

ORGANIZATION OF LESSONS IN CHEMISTRY BASED ON PROJECT TECHNOLOGY.

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Educating young people around the world, especially the exact and natural sciences Particular attention is paid to expanding the pedagogical potential of teaching, enriching the practical content of the education system, the development of professional competencies of teachers in the education of students.

Logical thinking of students in accordance with the requirements of the international system of assessment of social and student literacy in the teaching of natural sciences in educational institutions, the priority given to a creative approach in order to ensure their full development, ie the development of students' scientific thinking, logical thinking. Research is being conducted to ensure the consistency and consistency of the project work independently.

The teacher can ask students to create a window cleaner as a task to reinforce the new topic.

Project topic: Daily life and chemistry

Problem to be solved: Development of window cleaning tool production technology.

Despite the simplicity of the design of the production technology, the production of window cleaners is a difficult technological process. To acquaint students with the composition of window cleaners, to provide information about the composition, structure, properties and importance of each substance, to determine the requirements for substances in window cleaners, to acquire skills and abilities to work with different sources of information, to form a technological worldview, to work with reagents. it is necessary to get acquainted with the technical safety rules that must be followed.

Students will be given the following assignments.

1. Gather information about the composition and types of window cleaners.
2. Determining the properties of substances in window cleaners.
3. Collect additional information using literature and the Internet.

The members of the group are given the following tasks:

1. Organize the structure and properties of the constituents of window cleaners;
2. Can window cleaner also be used to clean various surfaces? 3. Prepare for the collection and research of reagents required to create the technology for the production of window cleaners.

Students conduct research and gather information. In case of complex situations, the teacher's recommendations are used to solve them.

1. Ingredients of window cleaner:

Laureth sodium sulfate- $\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2(\text{OCH}_2\text{CH}_2)_n\text{OSO}_3\text{Na}$ is an organic substance that forms a copious, yellowish paste, stored in polyethylene containers. EDTA- edilaminetetrauxusnaya acid; loses water hardness;

Citric acid- $(\text{COOH}-\text{CH}_2)-\text{C}(\text{OH})-\text{COOH}$ as a solvent;

Ammonia- novshadil alcohol NH_4OH - dissolves fat stains; makes it shiny;

Acetic acid $\text{CH}_3\text{-COOH}$ - solvent, makes it shiny;

Isopropyl spirit $\text{CH}_3\text{-CH}(\text{OH})-\text{CH}_3$ – solvent;

These substances do not have toxic or inflammatory properties, ie they are not dangerous to human life.

2. Window cleaners vary depending on the ingredients:

A) The types of acids are not used to clean metal surfaces

ok Because it causes corrosion.

B) Novshadil alcohol is used for all clear glass;

C) Many types of isopropyl alcohol are used to clean metal surfaces harmless.

Lauret sodium sulfate was a problem in students; EDTA- ethylamine-tetrauxic acid was not found in these substances. It is recommended to use ready-made liquid soap and dishwashing liquid instead of these substances on the recommendation of the teacher.

Design technology can be used effectively in teaching chemistry. The use of design technology is especially useful in teaching topics related to the production of chemicals. This includes the development of interdisciplinary links, as well as educational projects that study the basics of production technology.

References:

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