Parallel session 5: PCST challenges and tools directed to young people?

scientists@work, BRINGING YOUNGSTERS IN A BIOTECH LAB

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Abstract

Many teachers of 16-18 year olds plan experiments in life sciences with their pupils, but they only have limited means. scientists@work offers them the possibility of working with a scientific team in a laboratory.

In accordance with techniques that teachers identified, VIB selected projects. Classes choose one project. The hosting scientist provides information, pupils can also ask other European scientists questions. By recording the results the group enters the competition. Finally ten finalists present their project.

868 students from 54 schools participated in this first edition. The enthusiasm of schools and scientists shows that this project answers to unfulfilled needs.

Key words: school competition, life sciences, laboratory, experiments, hands on

Text

Context

In accordance with the curriculum, many teachers in the 2nd and 3rd grade secondary school (14-18 years old) are planning, together with their pupils, to carry out a scientific experiment in life sciences. With scientists@work, VIB offers them the possibility of doing this together with a real academic or industrial scientific team.

Objective

The unique thing about this project is that it builds a bridge between education and research, demands a clearly defined input, enables different teachers to work together and stimulates creativity. VIB aims to acquaint unbiased young people with the life of a scientist, and hopes that this would stimulate them to opt for science-oriented studies.

Methods

All information teachers need to work out a project with their class is provided on www.scientistsatwork.be; this Dutch-language website, together with contact through email, leads them through the competition.

In accordance with the techniques that teachers have identified, VIB gathered –for the first edition- 41 scientific projects in academic and industrial biotech laboratories with a broad variation in topics and techniques used. This puts teachers in the possibility to choose the most suitable project. The enumeration

on the website of the foreseen techniques and some keywords per project makes this choice easier. Another important aspect is the geological distribution of the projects; it should be possible to find a project very nearby the school, which circumvents some possible logistic difficulties.

Teachers choose one project and conduct with their pupils experiments in the lab of the hosting scientist. This project-guide provides information about the lab, the research and supervises the experiments. He is not the only source of information. Pupils can also ask questions to other European scientists in the field by email. This collaboration with EFB (European Federation of Biotechnology) allows them to place their work in a broader context, which is important for the awareness of the pupils.

This tool is also available for visitors of the scientists@work-website who don't take part in the competition.

A project and a competition

Each project is coached by a scientist who receives the group two afternoons (14.00 - 16.30 hrs) in his lab. He provides the pupils with information about the lab, the research and together they will perform experiments or a part of them combined with a demonstration. They are to record their results and findings in a concluding essay, which must comply with a number of criteria:

1. The work must comprise an introduction, materials and methods, results, conclusions, summary, references and presentation of the group:

Introduction: location of the test, how the test fits in with the guide's research, what that research is, interactions with scientists from abroad, etc.

Materials and methods: how the test was carried out

§ Results: what test was carried out and its results

§ Conclusions: what can be concluded from the test

§ References: references to articles or sources that were used in this work

§ Summary: max. 1 to 2 pages

§ Presentation of group: who took part and who did what (attach group photo).

2. The use of figures and illustrations is free

3. Language: Dutch

VIB puts the summaries of the essays together to publish them in a booklet (Figure 2).

Provided the concluding essay is entered in time, the group takes automatically part in the scientists@work competition.

An independent jury selects 10 finalists from the essays that have been sent in. The most important criterion for being selected is the production of a final essay with strong content. Those selected are given an opportunity at the final happening in Ghent to present their project to the general public by means of a poster and a verbal presentation of 7 minutes per team with room for questions of the jury. This jury selects the three winners, who receive a prize.

Results

The success rate of this first year's edition is enormous. 868 students from 54 schools participated and have chosen one of the 41 projects. 37 scientists from universities, colleges and companies guide the 79 teams. 51 class groups handed in their final assay and on 21 April, 10 laureates presented their work in Ghent. During this final happening The Ghent University auditorium was bubbling over with energy and enthusiasm! 10 classes gave it their best and presented their scientists@work project with brio!

The winner of scientists@work2003-2004 is 'De Heilige Familie' from Sint Niklaas with their project on telomeres: 'Who gets the short end of the stick?' (Figure 3)

Teacher: Cor Vandevelde Team: 12 students from 6th (senior year) sciences-mathematics, Latin-mathematics and Latin-sciences Hosting scientist: Sofie Bekaert, Ghent University, Agriculture Dept., Ghent

Conclusions

scientists@work offers students and teachers the possibility to get in touch with scientists working in a biotech lab. The enthusiasm of both parties shows that this project answers to unfulfilled needs in both the educational and scientific community.

Figures

Figure 1: the scientists@work logo

Figure 2: the booklet

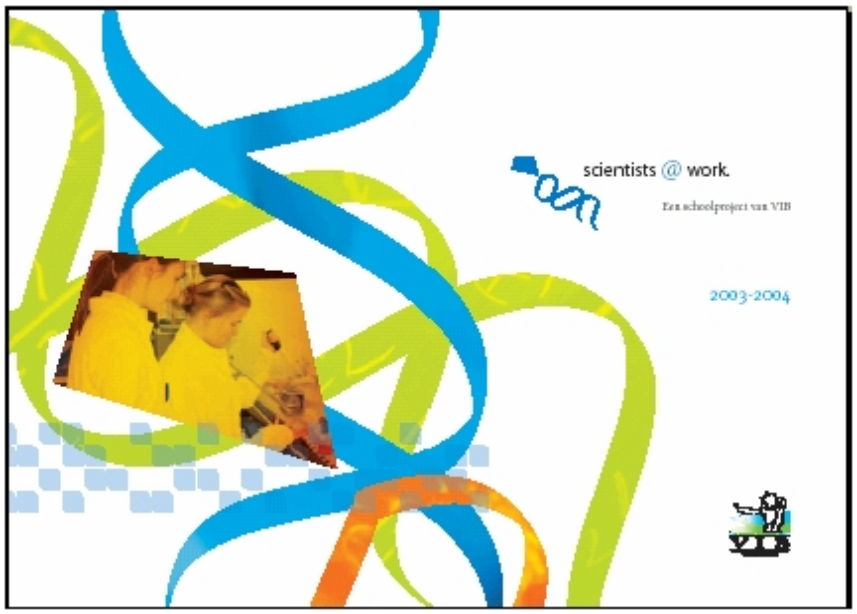

Figure 3: the winning class