then, models of the given words are made up; for the sake of convenience, the models are arranged in a column (see: Fig. 3);

– the children's attention is drawn to the fact that the models are identical; the children are asked if the words could be identical too. The opinions may differ;

– the sound composition of the words is compared: two first sounds are compared, then – both second sounds, and then – both third sounds (see: Fig. 4);



Figure 3. Templates to be filled with words

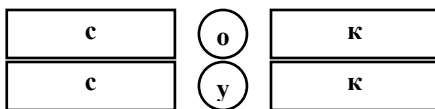


Figure 4. Examples of filling in the template forms

- summing up:
 - the words differ in one vowel sound;
 - it is enough to replace one vowel with another vowel to get a different word;
 - it turns out that one sound is enough to change the whole word.

It is recommended to demonstrate the significant function of the vowel phonemes in the following cases in accordance with the same scheme:

- *а — о* (*бак — бок, рама — Рома, тачка — точка*, etc.);
- *о — у* (*осы — усы, точка — тучка, копать — купать*, etc.);
- *е — и* (*пела — пила, петь — пить, ферма — фирма*, etc.);
- *ы — и* (*мыл — мил, сады — сади, мышка — мишка*, etc.);
- *а — я* (*мал — мял, рад — ряд*, etc.);
- *о — ё* (*нос — нёс, уголок — уголёк*, etc.);
- *ю — ё* (*мою — моё, бирюза — берёза*, etc.);
- *у — ю* (*лук — люк*).

The given pairs of words are analyzed and used in sentences and phrases.

Thus, the formation of pronunciation and perception of the vowel sound in children with congenital cleft lip and palate is targeted at the solution of three interrelated problems:

- normalization of oral exhalation, i.e. formation of prolonged oral airflow during the pronunciation of all vowel sounds;
- teaching to reproduce articulatory phonological oppositions in the pronunciation of vowel sounds;
- development of phonemic awareness and phonetical analysis;
- development of understanding of the significant function of vowel phonemes.

First, vowel sounds are practiced without phonation, then in a low voice with articulatory and vocal muscles relaxed, and with soft sound production. After the activity of the palatopharyngeal ring and the front parts of the oral cavity have been synchronized, we can begin work on vowel phonation. Vowels

are pronounced with different intonation: narration, surprise, exclamation, regret, question and surprise, exclamation and surprise, etc.

The following games-dialogues can be used:

- question – declarative answer;
- question – answer with exclamation, etc.;
- question – answer with exclamation and surprise, etc.

Work over intonation facilitates the development of auditory perception, ability to hear and assess the melody of the voice of the surrounding people and that of their own, depending on the situation of communication.

References

1. Vansovskaya, L. I. Ustranenie narusheniy rechi pri vrozhdennykh rasshchelinakh neba / L. I. Vansovskaya. — SPb. : Gippokrat, 2000.
2. Levina, R. E. Narusheniya rechi i pis'ma u detey : izbrannye trudy / R. E. Levina ; red.- sost. G. V. Chirkina, P. B. Shoshin. — M. : Artki, 2005.
3. Repina, Z. A. Oposredovannaya artikul'yatsionnaya gimnastika dlya detey preddshkol'nogo vozrasta : ucheb. posobie / Z. A. Repina, A. V. Dorosinskaya / Ural. gos. ped. un-t ; gorodskoy foniatricheskoy tsentr. — Ekaterinburg, 2013.
4. Repina, Z. A. Razvitie psikhologicheskikh funktsiy kak osnovy stanovleniya rechi u detey s vrozhdennoy rasshchelinoy guby i neba na pervom godu zhizni / Z. A. Repina, N. V. Obukhova // Funktsional'no-esteticheskaya reabilitatsiya bol'nykh s vrozhdennymi rasshchelinami litsa : materialy Vseros. konf. — Nal'chik : Kab.-Balk. un-t, 2002.
5. Repina, Z. A. Formirovanie intonatsionnoy storony rechi u detey s vrozhdennoy rasshchelinoy guby i neba / Z. A. Repina, A. M. Sedova // Funktsional'no-esteticheskaya reabilitatsiya bol'nykh s vrozhdennymi rasshchelinami litsa : materialy Vseros. konf. — Nal'chik : Kab.-Balk. un-t, 2002.
6. Repina, Z. A. Neyropsikhologicheskoe izuchenie detey s tyazhelymi narusheniyami rechi / Z. A. Repina // Prikamskiy sotsial'n. in-t — filial Mosk. sotsial'n. un-ta, 2002.
7. Repina, Z. A. Narusheniya pis'ma u shkol'nikov s rinolaliy : ucheb. posobie / Z. A. Repina ; Ural. gos. ped. un-t, In-t spetsial'nogo obrazovaniya. — 4-e izd., ispr. i dop. — Ekaterinburg, 2013.
8. Repina, Z. A. Disgrafiya u uchashchikhsya s rinolaliy / Z. A. Repina // Spetsial'noe obrazovanie : nauch.-metod. zhurn. / GOU VPO «Ural. gos. ped. un-t», In-t spets. obrazovaniya. — Ekaterinburg, 2009. — № 3. — 122 s.
9. Repina, Z. A. Teoreticheskoe obosnovanie problemy vliyaniya nesformirovannosti intonatsionnoy storony rechi na usvoenie navyka chteniya u mladshikh shkol'nikov s obshchim nedorazvitiem rechi / Z. A. Repina, E. A. Larina, A. M. Sedova // Spetsial'noe obrazovanie : nauch.-metod. zhurn. / GOU VPO «Ural. gos. ped. un-t», In-t spets. obrazovaniya. — Ekaterinburg, 2010. — № 4. — S. 27—35.
10. Repina, Z. A. Aktual'nye problemy fonologii v korrektsionnoy pedagogike / Z. A. Repina, E. A. Larina // Spetsial'noe obrazovanie : nauch.-metod. zhurn. / GOU VPO «Ural. gos. ped. un-t», In-t spets. obrazovaniya. — Ekaterinburg, 2011. — № 2. — S. 21—26.
11. Repina, Z. A. Kharakteristika rezul'tatov issledovaniya oposredovannoy pamyati detey starshego vozrasta s legkoy stepen'yu psevdobul'barnoy dizartrii / Z. A. Repina, O. A. Mel'nikova // Spetsial'noe obrazovanie : nauch.-metod. zhurn. / GOU VPO «Ural. gos. ped. un-t», In-t spets. obrazovaniya. — Ekaterinburg, 2012. — № 2. — S. 137—147.
12. Repina, Z. A. Izuchenie korrelyatsionnykh svyazey v strukture oposredovannoy pamyati u detey starshego doshkol'nogo vozrasta s obshchim nedorazvitiem rechi III urovnya / Z. A. Repina, O. A. Mel'nikova // Spetsial'noe obrazovanie : nauch.-metod. zhurn. / GOU VPO «Ural. gos. ped. un-t», In-t spets. obrazovaniya. — Ekaterinburg, 2012. — № 3. — S. 102—108.

13. Repina, Z. A. Razvitie psikhologicheskikh funktsiy kak osnovy stanovleniya rechi u detey s vrozhdennoy rasshchelinoy guby i neba na pervom godu zhizni / Z. A. Repina, N. V. Obukhova // Funktsional'no-esteticheskaya reabilitatsiya bol'nykh s vrozhdennymi rasshchelinami litsa : materialy Vseros. konf. — Nal'chik : Kab.-Balk. un-t, 2002.
14. Repina, Z. A. Podgotovitel'nyy etap logopedicheskoy raboty po formirovaniyu foneticheskoy sistemy yazyka u shkol'nikov s dizartriyei / Z. A. Repina, I. A. Filatova // Spetsial'noe obrazovanie : nauch.-metod. zhurn. / GOU VPO «Ural. gos. ped. un-t», In-t spets.obrazovaniya. — Ekaterinburg, 2012. — № 3. — S. 142—147.
15. Repina, Z. A. Preodolenie spetsificheskikh zamen bukv u shkol'nikov s dizartriyei / Z. A. Repina, I. A. Filatova // Spetsial'noe obrazovanie : nauch.-metod. zhurn. / GOU VPO «Ural. gos. ped. un-t», In-t spets.obrazovaniya. — Ekaterinburg, 2013. — № 2. — S. 119—128.
16. Nauchnoe nasledie: Galina Vasil'evna Chirkina // Defektologiya. — 2013. — № 6.
17. Strebeleva, E. A. Psikhologo-pedagogicheskaya diagnostika razvitiya detey rannego i doshkol'nogo vozrasta : metod. posobie : s pril. al'boma «Naglyadnyy material dlya obsledovaniya detey» / E. A. Strebeleva, G. A. Mishina, Yu. A. Razenkova i dr. ; pod red. E. A. Strebelevoy. — 2-e izd., pererab. i dop. — M. : Prosveshchenie, 2004.