GLOBE GERMANY

IPN Leibniz-Institut für die Pädagogik der Naturwissenschaften

Model project „Global climate change education for school children“

In collaboration with

GLOBE Cameroon, GLOBE Estonia

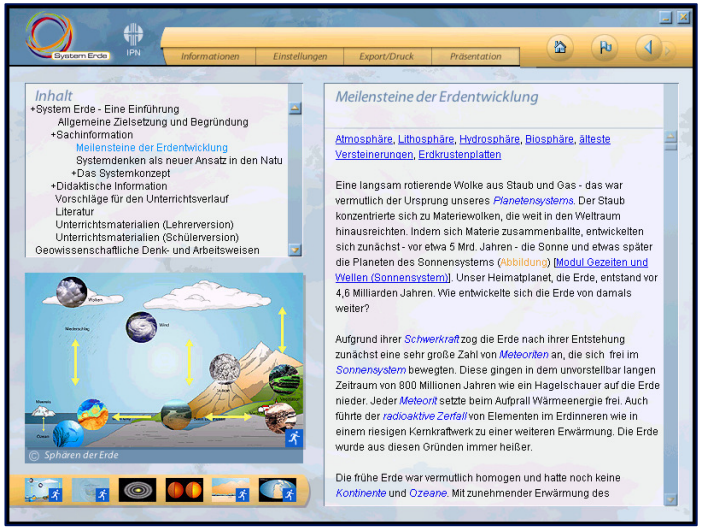
- Overview
- Time schedule
- Education system
- Project activities
- Public relation
- Results
- Future outreach

Project description

Overview

- Protocols: Atmosphere and climate

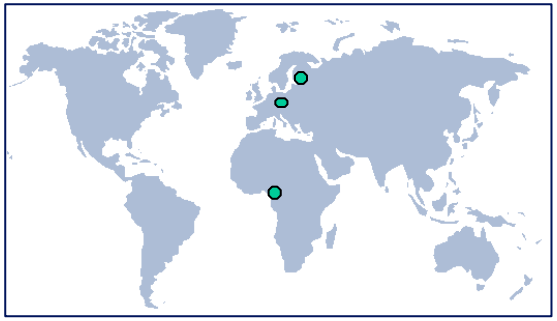
System Erde



- Service for: secondary general schools - grammar schools
- Intentions:
  - to increase communication,
  - to enhance scientific understanding,
  - to improve and
  - to produce learning material

Project description

Overview



- Countries: Cameroon, Estonia and Germany
- Sponsor: Ministry of the republic Estonia, American embassy of Copenhagen, ASA, Bingo Lotto, GLOBE Europe
- Participants: students, teacher, school children
- Duration:

	APR	MAY	JUN	JUL	AUG	SEP	OKT
Estonia							
Germany		8.5 -15.6					
Cameroon					11.8		

Project steps

- Application
- Selection of students and participants
- Introduction of students
- Class standard of knowledge
- Questionnaire of interest and motivation (ROSE)

Schedule

Project steps

- Introduction in protocols
- Construction of climate weather station and instruments
- Measurements
- Data entry
- Development of Learning material
- Presentations
- Commemorative event

Project steps

Schedule

	In schools	IPN
1	Construction of climate station, GPS	Introduction in GLOBE Germany, education system, mind maps
2	Mind map , concept maps, Questionnaire, measurements, Data entry	Introduction in GLOBE Protocols and in data entry, presentation for TT
3	Teacher Training	Introduction and in the analysis of the questionnaire, learning material
4	Testing Learning material, Presentations	Presentations for several events, Mediation
5	Presentations, Commemorative event	Presentations, ideas for future projects
6	Pupil's congress	

Overview

Education system

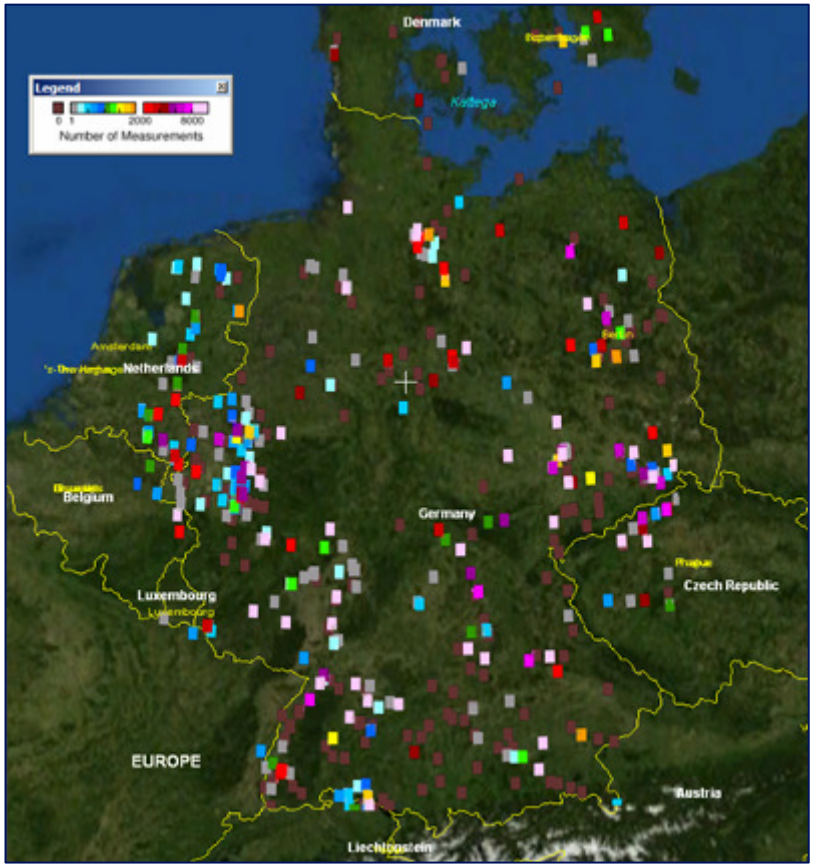
- Germany has 16 federal states

<table>
<tr><td>Basic vocational training year</td><td rowspan="2">Intermediate school
Class 5(7) - 10</td><td>Class 10 -13</td><td rowspan="2">Comprehensive school
Class 5(7)-13</td></tr>
<tr><td>Secondary General school
Class 5(7) -9</td><td>Grammar school Class 5(7)-10</td></tr>
<tr><td colspan="4">Orientation stage (5/6)</td></tr>
<tr><td colspan="4">Primary schools 1- 4</td></tr>
<tr><td colspan="4">kinder garden</td></tr>
</table>

Distribution

Education system

- GLOBE Schools in Germany



Procedure

Selection

Students:

- Written application
- Interview of candidates

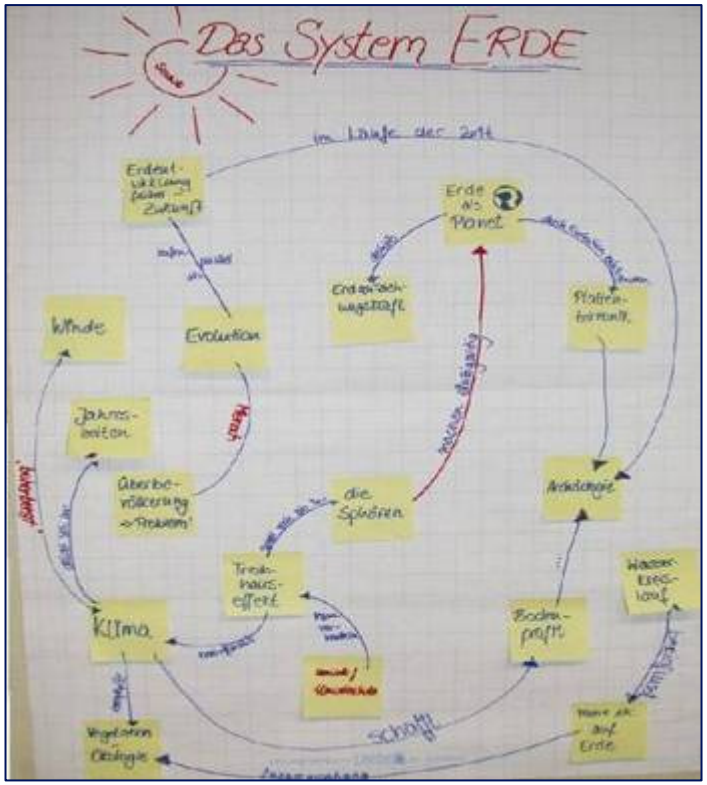
Schools nearby:

Fridtjof Nansen / Max Planck School:

2 teachers	1 teacher
30 students	26 students
class levels 5-9	class 10 c

Standard of knowledge research

- Mind maps
- Concept maps



Project activities

Standard of knowledge research

- Mind maps
- Concept maps

Standard of knowledge research

- Presentation of concept maps
- Discussion

Project activities

Interest and motivation questionnaire

- Completion of ROSE questionnaire
- Analysis

Questionnaire of GLOBE students

- ROSE - The Relevance of Science Education (Dr. Doris Elster, IPN)

  (Models of interest after (Deci & Ryan, 1993, Krapp 1998))

→ Learning seems to be more interesting, if the topics are associated with meaningful context

→ The school topics didn't correspond to student interest's

The Rose questionnaire

- Standardized questionnaire (250 items)
- Sampling from September 2004 till June 2005
- **48 schools / school classes**
  - country: Austria: 26 classes; Germany: 22 classes
- **1097 students**
  - girls: 590; boys: 507
  - age: 14/15 years: 635; 16/17 years: 462

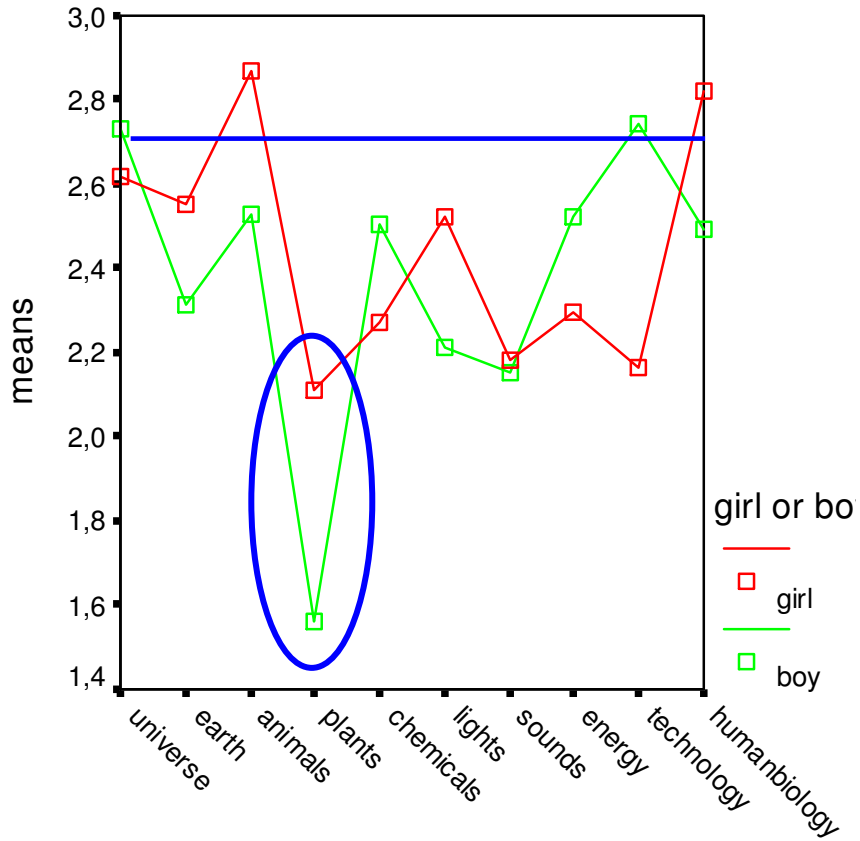
The Rose questionnaire

7 item groups

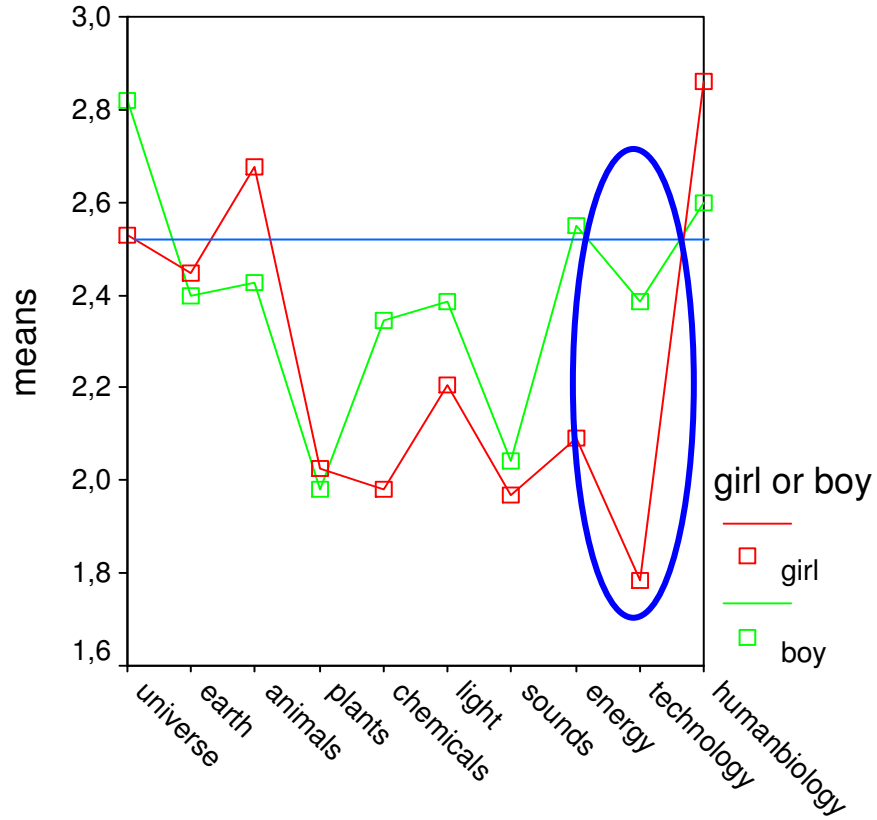
- What I want to learn about (108 items)
- My future job (26 items; B)
- Me and the environment (18 items; D)
- My science class (16 items; F)
- My opinions about science and technology (16 items; G)
- My out of school experiences (61 items; H)
- Myself as a scientist (open question; I)

The Rose questionnaire

CLASS: 49 Grammar school

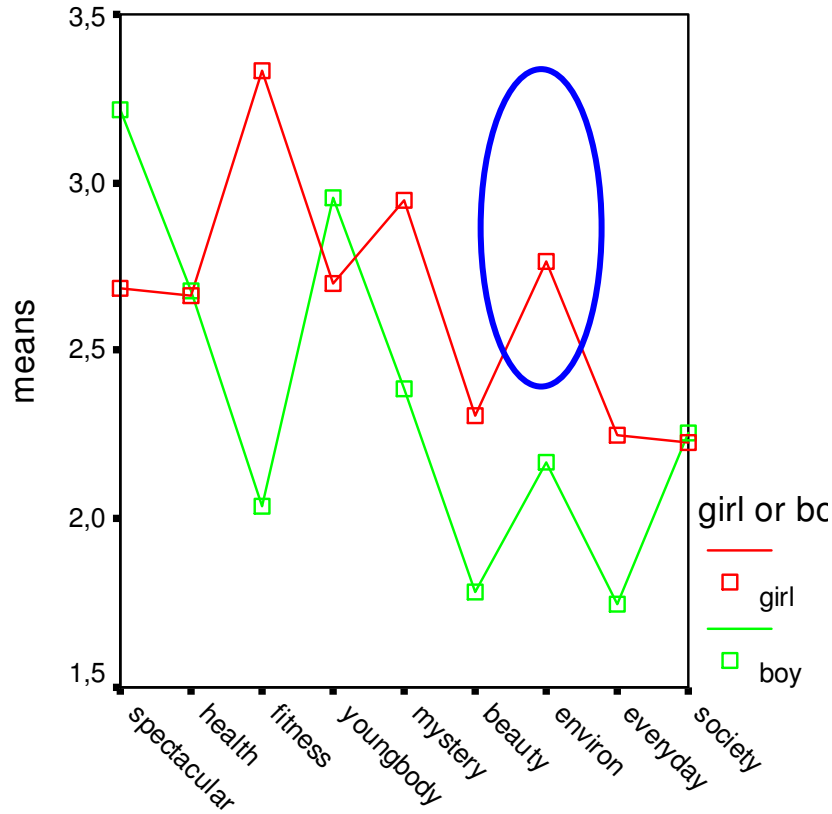


CLASS: 50 Secondary general school

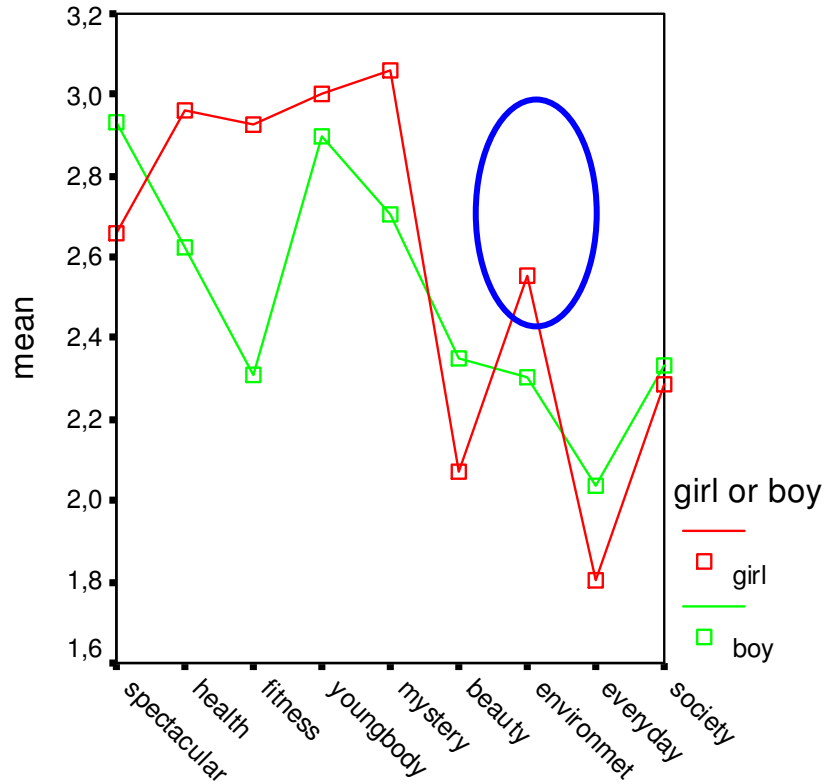


The Rose questionnaire

CLASS: 49 Grammar school



CLASS: 50 Secondary general school



Project activities

Climate Weather station

- Construction and painting

automatic
Climate weather station

Weather station

Differences

- Possibility of a data comparison with automatic climate weather station
- Bottom covering
- Various influences from buildings
- Various influences through for example droplets from the bars

Integration

- former preparation of secondary general school
- detailed and structured tasks
- mixture out of verbal and non- verbal methods
- Provide room for mutual exchange

Project activities

Measurements

Protocol Atmosphere/ climate

- Temperature
- Air pressure
- humidity
- pH
- precipitation
- clouds
- contrails

Collecting, reporting and analysing data

Project activities

Development of Learning material

- Quiz
- Role play

- characters with different opinions
- Integration of various climate zones

Project activities

Public relation

- Commemorative event
- Pupil's congress
- Press releases, IPN-newspaper
- GLOBE Germany annual meeting
- Homepage www.globe-germany.de
- Annual meeting in Thailand

Landeshauptstadt Kiel 23

Schüler auf den Spuren des Klimawandels

Model projects results

- Learning material (Role play, Quiz, lesson plans)
- Increase of school cooperation
- Integration of strong diverse school types
- Enhanced communication with other GLOBE countries
- Taking over responsibilities for other new GLOBE schools

Project expansion

- common project ideas for the future
- more activities with schools of the participating countries are planned
- Integration of more schools in Kiel for further projects
- Expansion to other countries (Swiss etc.)