

Testing the pH of Water and Aqueous Solutions

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Abstract

We meet with the term pH in everyday life. This concept appears, for example, in connection with human health or the quality of drinking water. The pH value of the water affects the life of aquatic organisms, the pH of the soil determines the species composition of plants. This technical term is also often used in advertisement. These are the reasons why pupils learn about the meaning of pH and its practical applications already in primary school. The concept of pH can be used in the teaching of science subjects already for younger pupils aged 5-10 years. It is about simple experiments in this case. Monitoring the pH of water and aqueous solutions, the technique of determining the pH value and the significance of pH for the life of humans and other organisms is a topic that can be included in teaching at various levels of schools. The range and level of knowledge and skills must always be adapted to the age of the pupils and students. The article introduces the possibilities of using the topic of water and pH at various levels of schools, from primary school to university studies. The different level of knowledge that needed to understand the meaning of pH is discussed here, with respect to age and previous experience of the pupils and students. The attention is focused on various techniques for determining the pH of water and aqueous solutions using acid-base indicators or instrumental methods. The text also includes ideas for practical tasks that are suitable for different age categories of pupils and students.

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References

Teplá., M., Distler, P., & Šmejkal, P. (2021). Přehled a využití mobilních aplikací ve výuce chemie. *Chemické listy*, 115(12), 679-684. Nuffield Foundation and the Royal Society of Chemistry. (n.d.). Testing the pH of different solutions. <https://edu.rsc.org/experiments/testing-the-ph-of-different-solutions/395.article#commentsJump>

Keywords

water, pH, practical tasks, chemistry teaching