The scenario

Subject	Alkenes reactions
Length	4,02 min.
Main objectives	Learning the reactions characteristic of unsaturated organic compounds
Detailed objectives	Observation of changes occurring during the reaction. Understanding the influence of unsaturated compounds on bromine molecules and $KMnO_4$ solution. Learning the method of detecting unsaturated compounds.
Structure and description of experiments:	
Introduction	Description: Unsaturated compounds are organic compounds containing double or triple bonds between two carbon atoms in their structure. The most common in everyday life are the so-called unsaturated fats, essential in the human diet. Such substances contain long-chain fatty acids which have one or more double bonds. Unsaturated bonds are more reactive than single bonds, which is why they are easily added, e.g. with bromine, or oxidized under the influence of $KMnO_4$solution, which can be easily observed as discoloration of solutions.
Main subject	Description: Learning about the addition reaction to the double bond and the reaction characteristic of unsaturated compounds.
Experiment	**Equipment**: test tubes, Pasteur pipettes, spatula, water wash bottle. **Reagents**: sodium oleate, bromine water, aqueous solution of potassium manganate(VII). **Precautions**: work with gloves and protective glasses! **Description**: Add a pinch of sodium oleate to two test tubes and then, using a water wash bottle, a few ml of distilled water to dissolve the compound. Now add 2 ml of bromine water to the first test tube and 2 ml of potassium manganate(VII) solution to the second test tube. Gently mix the contents of each tube. After completing the experiment, pour the solutions into the containers indicated by the teacher. **Questions**: 1. Note down the changes taking place in each test tube 2. What reaction takes place in the test tube when bromine water is added? **Conclusions**: Sodium oleate is a derivative of omega-9 fatty acid, containing a double bond at the 9th carbon atom in the chain. Such bonds are unstable and easily undergo addition, for example, of bromine atoms from bromine water or oxidation by $KMnO_4$. As a result, discoloration of these substances is observed. These reactions can be used to detect unsaturated compounds. **Level:** Secondary School

Co-funded by the Erasmus+ Programme of the European Union