How to Create a Good Research Project

Stick to the 4 + 1 research step structure

Your project should include a clear **research question**, a testable **hypothesis** and a **procedure** for testing and **evaluating** your hypothesis. If possible, create a project, the results of which can be used **in a practical way.**

Explore what is unknown to you

Researchers guess how their research (hypothesis) will turn out, but **they don't know the real answer at the beginning.** If the outcome is clear in advance, there is no challenge. Simply confirming a preconceived hypothesis won't get you anywhere.

Formulate your hypothesis carefully

Formulating hypotheses is a bit of a science. A properly formulated hypothesis will help you at the end of your research to evaluate what you actually came up with. It should be unambiguous and you should be able to test it. **A proper hypothesis cannot be half-valid** (true in some cases but false in others).

Stick to your research plan and take notes

Was it raining or sunny when you took the samples? How many times did you repeat the experiment? Did nothing else change but the parameter you were monitoring? **What all could have affected the result?** A clear and written procedure with notes can be repeated at any time by you or your fellow students. Keep a clear record of where you got your information from and cite credible sources.

Collaborate with others

Don't keep your research to yourself. **Ongoing collaboration** with a scientist or with another research team can advance and improve your project. **Ask feedback** from experts, classmates, teachers, local residents on how to improve your project.

Was your hypothesis refuted? Keep on working with it

What if your research ends up refuting your hypothesis? Celebrate it! The goal of professional scientists is actually to disprove valid "truths" and advance our understanding of the world. A refuted hypothesis opens up a whole new exciting part of your research. **Look for causes, make connections, ask more questions.**

Go beyond data collection and evaluation

The fifth research step is just as important as the previous ones. Don't stop at evaluating the data you gathered. Think about **how you can use your research to improve something in the place where you live** – even a tiny change counts. And turn your plans into reality.