



## METHODOLOGY OF TEACHING PHYSICS WITH INNOVATIVE METHODS

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**Abstract:** *This article describes the advantages of teaching Physics in general secondary schools through innovative pedagogical methods – the method of “Charkhpalak”.*

**Key words:** *physics, innovation, pedagogy, methodology, Charkhpalak method, educational process, logical thinking.*

Today, the use of innovative pedagogical technologies in every area of the educational process has become a traditional method of teaching. One such method is the wheelbarrow method. This method encourages students to memorize topics, think logically, answer questions independently, and defend their ideas in a group. The technology of this method is as follows:

- at the beginning of the learning process (to determine the level of mastery of the topics covered);
- during the learning process (to better understand the new topic being discussed);
- Used at the end of the lesson (to determine the level of mastery of the knowledge given during the lesson). Basically, it works best when used after a section or chapter of a textbook has been completed.

The procedure for the wheel method is as follows:

- ✓ Students are divided into several groups;
- ✓ Wheel drawing is explained;
- ✓ The questions in the drawing, assignments are completed within the specified time;
- ✓ These questions and assignments are rotated between groups, for example, in a circle;

The process continues and the task is solved. Unanswered assignments between groups are done with the help of the teacher. We explain the scheme of the wheel method as follows:

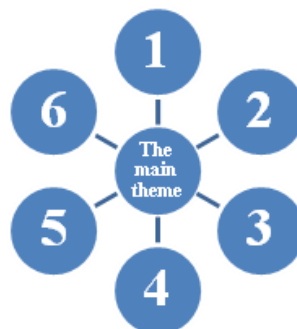


Figure 1



- This diagram above rotates constantly in the direction of the arrows.
- Numbered arrows indicate the name of each group, and on the back of it are written problematic questions on the topic.
- The circle in the middle of the drawing will have the main subject written on it.
- Each group writes the answers to the questions on the circles.

The wheel is rotated, and then each group explains its answer and defends between the groups. If there is no satisfactory answer to the question, then other groups express their opinions and the question is answered under the supervision of the teacher. So, we apply this method to each class as follows:

To reinforce the Solar System and Galaxy in the 9th grade physics textbook:

1. What is the solar system? Name the planets in this system in order?
2. State Kepler's laws and explain their significance?
3. What are asteroids? Give examples.
4. How are meteorites formed?
5. What is a galaxy and what is the name of our galaxy?
6. Tell us about the work of our scientists in the field of astronomy.
7. How many planets are there in the solar system? What are its main parameters?
8. The average distance of Mercury from the Sun is 58 million km. Calculate the period of Mercury's orbit, knowing the period of the Earth's rotation and the average distance from it to the Sun.

Advantages of Charkhpalak method - it can be used in different parts of the learning process. When lessons are organized in this way, the lesson can achieve its purpose.

#### **References**

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