

## **HYGIENE OF THE EDUCATIONAL PROCESS AT SCHOOL**

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**Abstract:** This article describes how to organize the structure of a combined lesson and how to properly organize a survey of students during the lesson, the levels of organizing a combined lesson, modern teaching technologies, what hygienic requirements are imposed on their use in the lesson.

**Keyword:** combined lesson, introductory part, main part, final part, discussion method, active forms of work, group forms of work, rational and irrational lesson

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1. How should the structure of a combined lesson be organized and how to properly organize a survey of students during the lesson?

A combined lesson is divided into three parts: an introductory part, which includes an organizational moment and a survey, the main part (study of new material) and the final part (training reproduction of educational material, or consolidation). 3/4 of the lesson is devoted to studying new material and 1/4 is allocated to checking knowledge and repetition.

According to modern educational and methodological requirements, a survey of students should not be limited to retelling, mechanical reproduction of previously received information. The discussion method is widely introduced in pedagogical practice, active and group forms of work are used. In this case, the lesson is interesting, not tiring, emotional.

2. Name the levels of organization of a combined lesson.

There are three levels of organization of a combined lesson: rational, insufficiently rational and irrational. The rational level corresponds to the lesson density of no more than 75-80%, but not less than 70%. If the lesson density exceeds 90%, then such a lesson is irrational. The number of activities in a rational lesson should be at least 4-5, while in an irrational lesson there are usually no more than 1-2. The average duration of one activity at the rational level is 6-10 minutes for younger students and from 10 to 20 minutes for middle and senior students. The number of teaching methods in a rational lesson is 3-4, while an irrational lesson is conducted using one method. As a rule, there are significantly more disciplinary violations in an irrational lesson. Alternation of methods (verbal, visual, practical) and activities in a rational lesson should occur at least every 5-10 minutes for younger students and 10-20 minutes for middle and senior students. If the lesson is structured irrationally, then there is no alternation of methods and forms of work. The number of physical education breaks, or emotional releases, should be at least 2 for younger students, lasting 3-4 minutes, and one for older students, lasting up to 2 minutes. If poorly organized, they are absent. At a rational level, the use of TSO is carried out in accordance with hygienic standards, and at an irrational level - in an arbitrary form. The time of onset of fatigue of students is recorded by a decrease in their performance. With a rational organization, fatigue occurs after 40 minutes, and with an irrational one - after 15-25 minutes. In a rational lesson, positive emotions prevail, and in an irrational one - negative emotions.

3. What modern teaching technologies should be used during combined lessons? What hygienic requirements are imposed on their use in the lesson?

The necessary technologies are used in working with children and adolescents. The technology of personality-oriented teaching, ensuring the involvement of each student in an active cognitive process; the technology of level differentiation of teaching (the use of three-level tasks); problem-based learning, when a problem situation is created in the lesson; the technology of solving research problems - the technology of organizing research activities; developmental learning - a technology aimed at developing the skills and abilities of the student, taking into account his abilities and capabilities; block-modular teaching (presentation of educational material in "blocks"); the technology of game activities, for example, a travel lesson; computer technology (the introduction of electronic teaching and methodological materials developed by the teacher into the educational process); Multimedia technology (demonstration of multimedia slides in lessons, extracurricular and extracurricular activities), information and communication (use of computer presentations, interactive whiteboard for visual presentation of material); distance learning technology with visual communication with the student (via Skype) or without visual communication, etc. Teaching technologies alternate during a lesson, school week, quarter. At least two or three technologies should be used in one lesson, with easier technologies used at the end of the lesson. Alternation of educational technologies in the educational process has a beneficial effect on the psyche of schoolchildren and helps to achieve the objectives of training and education.

4. In what sequence should the teacher alternate methods and forms of organizing training during a lesson?

The necessary methods and forms of work are used in teaching schoolchildren. Methods in the lesson are used in a certain order. Verbal: 1) story or explanation; 2) discussion method; 3) work with a textbook; 4) conversation. Visual: 1) observation method; 2) the method of illustrations; 3) the method of demonstrations. Practical: 1) the method of exercises; 2) the method of practical or laboratory work; 3) the method of didactic games. Verbal and visual methods are often combined: explanation, storytelling and demonstration method. Then the reproductive method (reproduction) is used, and then the discussion method. In conclusion, the work is organized by the search method, or research. Such alternation of methods contributes to a gradual increase in the load on the nerve centers of the cerebral cortex and better assimilation of the educational material. The forms of organization of training are also used in the lesson in a certain order: 1) frontal (general class); 2) group; 3) individual, which contributes to a gradual entry into this type of educational activity, and the timely alternation of the forms of organization of training contributes to an improvement in the quality of the lesson.

5. What are the features of the hygienic organization of educational and upbringing work at school?

Firstly, a well-thought-out schedule of classes, taking into account the complexity and alternation of subjects (the first through third lessons are devoted to more complex subjects, and natural science lessons alternate with humanities lessons); secondly, a rational distribution of school assignments for teachers and students; thirdly, presenting increased demands on students during the lesson, when their performance reaches a high level; fourthly, a change in activities is an important component of restoring performance.

6. List the hygienic requirements for the class schedule.

For students in grades 5–11, the academic load should be distributed over the week so that its greatest intensity in terms of the total points per day (see the difficulty scale of subjects) falls on

Tuesday and Thursday, and Wednesday is an easier day. Tuesday and Wednesday can be made busier, and Thursday can then be made easier. Fewer class hours are provided for classes on Monday and Saturday (Friday in a five-day week). Subjects that require a lot of time for homework should be distributed over three days, but not on the same day. About 65% of the entire academic load should fall on three days of the week (Tuesday, Wednesday, Thursday), when students' performance is higher than at the end of the week, but on Wednesday the amount of academic load can be slightly reduced. The schedule is drawn up incorrectly when the greatest number of points falls on the extreme days of the week. The main subjects that require mental effort during the school day should be alternated with easier ones and in the schedule they should correspond to the period of increased student performance, that is, they should be held in the 2nd and 3rd lessons. The first lessons are intended for subjects of average difficulty (geography, history, biology, etc.), since students' performance has not yet reached its maximum. Optional and stimulating classes should be planned for days with the least number of mandatory lessons. A 30-45 minute break is required between the start of the elective and the last lesson.

Tests and dictations are planned for Tuesday and Wednesday, and they are held in the 2nd and 3rd lessons. On Thursday, younger students go on walks and excursions in the open air, which helps maintain high performance on Friday.

**7. What are the principles of distributing the academic load during the academic quarter?**

It is recommended to increase the academic load gradually, from the beginning of the quarter with a maximum in the middle of the quarter, when the mandatory academic load should be combined with electives, supporting classes and club work. It is necessary to take into account the volume of the maximum permissible weekly workload of students studying in grades 5–11, the specifics of organizing the educational process with a 5-day and 6-day academic week. Based on this, it is necessary to plan assignments for students, educational work, holding class hours, electives, in-school and extracurricular activities.

**8. What are the specifics of organizing students' activities with a 5-day week?**

This mode of work provides for the assimilation of educational material in a short time, due to which the volume of the academic weekly load is reduced. For this purpose, it is appropriate to use the principle of enlarging didactic units - educational blocks, modules - in oral disciplines, which allows many topics to be covered in a shorter time. On Tuesday and Wednesday (or Thursday) the academic load should be maximum. Maximum permissible weekly load: 5th grade – 28 hours; 6th – 29 hours; 7th – 31 hours; 8th–9th – 32 hours; 10th–11th grades – 33 hours. With a 6-day week, the weekly academic load is 3 hours longer in all grades.

On Saturday, the educational process can be organized in two ways: 1) conducting incentive classes at school. In this case, not all students come to class, but only those invited by the teacher or showing interest in the subject; 2) hobby club classes are organized at school.

**9. Provide a definition of the concept of "mental performance of a schoolchild." What factors does it depend on?**

The mental performance of a schoolchild is an integral indicator that characterizes the quantitative and qualitative characteristics of academic work, the level of mental development, and the state of the physiological systems of the student's body. It depends on the age, content of the work, its significance for the student, the emotional appeal of the lesson, individual

characteristics of somatic and mental health, as well as the functional state of the main systems of the body.

10. What are the conditions for productive mental activity of a schoolchild?

Mental work of a student is work related to the processing of information by the brain, requiring the active functioning of sensory systems, brain structures that carry out mental processes (thinking, attention, memory, emotions, motivation, etc.). There are rules, following which contributes to productive mental activity. 1. - You need to enter the work gradually. 2. - It is necessary to observe the rhythm of work, sequence. 3. - Mental work requires the correct alternation of mental work and active rest. 4. - High performance is maintained with systematic and constant activity, in which the skill is strengthened. Thus, the main condition for high performance is dosed systematic consistent work that trains the corresponding nerve centers of the cerebral cortex.

11. Give a definition of the concept of "fatigue of a student when performing mental work." What factors in the development of student fatigue in the classroom should a teacher take into account?

Fatigue of a schoolchild is a temporary reversible decrease in performance resulting from educational activities. Protective excitation is associated with changes in the nerve centers and protects the body from overfatigue. Restoration of performance occurs faster not in conditions of complete rest, but with a change in the type of activity, or during active rest. Physical education, motor activity, and a change of activity during the lesson are powerful means of relieving fatigue. After active rest, a change of activity, the student's performance is restored and may even be increased for some time. This phenomenon is called hypercompensation. The development of fatigue in the lesson depends on the degree of adaptation of the student to academic work, the level of motivation, interest in work, passion for the subject, and the physiological capabilities of the body. Weakened children quickly get tired, their first phase of fatigue (protective excitation) can be erased and the second phase of fatigue - inhibition - quickly sets in. It is possible to prevent the onset of inhibition by using assignments, tests with interesting illustrative material, demonstration of natural objects, or a film on the topic being studied, etc. in training.

12. Provide a definition of the concept of "overfatigue of a schoolchild"

Overfatigue is a long-term decrease in performance, cognitive activity and functional capabilities of the body. It occurs if the educational load is inadequate to the physiological capabilities of the student's body, especially if it is weakened, if the daily routine and rest are not observed, and educational work is not organized rationally. It leads to diseases of the nervous, endocrine, cardiovascular and other systems, and a decrease in student performance.

13. Describe the external signs of mild and moderate fatigue of students in the classroom.

Mild fatigue: slight hyperemia of the skin, slight sweating, calm facial expression, even breathing, clear execution of commands, no complaints. Moderate fatigue: significant hyperemia of the skin of the face, pronounced sweating, tense facial expression, rapid breathing, unclear completion of tasks, complaints of fatigue.

14. How long are breaks in elementary and high school?



In elementary grades, there is usually a 10-minute break and two 20-minute breaks (scheme: 10-20-20). There are also two 10-minute breaks after the first and third lessons and a long break lasting 30 minutes after the second lesson (10-30-10), which must be held with maximum use of fresh air. In high school, the following scheme for holding breaks is considered optimal: 10-20-20-10.

15. What are the hygienic requirements for writing instruments?

Pens and pencils are made of a certain length and diameter. It is allowed to use round pens with ballpoint rods containing blue or purple ink. Their length is 142-150 mm, diameter no more than 10 mm, weight no more than 10 g. Among pencils, round pencils of medium hardness that leave a clear, smudge-proof line on paper meet hygienic requirements. The length of a student pencil is about 180 mm, diameter 7-8 mm. The use of blue or purple ink by students and teachers at school is not contraindicated. Fountain pens must have an open nib.

16. What are the hygienic requirements for visual aids?

The main requirement for visual aids is good visibility for students sitting not only at the front desks, but also at the back. Eye strain when viewing visual aids is not allowed. The shape of the letters depicted on visual aids (tables, multimedia slides, etc.) should be simple, the font height should be at least 3.5 cm.

17. What hygienic requirements are imposed on the use of technical teaching aids (TTA) in the classroom?

The use of TTA is regulated. Thus, in grades 1–2, the duration of viewing multimedia slides is 7–10 minutes; in grades 3–4, the duration of all types of viewing should not exceed 15–20 minutes. In senior grades, this time should not exceed 20–30 minutes. The number of lessons using TTA during a week should not exceed four.

18. What are the hygienic requirements for organizing a labor lesson for primary school students

The main piercing and cutting tools for students in grades I-IV to make various crafts are: a) scissors 118-120 mm long with rounded ends, with a cutting surface length of 70 mm. The levers of the scissors should move freely, without effort, and the cutting surfaces should be well sharpened; b) a knife weighing 75 g, blade length 60 mm, width 18 mm. The blade is well sharpened. The handle is 85 mm made of hardwood or plastic, well polished. For working with cardboard, you should use cardboard no more than 0.5 mm thick, easy to cut. It is better to start students learning the skills of sawing and planing on softwood (linden, pine, spruce).

19. Describe the requirements for organizing watering of flowers, beds on the school site?

It is recommended to carry the weight in both hands at the same time with the same load. Buckets and watering cans should have a capacity of 4 and 6 liters for older schoolchildren. For younger schoolchildren aged 8-10, there should be watering cans with a capacity of 2-3 liters, and if they are not available, then 4-liter watering cans are used, but 1.5 liters less water is poured into them than for older schoolchildren.

20. What are the hygienic requirements for the labor education of schoolchildren?

Work on the school site is organized starting from the 4th-5th grades. Gardening tools used for work on the school site in terms of weight and size should correspond to the age capabilities of

children. Sizes of shovels for schoolchildren. For digging the soil, shovels with different cutting edges (straight, semicircular and acute-angled) with a tray thickness of 2 mm are used. For primary, middle and senior schoolchildren, certain sizes of shovels have been established: for 9-10 year old students, the handle length is 600-650 mm, its diameter is 30 mm and the tray size is 210x140 mm, and for 12-18 year old schoolchildren, respectively, 770-850 mm, 35 mm and 250x170 mm. Sizes of rakes for schoolchildren. Iron and wooden rakes are recommended to be used in two sizes. For primary school students, 8-tooth iron and 7-tooth wooden, with teeth length of 54-64 mm. For middle and senior schoolchildren, 10-tooth iron and 9-tooth wooden with teeth length of 64 mm. Sizes of hoes for schoolchildren. Hoes are also used in two sizes: the size of the striker for primary school students is 100x90 mm, for middle and senior schoolchildren 125x100 mm. The handles are made oval-shaped: they are more comfortable to hold and do not slip out of your hands when working. The length of the hoes should correspond to the height of the students: for primary school students, the handle length should not exceed 110 cm, and for middle and senior school students, 140 cm. In addition to the specified dimensions, it is necessary that the weight of shovels, hoes, brooms, brushes, and rakes used by primary school children does not exceed 400 g, and for senior school children - 600 g. The stretchers and wheelbarrows that schoolchildren use to carry and transport cargo should also correspond in weight to the capabilities of the students. Work on transporting cargo should not take up more than 1/3 of the school time.

21. Specify the basic requirements for carrying heavy objects by schoolchildren.

Heavy objects carried from one place to another at school should not exceed hygienic standards. For healthy boys aged 14-16 — 8-10 kg, and for girls of this age — 6-7 kg. These can be bags of soil, trays with seedlings, books, etc.

22. What are the hygienic requirements for extracurricular and out-of-school work as an integral part of the educational process?

It is recommended to spend no more than 1-2 hours a week on extracurricular and out-of-school work with students in grades 2-4, 3-4 hours for grades 5-8, and 4-5 hours a week for grades 9-11. This work provides for cultural and active recreation for schoolchildren based on health-improving activities. Therefore, the class teacher must be familiar with the basics of pedagogical valeology. It is held in cinemas, theaters, museums, exhibitions, young naturalists' stations, children's parks, on sports grounds on school days with a minimum number of lessons, after lunch, and during holidays. Each schoolchild can perform only one public assignment per quarter and participate in no more than two clubs. At the same time, club classes should be held no more than 1-2 times a week, and their duration should not exceed 35-40 minutes for younger students and 50-60 minutes for older students.

23. List the main requirements for school furniture.

Furniture should correspond to the height of each student. A height scale with an interval of 15 cm has been developed for schoolchildren, and standards for school furniture have been developed, including six numbers corresponding to six height groups of students (height from 115 to 175 cm and more). Smaller furniture is placed near the blackboard, larger furniture is further away. When it is necessary to place larger furniture closer to the board, it should be placed first in the first or third row from the edge. The height of the table surface above the floor (differential) should allow the student to place his hands on the table without raising or lowering his shoulders. The angle of the desk lid is about 15°. This tilt of the lid ensures normal

visual perception of the book text. If tables are used, it is better to place the book on a stand at an angle of 15°.

24. What posture at the student's desk is considered physiologically justified?

A student can maintain the correct working posture only with sufficient differentiation. With increased differentiation, while working at the desk, the student often raises his right shoulder and lowers his left. With small differentiation, he bends over, bowing his head low, which has a negative effect on posture. The seat distance should only be negative (the seat goes beyond the edge of the table surface by 5-8 cm). In this case, the student sits deeply on the chair (2/3 of the thigh), leaning his lumbosacral part on its back, holds his body straight and bends slightly when writing and reading. The angle of inclination of the body from the vertical is 10-15 degrees. Between the edge of the table and the front surface of the body, a space must be maintained that can accommodate the student's fist.

25. List the rules for seating students at a table (desk).

Rules for seating students: 1) when writing, the student should sit with a slight forward tilt (the optimal angle of inclination of the chest is 10-15 degrees from the vertical); 2) there should be a space of 4 cm between the edge of the table (desk) and the front surface of the body. In this case, the chest is not compressed, breathing is free; 3) the lines of the ischial tuberosities should be parallel; 4) the book or notebook should be at a distance of the forearm and hand from the eyes (30 cm); 5) there should be a right angle at the hip and knee joints; 6) the forearms and hands should be symmetrically located on the table; 7) 1/2-2/3 of the thigh should be on the seat; 8) the lower back should rest on the back of the chair; 9) the student should rest completely on the floor with his feet.

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