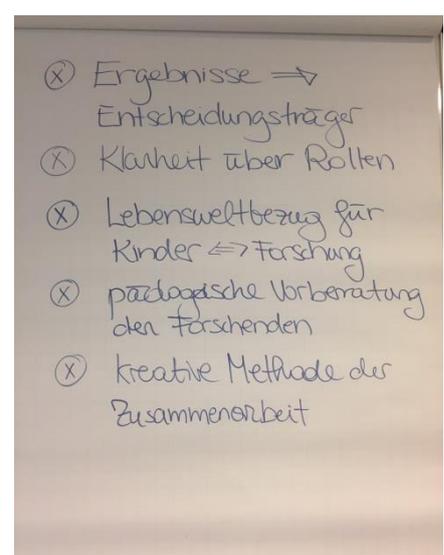
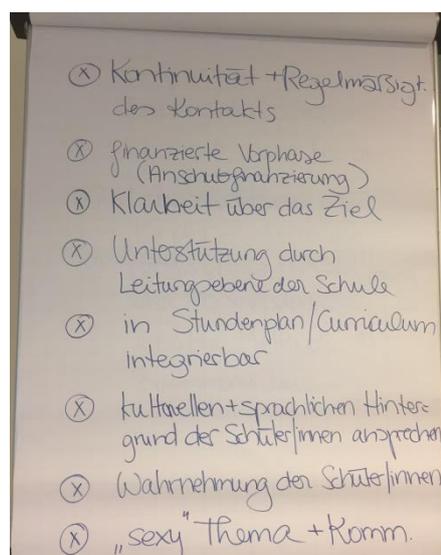
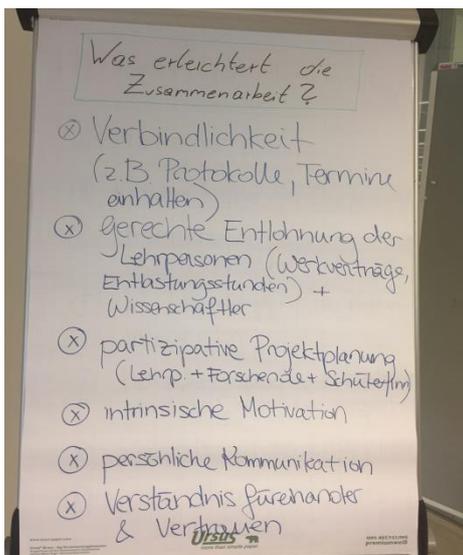
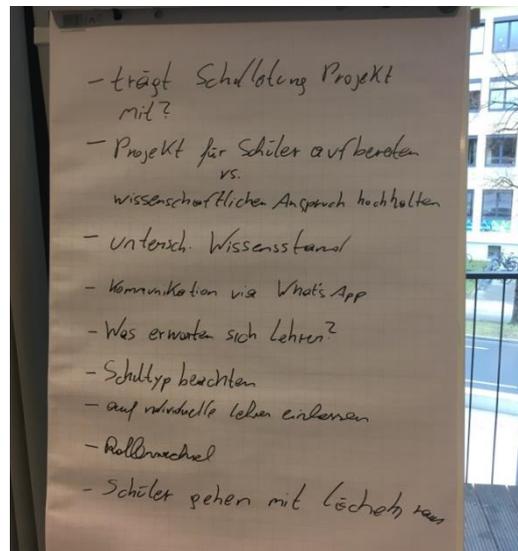
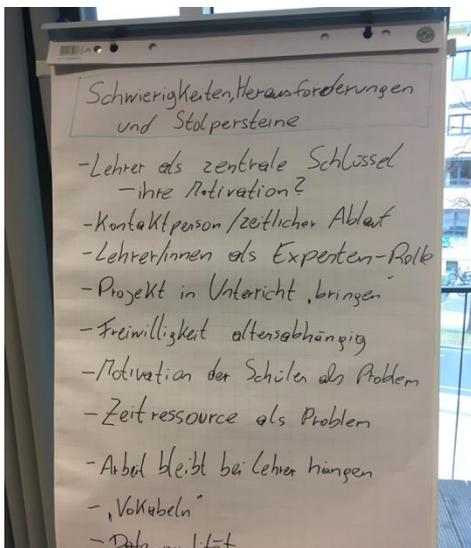


Recommendations for the cooperation between science and schools

Results of a workshop and round table at the 4th Austrian Citizen Science Conference (2 February 2018)

The second day of the conference was dedicated to the cooperation between science and schools. In the morning workshop "Cooperation between science and schools: highlight and challenges - 1 topic - 2 perspectives", teachers and researchers discussed in separate groups which factors make cooperation easier or more difficult. In the afternoon, the results were brought together in the form of a round table and discussed further by two researchers and two teachers together with a moderator.

Intermediate results of the workshop (in German)



Summary of the results at the round table

Reasons for participating in a Sparkling Science¹ project

- This type of project can promote social justice in schools. Everyone has the opportunity to gain access to science.
- Pupils can be inspired by science and prejudices - researchers as "men with white hair and coats" - can be dismantled. They can learn new things and gain experience.
- Pupils receive an idea about and suggestions for pre-scientific work (German: "Vorwissenschaftliche Arbeiten", VWA).
- The incentive for teachers to participate in such projects is the opportunity to work with science and learn new things. They can break out of their "daily routine".
- It is an advantage for teachers if they do not have to finance excursions or utensils because these are already covered by the approved project costs.
- Teachers do not receive any financial remuneration, but they do appreciate the recognition in the form of "freedom" offered to them by the school management, e.g. for starting new projects, which are granted to them more quickly.

Support

- The cooperation between science and schools requires a structural framework and support such as websites and funding, but also institutions such as the Young Science Centre or the Center for Citizen Science. These can bundle the knowledge from previous experience and promote networking and exchange through workshops and (information) events.

Planning and project application

- A full-day meeting of researchers with teachers and pupils is very helpful in the stage of project planning.
- Researchers are more project-oriented and forget that the school is on a different schedule (holidays, etc.).
- If researchers themselves have children at school, they also have a greater understanding of the "other" perspective.
- Since the introduction of the obligatory VWA it has become more difficult to win pupils for a project. They often only want to participate if it helps them with the VWA. In these cases it is easier to motivate pupils in the long term.
- Pupils can be easier motivated by integrating topics of their everyday life. If they can identify with the project, researchers and teachers will take a back seat.
- If a project is running for two to three years, some pupils cannot be reached because they have already finished school. Especially in the final year, young people are already very busy with the preparation for their final exams.

¹ Sparkling Science is a research programme of the Federal Ministry of Education, Science and Research (BMBWF) which started in 2007 and adopts an unconventional way in the promotion of young scientists that is unique in Europe. For more information visit <https://www.sparklingscience.at/en>.

- There are many stumbling blocks to such cooperations, e.g. the change of the school principal or a teacher or the sudden lack of time of one of the pupils.
- At school, networked and cross-cutting topics depend on the school and the sympathy between teachers.
- When project proposals are prepared but not approved, the disappointment and frustration is especially great on the side of the school. For this reason, the school should be made aware of the possibility of non-funding as early as the application stage. If this should occur, perhaps a minimal cooperation can be agreed on instead, e.g. in the form of a school lecture or school visit. Researchers can also try other funding options.

Project progress

- No expectations that cannot be fulfilled should be raised at the start of the project.
- For the success of a project on the part of the school it is very important to win over the colleagues and the school management. This contributes to the motivation of the teachers, which is essential for the success of the project.
- It is important to have a contact person in the school who knows about the project in detail and communicates with those involved.
- Communication with teachers via telephone is better than via e-mail and with pupils it works best via Whatsapp.
- Researchers must remain flexible. If certain things sometimes need to be adjusted, the data quality may suffer, e.g. the first data pool does not match the second.
- Every project is in dire straits at some point and pupils have the right to lose interest.
- In the course of the project highlights should be included in order to keep pupils motivated, e.g. excursions or peer-to-peer teaching. In the case of competitive elements between schools, it is important to ensure that school classes that are not at the forefront do not lose interest.
- The motivation of pupils can be increased by presenting the results together, e.g. at the Long Night of Research or congresses. In addition, young people want to experience appreciation and quickly realise whether they are being taken seriously.
- For each project it is important to have a closing, such as a brochure or a party.
- Every project leaves an impression on young people, even if it means that some realise that they do not want to go into science. This is good and relevant.