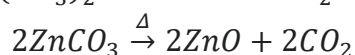
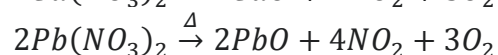
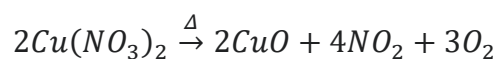


The scenario

Subject	Thermal decomposition of salt
Length	7,33 min.
Main objectives	Understanding the oxides
Detailed objectives	<p>Observation of changes occurring during the reaction</p> <p>Learning one of the methods of obtaining oxides</p> <p>Learning of the division of oxides into acidic, basic, and neutral</p> <p>Learning the equation notation of the reaction taking place</p> <p>Learning and understanding of the electron balance of oxidation-reduction reactions</p>
Structure and description of experiments:	
Introduction	<p>Oxides are inorganic chemical compounds consisting of oxygen occurring in the - II oxidation state and a chemical element. Oxides are divided into metal and non-metal oxides. Due to their chemical nature, oxides are divided into acidic, basic, neutral, and amphoteric. Oxides can be obtained by various methods. One of the methods of obtaining oxides is the thermal decomposition of salts. Other methods of obtaining oxides are decomposition of some acids and hydroxides, directly from the elements, oxidation, and reduction of oxides.</p>
Main subject	<p>Description: Learning the reaction of obtaining oxides on the example of thermal decomposition of salts.</p>
Part 1	<p>Tools: stand, test tubes, test tube holder, alcohol or gas burner, plastic spatulas, indicator paper.</p> <p>Reagents: copper(II) nitrate (V), lead(II) nitrate (V), zinc carbonate.</p> <p>Precautions soluble copper and lead salts - toxic compounds</p> <p>Description: To each of the three test tubes placed in the rack, use a spatula to pour a small amount (maximum 1 cm of the test tube height) of each salt separately. Then, sequentially, hold each of the test tubes in your test tube holder and carefully heat them in the flame of the burner, observing the changes taking place. The heating should be stopped when the salt has reacted completely. At the end of the heating, bring a water-moistened indicator paper to the upper part of the test tube.</p> <p>After completing the experiment and cooling down the test place the remains in properly marked waste containers. Do not throw the contents of the tubes down the drain.</p> <p>Questions:</p> <ol style="list-style-type: none"> 1. Write down the changes taking place in each test tube. 2. How can the changes in the color of water-wet indicator paper be explained? 3. Suggest reaction equations for the transformations taking place in individual test tubes 4. Give examples of oxides occurring in nature.

Conclusions: Oxides can be obtained as a result of the decomposition of many substances (salts, acids, hydroxides), e.g. during heating in a test tube. How the decomposition reactions to oxides proceed depends on the type of substance subjected to the reaction and factors such as, for example, temperature.

Copper (II) nitrate (V) and lead decompose under the influence of temperature to the appropriate lead and copper(II) oxides with the release of acidic nitric oxide(IV) and oxygen. The presence of oxygen can be checked by applying a glowing torch to the upper part of the test tube after each salt has been heated. Zinc carbonate decomposes to zinc oxide and carbon dioxide.



Oxides commonly found in nature are water (H_2O), silica (SiO_2), which is the main component of sand, and carbon dioxide (CO_2).

Level: Primary school