



Joining the 3 DIPhE project, I discovered that my IBL skills are poorly developed and I can not be satisfied with them. That is why I decided that I have to make a plan how to improve IBL of myself and my students. Students performed different activities regarding IBL, set the steps and criteria of IBL and were graded at the end.

Step 1: My personal interest.

- How students approach IBL?
- How to improve IBL skills?
- Would improving IBL skills improve the understanding of the learning material?

Step 3: Analysis

- While learning light and optics students performed 5 different activities regarding IBL.
- Scan of the current situation – different levels of guided IBLs.
- At the end, their suggestion for the inquiry related to the variables they proposed.

Step 2: Planned activities.

Scan of the situation.

- Investigating properties of light.

Setting the criteria.

- Students made a spreadsheet with IBL steps and criteria.

Series of IBLs.

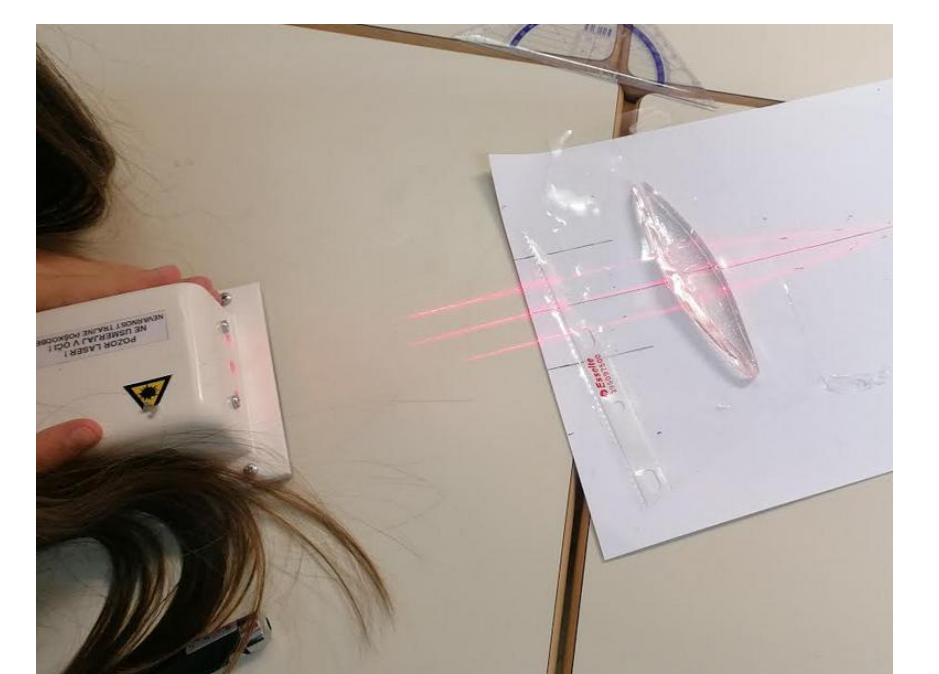
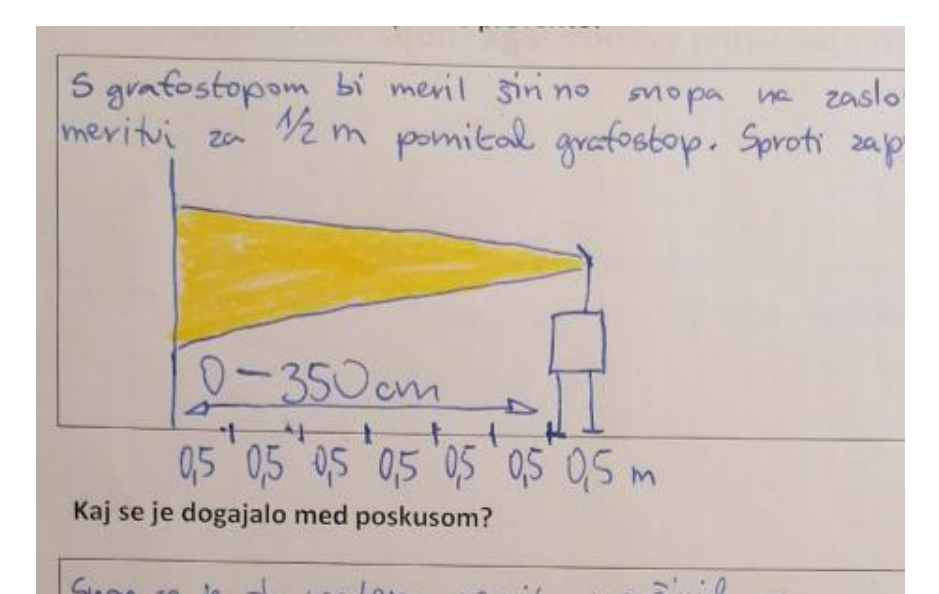
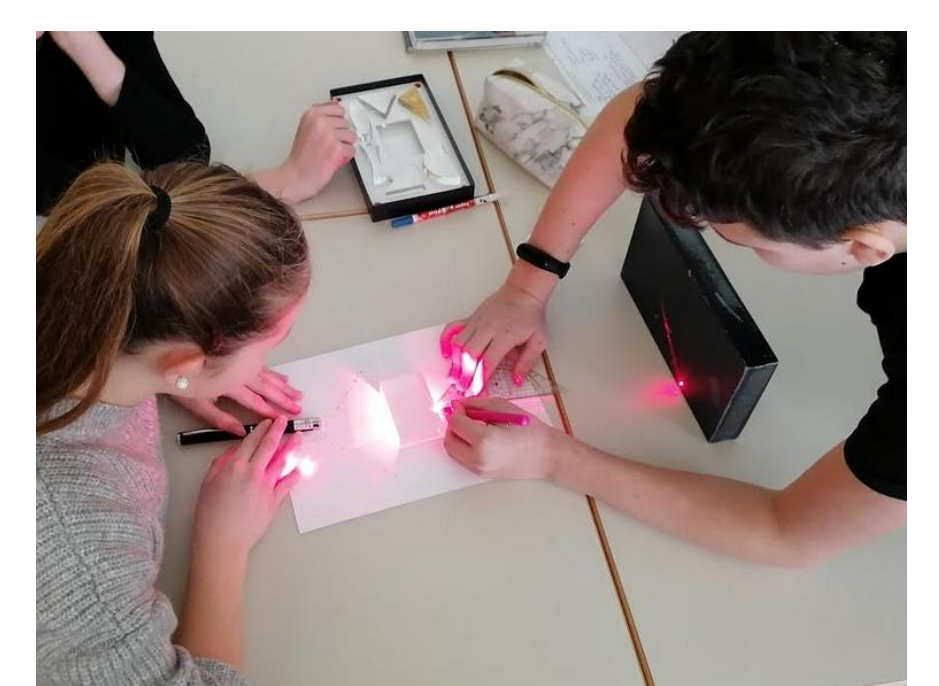
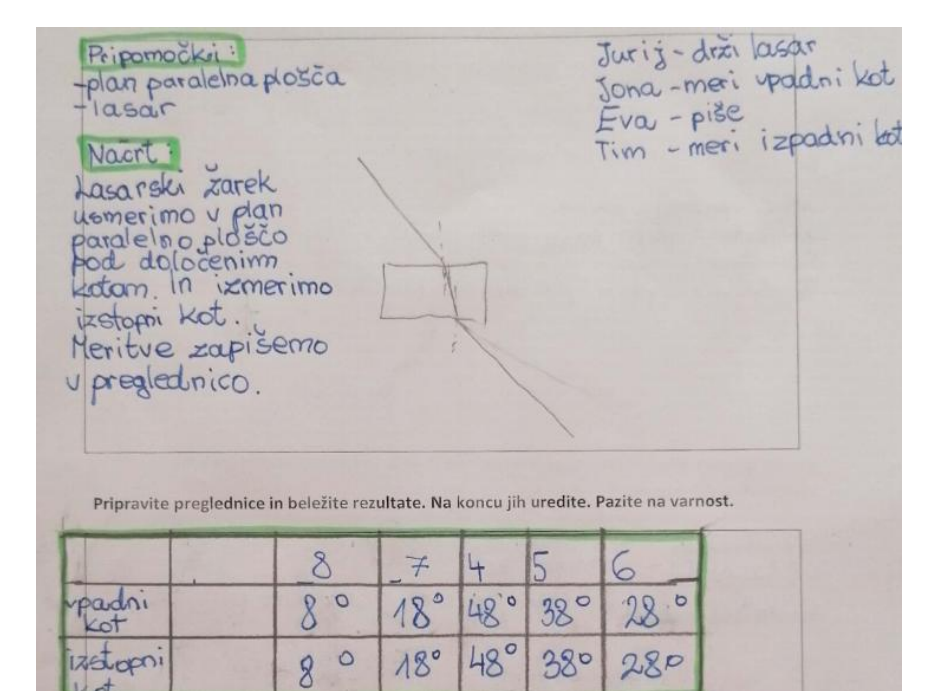
- Planparallel plate, How does the shape of a lens affect light rays ...

Final scan.

- Which characteristics of lenses influence focal length?

Grading.

- Reflection and refraction of light.



Step 4: Findings and reflection

- 56 eight-graders were included in the research.
- Before the research students did not understand and did not know how make a good inquiry question (only 11 % made a good IQ).
- After the activities 89 % of students made a good IQ, all the rest made an insufficient IQ, there were no bad IQs.
- Students did not understand variables and did not know how to find variables for the inquiry.
- After the activities, students' IBL skills improved, they gave new ideas what for inquiries in the future.
- Students improved their communication skills during the process.

Students' IBL skills improved beyond imaginable. Over 70 % of students improved their skill of forming an inquiry question, almost all of students know how to determinate the variables that affect the research. Students became better at constructing the experiment, which could support their theory. The only drawback was, that significantly more time was needed to teach light and optics. Next year all students will have to inquire different parts of light and optics and report about their findings and conclusions to schoolmates. Average grade in physics (compared to previous years) went up by a half of a grade.

