

Topic:	Science
Country:	Bulgaria
Name:	Iron - a lot of science in a small piece
Age:	14 and more
Duration:	1 hour
Objectives:	<p>To show the connection between theory and practice.</p> <ul style="list-style-type: none"> - Explain basic concepts such as: magnetic forces, physical and chemical properties, simple and complex substances, chemical bonding, decomposition and replacement, combustion, rust and rust; - To experimentally establish some of the physical and chemical properties of iron; - To determine whether the substance is pure or has impurities, calculating its density; - To construct a compass based on knowledge of the properties of iron; - To connect the areas of application of iron with its properties; - To acquire skills for conducting experiments and recording the obtained results; - Develop practical skills and abilities to construct; - To develop key skills such as creative thinking, critical analysis, teamwork, initiative, communication, mathematical literacy, collaboration, time management.
Equipment:	iron pieces, needle, styrofoam or cork, iron nails, permanent magnets, iron shavings, paper, scales, measuring cylinder, water bowl, iron wool, alcohol lamp.
Description:	<p>The students are divided into four teams. Each team performs each task.</p> <p>Task 1. List as many iron objects as possible.</p> <p>Task 2. Experimentally check that the pieces of metal are made of pure iron. Make the necessary measurements and calculations. By calculations to find out whether the metals are pure or contain impurities.</p> <p>Task 3. Investigate the magnetic properties of iron - experimentally establish the magnetic properties of iron and find their application in practice.</p> <p>Task 4. Make a compass using the magnetic properties of iron. The students themselves construct a compass with handy materials with which to orient themselves in the directions.</p> <p>Task 5. Check if the iron can burn.</p> <p>Task 6. Study of the process of rusting of iron. Expression with an appropriate chemical equation. Conclusions about iron deficiencies.</p> <p>Task 7. Explore the easiest way to clean iron rust on the Internet.</p> <p>Task 8. students draw conclusions about the importance and disadvantages of iron.</p>
Comments:	Through experience, students themselves gain knowledge not only about the properties of iron, but also learn how to perform a chemical experiment, how to apply the properties of iron in practice, construct a compass, make mathematical calculations and learn the technique of safe work in the science laboratory.