

## COMPARATIVE ANALYSIS OF 6TH GRADE NATURAL SCIENCE TEXTBOOKS OF UZBEKISTAN AND TURKEY

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**Abstract.** The article presents a comparative analysis of the 6th grade natural science textbooks held in the Republic of Uzbekistan and Turkey in terms of subjects and chapters, exercises and questions, paragraphs, test tasks, practical training and a number of parameters.

**Keywords:** *natural science, physics, chemistry, biology, geography, assignments, practical training, laboratory work, project work.*

As in all times and places, natural sciences always require development and improvement. This, in turn, depends on school education. In order to teach these subjects in school, it depends primarily on textbooks, which are considered an important factor in the study of the subject. What kind of textbooks students learn at school, how they solve problems in the future, and in some sense the fate of the country depends on it. For this purpose, a number of requirements are imposed on school textbooks. In accordance with the Decree of the Republic of Uzbekistan No. 637 of September 23, 2020 "On Education", ensuring the continuity and consistency of the teaching of general education subjects, the general secondary education system in the country In order to organize based on the ongoing social and economic reforms and science and modern information and communication technologies, in order to educate a spiritually mature and intellectually developed person, specific qualification requirements are set for each subject of general education.

Qualification requirements for general education subjects of general secondary education (hereinafter referred to as Qualification Requirements) are the basis of the state educational standard of general secondary education and standardization of general education subjects. determines the stages, the content of education and the structure of qualification requirements for academic subjects.

Qualification requirements must be applied by competent state bodies for education management and legal entities engaged in general secondary education activities.

On the basis of qualification requirements, educational programs are developed, taking into account the type and characteristics of the educational institution, and are approved by the competent ministries in accordance with the established procedure

In the general secondary education system of the Republic of Uzbekistan, the study of general education subjects based on the state education standard is carried out in the following stages: Standard levels

**Table 1**

| <b>Standard Levels</b> | <b>Names of the Levels</b>                                |
|------------------------|-----------------------------------------------------------|
| A1                     | Elementary level of general education subjects            |
| A1+                    | Reinforced entry level of general education subjects      |
| A2                     | Foundation level of general education subjects            |
| A2+                    | Reinforced foundation level of general education subjects |
| B1                     | Common level of general education subjects                |
| B1+                    | Enhanced level of general education subjects              |

Qualification requirements for general education subjects of general secondary education: stages of learning a subject; basic and subject-related general competencies; goals and tasks of academic subject; the content of studying general education subjects; determines the mandatory training levels of graduates of general secondary educational institutions in general education subjects and the requirements for graduates of educational institutions.

In the Republic of Uzbekistan, based on the continuity and integrity of education, the priority of the student's personality and interests, the following basic competencies are formed in accordance with their age characteristics.

Communicative competence means the ability to communicate in the native language and any foreign language in social situations, to follow the culture of communication, social flexibility, to work effectively in a team in cooperation.

Competency in working with information means the ability to find, sort, process, store, and use information effectively from media sources, to ensure their security, and to acquire media culture.

Self-development competence - continuous physical, spiritual, mental, intellectual and creative development of oneself, striving for perfection, independent study throughout life, independent acquisition of cognitive skills and life experience. implies the acquisition of the skills of being able to make independent decisions and to improve regularly.

Socially active civic competence - to feel involvement in events, events and processes taking place in society and to actively participate in them, to know one's civic duties and rights, to comply with them, to have the ability to deal with labor and civil relations and acquire legal culture implies.

National and universal cultural competence means the formation of the ability to be loyal to the motherland, be kind to people and believe in universal and national values, to understand works of art and works of art, to dress appropriately, to follow cultural rules and a healthy lifestyle.

Mathematical literacy, awareness of scientific and technical innovations and the competence to use them - to be able to make personal, family, professional and economic plans based on accurate calculations, to be able to read various diagrams, drawings and models in daily activities, to ease human labor, It implies the formation of abilities to use scientific and technical innovations that increase productivity and lead to favorable conditions. These competencies are formed in students through general education subjects. For this purpose, these competencies generalize and help the student to form interrelationship between subjects and to apply what they have learned in their independent life.

In a number of developed countries of the world, the main concepts of such sciences as physics, chemistry, biology, geography (science), which are considered the basis for world development, are united under the name of natural science. In our country, starting from 2021-2022, elementary information about physics, chemistry, biology, and geography is being gradually introduced in the lower grades of school, i.e., in grades 1-6, as the only subject named "natural science" is intended. The main goal is to teach students to think independently from school age and to apply the knowledge and skills learned at school to life. Starting from the next 2022-2023 academic year, students of the 6th grade will begin studying the above-mentioned subjects in the form of natural science. In the article Sangirova and others the textbook produced under the authorship of Dr. Semra DEMİRÇALI

We will analyze the difference between the 6th grade "Science" textbook authored by Birsen ALKAN in terms of chapters and subjects.

If we pay attention to the 6th grade natural science textbook (Sangirova and others), which is planned to be held in our country starting from the 2022-2023 academic year, its full volume consists of 192 pages. 6th grade "Science" book published in 2018 for kindergarten in Turkey (Dr. Semra DEMİRÇALI Birsen ALKAN) consists of 240 pages.

The 6th grade of natural science textbook held in the Republic of Uzbekistan consists of 12 chapters in the following sequence: study of nature, matter and its properties, diversity of living organisms, structure of living organisms, ecological and sustainable development, composed of chapters such as the solar system and the universe, geographical maps, the earth's crust, my country, motion and force, energy, and electrical and magnetic phenomena.

The book of science taught in the state of Turkey consists of 7 chapters. These chapters consist of the following sequences: structure of the sun and eclipses, systems in our body, force and motion, matter and heat, sound and its properties, systems in our body, generation of electricity.

The structure of the 6th grade natural science textbook (authors Sangirova and others) for the 2022-2023 academic year in the public education system of the Republic of Uzbekistan is given in Table 2 below.

**Table 2**

| <b>№</b> | <b>Chapters</b>                     | <b>Passages</b> | <b>Assignments</b> | <b>Practical tasks</b> | <b>Laboratory works</b> | <b>Question and exercises</b> | <b>Project work</b> |
|----------|-------------------------------------|-----------------|--------------------|------------------------|-------------------------|-------------------------------|---------------------|
| 1        | Investigating nature                | 4               | 4                  |                        | 1                       | 15                            | 1                   |
| 2        | Matter and its properties           | 11              | 10                 | 4                      |                         | 29                            | 1                   |
| 3        | Diversity of living organisms       | 5               | 5                  | 2                      | 0                       | 9                             |                     |
| 4        | Structure of living organisms       | 9               | 8                  | 2                      |                         | 18                            |                     |
| 5        | Ecology and sustainable development | 6               | 5                  |                        |                         | 14                            | 1                   |
| 6        | Solar system and the universe       | 5               | 5                  |                        |                         | 12                            | 1                   |
| 7        | Geographical maps                   | 5               | 5                  | 2                      |                         | 15                            |                     |
| 8        | Earth crusts                        | 8               | 8                  | 2                      |                         | 19                            |                     |
| 9        | My country                          | 5               | 5                  | 1                      |                         | 12                            |                     |
| 10       | Movement and power                  | 12              | 12                 | 4                      |                         | 30                            |                     |
| 11       | Energy                              | 9               | 9                  | 2                      |                         | 30                            | 1                   |
| 12       | Electric and magnetic phenomena     | 7               | 7                  | 4                      |                         | 18                            |                     |
|          | <b>Total</b>                        | <b>86</b>       | <b>83</b>          | <b>23</b>              | <b>1</b>                | <b>221</b>                    | <b>5</b>            |

The structure of the 6th grade "Science" textbook authored by Birsen ALKAN is given in table 3 below.

**Table 3**

| <b>№</b> | <b>Chapters</b>            | <b>Passages</b> | <b>Assignments</b> | <b>Practical tasks</b> | <b>Laboratory works</b> | <b>Question and exercises</b> | <b>Project work</b> |
|----------|----------------------------|-----------------|--------------------|------------------------|-------------------------|-------------------------------|---------------------|
| 1        | Solar system and structure | 2               | 2                  | 7                      | 29                      | 5                             | 1                   |
| 2        | Systems in our body        | 5               | 3                  | 10                     | 35                      | 5                             | 1                   |
| 3        | Power and movement         | 2               | 4                  | 9                      | 29                      | 6                             | 1                   |
| 4        | Matter and heat            | 4               |                    | 15                     | 42                      | 12                            | 1                   |



|   |                                     |           |           |           |            |           |          |
|---|-------------------------------------|-----------|-----------|-----------|------------|-----------|----------|
| 5 | Sound and its properties            | 4         | 1         | 7         | 23         | 8         | 1        |
| 6 | Systems in our body                 | 3         |           | 7         | 32         | 1         | 1        |
| 7 | Transportation of electrical energy | 2         | 1         | 8         | 36         | 4         | 1        |
|   | <b>Total</b>                        | <b>22</b> | <b>11</b> | <b>63</b> | <b>226</b> | <b>41</b> | <b>7</b> |

It is not possible to directly compare the 6th grade textbooks in Uzbekistan and Turkey. Because the sequence of topics in the textbooks of each country is different. For example, in the Republic of Uzbekistan, the first chapter of the 6th grade natural science textbook, which is planned to be passed in the 2022-2023 academic year, is the "Study of Nature" section, while in Turkey, since 2018, The first chapter of the textbook "Solar system and its structure" and the following chapters do not correspond to each other in the same way. Therefore, in this comparison we have tried to compare the number of paragraphs, assignments, tests, practical, project work, lab work and number of questions and exercises.

In our comparative analysis, the number of paragraphs in the textbooks of both friendly countries is 86 in the Republic of Uzbekistan, 22 in the Republic of Turkey, and it also consists of several sections, that is, small sub-topics within the topic.

The number of tasks is 83 in the Republic of Uzbekistan, and 11 in the Republic of Turkey, test tasks are not found in the textbook of the Republic of Uzbekistan, 63 in the Republic of Turkey, questions and exercises are 221 in the 6th grade natural science textbook of the Republic of Uzbekistan, held in the Republic of Turkey It is 226 in the "Science" textbook. In addition, there are 5 projects in the textbook in our country, and 7 in the Turkish textbook.

There is 1 laboratory work in the textbook of our country, but there is no laboratory work in the Turkish textbook.

The number of practical exercises in the textbook of the state of Turkey is more than in our textbook, which is expected to be held in our country.

The textbooks, curriculum and subjects of both countries are not compatible with each other. Only here we can compare within topics. For example, in the 6th grade natural science textbook in the Republic of Uzbekistan, which will be held starting from the 2022-2023 academic year, the energy chapter contains the topics "Expansion of bodies due to heat" and "Heat transfer". 11 questions, 2 experiments and 11 pictures are given in these topics. The total volume of topics consists of 4 pages. In the Republic of Turkey from the academic year 2018-2019, the subject "Diffusion of substances in bodies" is considered to be a close topic in the school textbook of Science (Dr. Semra DEMİRÇALI Birsen ALKAN) in the chapter on matter and heat. This topic includes 3 practical exercises, 4 tasks, 14 pictures, 1 table, 2 interesting information, and the volume of the topic is 10 pages.

Taking into account the above comparisons, the textbooks of both countries cannot be considered superior. According to some parameters, our textbook of the Republic of Uzbekistan is superior, while the Turkish textbook is superior according to some parameters. For example: If we pay attention to the above, the Uzbek textbook is superior in terms of the number of topics, assignments, and the Turkish textbook in the number of practical exercises and projects, while the Uzbek textbook does not have tests, and the Turkish textbook does not have laboratory work. . To conclude from this, the "Natural Science" textbook, planned to be passed in the 2022-2023 school year in the Republic of Uzbekistan, has set before our country, that is, a young generation that will mature and think critically in the future and solve problems independently. We hope that it will produce young people.

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