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Hygienic Analysis and Ways to Improve the Educational Process of Middle School Students

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ABSTRACT

The study analyzed the organization of the educational process for 5th to 7th-grade students at School No. 51 in the Toshloq District of Fergana Region, assessing compliance with the requirements of SanPiN No. 0341–16 "Sanitary and Epidemiological Requirements for Conditions and Organization of Education in Public Schools." The educational activity in the school was evaluated based on chronometry. The monitored school has eight middle school classes, which attend classes in a six-day schedule during the first shift. In 5-A class, there are 34 students (9 over the norm), in 5-B class there are 30 students (5 over the norm), in 6-A class there are 31 students, 6-B class has 28 students (3-6 over the norm), and it was determined that in grades 7-8 there are 1-3 students less than expected. The daily workload for grades 5-8 was 5-6 hours, and the total time spent in school was 8.4 and 9.0 hours, constituting 73.3-81.6% of time in middle grades. The weekly workload for middle school students is 29 hours in 5th grade, which is 3 hours less than the norm; in 6th grades, it is 30 and 31 hours (norm is 33 hours); the 7th grade meets the norm, and in the 8th grade, it is 2-3 hours below the norm. The structure of the class schedule for middle school students does not meet hygienic requirements, with complex lessons scheduled for the first and last periods on all days of the week. For example, in 7-B class on Monday, the Uzbek language and chemistry were scheduled in periods 1-2, while physics and a foreign language are in periods 4-5. On Saturday, the subjects include Uzbek language, algebra, foreign language, and geometry during periods 2-3-4-5. In challenging weeks, the complexity level of lessons in the 5th grade ranged from 24 to 28 points, while on Saturday it was 38-36 points. In the 6-A class, the complexity was 42 points on Monday, 29-22 points on Wednesday, 47-49 points on Friday, and 34 and 46 points on Saturday. In the 7-A class, it was 55 points on Monday, 50 points on Friday, and 38-55 points on Saturday. In the 8th grade, complexity was 35-43 points on Monday, 33-24 points on Tuesday, and 39-52 points on Saturday. The complexity of lessons was not considered. If measures are not developed to improve this situation, it will not only decrease students' ability to work but also create conditions for their nervous-psychological state to deteriorate and the development of somatic diseases.

***Keywords**: Middle school students, schedule, educational process, class schedule, educational activity, challenging days of the week, complex lessons.*

INTRODUCTION

In the new realities of Uzbekistan, the health status of school students of various ages and grades, as well as their efficiency during lessons, is linked to the educational and upbringing conditions created at home and school, daily schedules, the educational process, their health condition, living conditions, and their reactions to both positive and negative environmental factors. Changes in internal school factors not only affect students' ability to work and disrupt daily schedules but can also create conditions for the development of diseases related to the educational process, as noted by several authors [1-3].

Currently, the restructuring of education, particularly the introduction of differentiated teaching in middle school classes, the high complexity of curricula, the large volume of homework, the violation of hygienic principles in lesson scheduling, and the use of educational materials not covered by regulatory and methodological documents have become characteristic features of modern schools [7, 9, 11].

Scientists in Mongolia presented an analysis of the factors influencing the health of urban and rural students in Mongolia. The analysis and assessment of the impact of the educational environment across 69 urban and rural educational institutions in Mongolia demonstrated that the studied factors significantly influence students' health indicators. It was established that the priority factors of the school environment that negatively affect students' health include the irrational organization of the educational process. Among the socio-economic factors, the degree of housing improvement, family income, and parental education of students were highlighted as significant influences [1].

According to several researchers in the field of child and adolescent hygiene, factors within the school environment account for 12% of morbidity in primary grades and 21% by the time students finish school, indicating that its significance increases almost two to three times [12, 13, 16].

In the school age, the role of so-called "school" factors becomes more pronounced, such as irrational school nutrition, intensification of the educational process, mismatch of teaching methods and technologies with the age characteristics and functional capabilities of students, static body postures, decreased physical activity, violations of sanitary and hygienic norms and regulations within educational organizations, and the absence of systematic efforts to promote the value of health and a healthy lifestyle [15, 16].

One of the priority areas of activities carried out within the framework of the Decade of Childhood, which runs until 2027, as well as fundamental and exploratory scientific research for 2021-2030, focuses on the development and implementation of health-preserving technologies. To address the tasks of preserving, maintaining, and strengthening the health of modern schoolchildren, as well as improving the scientific basis for the regulatory legal framework for the sanitary and epidemiological well-being of children and youth in educational organizations, it is essential to establish the patterns of the structure of morbidity among students depending on natural-climatic and socio-economic living conditions and the organization of the learning process [7-9].

Literature indicates that in recent years, negative trends in the health status of children have persisted as they grow older [8, 9]. Several researchers have noted an increase in school-related pathologies during the dynamics of acquiring basic general education [9]. According to the Federal State Statistics Service of Russia, the primary incidence of diseases among children per 100,000 population in 2019 was as follows: endocrine system diseases among 0-14 years old - 1600.9, 15-17 years old - 3011.2; nervous system diseases among 0-14 years old - 3421.6, 15-17 years old - 3807.5; eye diseases among 0-14 years old - 5302.8, 15-17 years old - 6155.2; digestive system diseases among 0-14 years old - 5967.4, 15-17 years old - 6235.9; musculoskeletal system diseases among 0-14 years old - 3107.1, 15-17 years old - 5603.0 [12, 13].

Several authors emphasize that the combined, particularly the combined influence of factors from the educational process and the living environment exacerbates negative trends in the health status of modern schoolchildren [12, 16, 18].

Changes arising from the inconsistency of middle school students' daily schedules and educational processes with hygienic requirements, indicated by the results of in-depth medical examinations, demonstrate the existence of several changes in students' health. The non-compliance of schoolchildren with daily schedule requirements, lack of sufficient nighttime sleep, limited outdoor activities, the predominance of passive rest types, excessive use of mobile communication devices, irregular eating habits, and high academic loads, along with additional lessons, are factors that are mandated. As a result of shortcomings in the daily lifestyle and educational processes of schoolchildren, several changes in their health status have been identified [16].

Considering the above, conducting a hygienic analysis of the organization of the educational process among

middle school students living in rural conditions and improving students' daily routines, along with preventing fatigue throughout the day, is one of the urgent problems fronted by public health committee staff in the field of preventive medicine and environmental sanitation [14].

The aim of the research is to conduct a hygienic analysis of the organization of the educational process in middle school students studying in rural conditions.

MATERIALS AND METHODS

The research was conducted at School No. 51 in the Toshloq District of Fergana Region. A hygienic analysis of the educational process organized in the middle school classes at the school was performed. The total number of students in grades 1 to 11 amounted to 594, with 282 (47.48%) being boys and 312 (52.52%) girls. The school has a total of 24 classes, of which 8 are middle school classes. The average number of students per class ranges from 25 to 32 (the norm is 25); however, in 5th grade, class A has 34 students and class B has 30 students, which exceeds the norm by 9 and 5 students, respectively. In 6th grade, class A has 31 and class B has 28 students, exceeding the norm by 6 and 3 students, respectively. In 7th grade, class A has 22 students and class B has 23 students, which is below the norm by 3 and 2 students, respectively. In 8th grade, class A has 24 students and class B has 23 students, which is below the norm by 1 and 2 students, respectively. It is noteworthy that there is a trend of increasing student numbers, particularly in grades 1-6, which forms the basis for finding solutions to school issues and reducing risk factors.

The design and construction of schools have been carried out based on existing regulatory documents (SNKH 2.07.01-03 "Urban Planning. Planning for the Development and Construction of Urban and Rural Areas," SNKH 2.08.02-09 "Public Buildings and Structures") [17] and SanPiN 0341-2016 "Sanitary and Epidemiological Requirements for Conditions and Organization of Education in Public Schools" [14].

The activity of students during lessons was analyzed based on chronometry [15].

Effective lesson organization depends on the main rooms in the school, such as classrooms, laboratories for chemistry, biology, physics, astronomy, technology workshops, music rooms, and sports halls, and their equipment.

Statistical processing of the research results was conducted using the "Statistika for Windows 7.0" software package.

RESULTS

The educational process at the school forms the basis of students' daily schedules. The educational process organized based on hygienic requirements primarily depends on classrooms that meet hygienic criteria, microclimate parameters, school facilities, and the number of students in classes. In this research, we deemed it appropriate to focus on the hygienic analysis of the educational process for middle and high school students, including the school day, class schedule, and the complexity of lessons and their placement in daily and weekly class schedules.

The monitored School No. 51 in Toshloq District has 8 middle and high school classes, with grades 5-6-7-8 consisting of two classes each (A and B). The average number of students in classes ranges from 19 to 34 (the norm is 25). Significant differences in student numbers compared to several schools in our country were identified; however, excess numbers were also found in grades 1-6 at this school.

Recent studies have shown that in schools, class sizes can reach up to 30-40 students, and in primary classes, there can be 45 or more students. Compared to our situation, it indicates a better outcome.

In the monitored 5th grades, Class A had 34 students (9 over the norm), and Class B had 30 students (5 over the norm). In the 6th grades, Class A had 31 students (6 over the norm) and Class B had 28 students (3 over the norm). In the 7th grades, Class A had 22 students (3 below the norm) and Class B had 23 students (2 below the norm). In the 8th grades, Class A had 24 students and Class B had 23 students (1 below the norm for A and 2 below the norm for B).

It should be emphasized in the discussion about the number of students that an excess of 2-9 students was identified in grades 5-6. Class 5-B had an excess of 9 students, and Class 6-A had an excess of 6 students. The sharp increase in birth rates over the years in primary and middle classes leads to an annual rise in student numbers, negatively affecting the organization of the educational process in schools.

This, in turn, is considered the primary factor disrupting the organization of daily schedules and the educational process, contributing to fatigue, exhaustion, psychological stress, and deteriorating health conditions, as well as an increase in somatic diseases.

The placement of equipment in the classroom, along with the distance between them, ventilation, microclimate indicators, lighting, and the organization of the educational process, negatively impacts lesson absorption and overall student performance.

An unordered lesson schedule that does not meet hygienic requirements lowers the effectiveness of students' lesson absorption, leading to statistical fatigue and reduced working capacity, as noted in various studies [15].

The educational process in the school is carried out for all students during the first shift in the first half of the day, which meets hygiene requirements. Additionally, some subjects have extra classes arranged into groups that last for at least 2 hours in the second half of the day.

The educational process in the school is organized on a 6-day weekly schedule, with an average of 4.8 hours for grade 5, 5 hours for grade 6, 5.8 hours for grade 7, and 5.6 hours for grade 8-A, depending on the teachers' workload in quarters, while grade 8-B has 5.5 hours. This indicates that the daily chronometry of students is fully disrupted. This situation, in turn, leads to various forms of psychological stress among students, as well as several conflicts.

Most of the time for school students in grades 5-11 is spent on the main educational process, which is 5-6 hours. Additionally, the time for transportation, breaks, and extracurricular activities accounts for 4.0 hours. In total, students aged 11-15 spend about 8.4 to 9.0 hours at school. This represents 73.3-81.6% of their time during the day in middle grades and 77.5-81.6% in high grades.

The time allocated for other activities during the school day does not meet hygienic requirements. The daily routine and distribution of lessons for the first shift of students in the school are presented in Table 1.

Table1. Distribution of the Daily Schedule for Students During the First Shift at School

№	Duration of Lessons	Lesson Start	Lesson End	Duration of Breaks
1	45 minutes	8:00	8:45	5 minutes
2	45 minutes	8:50	9:35	5 minutes
3	45 minutes	9:40	10:25	10 minutes
4	45 minutes	10:35	11:20	5 minutes
5	45 minutes	11:25	12:10	5 minutes
6	45 minutes	12:15	13:00	-

From the analysis of the data presented in Table 1, it is evident that the duration of the lessons is set at 45 minutes for one academic hour, while the duration of breaks is 5 minutes, with a larger break of 10 minutes allocated, which does not comply with established hygienic requirements.

Considering that the peak working hours for students during the day are from 8:00 to 12:00 and from 16:00 to 18:00, the organization of the educational process for school students during the first shift is positive. However, additional lessons take place during periods of lower working capacity

According to hygienic requirements, the optimal arrangement for breaks in middle classes is to be 10-20-20-10 minutes, and for high school classes, it is indicated as 10-30-10-10 minutes. However, in the school designated for our scientific research, these requirements have not been adhered to, and during the winter season, lessons were shortened by 5 minutes.

The daily and weekly workload of the monitored 5th-grade students and the data on the class schedule are presented in Table 2.

Table 2. Distribution of the Weekly Lesson Schedule for 5th Grades at School No. 51 in Toshloq District, Fergana Region

№	5-A	5-B
Monday		
1	Physical Education	Visual Arts
2	Mathematics	Physical Education
3	Native Language	Mathematics
4	Visual Arts	Native Language
5		Literature
Tuesday		
1	Mathematics	Native Language
2	Computer Science	Mathematics
3	Music	History
4	History	Foreign Language
5	Citizenship Education	
Wednesday		
1	Physical Education	Native Language
2	Mathematics	Mathematics
3	Physical Education	Russian Language
4	Native Language	Computer Science
5	Russian Language	Foreign Language
Thursday		
1	Technology	Geography
2	Technology	Mathematics
3	Foreign Language	Music
4	Russian Language	Technology
5	Literature	Technology
Friday		
1	Class Hour	Class Hour
2	Native Language	Citizenship Education
3	Mathematics	Mathematics
4	Foreign Language	Russian Language
5	History	Physical Education
Saturday		
1	Mathematics	Native Language
2	Literature	Literature
3	Foreign Language	Biology
4	Native Language	Foreign Language
5	Geography	History
	Total: 29 hours	**Total: 29 hours**

The hygienic analysis of the data provided in Table 2 indicates that, based on the structure of the lesson schedule for middle school students in the school, the weekly workload for grades 5-A and 5-B amounts to 29 hours, which does not comply with the established hygienic requirements (the norm is 32 hours, reflecting a shortfall

of 3 hours). However, the distribution of lessons during the week does not meet hygienic standards.

We believe that this should be explained based on hygienic analyses. For example, having physical education as the first lesson in 5-A on Monday and consecutively placing mathematics, native language, and literature lessons in 3rd, 4th, and 5th periods in 5-B indicates a disregard for hygienic requirements, leading to students experiencing physiological fatigue during lessons and a decline in their ability to absorb the subjects. On the sixth day of the week, Saturday, the placement of mathematics and native language lessons as the first period, and literature as the second period, in both classes is observed.

In 5-A, foreign language is scheduled as the third period and native language as the fourth period, while in 5-B, foreign language is scheduled as the fourth period.

This arrangement is likely to lead to a decline in students' working capacity from a physiological point of view, making Saturday a particularly demanding day of the week.

The results of the daily and weekly distribution of the complexity levels of the 5th-grade lessons throughout the week are illustrated in Figure 1.

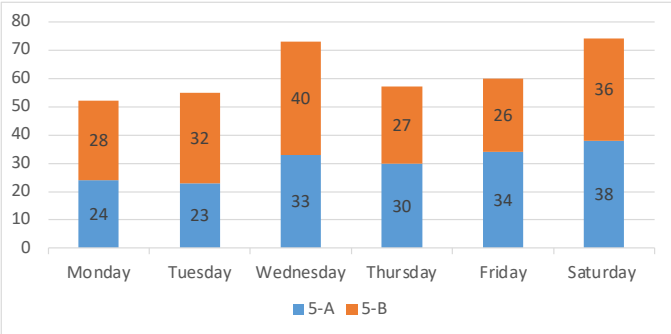

Figure 1. Results of the Complexity Levels of Weekly Workloads for 5th-Grade Students

It is evident from the results that the heaviest day of the week is Monday, with a complexity level of 24 points in 5-A and 28 points in 5-B. On Saturday, both classes A and B reached 38 and 36 points respectively, indicating that complex lessons were scheduled. Although the complexity levels of the lessons were not evenly distributed on the remaining days of the week, 5-A recorded scores of 34 and 38 points on Friday and Saturday. Based on the incorrectly structured lesson schedule, the working capacity of students is highly affected. For example, on Thursday, in the mathematics lesson, the students' working efficiency was assessed using time measurements, revealing that their engagement was at 46.4%, while their restlessness was at 53.4%. The decline in student engagement indicates a decrease in their ability to absorb the lessons. The disorganized lesson schedule has resulted in low student engagement in the lessons.

Our next task in this research is to analyze the daily and weekly distribution of workloads for 6th-grade students, with the lesson schedule data presented in Table 3.

Table 3. Structural Composition of the Weekly Lesson Schedule for 6th-Grade Students

№	6-A	6-B
Monday		
1	Mathematics	Education
2	History	Mathematics
3	Native Language	Science
4	Literature	Russian Language
5	Visual Arts	
Tuesday		
1	Literature	History
2	Native Language	Mathematics
3	Mathematics	Literature
4	Science	Science
5	History	Computer Science
Wednesday		
1	Technology	Native Language
2	Technology	History
3	Mathematics	Physical Education
4	Music	Literature
5	Native Language	Technology
6		Technology
Thursday		
1	Education	Music
2	Native Language	Foreign Language
3	Mathematics	Visual Arts
4	Russian Language	Native Language
5	Science	Mathematics
Friday		
1	Class Hour	Class Hour
2	Foreign Language	Russian Language
3	Russian Language	Foreign Language
4	Computer Science	Mathematics
5	Mathematics	Native Language
Saturday		
1	Foreign Language	Science
2	Physical Education	Foreign Language
3	Science	Physical Education
4	Physical Education	Mathematics
5	Foreign Language	Native Language
	Total: 30 hours	**Total: 30 hours**

The weekly workload for classes 6-A and 6-B is recorded as 30 and 31 hours, while the regulatory document stipulates a 33-hour workload for a six-day study period. The weekly workload for this class includes a class hour, a motivational hour, and an extra hour for a foreign language, which leads to an excess of 3 hours, not complying with the established hygienic requirements.

Analysis of the daily and weekly distribution of lessons indicates that on Monday, class 6-A has mathematics as the first period and native language and literature as the 3rd and 4th periods, with a total of five sub-

jects, which reflects a disorganized distribution of complex subjects. In 6-B, four subjects are scheduled with mathematics in the 2nd period, leading to disruption in the daily routine for students.

On Saturday, class 6-A has physical education in the 2nd to 4th periods and foreign subjects in the 1st to 5th periods, while class 6-B has foreign language in the 2nd period, mathematics in the 4th period, and native language in the 5th period—this scheduling is also disorganized. The distribution of the complexity levels of daily and weekly workloads in 6th grades is illustrated in Figure 2.

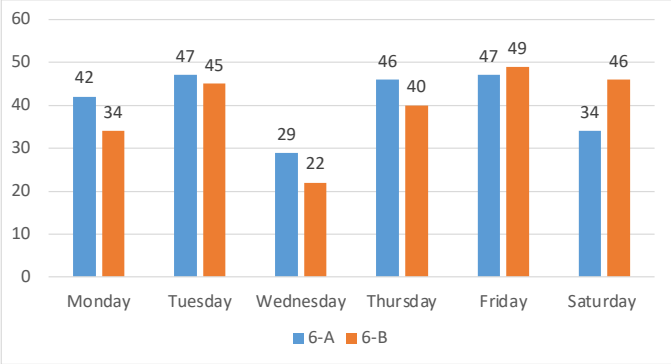

Figure 2. Complexity Levels of Weekly Workloads for 6th Grade Students

The data shown in Figure 2 indicates that the heaviest day of the week is Monday, where the daily workload complexity for 6-A is 42 points. On the highest productivity day (Wednesday), classes A and B recorded 29 and 22 points, while Friday scores were 47 and 49 points, and Saturday scores were 34 and 46 points.

The discrepancies in the disorganized lesson schedule can lead to significant differences in the physiological changes experienced by middle school students.

Consequently, unique changes in their daily routines might occur, resulting in a decrease in their ability to absorb subjects over the years, as noted in several studies.

In the current academic year, the lowest entry score for students in entrance exams was 49.4%, which is below the passing threshold of 56.7. Additionally, 70.5% of those students had attended school in previous years, while 29.5% enrolled in schools this year.

The next objective of our research will be to analyze the weekly workload distribution for 7th grade students, as presented in Table 4.

The data in Table 4 shows that the weekly workload for 7th-grade students amounts to 35 hours, which meets the established standards. However, the day with the lowest productivity is Monday, where physical education classes are scheduled in the 1st to 4th periods, along with algebra class in the 5th period. On Saturday, native language and literature classes are scheduled in the 1st and 2nd periods, along with algebra in the 3rd period. Additionally, on Thursday and Wednesday, algebra and native language classes are scheduled as the first period.

Table 4. Daily and Weekly Lesson Schedule for 7th-Grade Students

№	7-A	7-B
Monday		
1	Physical Education	Native Language
2	Geography	Chemistry
3	Foreign Language	Geography
4	Physical Education	Physics
5	Algebra	Foreign Language
6	Visual Arts	Biology
Tuesday		
1	Foreign Language	Citizenship Education
2	Physics	Native Language
3	Computer Science	Foreign Language
4	Geometry	Computer Science
5	Biology	Chemistry
6	Citizenship Education	
Wednesday		
1	Algebra	Music
2	Russian Language	Literature
3	Technology	Technology
4	Technology	Technology
5	Foreign Language	World History
6	Music	Geometry
Thursday		
1	Native Language	Russian Language
2	Russian Language	Literature
3	Physics	Physical Education
4	Chemistry	Algebra
5	Physical Education	Biology
6	Literature	Visual Arts
Friday		
1	Class Hour	Class Hour
2	Geometry	History of Uzbekistan
3	Native Language	Physical Education
4	History of Uzbekistan	Russian Language
5	Geography	Physics
6	Chemistry	Algebra
Saturday		
1	Native Language	History of Uzbekistan
2	Literature	Native Language
3	Algebra	Algebra
4	History of Uzbekistan	Foreign Language
5	Biology	Geometry
6		Geography
	Total: 35 hours	**Total: 35 hours**

In 7-B, the situation is even more concerning, with native language and chemistry scheduled in the 1st and 2nd periods on Monday, and physics and foreign language in the 4th and 5th periods. On Saturday, native language, algebra, foreign language, and geometry

lessons are scheduled from the 2nd to the 5th academic periods, which also does not comply with hygienic requirements, leading to a decrease in the effectiveness of lesson absorption.

On Friday, the consecutive scheduling of Russian language, physics, and algebra classes in the 4th, 5th, and 6th periods also does not comply with hygienic requirements.

The daily and weekly distribution of the complexity levels of the lessons for 7th-grade classes throughout the week is illustrated in Figure 3.

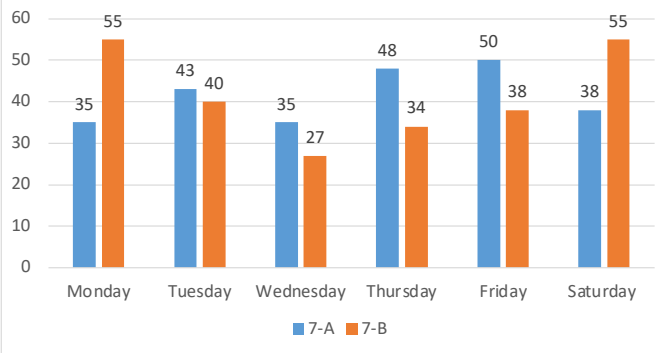

Figure 3. Complexity Levels of Weekly Workloads for 7th-Grade Students

The data presented in Figure 3 indicate that on Monday, 7-B class had a complexity score of 55 points, while on Friday, 7-A class scored 50 points, and on Saturday, 7-A recorded 38 points, with 7-B also at 55 points. On Thursday, the scores were 35 and 27 points, respectively. The data regarding the lesson schedule for 8th-grade students is presented in Table 5.

From the provided data and their analysis, it is evident that the weekly workload for 8th-grade students amounts to 34-33 hours, which does not meet the established standards (SanPiN requires 36 hours). Despite being 2-3 hours below the norm, on Monday, which shows a low productivity level, classes A and B have foreign language classes (English and Russian) scheduled in the 1st and 2nd periods, along with physics and chemistry classes in the 5th period.

On Saturday, the scheduling of algebra, computer science, biology, and foreign language classes in the 2nd, 3rd, 4th, and 5th periods for class A, and computer science, foreign language, computer science, and biology in the 6th period for class B, along with the scheduling of geography, chemistry, physics, and algebra classes in the 5th and 6th periods on Friday, does not comply with hygienic requirements. Additionally, the weekly workload for 8th-grade students is 34-33 hours, which does not meet the established standards (SanPiN requires 36 hours), being 2-3 hours below the norm.

Table 5. Weekly Lesson Schedule for 8th Grade Students at School No. 51, Toshloq District, Fergana Region

№	8-A	8-B
	Monday	
1	Foreign Language	Russian Language
2	Russian Language	Foreign Language
3	Citizenship Education	Literature
4	History of Uzbekistan	Law
5	Physics	Chemistry
	Tuesday	
1	Computer Science	Literature
2	Law	Physical Education
3	Physics	Chemistry
4	Literature	Citizenship Education
5	Geography	Algebra
	Wednesday	
1	Physical Education	Native Language
2	Algebra	Russian Language
3	Geometry	Physics
4		World History
5		History of Uzbekistan
	Thursday	
1	Algebra	Foreign Language
2	Chemistry	Algebra
3	Economics/Geography	Geometry
4	Geometry	Physical Education
5	Foreign Language	Native Language
6		Economics/Geography
	Friday	
1	Class Hour	Class Hour
2	Physical Education	Physics
3	World History	Geometry
4	Drawing/Technology	Geography
5	Russian Language	Computer Science
6	Literature	Drawing/Technology
	Saturday	
1	History of Uzbekistan	Algebra
2	Algebra	Computer Science
3	Computer Science	Foreign Language
4	Biology	Native Language
5	Foreign Language	History of Uzbekistan
6		Biology
	Total: 34 hours	**Total: 33 hours**

Despite this, on Monday, which has shown low productivity, classes A and B have foreign language classes (English and Russian) scheduled in the 1st and 2nd periods, and physics and chemistry classes in the 5th period. Furthermore, on Saturday, class A has algebra, computer science, biology, and foreign language classes in the 2nd, 3rd, 4th, and 5th periods, and class B has computer science, foreign language, computer science, and biology in the 6th period. The scheduling of geography, chemistry, and physics, as well as algebra classes in the 5th and 6th periods on Friday, also does not comply with hygienic requirements. The weekly complexity levels of the lessons are presented in Figure 4.

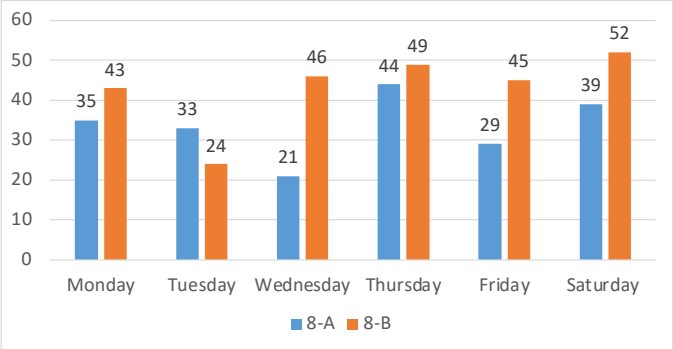

Figure 4. Complexity Levels of Weekly Workloads for 8th-Grade Students

The data presented in Figure 4 indicates that on Monday, the complexity levels of the workloads for classes 8-A and 8-B ranged from 35 to 43 points, with class B having classes that were 8 points higher in difficulty. On Tuesday, the scores were between 33 and 24 points.

On Thursday, when productivity was higher, the scores ranged from 21 to 46 points, with class A having lighter lessons. In the final days of the week, Friday recorded scores from 29 to 45 points, while Saturday had scores between 39 and 52 points, with serious discrepancies observed in class B.

The results show that the middle school classes under consideration (grades 5-8) comply with hygienic requirements for the educational process.

In conclusion, it should be emphasized that the disorganization of middle school students' daily schedules, the non-compliance of the lesson timetable with hygienic standards, shifts from the established weekly workloads, a decline in the quality of subject absorption, deterioration of health status, and a conducive environment for the development of somatic diseases are significant issues.

CONCLUSIONS

1.In the middle school, the number of students is as follows: 5-A class has 34 students (exceeding by 9), class B has 30 students (exceeding by 5), 6-A has 31 students (exceeding by 6), class B has 28 students (exceeding by 3), 7-A has 22 students (less by 3), class B has 23 students (less by 2), 8-A has 24 students, and class B has 23 students (1 student less for A and 2 for B). The excess number of students has contributed to the disorganization of the educational process throughout the school day and has led to specific changes in the ability to perform other activities.

2.The lesson hours for middle school students in grades 5-8 are scheduled for 5-6 hours, with transportation time set at 30 minutes, and breaks lasting 5 minutes, while a longer break is allocated for 10 minutes. For additional classes outside school, 4.0 hours are dedicated. Middle school students spend an average of 8.4 to 9.0 hours in school, constituting 73.3% to 81.6% of their daily time in middle school and 77.5% to 81.6% in higher grades, with additional classes occurring in the second half of the day during periods of low productivity, which have not been taken into account.

3.The weekly workloads for middle school students are as follows: in grade 5, it is 29 hours (which does not comply with hygienic requirements, as the norm is 32 hours, resulting in a shortfall of 3 hours); in grade 6, it is 30 and 31 hours (the norm is 33 hours); in grade 7, it is 35 hours (the norm is 35 hours); and for grade 8, it is 34 and 33 hours (the norm is 36 hours), which is 2-3 hours below the standard.

4.The lesson timetable for middle school students does not comply with hygienic requirements. Classes scheduled on all days of the week have not been arranged according to hygienic standards, as seen with the scheduling of native language and chemistry classes in the 1st and 2nd periods on Monday for 7-B class, and physics and foreign language classes in the 4th and 5th periods. On Saturday, the scheduling of native language, algebra, foreign language, and geometry classes in the 2nd, 3rd, 4th, and 5th periods, as well as the consecutive arrangement of algebra, physical education, and foreign language classes, shows a deviation from the prescribed requirements of regulatory documents.

5.On Monday (heavy workload), class 5-A scored 24 points in lesson complexity, and class 5-B scored 28 points. On Saturday, classes A and B scored 38 and 36 points, respectively. For 6-A class, the score on Monday was 42 points, and on Thursday (higher productivity), classes A and B scored 29 and 22 points, while Friday scores ranged from 47 to 49 points, and Saturday from 34 to 46 points. In class 7-B, the score was 55 points, while class 7-A scored 50 points, and on Saturday, class 7-A scored 38 points, and class 7-B also scored 55 points. In classes 8-A and B, scores ranged from 35 to 43

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