

FIBONACCI EUROPEAN TRAINING SESSION

TS₂: USING THE EXTERNAL ENVIRONMENT OF THE SCHOOL

Monday, October 10th to Wednesday, October 12th, 2011
Helsinki, Finland



WITH THE SUPPORT OF



WHAT IS THE FIBONACCI PROJECT

Funded by the European Union under the 7th Framework Programme and supervised by a high level scientific committee, the Fibonacci Project (2010-2013) aims at a large dissemination of Inquiry-Based Science and Mathematics Education (IBSME) throughout the European Union, in a way that fits with national or local specificities. This project defines a dissemination process from 12 Reference Centres to 24 Twin Centres based on quality and a global approach. The Fibonacci Project will lead to the blueprint of a transfer methodology valid for building other Reference Centres in Europe.

The Fibonacci project is based on 3 pillars:

1. **An inquiry-based approach** to science and mathematics teaching and learning in primary and secondary schools;
2. **A local approach**, mobilising a comprehensive and complementary group of local partners.
3. **A twinning strategy** linking 37 centres in 24 countries. From 2010 to 2012, 12 Reference Centres with a high expertise in IBSME are twinned with 12 intermediate centres and 13 beginner centres. In 2012, 24 new partners (not identified yet) will join the Fibonacci project, expanding it to almost all European countries.

See <www.fibonacci-project.eu> for details.

TS₂: USING THE EXTERNAL ENVIRONMENT OF THE SCHOOL

Dates

Monday 10th to Wednesday 12th of October 2011.

Aim and special topics

Using the external environment of the school: especially

- How to use science centres to the benefit of classroom learning
- How to use nature to the benefit of classroom learning (outdoor activities)

Contents

Schools are more and more open to using the external environment to teach science. The main issue in our European training session will be to describe how to bridge the gap between informal and formal education and how to include the IBSME approach.

Program will focus on activities in different environments outside the school and will give to participants an opportunity to get involved in sessions and activities that will take place in three different places.

During the three days, participants will get to know the Finnish system of working with the external environment of the school. Teachers and educators, mainly from the Fibonacci-project, will be invited to present materials and share their experiences and knowledge concerning IBSME activities carried out in informal environments. After the three day seminar all participants will have new thoughts, ideas, an understanding about using the external environment of the school under the IBSME approach.

Venue

On one of the days activities will be held in Heureka, the Finnish science center <www.heureka.fi/portal/englanti/>. There will be an opportunity to observe how Finnish schools and teacher students are using science centres according the three step model: before pre-activities – during the visit – after post-activities. One of the focus will be on how to use IBSME activities in a laboratory designed for young kids.

Another day will be spent in the Finnish National

Park, Nuuksio <www.luontoon.fi>. It will be a special opportunity to work in the nature, have an overview of outdoor activities carried out by schools and to discuss and think how to create IBSME-activities. Of course, we will go to sauna after the hard day!

Another day will take place in the University of Helsinki, Department of Teacher education <www.helsinki.fi/teachereducation/>. The program will include presentations about science education, IBSME activities and ICT tools. And of course lots of practical sessions.

How to register

Online registration form will be open in September 2011 on:

<<https://elomake.helsinki.fi/lomakkeet/26390/lomake.html>>

Contact persons

Hannu Salmi

E-mail: hannu.salmi@helsinki.fi

Phone: +358(0) 40 9015 263

Arja Kaasinen

E-mail: arja.kaasinen@helsinki.fi

Phone: +358(0)50 3175 599



Programme

MONDAY, October 10th

USING THE EXTERNAL ENVIRONMENT OF THE SCHOOL

Place: University of Helsinki (map 1)

<www.helsinki.fi/university/index.html>

Color codes for the meeting rooms:

Siltavuorenpenger 1 (S1) Siltavuorenpenger 5 (S5) Siltavuorenpenger 10 (S10)

8h00			
9h00			
10h00	REGISTRATION	10.00 – 12.00 Registration	S5, K1 LOBBY
11h00		Siltavuorenpenger 5 A - lobby (map 4) < http://kartat.eniro.fi/m/aZRFG >	
12h00		12.00 – 13.30 Lectures	S1, AUD1
13h00	LECTURES	Welcome words <i>Hannu Salmi & Arja Kaasinen</i> The Fibonacci-project <i>Mr. Xavier Person</i> Inquiry-based science education - history and future <i>Mr. Peter Fabian-Hajek</i> Learning science outside the school <i>Professor Martin Braund</i>	
14h00		13.30 – 14.00 Coffee break	
15h00		14.00 – 15.30 Lectures	S1, AUD1
16h00	WORKSHOPS	PISA as a Tool for comparing Educational Systems <i>Dean Patrick Scheinin</i> Schools and co-operation with parents <i>Professor Hannele Niemi</i> Opportunities for an external environment of the school <i>Professor Toomas Tenno</i>	
17h00		16.00 – 17.30 Workshops	
18h00		Theme: Inquiry-based science and hands-on activities 1 Handicrafts (Leo van de Bogaert) 2 Chemistry and Physics (Jarkko Lampiselkä) 3 Biology (Merike Kesler) 4 Mathematics (Tiina Romu and Jani Hannula)	S10, 107 S5, 406 S5, 206 S5, 306
19h00		18.00 Welcome Buffee in restaurant Olivia	S1
20h00			

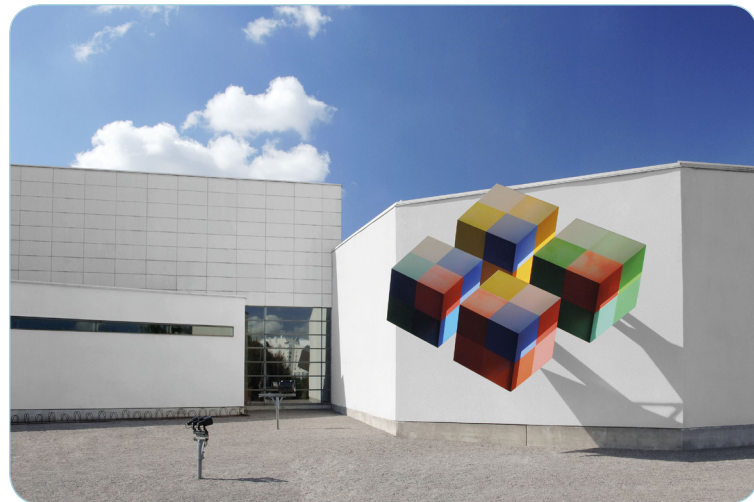
TUESDAY, October 11th

SCIENCE CENTRES AS AN EXTERNAL ENVIRONMENT OF THE SCHOOL

Place: Heureka, The Finnish Science Centre, Vantaa (map 2)

<www.heureka.fi/portal/englanti/>

08.00	Gathering in the front of the Hotel Arthur: transportation by bus	
09.00 – 10.00	Lectures	AUDITORIUM
	Toward the Evidence of Inquiry Based Science Education: Bridging the gap between formal education and informal learning by teacher training <i>Research director Hannu Salmi</i>	
10.00 – 12.00	Workshops with students	
	Theme: Practical overview how to use science centre as an external environment of the school	
	A Laboratory 1 B Laboratory 2 C Science Theatre Minerva D Planetarium E Augmented Reality F Exhibition	
12.00 – 13.00	Lunch at Heureka	
13.00 – 14.30	Lectures	AUDITORIUM
	The Role of Informal Science Laboratories: <i>Professor Petra Skiebe-Corrette</i> The National Space Centre as an external environment of the school: <i>Professor Tina Jarvis</i> IBSME at schools in Finland: best practices: <i>Mr. Kari Töyrylä and Mr. Matti Jokela</i>	
14.30 – 15.00	Coffee break	
15.00 – 16.00	Workshops continues	
16.00 – 17.00	Planetarium	
	< http://www.heureka.fi/portal/englanti/planetarium/ >	
17.00	Buffee in restaurant Einstein	



WEDNESDAY, October 12th

NATURE & FORESTS AS AN EXTERNAL ENVIRONMENT OF THE SCHOOL

Place: Schools and Nature

(Remember to take good hiking shoes and clothes with you!)

08.00 Gathering in the front of the Hotel Arthur: transportation by bus

09.00 – 12.00 Workshops

A Primary school
(ages 6/7-12)

*SUUTARILA LOWER
COMPREHENSIVE SCHOOL*
Workshops with school classes

B High school
(ages 13-16)

*THE VIKKI TEACHER TRAINING SCHOOL,
UNIVERSITY OF HELSINKI*
Workshops with school classes

12.00 – 13.00 Lunch at school

13.00 Transportation by bus to Solvalla, Nuukio

<www.solvalla.fi/info>

(There is a local bus connection (85/85A/85K) from Solvalla to Espoo center, where is train connection to the downtown Helsinki. More details in practical information.)

14.00 – 16.00 Workshops in the forest

Forests and biodiversity

Mrs. Sirpa Kärkkäinen, Suomen metsäyhdistys

The Ice Ages in Finland

Professor Antti Ojala, University of Helsinki

Coffee break during the workshop

16.00 – 17.00 Group discussion and conclusions

17.00 – 19.30 Sauna (opportunity) and dinner



19.30 Transportation by bus back to Hotel Arthur

THURSDAY, October 13th

FIELD TRIP

Place: Harakka, the nature school

Villa Elfvik, the nature school

(Remember to put outdoor clothes and shoes on!)

09.00 Gathering in the front of the Hotel Arthur

Transportation by local tram 3B 9.15 or by walk to Cafe Ursula.

09.45 Cafe Ursula, Ullanlinna: transportation to Harakka by waterbus (map 3)

10.00 – 13.00 Visit to Harakka and workshops

Harakka, the nature school

<<http://www.harakansaari.fi/>>

13.00 Transportation by bus to Villa Elfvik

13.45 – 14.15 Lunch at Villa Elfvik

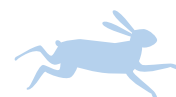
14.15 – 16.00 Visit to Villa Elfvik and workshops

Villa Elfvik, the nature school

<english.espoo.fi/default.asp?path=32373;37337;45340;36896;36921;36922>

Discussion and conclusion

16.00 Transportation by bus back to Helsinki



Practical information

Accommodation

We have reserved an accommodation from the Hotel Arthur.

How to book the room:

- 1) Contact direct to Hotel Arthur:
myyntipalvelu@hotelarthur.fi (telephone +358-9-17344200) or
vastaanotto@hotelarthur.fi (telephone +358-9-173441)
- 2) Give the Booking code **456272**

The price for a single room is 91 euros/night and for couple room 112 euros/night (from Monday to Saturday).

Prices are 74 e/night and 92/night between Sunday to Monday night.



Hotel Arthur

**Vuorikatu 19
FI-00100 Helsinki**

Phone: +358 (0)9 17 34 4200 / +358 (0) 17 34 41

E-mail: <myyntipalvelu@hotelarthur.fi>/<vastaanotto@hotelarthur.fi>

Fax: +358 (0)9 62 68 80

Web Site: <www.hotelarthur.fi/eng/>



Map 1 Centre of Helsinki



How to travel from airport to downtown Helsinki

Bus services from Helsinki City railway station take you to the airport comfortably and rapidly:

- From Helsinki City by bus 615 takes appr. 35 minutes.
- You can also take a Finnair City Bus from downtown Helsinki. For timetables go to Finnair's website.
- There are a number of other bus connections from various parts of the Helsinki Metropolitan Area to the airport. The timetables are available on the HSL website. <<http://www.hsl.fi/EN/Pages/default.aspx>>
- Airport's internet pages: <www.helsinki-vantaa.fi>

You can also travel by taxi: <www.visithelsinki.fi/In_English/Visitor/Helsinki/Getting_around_in_Helsinki/Taxis_and_car_rentals.iw3>

How to travel to Heureka

If you travel alone from Center of Helsinki: Go to the main railwaystation. Buy a ticket (a dayticket or regional ticket) from service point or from ticket vending machine. Go to the train and take a commuter train to Tikkurila -station (Trains K, I, R, H and Z). There are signs to Heureka at the station, and the distance is only 500 meters. Then walk takes about 5 minutes from station to Heureka. Public transport: <http://www.visithelsinki.fi/In_English/Visitor/Helsinki/Getting_around_in_Helsinki/Public_Transport.iw3>

HEUREKA - the finnish science centre

Tiedepuisto 1
FI-01301 Vantaa

Phone: +358 (0)9 95 799 (switchboard)

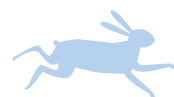
Fax: +358 (0)9 87 34 142

E-mail: <info@heureka.fi>

Web Site: <www.heureka.fi/portal/englanti/>



Map 2 Heureka



Practical information

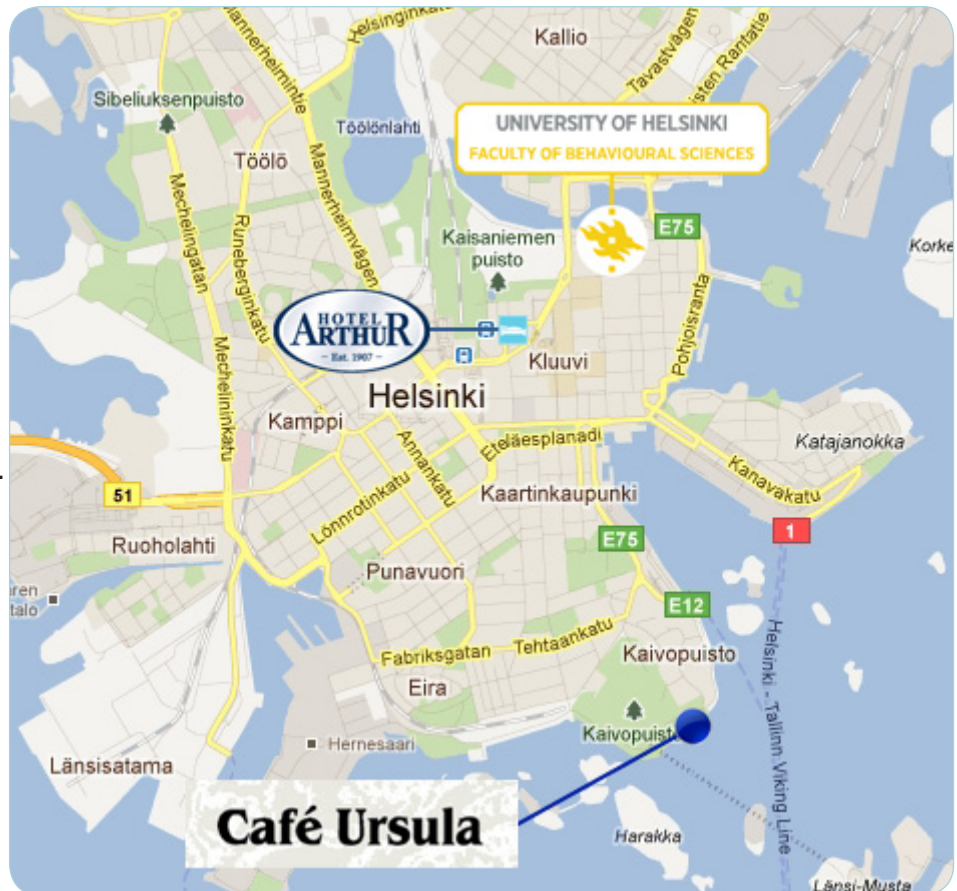
Harakka (Cafe Ursula)

Cafe Ursula

Ehrenströmintie 3
FI-00140 Helsinki

Take the tram 3B from Kaisaniemi.
Leave from tram in the
Kaivopuisto (stop Neitsytpolku).
The tram takes about 15 minutes.
Then walk through the Kaivopuisto.
the walk takes about 10 minutes.

If you walk from hotel Arthur, it
takes about 35 minutes. The distance
from hotel to Cafe Ursula is about
2,5 km.



Map 3 Harakka and Cafe Ursula

Solvalla (Nuuksio)

Solvallan urheiluopisto
Nuuksiontie 82

FI-02820 ESPOO

Phone: +358 (0)9 8678 430

E-mail: <info@solvalla.fi>

Web Site: <<http://www.solvalla.fi/info>>

If you are planning to leave earlier from Solvalla on
Wednesday. There is a bus connection to Espoo Center
and there you will have to take train to downtown Helsinki.
See timetable.



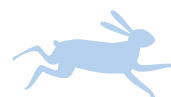
Solvalla

15:39 85A
16:24 85A
16:46 85
17:44 85A
18:14 85A



Espoo Center

16:16 U
16:55 E
17:13 U
18:13 U
18:43 S



University of Helsinki, Faculty of Behavioural Sciences

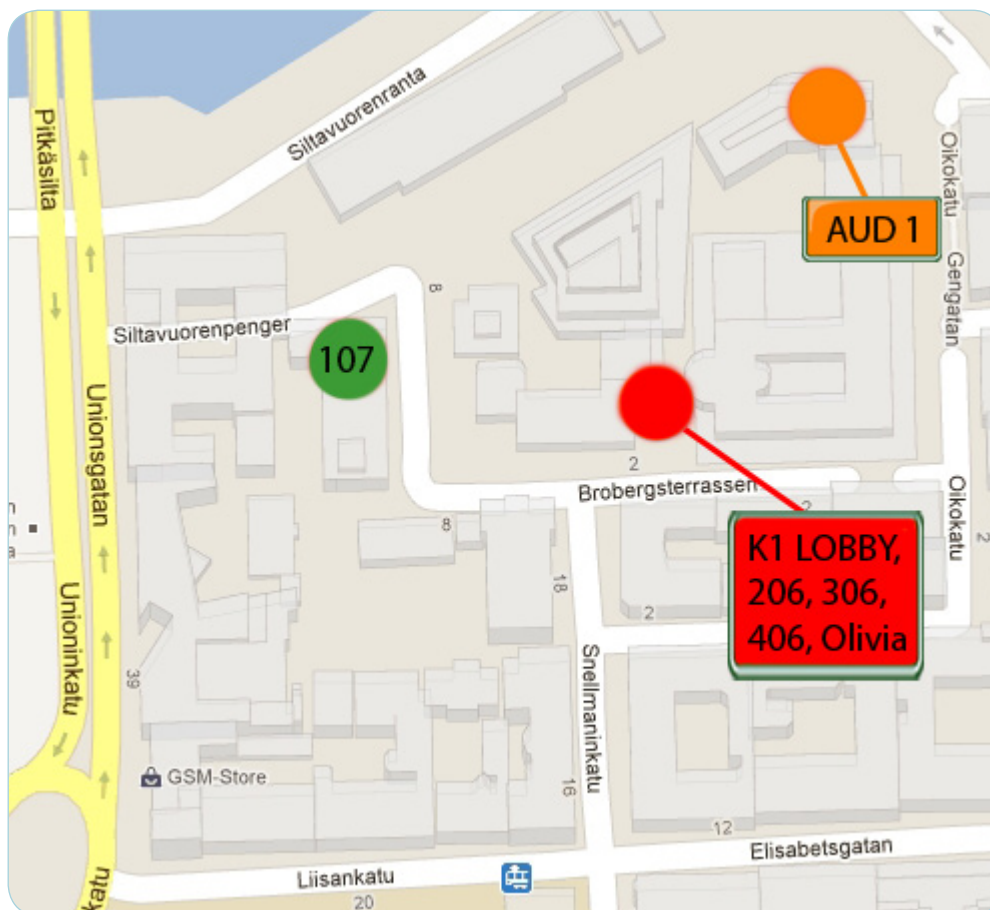
Siltavuorenpenger 5
FIN-00014 University of Helsinki

Phone: +358 (0)9 19 11 (exchange)

Fax: +358 (0)9 19 12 06 16

E-mail: <kaytt-tdk@helsinki.fi>

Web Site: <www.helsinki.fi/behav/english/>



Map 4 University of Helsinki, faculty of behavioural sciences



Local tickets (tram, bus, train, Suomenlinna ferry)

Passenger's guide: <<http://www.hsl.fi/EN/PASSENGERSGUIDE/Pages/default.aspx>>

Helsinki, Espoo, Kauniainen, Vantaa, Kerava and Kirkkonummi form an integrated regional public transport area where traveling is easy and affordable. You can travel with a Travel Card which can be used on all public transport within the entire region. HSL also provides mobile services that make traveling easier.

Other useful information

Weather: <<http://www.foreca.com/?lang=en>>

Maps: <http://www.visithelsinki.fi/In_English/Visitor/Helsinki/The_map_of_Helsinki.iw3>

Some other information

<http://www.visithelsinki.fi/In_English/Visitor/Helsinki/Useful_information.iw3>

<<http://www.helsinki.fi/en/index.html>>

<http://www.visithelsinki.fi/In_English/Visitor.iw3>

<<http://www.suomenlinna.fi/en/>>

Something else

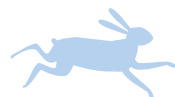
There are possibilities to visit to Tallin (Estonia) or St. Petersburg (Russia) from Helsinki:

<<http://www.estnet.info/estonia/estonia.htm>>

<<http://www.tourism.tallinn.ee/eng/fpage/travelplanning/arrival/bysea>>


<<http://www.vr.fi/en/index/ulkomaat/venaja/allegro.html>>

Welcome to Finland!




PARTNERS

EUROPEAN COORDINATION

 **France** - *La main à la pâte* (French Academy of Sciences, *École normale supérieure Lyon*, *École normale supérieure Paris*). For the purpose of Fibonacci, the *École normale supérieure* is the legal entity coordinating the project.

SCIENTIFIC COORDINATION

Science:  **France** – *La main à la pâte*

Mathematics:  **Germany** – University of Bayreuth


REFERENCE CENTRES

 **Austria** – University of Klagenfurt  **Denmark** – University College South Denmark  **France** – ARMINES/ Graduate School of Engineering of St Etienne  **France** – Graduate School of Engineering of Nantes  **Germany** – Free University of Berlin  **Germany** – University of Augsburg  **Germany** – University of Bayreuth  **Netherlands** – University of Amsterdam  **Slovakia** – University of Trnava  **Slovenia** – University of Ljubljana  **Sweden** – Royal Swedish Academy of Sciences  **United Kingdom** – University of Leicester













TWIN CENTRES 1

 **Belgium** – Free University of Brussels  **Bulgaria** – Institute of mathematics and informatics of the Bulgarian Academy of Sciences  **Estonia** – University of Tartu  **Finland** – University of Helsinki  **Greece** – University of Patras  **Ireland** – St Patrick's College  **Portugal** – Ciencia Viva, National Agency for Scientific and Technological Culture  **Luxembourg** – University of Luxembourg  **Romania** – National Institute for Lasers, Plasma and Radiation  **Serbia** – Vinca Institute for Nuclear Sciences  **Spain** – University of Cantabria  **Switzerland** – University of Zürich.

ASSOCIATED PARTNER FOR THE GREENWAVE PROJECT

 **Ireland** – Discover Science and Engineering - Discover Primary Science.

TWIN CENTRES 2

 **Austria** – Pädagogische Hochschule Wien  **Belgium** – Dienst Katholiek Onderwijs  **Denmark** – NAVIMAT, Danish National Centre for Mathematics Education  **Denmark** – VIA University College  **France** – PRES de l'Université de Lorraine  **Germany** – Cologne & Bonn Chambers of Commerce and Industry  **Germany** – Thüringer Institut für Lehrerfortbildung  **Italy** – National Association of Science Teachers  **Poland** – Jagiellonian University  **Spain** – University of Alicante  **Turkey** – Academy of Sciences/TUBA  **UK/ Scotland** – University of Glasgow  **UK / Northern Ireland** – Queen's University Belfast.

CONTACT DETAILS

La main à la pâte – FRANCE

+33 (0) 1 58 07 65 97

contact(at)fibonacci-project.eu

WWW.FIBONACCI-PROJECT.EU