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Erstellung von chemischen Versuchsprogrammen für Bildungsmessen und Experimentier-Veranstaltungen

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Abstract:

The aim of this work is to show impressive and visually appealing chemical reactions that represent the HTL Wels, department for chemistry, on three different fairs. The astonishing effects of the experiments should be adapted to the respective age of the visitors attracting young people to chemistry in general and to our school in particular.

Via researches in magazines, journals, booklets and the internet, many harmless and suitable experiments for children could be found.

At first the experiments were worked out theoretically, then we picked out the most practicable and appealing reactions. They were elaborated and optimized. We collected a few colourful and fascinating examples and created an experiment package for the fairs "Experimentale" and "Tec-2-Move". The target group of these fairs are children around the age of 10. Every experimental setup was provided with work sheets for the kids that could also be taken home with them. The feedback of the visitors allowed us to improve our work.

For the fair "Jugend & Beruf" with an older target group (around 14-year-olds), the experiment assembling should represent each laboratory of the HTL Wels.

The requirements for each experiment were the feasibility and the relatively short time for installing. Furthermore, the used chemicals

mustn't be toxic or harmful. Additionally, extensive heating-up should be prevented. Generally speaking the risks for the visitors are reduced to a minimum.

Together with the other departments of the HTL, a robot should demonstrate a chemical reaction. Therefore, the experiment had to be visually appealing, fast, practicable and replicable. Two experiments were practically worked out, one of them was prepared for being performed by the robot. All the valuable data of the experiment (volumes, appliances, glass tools, reaction and processing time) was given to the department in charge.

Due to the practical work and the shows at the fairs, appealing experiment compilations for children could be created. The optimised processes for the fair "Jugend & Beruf" haven't been tested so far, that means the experiment collection is theoretically completed, but hasn't been tried out. The reaction for the robot has not been tested yet, because the robot hasn't been in operation so far.

Ein Beispiel für einen ausgearbeiteten Versuch: Blaukrautsaft als Indikator

Das Anthocyan, Cyanidin besitzt 3 pKs-Werte bei denen ein reversibler Farbumschlag auftritt und im stark alkalischen Milieu eine irreversible Folgereaktion. Dadurch entstehen 5 Farbbereiche und einige Misch bzw. Übergangsfarben.

