

11. Hydrogen release

Opponent:

Team Romania

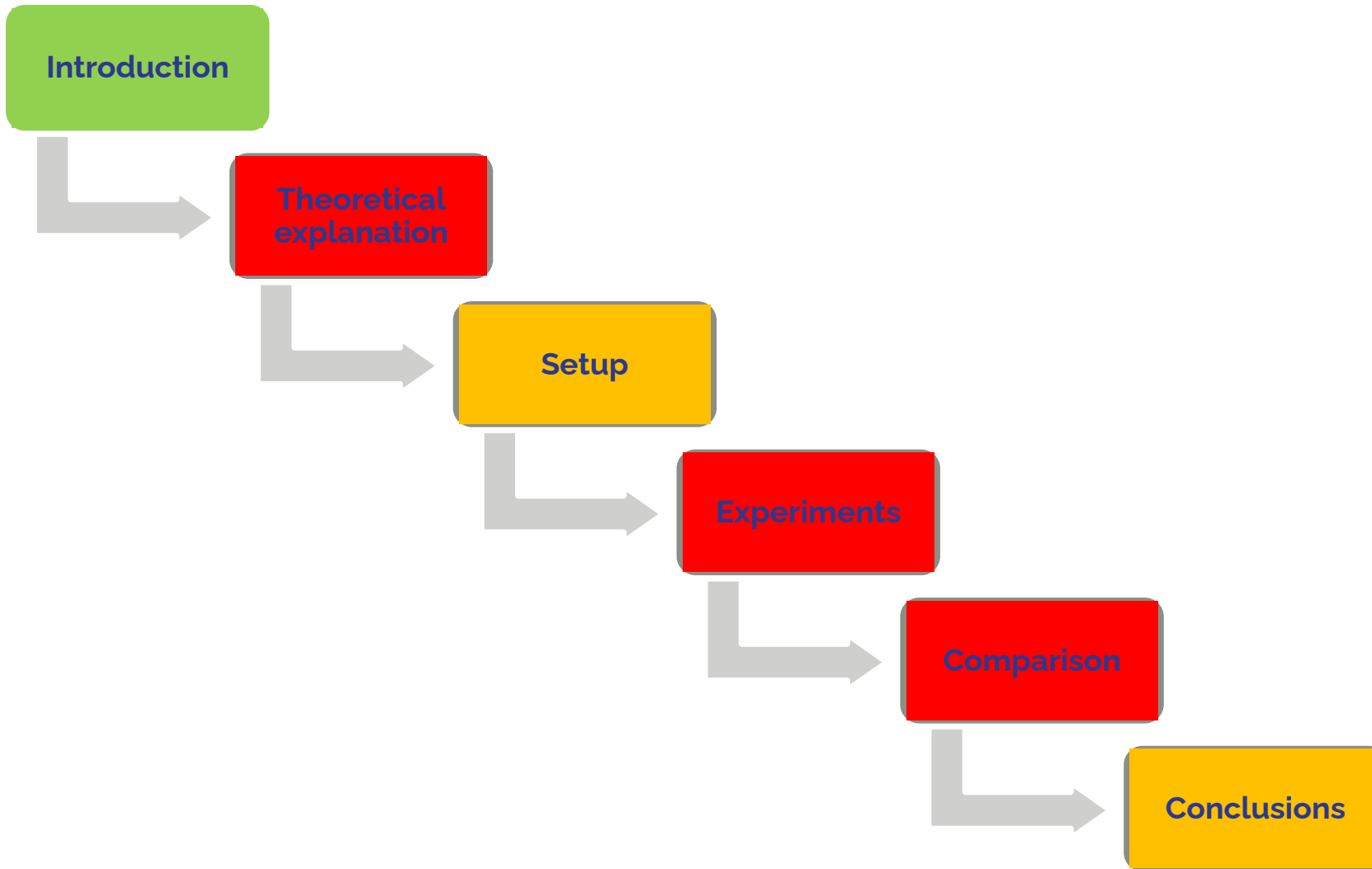
Reporter:

Team Russia Uranium 239

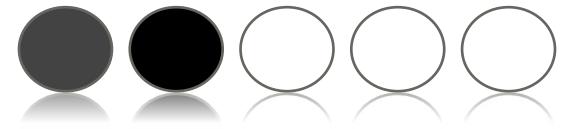
Task

A simple method to produce **gaseous hydrogen** is the reaction between metal **aluminum** and two salts in **aqueous solution** (e.g. **copper sulphate** and **sodium chloride**). Investigate how the reaction rate **depends on the concentration of each salt** and other **relevant conditions**. What **salts** react with **aluminum** to **release hydrogen**?

Outline



Theoretical part



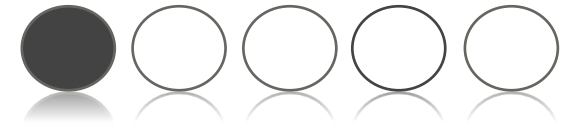
Strong points

- Presence of hypothesis and objectives
- Chemical reactions were presented

Weak points

- Didn't make any quantitative predictions
- Didn't explain her predictions
- Very poor understanding of the phenomenon
(no answer to questions)
- Hasn't defined the terms
- More visual aids could have helped
- Use of many formulas, but none were explained (slide 8,9,11)
- Didn't mention the role of compounds

Experimental part



Strong points

- Variation of concentrations
- Variation of parameters (temperature)

Weak points

- Visual aids not explained (unclear graphs)
- No clear link connection between theory and experiment
- Slide 24 (water and aluminium don't react)
- Didn't control many of the parameters .
- No quantitative data was mentioned.
- No errors mentioned.
- No clear conclusions
- Reactions not explained
- Some reactions were not correct (slide 24)
- No comparison between experiments
- Not analyzed the linear slope
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Discussion topics

- Aluminium always forms layer of oxide
- Hydrogen volume experimental measurement
- Ionization process
- Can aluminium react with water by itself?
- What is the reactivity of the substances that combined in the process you proposed?
- Copper role
- The role of each salt
- What's the name of the solid compound that formed?