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SOCRATES PROGRAMME

Application Form for Full Proposals

COMENIUS 2.1 Action (Training of School Education Staff)

- -1-2005-1- - -

CLOSING DATE FOR SUBMISSION: 1 MARCH 2005
(as per postmark)

Applications bearing a postmark after this date will not be considered.
Applications must be sent by post. Applications sent by fax or e-mail will not be accepted.

You must send the following:

- (1) the original application bearing the original signature of the legal representative of the coordinating institution
- (2) 4 copies of this application
- (3) A diskette containing:
 - a copy of this application in MS Word format
 - the project/network summary in DE, EN or FR.

Socrates, Leonardo and Youth Technical Assistance Office
Rue Colonel Bourg 139 Kolonel Bourgstraat
B-1140 Brussels

Important instructions and information regarding the application and selection procedure

- Before completing the form, please read the relevant sections in the *SOCRATES Guidelines for Applicants* and the *SOCRATES General Call for Proposals 2005*, which contain additional information on closing dates and specific priorities for that year. Please also read the most recent edition of the *Administrative and Financial Handbook for Applicants for Transnational Cooperation Projects* before completing Section 2 on the budget. All of these documents can be obtained from the Socrates, Leonardo and Youth Technical Assistance Office at the address below. Further information can also be found on the SOCRATES website:
<http://europa.eu.int/comm/education/socrates.html>
- The Commission is required - in accordance with Article 176 of the Financial Regulation applicable to the general budget of the European Communities (Council Regulation No 1605/2002 of 25 June 2002) - to verify the **financial capacity** of beneficiaries. The verification of financial capacity shall not apply to natural persons in receipt of scholarships, public bodies or international organisations referred to in article 43 of financial Regulation. Public body in that sense means, that it is either guaranteed by the state (for example, public authorities are required to cover any losses it may make) or it is legally incapable of bankruptcy or its income is fixed by law (documentation required). **The applying organisation is requested to supply a copy of the following documents:** The profit and loss accounts and the balance sheet for the last financial year for which the accounts have been closed.
- Projects which are awarded grants of 300.000 euros and above will be requested to submit an external audit report produced by an approved auditor, unless the applicant is a public body or a secondary or a higher education establishment. The external audit report will certify the accounts for the last financial year available and give an assessment of the financial viability of the applicant.
- The Commission is required to proof the legal status of the applying organisation (legally registered statutes, articles of association, official registration certificate or other document of equal legal value, as applicable) – see Annex 4.
- The form must be completed in one of the 20 official languages of the European Union. These are marked with an asterisk (*) in Annex 1. Please note that all participating institutions must confirm in writing their agreement to the application as submitted. It is therefore suggested to use as application language a language which is common to the partnership.
- The application must be typewritten or word-processed using a computer, character size 11 pt minimum.
- The original of the application must bear the original signature of the person legally authorised to sign on behalf of the coordinating institution and the original stamp of this institution, if it has one.
- A diskette containing two MS Word files – a project/network summary in DE, EN or FR and a copy of the original application – must be provided in the same envelope as the original paper version.
- A copy of the application must be sent by 1 March 2005 to the appropriate National Agency in each of the countries which are participating in the project (in case of Lingua I, II; Grundtvig I, I.1, I.2; Comenius II.1 and Minerva). The copy must be accompanied by a translation of Section 1 Point 2 and Section 4 of the form, if this is requested by the National Agencies concerned. The list of National Agencies appears in the *General Call for Proposals 2005*. It is also available from the above-mentioned website and from the Socrates, Leonardo and Youth Technical Assistance Office at the address below.
- All applications will be acknowledged.
- Applications will be judged against the eligibility and quality criteria set out in the *Guidelines for Applicants* and the *General Call for Proposals 2005*.
- Applicants will be notified about the outcome of the selection in writing in late July 2005. A copy of the notification letter will be sent to the National Agencies concerned.

- In accordance with standard Commission practice, the information provided in your application may be used for the purposes of evaluating the SOCRATES programme. The relevant data protection regulations will be respected.

Any questions relating to this proposal should be addressed to the

Socrates, Leonardo & Youth Technical Assistance Office

Rue Colonel Bourg 139 Kolonel Bourgstraat

B-1140 Brussels

Telephone: + 32 2 233 0111

Fax: + 32 2 233 0150

e-mail: info@socleoyouth.be

SECTION 1 - IDENTIFICATION

1. Project/Network title

Please use a maximum of 12 words; start with an acronym or abbreviation, if applicable.

(STIPPS) The implementation of the Scientific Thinking process in (Pre) Primary School settings

If necessary, please provide a translation either in EN, FR or DE of the project/network title.



2. Summary of the project/network

Please identify clearly, in a maximum of 200 words, the following aspects of your project/network: Objectives, Target groups, Main activities and Expected outputs.

If your application is successful, this summary will be used as the description of your project/network and will therefore be part of your contract.

The growing importance of science in our daily life requires a population to have sufficient knowledge and insight to keep up with the scientific debate. Science and its thinking process poses inherent advantages to the cognitive development of young persons and it is important when cognitive skills are developed. This aspect of science literacy is important in our project. With this project we will emphasize on the cognitive development of scientific thinking in (pre) primary school education and teacher training. With the project we want to make sciences and its cognitive thinking models more appealing and so raising enthusiasm for science. This will make it necessary for us to question and rethink the approach when teaching sciences. Interest arousing aspects of science (work on curiosity), topical aspects (focus on local sensitivities and the actuality), and skills (focus on what the pupils can do instead of what they should know) play an essential role. Only seldom do these aspects lead to integration in practice. In our approach we will stimulate science literacy by offering and disseminate a learning line (based upon a chosen global model) for scientific thinking and good practises in (pre) primary schools, by organizing international workshops in the partner institutions and presentations at European conferences, by writing articles published in educational magazines and through a STIPPS website. In this way we want to contribute to a democracy that possesses a certain level of science literacy as an increasing number of decisions is dependent upon Science developments that are of fundamental importance for Europe's growth and development.

Applies only for ERASMUS:

Please identify how the project contributes to the aims and priorities described in the European Policy Statement (EPS) of your institution. If possible, please provide the same information with regard to partner institutions and the EPSs submitted with their applications for the Erasmus University Charter.

FOCUS ON "ACCESSION OF NEW MEMBER STATES TO THE EUROPEAN UNION"

→ EU-countries: Belgium, Germany, France, United Kingdom (Scotland)

→ new EU Member States: Poland, Malta

FOCUS ON "THE FUTURE CHALLENGES TO EDUCATION AND TRAINING SYSTEMS AND LIFELONG LEARNING"

This project contributes to the integrated approach focusing on different thematic activities:

→ active citizenship

Science literacy is of great importance for citizenship and democratic participation in a world where Science issues and demands have a dominant role. Through this project we want to focus on a scientific thinking method and learning line for young children, because we believe that the mastering of this scientific thinking method is the effective lever



towards science literacy.

→ teacher and training education

As teacher trainers we believe that the future starts with the toddlers. It takes time to develop logic and reasoning with young children. By using a combination of child-oriented instruction and open-ended exploration activities, teachers can help children develop into scientific thinkers. As teachers, we need to acknowledge and foster young children's natural abilities and curiosities as we develop their scientific thinking. Some teachers do not feel confident in their science know-how or think their classroom isn't adequately equipped with appropriate materials. The method and activities we will provide in this project should help all teachers recognize that they can do science and do it well.

→ basic skills

Science literacy is the skill to use scientific knowledge to ask questions and to draw well-founded conclusions with as goal to understand and help take decisions about the natural surroundings and the changes that man has made. Hence the development of this science literacy should be the main concern of science education on all levels and in all countries.

The amazement and curiosity of children can be used as an engine for the learning process. We are convinced of the fact that children can do more than adults think. It is of great importance that we learn children handle the systematic of scientific thinking in a natural way.

→ increasing participation in science

Lessons in science are still too often lecturer-driven; the teacher passes on knowledge rather than help the children to gain knowledge themselves. Tasks for pupils are often little open in terms of definition of the problem, method of solving or solution. As such they leave pupils little room for freedom of acting or thinking. Only in rare cases systematic and explicit links are made between the different sciences. In other words a new didactic approach is necessary. It should be characterised by a more research-driven approach, whereby the pupils themselves help to define the problem, choose ways of solving the problem and evaluate the solutions. The didactic approach should be one that focuses on what pupils can do with science and not so much on what they know about science. Learning them how to work together and how to find information are part of this approach too.

The experimental approach, the experimental searching aimed at activating the curiosity and the question reflex are pivotal to the approach we propose. Critical observation, formulating hypotheses, deduction and argumentation have to be stimulated in the learning line for scientific thinking we want to create. By studying the conceptual change in scientific thinking with children, we can build a learning line for the global model of scientific thinking we choose/agree about as a starting point.

→ making learning attractive

Within this project we would like to develop a model and offer concrete examples of good practice to help all teachers recognize that they can do science in making learning experiences not only meaningful, but also fun and multipliable by looking and focussing not only at the product but also wondering processes in which children construct their own knowledge. With the project we want to make sciences and its cognitive thinking models more appealing and so raising enthusiasm for science.

→ strengthening links with working life and society

Within science there are two important basic ideas. On one hand there is need for a strong attitude and skills to cope with scientific problems. On the other hand there is no longer need for science knowledge in itself, but to recognize and integrate basic knowledge while solving concrete scientific problems. Therefore science can no longer be presented as a mere collection of facts and knowledge. Science need to be seen as linked to our human and personal values.

FOCUS ON "SUSTAINABLE DEVELOPMENT"

The increase of literacy in science with its scientific thinking model and related technical expertise will induce the creation or development of high-tech industries or firms that are of fundamental importance for Europe's growth and development.

FOCUS ON "LANGUAGE LEARNING AND LINGUISTIC DIVERSITY"

In science there are a lot of specific words and terms that are of great importance for understanding scientific materials or problems. To integrate this scientific language in the project, we will also contribute to the basic science literacy that is needed in our society.

3. Duration and languages

Please indicate the total duration for which you are applying for a grant. The contractual period is likely to start on 1/10/2005.

Duration
<input type="checkbox"/> 12 months <input type="checkbox"/> 24 months <input checked="" type="checkbox"/> 36 months
Language in which you would like the grant contract to be issued and in which you will correspond with the Commission
<input type="checkbox"/> DE <input checked="" type="checkbox"/> EN <input type="checkbox"/> FR
Language into which you would like a translation of the contractual package
<input type="checkbox"/> DE <input type="checkbox"/> EN <input type="checkbox"/> ES <input type="checkbox"/> FR <input type="checkbox"/> IT

4. Financial support from the European Community

Please note that according to the new financial regulation applicable to the general budget of the European Communities, **one project/network may not receive more than one grant from the budget of the European Communities to any one beneficiary.** In other words, if you are to be selected to receive a Socrates grant for a given project/network, you must not receive a grant from another Community programme for the same project/network and funding period.

Has the proposal, or any aspect thereof or any larger project/network to which it may belong, already been supported in the past by the European Community?

No

Yes. *Please specify the programme, date, type of activity (e.g. preparatory visit) and, if possible, contract number(s):*

Comenius 3 network: 'Hands on Science' (110157-CP-1-2003-1-PT-COMENIUS-C3)

The aim of the Hands-on Science network is to contribute to the generalisation innovation and improvement of Science & Technology teaching at basic vocational training and secondary schools by hands-on experimental practice in the classroom. Bringing hands-on active learning of science into the classroom and into the soul and spirit of the European schools. The proposal for this Comenius 2.1 project about scientific thinking is a practical follow up of the 'Hands on Science' network for pre primary and primary education.

Comenius 3 network: 'RIAC' (100297-CP-1-AT-COMENIUS-C3)

The theme of 'RIAC' is Regional Identity and Active Citizenship and the work of this network focuses on raising the awareness of the vital role of the regions in Europe within the context of European citizenship.

Within this network citizenship is defined as a set of practices (cultural, symbolic and economic); and a bundle of rights and duties (civil, political and social) that define an individual's membership in an organised society.

If one were to consider citizenship with respect to science, we have to focus on the role of science in our society. Science education has to fulfil the need to have scientifically literate citizens such that they (citizens) can understand the environmental, social, ethical and moral implications of scientific activity; and be capable of understanding scientific issues and make independent and informed judgements on scientific developments. Concerning us, the mastering of the scientific thinking model and the learning line we want to create is the effective lever towards science literacy.

Is this proposal, or any aspect thereof or any larger project/network to which it may belong, currently being supported under the SOCRATES Programme or some other European Community programme?

No

Yes. *Please specify the programme, date, type of activity (e.g. preparatory visit) and, if possible, contract number(s):*

Is this proposal, or any aspect thereof or any larger project/network to which it may belong, currently the subject of any other application for support from the European Community?

No

Yes. *Please specify the programme(s) and provide details under Section 2 Table 2.*

5. Applicant Organisation (= Participating institution No 1)

To fill in this part, please use the type of institution codes, country codes and region codes indicated in Annex 1.

5.1 Identification of the institution

Full legal name of the institution in the national language	Katholieke Hogeschool Zuid-West-Vlaanderen		
Acronym of the institution, if applicable	KATHO		
Full name of the institution in English (formal or informal translation)	Catholic Polytechnic of South-West Flanders		
Type of institution code	EDU 4	Erasmus ID code, for Higher Education Institutions only	BE Kortrijk 01
Website	http://www.katho.be		
Is the institution able to recover VAT?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

5.2 Legal representative¹ and legal address of the organisation

Title (optional)(e.g. Mr, Mrs, Prof., Dr, etc.)	Mr		
Family name :	Halsberghe	First name :	Eric
Department/Unit	Management and Central Services		
Official function within the institution	President		
Legal Address of the institution			
Street	Doorniksesteenweg	street number	145
Postcode	8500	Town / City	Kortrijk
Country code	BE	Region code	BE 25
Telephone (including country and area code)	(+32)56 26 41 60 or 64	Fax (including country and area code)	(+32)56 41 35 or 75
E-mail	Euro-katho@katho.be		

5.3 Project/network Coordinator

This section needs to be filled in ONLY if the coordinator's organisation is different from the Applicant organisation above			
Full legal name of the institution in the national language			
Acronym of the institution, if applicable			
Full name of the institution in English (formal or informal translation)			
Type of institution code		Erasmus ID code, for Higher Education Institutions only	
Website	http://		
Is the institution able to recover VAT?	Yes <input type="checkbox"/> No <input type="checkbox"/>		

¹ This is the person entitled to sign the grant agreement.

Name and Contact Address of the coordinator² (this section must be completed in all cases)

Title (optional)(e.g. Mr, Mrs, Prof., Dr, etc.)	Mr		
Family name :	Van de Keere	First name :	Kristof
Department/Unit	KATHO, department PHO, Tielt		
Official function within the institution	Lecturer Science		
Street	Beernegemstraat	street number	10
Postcode	8700	Town / City	Tielt
Country code	BE	Region code	BE 25
Telephone (including country and area code)	(+32)51 40 02 40	Fax (including country and area code)	(+32)51 40 89 13
E-mail	Kristof.vandekeere@katho.be		

6. Other participating institutions

To fill in this part, please use the type of institution codes, country codes and region codes indicated in Annex 1. Please group partners by country in the same order as in that indicated in Annex 1. Check the minimum number of partners and eligible countries required (see *Guidelines for Applicants*).

Add copies of the following pages if necessary.

Participating institution No 2

Full legal name of the institution in the national language	Pädagogische Hochschule Karlsruhe		
Acronym of the institution, if applicable	PH Karlsruhe		
Full name of the institution in English (formal or informal translation)	University of Education, Karlsruhe		
Type of institution code	Edu.4	Erasmus ID code, for Higher Education Institutions only	DE
Website	http://www.ph-karlsruhe.de		
Is the institution able to recover VAT?	Yes () No (X)		
Postcode	76133	Town / City	Karlsruhe
Country code	DE	Region code	DE12
Contact person	Gender	Male (X) Female ()	
Family name :	Dr. Kosack	First name :	Walter
Department/Unit	Dep. for social and scientific studies in primary education		
Official function within the institution	Professor. Dr.		
Telephone (including country and area code)	+ 49-721-925-4725	Fax (including country and area code)	(+)
E-mail	Walter.Kosack@ph-karlsruhe.de		

² All correspondence relating to the project will be addressed to this person.

Participating institution No 3

Full legal name of the institution in the national language	Académie de Nancy-Metz Inspection Académique de Meurthe et Moselle		
Acronym of the institution, if applicable			
Full name of the institution in English (formal or informal translation)	Academic Inspection		
Type of institution code	PUB 1,2	Erasmus ID code, for Higher Education Institutions only	I-A-54
Website	http://www.ac-nancy-metz.fr		
Is the institution able to recover VAT?	Yes () No (X)		
Postcode	54042	Town / City	Nancy
Country code	FR	Region code	FR41
Contact person	Gender	Male (X) Female ()	
Family name :	Marchal	First name :	Jacques
Department/Unit	Teacher Education Department		
Official function within the institution	Inspecteur		
Telephone (including country and area code)	+ 33 383 241349	Fax (including country and area code)	+ 33 383 491502
E-mail	j.marchal@ac-nancy-metz.fr		

Participating institution No 4

Full legal name of the institution in the national language	Osrodek Doskonalenia Nauczycieli w Lomzy		
Acronym of the institution, if applicable	ODN		
Full name of the institution in English (formal or informal translation)	Teacher Training Centre in Lomza		
Type of institution code	EDU 5	Erasmus ID code, for Higher Education Institutions only	
Website	http://www.odn.4lomza.pl		
Is the institution able to recover VAT?	Yes () No (X)		
Postcode	18-400	Town / City	LOMZA
Country code	PL	Region code	PLOA
Contact person	Gender	Male (X) Female ()	
Family name :	Sidor	First name :	Wojciech
Department/Unit	Teacher training		
Official function within the institution	ICT Specialist		
Telephone (including country and area code)	+ 48 86 216 42 17	Fax (including country and area code)	+ 48 86 216 57 25
E-mail	lom@oswiata.org.pl		

Participating institution No 5

Full legal name of the institution in the national language	University of Dundee		
Acronym of the institution, if applicable	UoD		
Full name of the institution in English (formal or informal translation)	University of Dundee		
Type of institution code	EDU 4	Erasmus ID code, for Higher Education Institutions only	
Website	http://www.dundee.ac.uk/fedsoc		
Is the institution able to recover VAT?	Yes () No (X)		
Postcode	DD1 4HN	Town / City	Dundee
Country code	UK	Region code	UKM1
Contact person	Gender	Male (X) Female ()	
Family name :	Thurston	First name :	Allen
Department/Unit	Faculty of Education and social Work		
Official function within the institution	Senior Lecturer		
Telephone (including country and area code)	+ 441382464228	Fax (including country and area code)	+ 441382464900
E-mail	a.thurston@dundee.ac.uk		

Participating institution No 6

Full legal name of the institution in the national language	University of Malta		
Acronym of the institution, if applicable	UOM		
Full name of the institution in English (formal or informal translation)	University of Malta		
Type of institution code	EDU4	Erasmus ID code, for Higher Education Institutions only	
Website	http://www.um.edu.mt/		
Is the institution able to recover VAT?	Yes () No (X)		
Postcode	MSD 06	Town / City	Msida
Country code	MT	Region code	
Contact person	Gender	Male () Female (X)	
Family name :	Gatt	First name :	Suzanne
Department/Unit	Department of Primary Education		
Official function within the institution	Lecturer in Primary Science and Environmental Education PhD		
Telephone (including country and area code)	(+)356 23402926	Fax (including country and area code)	(+)356 21317938
E-mail	suzanne.gatt@um.edu.mt		

SECTION 2 - DECLARATION

To be completed by the person legally authorised to sign on behalf of the coordinating institution.

"I, the undersigned, certify that the information contained in this application, including Section 4 (description) is correct to the best of my knowledge.

The appropriate authorities of all the participating institutions have read and fully understood the application as submitted. They have confirmed in writing their agreement with the application as submitted.³

I declare on my honour that the institution I represent has **the financial and operational capacity** to carry out the proposal as submitted and that it does not fall under any of the exclusion criteria listed in chapter II of the *General Call for Proposals 2005*.

I acknowledge that in case of false declarations, administrative and financial sanctions can be implemented against me or the institution I represent."

By 1 March 2005, I have arranged for each of the other participating institutions to send to the appropriate National Agency, in its country, a copy of the present application, together with a translation of Section 1 Point 2 and Section 4 in the language of the National Agency concerned, if this has been requested by the National Agency concerned.

For Lingua I, II, Grundtvig, I.I and Comenius II.I and Minerva applications:

I am also sending a copy of the present application to the appropriate National Agency in my country (together with a translation of Section 1 Point 2 and Section 4 in the language of this National Agency, if it is not the same as the language of the present).

Place: Kortrijk

Date 23 / 02 / 2005 (day/month/year)

Signature

Stamp of the coordinating institution, if applicable

Name and position in capitals

³ The Commission reserves the right to request a copy of these agreements.

Mr. ERIC HALSBERGHE

PRESIDENT

Checklist

The application is completed in full . All questions have been answered .	<input checked="" type="checkbox"/>
Each page has been numbered .	<input checked="" type="checkbox"/>
The budget covers the whole project/network period, is indicated in euros and has been checked for calculation errors .	<input checked="" type="checkbox"/>
The application has been type-written or word-processed in one of the 20 eligible languages by using the correct application form .	<input checked="" type="checkbox"/>
The original application has been signed in original by the legal representative of the coordinating institution.	<input checked="" type="checkbox"/>
The original, 4 copies and a diskette containing MS Word files with the project/network summary in DE, FR or EN and a copy of the original application are being sent to the Socrates, Leonardo & Youth Technical Assistance Office by post and in the same envelope before the closing date .	<input checked="" type="checkbox"/>
The bank details form (annex 3) has been filled in and duly signed in original. ⁴	<input checked="" type="checkbox"/>
The legal entity form (annex 4) has been filled and duly signed in original	<input checked="" type="checkbox"/>
Documents for verification of financial capacity are attached	<input checked="" type="checkbox"/>
If the grant requested exceeds 300,000 euros and if the applicant is neither a public body nor a secondary or a higher education establishment, an external audit report produced by an approved auditor will be requested.	
In case of Lingua I, II; Grundtvig I, I.1, I.2; Comenius II.1 and Minerva, the necessary copies and translations are being sent to the National Agency in the country of each of the other participating institutions before the closing date.	<input checked="" type="checkbox"/>

⁴ If your application was to be selected and your bank details changed before the issue of the contract, you must inform the Commission about this change urgently in writing. In any case, any such change will lead to a delay in your advance payment.

SECTION 3 - BUDGET

SECTION 4 - DESCRIPTION COMENIUS 2.1: TRAINING OF SCHOOL EDUCATIONAL STAFF

Please describe all the following aspects of your proposal and make sure to **answer all the relevant questions**.
Please provide your answers on numbered sheets, using the same order and numbering as given in the list of questions.
Please respect the maximum length of text indicated, excluding supporting documents.

1. Typology

- 1.1 Indicate the **most important thematic area** concerned by your proposal (please tick **only one** box):
- Basic skills
 - Education for children of specific target groups: (migrants, travellers, gypsies and of children at the risk of exclusion, drop outs)
 - (European) citizenship - Regional identity
 - Gender issues
 - Guidance and counselling - Link between school and the world of work
 - ICT as a pedagogical tool in education
 - Intercultural education - Fight against racism and xenophobia
 - Quality and evaluation of school education
 - The new role of the teacher - the continuum of teacher education, methodology & pedagogy
 - Violence in school - peace education
 - Arts education
 - Cultural heritage
 - Language learning
 - Mathematics
 - Sciences and technology in education
 - School management and autonomy
 - Special needs education
 - Environmental education
 - School management (including involvement of children, involvement of parents, school facilities...) and autonomy
- 1.2 Indicate whether the proposal concerns:
- Initial training** for teachers and other educational staff
 - In-service training** for teachers and other educational staff
- 1.3 Taking into account the outcomes, choose the specific objective(s) that you will address:
- The adaptation, development, testing, implementation and dissemination of **curricula**
 - The adaptation, development, testing, implementation and dissemination of **courses (or modules)** for the initial or in-service training of teachers or other school education staff
 - The adaptation, development, testing, implementation and dissemination of **materials** for the initial or in-service training of teachers or other school education staff
 - The adaptation, development, testing, implementation and dissemination of **teaching methodologies and pedagogical strategies** for use in the classroom including the development of **materials for use by pupils**
 - A **structured framework for the organisation of mobility activities** for trainee teachers including the provision of practical training periods and the recognition of these activities by the institutions concerned

2. Objectives (maximum 2 pages)

2.1 Background to the project

Science literacy is of great importance for citizenship and democratic participation in a world where Science issues and demands have a dominant role (Michaelides, P.G., 2003; Hands-on Science). The increase of literacy in Science and related technical expertise will induce the creation or development of high-tech industries or firms that are of fundamental importance for Europe's growth and development.

The effective Science education is a right to democracy. Science has always been an issue of fundamental importance to the development of societies because it is also the basis of technology and yet it seems it has never been so misunderstood / sold short by youngsters. Hence the development of this science literacy should be the main concern of science education on all levels and in all countries. Therefore it is crucial not to miss the boat from early childhood on.

We believe that the first step towards science literacy is scientific thinking. Research has shown that only 54% of Belgians can apply the rules of scientific thinking correctly in specific examples (Eisendrath H. et al, 2003; IDLO Cahier 4/2003). We experience the need for a lot of adults to find a structure which ensures that they can handle an efficient work and think pattern in the society with its overload of pivots. Prove of this are the large number of courses and workshops that are organised concerning efficient working, time management, quality control... Finally everything turns around the same principles: analysing, planning, carry out, self-checking and control (PDCA). This rule ring is not only a simple learning quality and management principle. Moreover, it is a life attitude, which ensures that the quality of our work, our action, our product... even our life can be better controlled and more easy to handle. So the steps towards scientific thinking need to be taken as soon as possible on a large scale: in pre primary and primary education.

The increased significance of Science education has become a major constituent of school curriculum in a lot of countries in the EU. With this project we want to concentrate on the practical use of a scientific, reflective thinking model which is based upon problem solved learning in (pre) primary schools (3-12 years old). In a scientific thinking model (and the learning line based upon this model of scientific thinking) open type questions and problems are necessary to develop complex cognitive skills. Within the model and learning line we want to focus also on metacognitive aspects. Science teaching must develop logic reasoning and metacognitive skills (Viennot, L. Reasoning in Physics, 2000: Kluwer Academic Publishers). The 'problem-based learning' models are not often applied in (pre) primary schools. With this project we will focus on this lack in science teaching by creating and disseminating practical tools based upon a global learning line for scientific thinking for children from 3-12 years old. In this context it is also interesting to mention that one of the principles of the UNECE strategy (United Nations Economic Commission for Europe) for sustainable education (2005-2015) is the encouragement of reflective, critical and creative thinking.

2.2 Overall aim of the project and main objectives

With this project proposal we concentrate on 3 work packages (spread over 7 stages of the project) during a period of 3 years: (see workplan for details)

- The partners in this project will join hands to combine their knowledge and their expertise to create a well founded theoretical vision of scientific thinking for young children. Based upon this theoretical vision we will choose/agree about a model for scientific thinking as a common starting point for this project. This will result in the creation of a **transnational learning line for scientific thinking** from pre primary up to primary school. To our knowledge such a learning line has not been made before on a large scale, and it is the missing link between the theoretical studies and the (pre) primary classroom.
- **Collection and creation of examples of good practise** with our learning line as leitmotiv. Materials, work packages and good practises will be developed and tested by students of the teacher training institutes and teachers of kindergarten and primary schools under supervision of the partners. By developing these materials and work packages we will focus also on metacognitive aspects.
- **Dissemination** of the learning line for scientific thinking and good practises via an interactive website, international workshops, organized by the partners. The learning line for scientific thinking and the good practises will be laid down in a document that will be suitable for wider dissemination. This will be offered to and discussed within ETEN (especially within the TIG on 'Early Learners'), at the EUROGEO-network and the "Hands on Science" network.

With this project all partner institutions will become a knowledge centre for education and science. We will continue to perform didactical research on this topic so that we create the chalk-lines for a global innovated curriculum. The partner

institutions will create pedagogical materials and work packages and will organize didactic workshops concerning the scientific thinking method and its learning line.

Main objectives of the project:

- We will induce the discussion and exchange of ideas and experiences among the different participants, including local feedback groups (see 4.2 Formal partner institutions) of the project and via the annual ETEN conference and the EUROGEO-network in order to develop and collect pedagogical justified materials and strategies and test them with pre primary and primary school children. In this way we want to promote the issue of Science thinking for citizenship and life-long learning.
- The kind of pedagogical materials and work packages we will develop has the aim to induce an active commitment of the pupils in concrete tasks. Here we will focus on reflective components with 'conversational' pedagogies to induce more profound scientific thinking. We believe that this will also have a rather positive effect in contributing to a better integration of minorities (language, race, religion) in the school and in the community.
- We will organize exchange visits of the representatives of the 6 participating partner institutions in the different countries (see work plan for details).
- The different partners will organize international workshops, each in their own country, on the subject of scientific thinking with pre primary and primary school children for teachers, lecturers and students of teacher training institutions (see work plan for details).
- The project and workshop participants will be able to serve as pattern makers in their schools and communities in the subject of implementing the scientific thinking model in science teaching, and will establish a number of international contacts that will enlarge their perspectives as educators but also as citizens of an enlarged European Union.
- We want to contribute to the development and dissemination of new ICT and multimedia tools by publishing our project and its results on an interactive DVD with the results of the project, pedagogical materials and examples of good practises. There will be a STIPPS website which will offer an insight into the work of the participating European countries throughout the running of the project. This means also that the created pedagogical material during the project will be published on the website so that other institutions and (pre) primary schools can use them with their pupils. There will also be a discussion forum for the partners of the project that can be used for sharing ideas during the project period.

2.3 Innovation

We want to emphasize on the cognitive development of scientific thinking in pre primary and primary school education and teacher training and disseminate a global learning line for scientific thinking. Our goal is to make the sciences and its cognitive thinking models more appealing and raising enthusiasm for science. We are convinced that curiosity in (technology integrated within science and) science can be developed by young children, by creating challenging environments in (pre) primary schools. Therefore it is important to focus on good practises in teacher training.

Until now scientific thinking for young children has often been rather theoretically, missing a practical approach. Therefore we will develop pedagogical materials and work packages for teachers to support challenging thinking and reflective learning, based upon our learning line for scientific thinking.

We will assure a wide dissemination of these tools: by writing articles, through the STIPPS website, by organizing regional and international workshops and presentations on international congresses.

2.4 Pedagogical and didactical approaches

It will be necessary for us to question and rethink the approach for teaching sciences and technology. Lessons in science are still too often lecturer-driven; the teacher passes on knowledge rather than help the children to gain knowledge themselves. Tasks for pupils are often little open in terms of definition of the problem, method of solving or solution. As such they leave pupils little room for freedom of acting or thinking. Only in rare cases systematic and explicit links are made between the different sciences. In other words a new didactic approach is necessary. It should be characterised by a more research-driven approach, whereby the pupils themselves help to define the problem, choose ways of solving the problem and evaluate the solutions (Costa, M., 1997; Proc. Soc. Photo-Opt. Instrum. Eng., vol. 3190). The didactic approach should be one that is based upon the cognitive and social constructionism (Oostendorp, C et al., 2003: teaching of science in Primary Schools). It has to focus on what pupils can do with science and not so much on what they know about science. Learning them how to work together and how to find information are part of this

approach.

The experimental approach, the experimental searching aimed at activating the curiosity and the question reflex are pivotal to the approach we propose. Critical observation, formulating hypotheses, deduction and argumentation have to be stimulated in the scientific thinking model we want to create. By studying the conceptual change in scientific thinking with children, we can build a learning line for the model we want to create.

Furthermore we want to create learning material and collect good practises that are conceived in using systematically the postulated scientific thinking method. With this material we want to train children in an unconscious and playful way to implement this scientific thinking method, which is of extreme importance to develop science literacy (Ratcliffe, M., 1998; Guide to primary Science). The materials and good practises will be tested by students of the teacher training institutes and teachers of partner kindergarten and primary schools in different countries. The learning line for Scientific thinking (based upon the global model chosen), tools to support the challenging thinking and good practices will be available on line on the interactive STIPPS website and will be disseminated via international workshops in the partner institutions and presentations on European conferences.

2.5 Target groups

Specifically we will be targeting the following groups:

- Pre primary and primary school children:
Pupils (3-12 years) will raise knowledge in scientific thinking and will have a global perspective about science.
- Pre Primary and Primary school teachers, lecturers and students of European teacher training institutions
They will have a proven idea of the true advantages and possibilities of the pedagogical use of a scientific thinking model and experiments based upon this model. They will acquire new competencies and be aware of its importance, so they can disseminate these competencies themselves to create a network of teachers and future teachers interested on this subject.
- Research institutes, local communities and industry:
An enlarged involvement of research institutes and industries is necessary in order to get their feedback on educational and special competencies needs. They will make the link between the scientific thinking model and the organisation (e.g. PDCA and other problem solving methods) clear.

2.6 Duration of the project

The duration of this project will be 3 years. We refer to the working plan (see 7) to justify this period. Three years is unavoidable in order to achieve the goals of the project. The project development can be influenced by a wide variety of factors. But the working sessions to prepare and analyse the project will ensure the improving quality of the process and how the project is carried out. The expected evaluation results will play an important role in influencing and improving the project.

3. Envisaged outputs → see pages 26-27

Nature	Details (volume, structure, content,...)	language	Target group	Period of delivery	Teaching/learning environment
Document/handout: reference list + chosen model for scientific thinking in (pre)primary schools	Each of the partner institutions will add at least one page with references about well founded theoretical vision(s) of scientific thinking for young children. Based upon this theoretical vision of scientific thinking we will choose/agree about a model for scientific thinking as a common starting point for this project. The model chosen will be described and justified on two pages.	Referen- ces in EN, NL, FR, DE, PL, MT; model in EN	Project partners Research institutes	01.01.2006	discussion groups
Document/handout: learning line from pre primary up to primary school	The pedagogical approach/demands concerning scientific thinking in pre primary and primary schools (3-12 years) will be laid down in a document. In this document there will be agreements as to the pedagogical and scientific approach and requirements of the didactic materials throughout the age from 3 up to 12 years. Each of the partner institutions will develop a learning line based upon the national context/curriculum and the model for scientific thinking chosen in stage 1 of the project. Exchange of the different learning lines will take place between the different partners during the working session at KATHO Belgium and out of this a transnational (global) learning line from pre primary to primary education will be developed, described and justified	EN	Pre Primary and Primary school teachers, lec- turers and students of European teacher training institutions Research institutes	01.06.2006	Individual research work Discussion groups Decision making
Articles	Each partner institution will publish at least one article in a (regional or national) pedagogical magazines in each partner country about the developed learning line for scientific thinking and one about the didactic/pedagogical materials and work packages (tools/tips for teachers, manuals and preparations) developed All articles will be in English, but the publication of the articles in the local pedagogical magazines will be in the language of the different partners	EN, NL, FR, DE, PL, MT	Pre Primary and Primary school teachers, lecturers and students of European teacher training institutions	01.09.2006 01.04.2007	
Interactive website	The articles written by the different partner institutions will also be published on the STIPPS website. The work packages (tools/tips for teachers, manuals and preparations) conform the model and the learning line for scientific thinking for all levels of pre primary and primary schools will be published on the website The STIPPS website with discussion forum will be created by teacher training centre in Lomza, Poland.	EN	(Pre) Primary school teachers, lecturers and students of teacher training institutions	01.09.2006 01.04.2007	Interactive discussion through/via the discussion forum of the STIPPS- website
interactive CD/DVD with: - Didactic materials - Good practices - Tips for teachers =	All partner institutions create and collect examples of didactic materials and good practises where the model and learning line is integrated for all levels of pre primary and primary schools and work packages for teachers to support challenging thinking and reflective learning, based upon our learning line for scientific thinking.	EN	Pre primary and primary school children (Pre) Primary school teachers,		practise

work packages for teachers	All partners will integrate ICT while creating the pedagogical materials and work packages (filming of experiments, editing, creation of interactive CD, DVD, ...) University of Education Karlsruhe, Germany will coordinate the making of an interactive CD/DVD with work packages.		lecturers and students of European teacher training institutions	30.09.2007	
workshops concerning the learning line of scientific thinking, didactic materials and good practises	Each partner institution organizes at least two international workshops concerning the learning line for scientific thinking, didactic materials and good practises for teacher trainers and students of teacher training. The workshops cover the following items: <ul style="list-style-type: none"> • Promoting the issue of Science thinking for citizenship and life-long learning. • Presenting didactic/pedagogical materials and/or good practices for teaching, learning and practising scientific thinking (based on an alternative approach in comparison to traditional teaching) • Demonstration of experiments/activities that has the aim to induce an active voluntary commitment of the pupils in concrete tasks. • Discussion and exchange of ideas and experiences among the participants of the workshop 	EN, NL, FR, DE, PL, MT	Pre Primary and Primary school teachers, lecturers and students of European teacher training institutions Research institutes, local communities and industry	Between 01.11.2007 – 01.06.2008	lectures / practice / discussion groups / interactive lectures in (small) groups

4. Partnership composition and contribution

BELGIUM

Coordinating institution

Catholic Polytechnic of Southwest Flanders, KATHO, KORTRIJK

Department of teacher education campus PHO at Tielt.

Training and coaching young adults is the core assignment of KATHO. Together with the students, a team of 500 lecturers create a fascinating study environment for student- and practice-oriented study programmes. In each department the lecturers, as coaches, alongside the study and student coaching team, the ombudsman service and the mentors are at the student's disposal. Since the beginning of 2002 KATHO has been part of the higher education association clustered around the Catholic University of Louvain.

Practice-oriented knowledge, social and practical skills and strong attitude building are the pillars of every KATHO study programme. Every training includes a practical work placement where knowledge, skills and attitudes are put to the test. This is one of the reasons why KATHO is highly appreciated by numerous employers.

Offering every student a form of international experience during their three-year education cycle is a concrete challenge for KATHO and the project team *Internationalisation*. The International team commits itself to the "IEKS-2000 PLUS" project: an international experience for each KATHO student from the year 2000 onwards! All our departments have exchange programmes – incoming as well as outgoing – for individual students or for student groups. KATHO has over 200 international exchange partners worldwide where the students can gain study and professional experiences. Every year KATHO organises international study days, seminars, study trips abroad and we invite foreign guest speakers. This experience is an enrichment for every student. Adding an international dimension to our higher education programmes through lecturer and student mobility is a deliberate choice, which is also reflected in the courses. Next to this, internet contacts, e-mailing, videoconferencing and e-learning platforms are used on a regular basis to promote distance and lifelong learning.

KATHO consists of 4 sites, 6 study areas, 7 departments, and 20 practice-oriented basic trainings with 40 specialisations. The staff of Department of PHO, whose study area covers Education offering the following bachelor degrees: Pre Primary School Teacher Training and Primary School Teacher Training, is made up of 50 full-time equivalents. We train 1100 full-time students; 600 students in the initial teacher training program, and 500 students in an open setting that promotes distance and lifelong learning. PHO also gives courses and workshops in the Centre for Permanent Education (CPE) for students and teachers. The campus also trains 100 students in the In-Service Training for Special Needs Schools (VOBO) for the whole of catholic education in the province of West Flanders.

The department cooperates with other departments of the region and with the University of Leuven on educational materials. There's an intensive exchange program for teachers and students with PABO INHOLLAND (Rotterdam) There's an intensive cooperation with a lot of pre primary and primary schools in the region and with educational organisations such as the Regional Technological Centre West-Flanders (RTC Z & M West-Vlaanderen), in order to stimulate the cooperation between education and the labour market by initiating and coordinating scientific and technological orientated projects

Since 2002 Mr. Kristof Van de Keere from KATHO-PHO is a member of the thematic Comenius 3 network RIAC ("Regional Identity and Active Citizenship") subsidised by the EU. He is coordinator for Belgium in the steering group of RIAC. In that function he helps organising conferences/contact seminars such as the RIAC conference in Malta from 17-21 November 2003. For RIAC he studied the Flanders education curriculum and contributed to the publication of a report on Regional Identity and Active Citizenship as concepts treated in curricula of selected European Countries and Regions. A result of this study was the impression that the role of the scientific thinking process and its social impact on citizenship in the European Union weren't mentioned in the curricula of different European countries. This proposal is an outcome of this research.

Kristof Van de Keere, graduated as a biologist at the University of Ghent is a lecturer of Science education and World orientation at the KATHO-PHO primary school teacher training. In this function he monitors students making papers and materials concerning sciences and technology in cooperation with local primary schools and institutions such as TOS21 (Promoting Technological Education in primary schools) and RTC (Regional Technological centre). Besides teaching Science, he is also coordinator of the Initial primary school teacher training program and co operant of the In-service training within the Centre for Permanent Education (CPE).

Mrs. Nele Mestdagh, graduated as bio-engineer at the University of Ghent, is a lecturer of Maths and Science education at KATHO-PHO pre school teacher training. She is a co operant of the In-service training within the Centre for



Permanent Education (CPE). She provides (pre primary) teachers and students with elaborated courses and teaching materials. She is also coordinator of the Initial pre primary school teacher training program. She is a member of ETEN (European Teacher Education Network) in the TIG (Thematic Interest Group) 'Early Learners'. Within the 'Multimedia/ICT in the Early Years'-Leonardo Da Vinci-project, a transnational pilot project, she did research into the benefits of ICT/MM towards children's thinking and cognitive development.

Specific tasks:

Mr. Kristof Van de Keere and Mrs. Nele Mestdagh will coordinate the project as a whole.

Kristof Van de Keere will be the project coordinator (All correspondence relating to the project will be addressed to him) and is responsible for the didactical and scientific quality of the project as a whole.

Nele Mestdagh will be responsible for the financial and organising aspects of the project as a whole.

General tasks:

Organisation of the second working session in KATHO-department PHO-Belgium half of May 2006, in order to discuss and finish the creation of the learning line for scientific thinking from pre primary up to primary schools.

In cooperation with the partner institutions: to Choose a global model for scientific thinking in pre primary and primary schools as a common starting point.

Develop a learning line for scientific thinking in pre primary and primary schools in cooperation with the other partner institutions.

Collection, creation and testing of pedagogical materials and work packages conform the learning line for scientific thinking for all levels of pre primary and primary schools in cooperation with the other partners.

Dissemination of the learning line of scientific thinking, pedagogical materials and work packages (articles, website, media, international workshops and conferences and 'meet and greet' sessions) in cooperation with the other partners.

Organize meetings with a local feedback group to evaluate interim results in order to improve the project.

GERMANY

University of Education, Karlsruhe

Department for integrated social and science studies in primary school (Abt. Sachunterricht)

The university of Karlsruhe is a public university for teacher education with 3000 full-time-students. Additionally about 200 students go for an international certificate (Europalehramt).

The department for integrated social and science studies in primary school trains more than 800 students aiming to become a teacher for primary education. The department cooperates with other departments of the university in Karlsruhe and with universities in the region and in several countries of Europe. The final certificate of the university enables the students to apply for a job in public primary schools. The department offers in-job-training for teachers and cooperates with a number of regional schools in improving lecturing and materials.

Since 2001 Prof. Dr. Walter Kosack is head of the department. He coordinates several research projects about learning and teaching in science education considering mental representation, conceptual change and gender aspects. He has been working as a supervisor in public schools and was responsible for the development of new curricula in the country Baden-Württemberg (South Germany). He has been working as co-author for several teachers' compendiums and schoolbooks.

Daniela Schmeinck is working for a doctoral candidate. She coordinates the research programs and the national and international meetings with cooperating institutions and universities. She is editor of a book and several articles presenting the results of research of conceptual change. Furthermore she provides teachers and students with elaborated teaching materials and teaching compendiums.

Specific tasks:

Project partner, organisation of the final working session in the University of Education-Karlsruhe-Germany by the end of September 2008, in order to evaluate the workshops, to do a general evaluation of the project and to plan a follow up for the project.

in cooperation with the partner institutions: to choose a global model for scientific thinking in pre primary and primary schools as a common starting point.

Develop a learning line for scientific thinking in pre primary and primary schools in cooperation with the other partner institutions.

Collection, creation and testing of pedagogical materials and work packages conform the learning line for scientific thinking for all levels of pre primary and primary schools in cooperation with the other partners.

Dissemination of the learning line of scientific thinking, pedagogical materials and work packages (articles, website, media, international workshops and conferences and 'meet and greet' sessions) in cooperation with the other partners. Organize meetings with a local feedback group to evaluate interim results in order to improve the project.

FRANCE

LA LORRAINE

Academic inspection de meurthe et moselle

The Inspection Académique in Nancy is responsible for all primary schools, all lower-secondary schools and all Special Needs Schools in the Department of Meurthe et Moselle in Lorraine. The Inspection Académique determines its own pedagogical aims, objectives and evaluations for all the schools in the department. The Inspection Académique organises all In-Service training for primary school teachers and Head-teachers and for Special Needs teachers together with "The I.U.F.M. de Lorraine" (University Pedagogical Institute for the training of teachers).

The Inspection Académique in Nancy has already had a good experience in the area covered by the project : Scientific thinking is one of their main concerns in the (pre) primary and primary schools in the region. The Academic inspection in Nancy is involved in a pluri annual work on sciences called "La main à la pâte" ; the aim of this network is to develop scientific activities in the pre primary and primary classes.

The Inspection Académique in Nancy has always worked on the development of active partnership between schools and institutions in Europe. It has already had a good experience in International Co-operation in the past 30 years with Germany (Active School partnerships, joint In-Service training courses and exchange of teachers between the land of Hesse and Nancy).

Since 1995, the Inspection Académique has also developed a very good experience in European partnerships. Mr Jacques Marchal – also member of Comenius 3 RIAC steering group - Inspector of Education in Nancy, has been designated since 1995 as Co-ordinator for all European projects in Nancy. He has developed good experience through several European projects:

In the past years, there has been experience through E.U. Comenius 2 (ex 3.1.) projects and Lingua projects.

There has been participation as a steering group member of the comenius 3-project RIAC, partner (national Co-ordinator) of comenius 3- project "Stanislas" (1995-1998), co-ordination of one Comenius/ Action 3. project (1996-1999-Project Maid Marion), co-ordinator of a Comenius 2 project (2000-2003-Project Europe Plus), organisation of 3 trans-national 3.2 In Service Training courses that took place as an outcome of the Comenius/Action 3.1 Project Maid Marian in Nancy (1997-1999-2000) and co-ordination of a Lingua Project.

Specific tasks:

Project partner,

Coordination of the evaluation rapport based upon the evaluations of the feedback groups and the written remarks by each dissemination in the different countries.

in cooperation with the partner institutions: to choose a global model for scientific thinking in pre primary and primary schools as a common starting point.

Develop a learning line for scientific thinking in pre primary and primary schools in cooperation with the other partner institutions.

Collection, creation and testing of pedagogical materials and work packages conform the learning line for scientific thinking for all levels of pre primary and primary schools in cooperation with the other partners.

Dissemination of the learning line of scientific thinking, pedagogical materials and work packages (articles, website, media, international workshops and conferences and 'meet and greet' sessions) in cooperation with the other partners.

Organize meetings with a local feedback group to evaluate interim results in order to improve the project.

POLAND

Teacher training Centre, Lomza

The Teacher Training Centre in Lomza is an educational institution, organizes in-service training by conducting various courses and workshops, prepares teachers for the implementation of educational system reform, supports the movement of pedagogical innovation and creates favorable conditions for supporting various forms of cooperation and exchange of professional experience among teachers. The TTC in Lomza also organises conferences and seminars and cooperates with teachers from over 170 primary schools and 40 kindergartens. Every year, about 4 thousand teachers of different types of schools are participants of courses and conferences organized and executed by Teacher Trainers from Teacher Training Centre in Lomza.

There has been cooperation at local, regional, national and trans-national level (Russia, Ukraine, Lithuania). In the field covered by project Comenius 2.1 "Scientific thinking in kindergarten and primary school", the Teacher Training Centre in Lomza has been a main organizer of the drama workshops raising enthusiasm for science and solving ecological problems

Wojciech Sidor was graduated from The Technical University of Warsaw, The University of Szczecin. He is an Experienced Teacher Trainer, ICT Specialist and Marketing Expert.

Dr Elzbieta Osewska was graduated from The Catholic University in Lublin, holds Doctorate in Theology in the field of Pastoral Theology, besides she's a Licentiate in Religious Education. She has worked both in Poland and through Europe, giving seminars and workshops. As a Assistant Professor at Cardinal Stefan Wyszyński in Warsaw and Teacher Trainer in the Teacher Training Centre in Lomza she participated in international conferences and symposia. She has been a visiting lecture at the Catholic University in Leuven, "Lumen Vitae" in Brussels and Oxford University

Specific tasks:

Project partner, organisation of a working session in Teacher training Centre-Lomza-Poland, October 2007 in order to organize the dissemination of the learning line of scientific thinking and good practises by planning international work shops in the different partner institutions and presentations at European conferences.

in cooperation with the partner institutions: to choose a global model for scientific thinking in pre primary and primary schools as a common starting point.

Develop a learning line for scientific thinking in pre primary and primary schools in cooperation with the other partner institutions.

Develop a website where the results (scientific thinking model and learning line, articles, good practises, discussion forum) of the project will be published.

Doing the IT support for the project (website, e-mail, video conferencing, pedagogical materials and work packages on DVD)

Collection, creation and testing of pedagogical materials and work packages conform the learning line for scientific thinking for all levels of pre primary and primary schools in cooperation with the other partners.

Dissemination of the scientific thinking model, pedagogical materials and work packages (articles, website, media, workshops and 'meet and greet' sessions) in cooperation with the other partners.

Organize meetings with a local feedback group to evaluate interim results in order to improve the project.

SCOTLAND

University of Dundee

Faculty of Education and Social Work,

The University of Dundee is one of seven providers of initial teacher education in Scotland. The Faculty was formed as result of the merger of Northern College of Education and University of Dundee in 2002. It also is a national provider of award bearing (MEd) and non award bearing continuing professional development for serving teachers.

The research team at the University of Dundee have experience in a previous national project on peer learning in primary mathematics focused on problem -solving (www.dundee.ac.uk/psychology/Problem-Solving) and a current UK-wide project on cooperative learning in primary science (www.groupworkscotland.org). Preliminary results from the project on cooperative learning in primary science indicated that developing generic groupwork skills in pupils resulted in cognitive gains in the science curriculum area (Christie, Topping, Thurston, Tolmie, Livingston, Howe, Jessiman, & Donaldson, 2004). The team recently published a practitioner's guide to undertaking science groupwork with pupils aged 4-12 (Topping & Thurston, 2004). This project involved collaboration with partners both within Scotland (from University of Strathclyde) and from outwith Scotland (from Universities of Brighton, Cambridge and the Institute of Education at the University of London). The research team have recent research experience in relevant field of science education (eg Thurston, Grant and Topping, 2005) and the effective use of information and communications technology to support continuing professional development for teachers (eg van der Kuyl and Thurston, 2001; Scottish Teacher Education Consortium, 2001; Catto and Thurston, 2002; Thurston and Morris, 2002; Thurston, 2004; Thurston, 2005).

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Allen Thurston is Senior Lecturer in Educational at the University of Dundee. He is a member of the Faculty Research Committee and Chairs the Faculty Research Group on Core Skills. His research interests focus on the relative roles of cognitive and social constructionism as theories of learning. He is part of the Phase II Scottish Extension to the Teaching and Learning Research Programme on developing group work skills and the social dimensions of learning. He was ICT development officer for this project. He also has a long standing interest in the development effective pedagogies for elearning. He has recently been involved in the development and evaluation of elearning environments that maximise peer-peer and peer-tutor interactions. He is a member of the Executive Committee of the Scottish Education Research Association. He is organiser of the Association for Information Technology in Teacher Education Annual Conference due to be based in Dundee in July 2005.

He is an experienced teacher and provider of continuing professional development for teachers. He is the Programme Leader for the Master of Education degrees in Education Management and Training and Development. He is a member of the Faculty Academic Standards Committee. He made a major contribution to the Scottish Teacher Education Consortium New Opportunities Fund Information and Communications Technology initiative. He developed a number of learning units for this initiative and worked closely with the Scottish Interactive Technology Centre in the design and development of the elearning environment used to deliver training to teachers. He has worked as a consultant on learning technology for the World Wide Fund for Nature and the Scottish Football Association.

University of Dundee is one of seven providers of initial teacher education in Scotland. The Faculty was formed as result of the merger of Northern College of Education and University of Dundee in 2002. It also is a national provider of award bearing (MEd) and non award bearing continuing professional development for serving teachers.

Specific tasks:

Project partner, organisation of a working session in the Faculty of Education and Social Work-Dundee-Scotland, by the end of January 2007 to discuss and to evaluate the proposed work packages and materials (from the different partners) conform the scientific thinking learning line.

Choose in cooperation with the partner institutions a global model for scientific thinking in pre primary and primary schools as a common starting point.

Develop a learning line for scientific thinking in pre primary and primary schools in cooperation with the other partner institutions.

Collection, creation and testing of pedagogical materials and work packages conform the learning line for scientific thinking for all levels of pre primary and primary schools in cooperation with the other partners.

Dissemination of the learning line of scientific thinking, pedagogical materials and work packages (articles, website, media, international workshops and conferences and 'meet and greet' sessions) in cooperation with the other partners.

Organize meetings with a local feedback group to evaluate interim results in order to improve the project.

MALTA

UNIVERSITY OF MALTA

Faculty of Education

The University of Malta, approximately 8000 students, has a range of Faculties amongst them Architecture, Engineering, Education, Management, Science, Arts, Mediterranean studies, Medicine, Pharmacy etc. 400 academic staff and over 400 administrative staff. It is the sole University on the island.

The Faculty of Education within the University of Malta has about 50 full time staff and is mainly involved in pre-service teacher training. It runs two parallel courses, one for primary schools teachers and the other for secondary school



teachers both leading to a degree in Education (B.Ed.(Hons)). The Faculty also organises a number of other courses in Education, ranging from diploma level to post graduates. The Faculty staff are strongly involved in carrying out research work in education and many times form part of educational projects in the community. A number of the staff form part of EU activities, forming part of Thematic Networks and other Comenius/Action 3 project. It has also established a number of Erasmus agreements with a number of Universities promoting both student and staff exchange. The faculty is currently making efforts to have a more European dimension (see below).

Dr. Suzanne Gatt is lecturer in Primary Science & Environmental Education and is doing a lot of research in this field. She's also ERASMUS coordinator for incoming and outgoing students at the Faculty of Education starting August 2004. Engagements of Dr. Suzanne Gatt in European projects:

- Partner in the Leonardo project, FAIR, to start October 2004 and carrying a budget of about 25,000euros for the University of Malta.
- Part of committee submitting ERASMUS Thematic network for Science educators (EBISTED) with 100 European institutions involved – full proposal was not accepted.
- Partner in Comenius 3 network HiSci promoting Comenius 1 and 2 projects in Science (2003-2006) Budget allocated 20,000 euros.
- Partner in the Jean Monnet Project 'SMEs and EU enlargement' January –December 2004. Budget allocated 10,000 euros.
- Partner in the organisation of Intensive courses (IP) for primary school teachers-first course is to be held in Malta May 2003, the second course is to be held in Brno, Czech Republic in April 2005.
- Partner in the Erasmus network 'Science Teacher Education and Development' (STEDE) (2000-2003).
- Commissioned by the EUPU ((European Union Projects' unit) as expert in the field of Education to compile a Dossier on Education in Malta for the Eurydice European Unit, The Information network on Education in Europe, Brussels. .(2002)
- Partner representing University of Malta for a Comenius 3 Network proposal on Regional Identity and Active citizenship (RIAC). Twelve local schools are included in this network. (2002) Budget allocated 5,000 euros.
- Commissioned by the EUPU (European Union Projects' unit) as expert in the field of teacher-training for the study on "Attractiveness, profile and occupational content of the teaching profession" for the Eurydice European Unit, The Information network on Education in Europe, Brussels. (2001)
- Nominee designate as Faculty Member responsible for the credit transfer system of EU Erasmus student exchange programmes.(2000-2001)
- Contact person on behalf of the University of Malta for the Thematic Network in Physics, EUPEN (European Physics Education Network), forming part of the Socrates programme.(2000)
- Acted as consultant to St. Martin's College in the submission of application for participation in a Comenius 1 Project.(2000)

Research Projects of Dr. Suzanne Gatt, concerning science education in primary schools

- Collaborative research on the image of science and scientists with the University of Port Elisabeth, South Africa. (2004 to date)
- Collaborative research on children's ideas on animals and plants with the Institute of Education, University of London.(2003- to date)
- Research on the School to work Transition for ETC (Education and Training Centre) (2002-2004)
- Project co-ordinator in a curriculum development project of a science syllabus for 13-16year old students, funded by the University of Malta.(1995)

Publications :

Books:

- Gatt, S. & Vella, Y. (eds.), (2003), Constructivist Teaching in Primary School: Examples in Social Studies, Science, Mathematics, Design and Technology and ICT, Malta: Agenda Publishers
- Gatt, S. (ed.), (2004), Proceedings of the CASTME Conference 'Linking Science, Technology and Mathematics, and their Social Relevance, HELD 10-13 April 2002, St. Julians, Malta.
- Chapters in Books
- Gatt S., Promoting the Construction of Knowledge in Practical Work, Proceedings of the 1st International Conference on Hands on Science ,held in Ljubjana, Slovenia, July 2004.
- Gatt, S., (2004), Predicting Students' Performance in SEC Physics, in Proceedings of The 2nd Conference of Commonwealth Examination and Accreditation Bodies, Malta, 18-22 March 2002, Malta.

- Gatt, S., (2004), 'Building on children's Ideas : Examples of Constructivism in Primary Science', Proceedings of CASTME (Commonwealth Association of Science, Technology and Mathematics Education) Europe conference, Linking Science, Technology and Mathematics Education and their Social Relevance, Malta, 10th-13th April 2002.
- Gatt, S., (2003), Constructivism: An Effective Theory of Learning, in Gatt, S. & Vella, Y. (eds.), (2003), Constructivist Teaching in Primary School: Examples in Social Studies, Science, Mathematics, Design and Technology and ICT, Malta: Agenda Publishers.
- Gatt, S., (2003), Helping Young Children understand Science Concepts in Gatt, S. & Vella, Y. (eds.), (2003), Constructivism in Primary School: Examples in Science, Mathematics, Design and Technology, ICT and Social Studies, Malta: Agenda Publishers.
- Early Science Education, in Pace, P. Research Project Report commissioned by Malta Council for Science and Technology. (2000)
- Papers in Journals
- Gatt S. (in press), Bringing the Social Aspect in Primary Science, *CASTME International Journal*.
- Borg N., & Gatt S., (in press) Teaching approaches used to teach Newton's Laws of Motion in Malta, *Mediterranean Journal of Mathematics Education*.
- Gatt, S., & Micallef C., (in press), Science Education and Career Choice, *Mediterranean Journal of Mathematics Education*.
- Gatt, S., (2004), Empowering Primary teachers to teach science in Malta, *Science Teacher Education Journal*, June 2004, No.39, 1-4.
- School Differences in Physics examinations for Grammar type schools in Malta" (2003) Special Issue, *Mediterranean Journal of Educational Studies*, Vol. 8, No.1, 43-60
- Science Education in Malta, *ICASE International Journal*, March 2000.
- Problem Solving, *Primary Science Review*, Jan/Feb 2000, p 8-10.
- Helping Students understand Physics: An example of Newton's Third Law of Motion, , *Education 2000*, Vol. 6, 36-38.
- Science Education in Malta, *ICASE Steps International*, (1999), Volume 9. No.1 pg.6.
- Primary Science Education in Malta : A 40 year old Struggle towards Recognition *ICASE Steps International*, (1998) Volume 8. No.4 p9-11.
- Science at Primary Level, *Education 2000*, (1997) Vol. 2, 1-2
- Why Physics seems to be beyond some students' grasp (1996) Xjenza, Volume 1, No.2, pg. 26-29

Specific tasks:

Project partner, organisation of the first working session half December 2005 to start the discussion and exchange of ideas, information, curricula, materials and experiences among the different participants.

In cooperation with the partner institutions: to choose a global model for scientific thinking in pre primary and primary schools as a common starting point.

Develop a learning line for scientific thinking in pre primary and primary schools in cooperation with the other partner institutions.

Collection, creation and testing of pedagogical materials and work packages conform the learning line for scientific thinking for all levels of pre primary and primary schools in cooperation with the other partners.

Dissemination of the learning line of scientific thinking, pedagogical materials and work packages (articles, website, media, international workshops and conferences and 'meet and greet' sessions) in cooperation with the other partners.

Organize meetings with a local feedback group to evaluate interim results in order to improve the project.

4.2 Formal partner institutions

An enlarged involvement of (pre) primary schools, research institutes and industries is necessary in order to evaluate and to get their feedback on educational and special competencies needs. This will happen on regular meetings during the project in a feedback group. They will make the link between the scientific thinking model and the working floor (eg PDCA and other problem solving methods) clear. Research institutes and industry will also help to provide and develop materials for good practices during the project. One of the tasks during the first stage of the project is to find these local partners to form the feedback group.

5. Evaluation

The **reference list and the chosen model for scientific thinking in (pre)primary schools** will be laid down in a document that will be offered to and discussed within a feedback group of local partners out of pre primary and primary schools, industry, technological education institutions and inspection in each of the partner institutions. An assessment form will be part of this and will be used as a method for quality control (timing: January– March 2006).

The same will be done with the **learning line from pre primary up to primary school** between June – September 2006.

These feedback groups will not travel between the different partner institutions. They act as local evaluators, so the costs within the project funding will be limited for this part.

The board of ETEN, Hands on Science Network, EUROGEO will function as a monitoring body throughout the entire project. (no money from Socrates required)

The publishers of educational magazines in the countries of each of the partner institutions play an important role in the assessment and quality control of the content of the **articles** written by the representatives of each partner institution in this project. (timing 01.09.2006 for the first article about the developed learning line for scientific thinking and 01.04.2007 for the one about the didactic/pedagogical materials and work packages developed.

Feedback groups give also comments and suggestions on the articles that will be published.

Concerning the interactive website Karl Donert (see below), as a computer expert, will set up a web page in the STIPPS domain dedicated to evaluation. This will both accompany the activities as well as giving feed back on the results.

The process of quality control towards the **interactive CD/DVD with the pedagogical materials and work packages** is embedded in this project

- By cooperation with research centra and industries to help us create the materials necessary for the experiments.
- By cooperation with the local feedback groups in each of the partner institutions
- By trying out, testing and evaluating the learning line and materials that are developed for pre primary and primary schools. This will be done by 'last year-students' of the teacher education institutions and teachers of local pre primary and primary schools and the feedback group. Work packages will be improved and adapted based upon the results of the testing.
- By monitoring of the progress by the ETEN-network, discussing it during the ETEN annual meetings. (no money from Socrates required)

Each of the **workshops** (organized between 01.11.2007 – 01.06.2008) concerning the learning line of scientific thinking, didactic materials and good practises will be evaluated by the participants of the workshop through an evaluation form.

Note:

The partners in the STIPPS-project have decided for the project to be evaluated by a qualified lecturer with a lot of experience in Comenius projects. Karl Donert isn't directly connected with any of the participating institutions and will do the external evaluation.

Karl Donert is an International Fellow and Senior Lecturer at Liverpool Hope University College (<http://www.hope.ac.uk>) in the North West of England. He is responsibility for European links, connections, projects and activities. As a lecturer, he teaches students about Information Management and Communications. He is also involved in teacher training and professional training in the use of ICT, in Geography and other subject areas. These include training, advice and special projects. His research interests are mainly associated with supporting student and pupil learning with the specific focus on Geographical studies and the importance of citizenship in Geography. He is also involved in the POESIA Project (SAFER Internet) to create, test and evaluate more effective Internet protection software for organisations like schools. As a computer expert, Karl Donert will set up a web page in the STIPPS domain dedicated to evaluation. This will both accompany the activities as well as giving feed back on the results.

It is to be emphasised that Karl Donert is going to make a limited amount of own funds available for the project for the funding of materials required (postage, ICT). Furthermore, the infrastructure (usage and software for evaluating statistics) will also be made available for use.

6. Dissemination

6.1 short-term dissemination

The subject of dissemination will be a learning line for scientific thinking from pre primary up to primary school and good practises based upon this learning line.

In the first place the dissemination will be done by a STIPPS-website. This internet platform is a necessary requirement towards achieving our aim for the following reasons:

- It enables all partners in the project to communicate with one another and it is a way of gaining information about the project. It offers all those participating in the project the opportunity to discuss topics related to the project via a closed area - discussion forum. The partners in the individual countries are the participating universities and other institutions of education, the local feedback groups, the teachers participating in the project, the participating (pre) primary schools with their respective mentors, colleagues and headmasters as well as students that work within the project.
- The website will offer an insight into the work of the participating European countries throughout the running of the project for all visitors such as other institutions and universities, which intend to increase their knowledge into the scientific thinking process. This means also that the created pedagogical material during the project will be published on the website so that other institutions and (pre) primary schools can use them with their pupils.
- The website will announce the courses and workshops that will take place in the participating institutions and universities during the third year of the project.

The server will certainly be accessible until October 2010 so that the results will still be available after the conclusion of the project.

The teacher training centre in Lomza, Poland will coordinate this part of the dissemination process and will update the website on regularly basis.

In the second place the dissemination of the model for scientific thinking at the learning line with good practises will happen by publishing articles in local and international pedagogical journals. KATHO will coordinate this part of the dissemination process and will ensure that participating institutions offer their contribution to the articles. These articles will also be published on the website in English. The articles will be translated by the coordinators of the participating institutions in the local language.

In the third place there will be a promotion campaign for the project to announce the courses and/or workshops that will take place in the third year of the project. The coordinators of the participating institutions will be responsible for coordinating this promotion campaign. This promotion campaign will be done with folders, brochures, announcements in local teacher magazines and by local press.

Finally the dissemination will happen by organising international courses and/or workshops in the participating institutions of the project during the third year of the project. The courses and/or workshops will be attended by teachers of (pre) primary schools and lecturers of teacher training institutions. The coordinators of the participating institutions will be responsible for coordinating these courses or workshops in their institution.

6.2 Long-term exploitation

The Internet server operation will be ensured till October 2010. So you will get results after the closing date of the project.

There will be a DVD production with the publication of the scientific thinking model and the learning line together with the pedagogical material and movies that shows how you can use the work packages with the pupils. This will be an interactive DVD production with an easy to use menu.

All teachers that cooperated in this project will disseminate the results and good practises in their own institutions, in local work groups, in informal contacts long after the project will be finished.

The project and workshop participants will be able to serve as pattern makers in their schools and communities in the subject of implementing the scientific thinking model in science teaching, and will establish a number of international contacts that will enlarge their perspectives as educators but also as citizens of an enlarged European Union.

Furthermore important results of the project on websites of participating universities or institutions ensure the long-term exploitation of project results.

7. Planning of activities

see next page

Work Plan

Project: STIPPS					
<i>Stage in life of project</i>	<i>Outputs / Achievements</i>	<i>Activities</i>	<i>Start and end date of activities</i>	<i>Partners / Persons involved</i>	<i>Time input (person / days or person / months)</i>
1. Start of the project – theoretical vision and model of scientific thinking for young children (pre) primary - website	<p>From the research of fundamental concepts in Science teaching, development of a global model for scientific thinking in pre primary and primary schools</p> <p>Basic website with discussion forum will be created by teacher training centre in Lomza, Poland</p> <p>Creation of a local 'feedback group' with local partners out of pre primary and primary schools, industry, technological education institutions, inspection.</p>	<p>Out of the pedagogical knowledge about the conceptual change in scientific thinking in the partner institutions, we will choose/agree about a global model for scientific thinking. Exchange of information, ideas, materials, curricula, expertise will take place between the partners.</p> <p>A working session at University of Malta is planned in order to exchange information and expertise between the partners and to agree about a common model for scientific thinking in (pre) primary schools as a starting point for this project.</p> <p>Appointments for the creation of a website to sustain the project are also made during this meeting.</p> <p>Form a feedback group of local partners out of pre primary and primary schools, industry, technological education institutions, inspection in order to do a follow up, give advice, evaluate the project.</p> <p>By the end of this stage the model will be proposed to different local partners in the 'feedback groups' in order to give advice and to evaluate.</p>	<p>1 October 2005 – 1 January 2006</p> <p>working session: half of December 2005</p>	<p>University of Education Karlsruhe, Germany Department of Science Education in primary school D. Schmeinck W. Kosack</p> <p>University of Dundee Faculty of Education and Social Work, Scotland A. Thurston</p> <p>Inspection Académique de Meurthe et Moselle, France Academic inspection, teacher training department J. Marchal</p> <p>Katholieke Hogeschool Zuid-West-Vlaanderen, Belgium Department Teacher training K. Van de Keere N. Mestdagh</p> <p>Teacher Training Centre in Lomza, Poland W. Sidor E. Osewska</p> <p>University of Malta Department of Primary Education S. Gatt</p>	<p>6 persons / 5 days (preparation of global model for scientific thinking, theoretical vision, all partners)</p> <p>1 persons / 3 days (organizing working session at University of Malta)</p> <p>7 persons / 3 days (working session at University of Malta)</p> <p>1 person / 3 days (creation of website, by partner in Poland)</p> <p>2 persons / 5 days (coordination of the project)</p> <p>BE: 5+6+10 = 21 DE: 5+3 = 8 FR: 5+3 = 8 PL: 5+3+3 = 11 UK: 5+3 = 8 MT: 5+3+3 = 11</p> <p>total: 67 working days</p>

<p>2. Creation of a learning line from pre primary up to primary schools</p>	<p>Based upon the theoretical vision and global model of fase 1 and taking into account the advice of the feedback groups, the partners each develop a learning line for scientific thinking in pre primary and primary schools according to their curriculum (national context)</p> <p>An article will be written out of stage 1, and 2. It will be published in pedagogical magazines in the countries of the partners and it will also be published on the STIPPS website. All articles will be in English, but the publication of the articles in the local pedagogical magazines will be in the language of the different partners</p>	<p>Exchange of the different learning lines will take place between the different partners and out of this a transnational (global) learning line from pre primary to primary education will be developed.</p> <p>This line will be finished at a working session at KATHO, Belgium.</p> <p>The global learning line will be proposed to different local partners in the 'feedback groups' in order to give advice and to evaluate. Feedback groups give also comments and suggestions on the articles that will be published.</p>	<p>1 January 2006-1 June 2006</p> <p>working session half May 2006</p>	<p>University of Education Karlsruhe, Germany Department of Science Education in primary school D. Schmeinck W. Kosack</p> <p>University of Dundee Faculty of Education and Social Work, Scotland A. Thurston</p> <p>Inspection Académique de Meurthe et Moselle, France Academic inspection, teacher training department J. Marchal</p> <p>Katholieke Hogeschool Zuid-West-Vlaanderen, Belgium Department Teacher training K. Van de Keere N. Mestdagh</p> <p>Teacher Training Centre in Lomza, Poland W. Sidor E. Osewska</p> <p>University of Malta Department of Primary Education S. Gatt</p>	<p>6 persons / 10 days (creation of 'national' learning lines, all partners)</p> <p>1 persons / 3 days (organizing working session at KATHO, Belgium)</p> <p>7 persons / 3 days (working session at KATHO, Belgium)</p> <p>1 person / 2 days (follow up of website, by partner in Poland)</p> <p>6 persons / 3 days (writing and translating the article)</p> <p>2 persons / 5 days (coordination of the project)</p> <p><i>2*6 working days (evaluation by local feedback group)</i></p> <p>BE: 10+3+6+3+10 = 32 DE: 10+3+3 = 16 FR: 10+3+3 = 16 PL: 10+3+2+3 = 18 UK: 10+3+3 = 16 MT: 10+3+3 = 16</p> <p>total: 114 working days for partners</p> <p>SOCRATES PROGRAMME</p>
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<p>3. collection and creation of pedagogical materials and work packages for (pre) primary schools conform the learning line (from stage 2)</p>	<p>Creating pedagogical materials and work packages (tools/tips for teachers, manuals and preparations) conform the model and the learning line for scientific thinking for all levels of pre primary and primary schools.</p> <p>University of Education Karlsruhe, Germany will coordinate the making of an interactive CD/DVD with work packages</p>	<p>During this stage we want to create and collect examples of good practise where the model and learning line is integrated for all levels of pre primary and primary schools.</p> <p>Research centra and Industries will help to create the materials necessary for the experiments. Therefore we cooperate with the partners from the 'feedback groups'.</p> <p>During this stage, all the partners will integrate ICT while creating the pedagogical materials and work packages (filming of experiments, editing, creation of interactive CD, DVD)</p>	<p>1 June 2006 – 1 January 2007</p>	<p>University of Education Karlsruhe, Germany Department of Science Education in primary school D. Schmeinck W. Kosack</p> <p>University of Dundee Faculty of Education and Social Work, Scotland A. Thurston</p> <p>Inspection Académique de Meurthe et Moselle, France Academic inspection, teacher training department J. Marchal</p> <p>Katholieke Hogeschool Zuid-West-Vlaanderen, Belgium Department Teacher training K. Van de Keere N. Mestdagh</p> <p>Teacher Training Centre in Lomza, Poland W. Sidor E. Osewska</p> <p>University of Malta Department of Primary Education S. Gatt</p>	<p>6 persons / 20 days (creation and coordination of the development of materials and packages)</p> <p>1 person / 2 days (follow up of website, by partner in Poland)</p> <p>2 persons / 3 days (working on interactive CD/DVD)</p> <p>2 persons / 5 days (coordination of the project)</p> <p>BE: 20+10 = 30 DE: 20+6 = 26 FR: 20 = 20 PL: 20+2 = 22 UK: 20 = 20 MT: 20 = 20</p> <p>total: 138 working days</p>
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<p>4. testing and evaluation of the pedagogical materials and work packages by the local feedback groups – publishing on website and articles</p>	<p>Testing of the pedagogical materials and work packages by students of the different partner institutions and teachers of the different countries.</p> <p>the work packages will be published on the website and at least one article in a pedagogical magazine in each partner country will be published.</p>	<p>During this stage we will test and evaluate the learning line and materials that are developed for pre primary and primary schools. This will also be done by 'last year-students' of the teacher education institutions and teachers of local pre primary and primary schools and the feedback group.</p> <p>Work packages will be improved based upon the results of the testing.</p> <p>During this stage of the project, one meeting will be planned at the Faculty of Education and Social Work in Scotland to discuss and to evaluate the proposed pedagogical materials and work packages from the different partners, and to discuss the organisation of the promotion campaign.</p> <p>Working on the interactive CD/DVD with pedagogical materials and work packages.</p>	<p>1 January 2007 -15 March 2007</p> <p>working session by the end of January 2007</p>	<p>University of Education Karlsruhe, Germany Department of Science Education in primary school D. Schmeinck W. Kosack</p> <p>University of Dundee Faculty of Education and Social Work, Scotland A. Thurston</p> <p>Inspection Académique de Meurthe et Moselle, France Academic inspection, teacher training department J. Marchal</p> <p>Katholieke Hogeschool Zuid-West-Vlaanderen, Belgium Department Teacher training K. Van de Keere N. Mestdagh</p> <p>Teacher Training Centre in Lomza, Poland W. Sidor E. Osewska</p> <p>University of Malta Department of Primary Education S. Gatt</p>	<p>6 persons / 10 days (coordination of the testing fase)</p> <p>1 persons / 3 days (organizing working session at Faculty of Education and Social Work in Scotland)</p> <p>7 persons / 3 days (working session at Faculty of Education and Social Work in Scotland)</p> <p>6 persons / 3 days (writing, translating article)</p> <p>1 person / 2 days (follow up of website, by partner in Poland)</p> <p>2 persons / 3 days (working on interactive CD/DVD)</p> <p>2 persons / 5 days (coordination of the project)</p> <p><i>2*6 working days (evaluation by local feedback group)</i></p> <p>total: 120 working days for partners</p>
<p>BE: 10+6+3+5+5 = 29 DE: 10+3+3+6 = 22 FR: 10+3+3 = 16 PL: 10+3+3+2 = 18 UK: 10+3+3+3= 19 MT: 10+3+3 = 16</p>					

5. promotion campaign	Promotion activities including the dispersal of flyers/folders, promotion in media, the website, articles	the work packages and the model created during the project will be proposed during work shops organized by the partners (see stage 6). To promote these workshops, the work packages and the learning line (based upon the global model chosen), there will be a dispersal of flyers/folders, promotion in the media and on our website.	15 March 2007 – 30 September 2007	<p>University of Education Karlsruhe, Germany Department of Science Education in primary school D. Schmeinck W. Kosack</p> <p>University of Dundee Faculty of Education and Social Work, Scotland A. Thurston</p> <p>Inspection Académique de Meurthe et Moselle, France Academic inspection, teacher training department J. Marchal</p> <p>Katholieke Hogeschool Zuid-West-Vlaanderen, Belgium Department Teacher training K. Van de Keere N. Mestdagh</p> <p>Teacher Training Centre in Lomza, Poland W. Sidor E. Osewska</p> <p>University of Malta Department of Primary Education S. Gatt</p>	<p>6 persons / 5 days (coordination of the promotion campaign in the different countries)</p> <p>1 person / 2 days (follow up of website, by partner in Poland)</p> <p>2 persons / 4 days (finishing the interactive CD/DVD)</p> <p>2 persons / 5 days (coordination of the project)</p> <p>BE: 5+5+5 = 15 DE: 5+4+4 = 13 FR: 5 = 5 PL: 5+2 = 7 UK: 5 = 5 MT: 5 = 5</p> <p>total: 50 working days</p>
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<p>6 dissemination of the learning line and good practises, didactic materials and work packages by organising workshops and courses</p>	<p>Preparing and organizing workshops concerning the learning line of scientific thinking, didactic materials and good practises for teacher trainers and students of teacher training in the different partner institutions.</p> <p>Finishing of the interactive CD/DVD with the pedagogical materials and work packages.</p>	<p>The materials presented here for teaching, learning and practising are based on an alternative approach in comparison to traditional teaching. Induce the discussion and exchange of ideas and experiences among the different participants during work shops. Discuss and promote the issue of Science thinking for citizenship and life-long learning. Establishing guides and guidelines on new specific experiments based on the scientific thinking model. Demonstration of experiments/activities that has the aim to induce an active voluntary commitment of the pupils in concrete tasks.</p> <p>A work session will be planned by the beginning of October in Teacher Training Centre in Lomza, Poland</p> <p>Finishing of the interactive CD/DVD with the pedagogical materials and work packages.</p>	<p>30 September 2007 – 1 June 2008:</p> <p>Preparation of the workshops: 30 September 2007 – 31 December 2007</p> <p>Working session by the beginning of October 2007</p> <p>International Workshops in the partner institutions: 1 November 2007 – 1 June 2008</p>	<p>University of Education Karlsruhe, Germany Department of Science Education in primary school D. Schmeinck W. Kosack</p> <p>University of Dundee Faculty of Education and Social Work, Scotland A. Thurston</p> <p>Inspection Académique de Meurthe et Moselle, France Academic inspection, teacher training department J. Marchal</p> <p>Katholieke Hogeschool Zuid-West-Vlaanderen, Belgium Department Teacher training K. Van de Keere N. Mestdagh</p> <p>Teacher Training Centre in Lomza, Poland W. Sidor E. Osewska</p> <p>University of Malta Department of Primary Education S. Gatt</p>	<p>6 persons / 20 days (preparation of the workshops/courses in the different countries)</p> <p>1 person / 3 days (organizing working session at Teacher training centre in Lomza, Poland)</p> <p>7 persons / 3 days (working session at Teacher training centre in Lomza, Poland)</p> <p>1 person / 2 days (follow up of website, by partner in Poland)</p> <p>6 persons / 5 days (organizing and leading the work shops/courses in the different countries)</p> <p>2 persons / 5 days (coordination of the project)</p> <p>BE: 20+3+3+5+5+5 = 41 DE: 20+3+5 = 28 FR: 20+3+5 = 28 PL: 20+3+3+2+5 = 33 UK: 20+3+5 = 28 MT: 20+3+5 = 28</p> <p>total: 186 working days</p>
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7 General evaluation and follow up	<p>Evaluation of the work shops/courses and general evaluation of the project and possibilities for a follow up of the project</p> <p>Final evaluation rapport based upon the evaluation of the feedback groups and the written remarks by each dissemination workshop in the different countries.</p>	<p>During a final work session by the end of September 2008 in University of Education Karlsruhe, Germany</p> <p>Final evaluation of the local feedback groups. Inspection Académique de Meurthe et Moselle, France will coordinate the evaluation rapport</p>	<p>1 June 2008-1 October 2008</p> <p>Final work session by end of September 2008</p>	<p>University of Education Karlsruhe, Germany Department of Science Education in primary school D. Schmeinck W. Kosack</p> <p>University of Dundee Faculty of Education and Social Work, Scotland A. Thurston</p> <p>Inspection Académique de Meurthe et Moselle, France Academic inspection, teacher training department J. Marchal</p> <p>Katholieke Hogeschool Zuid-West-Vlaanderen, Belgium Department Teacher training K. Van de Keere N. Mestdagh</p> <p>Teacher Training Centre in Lomza, Poland W. Sidor E. Osewska</p>	<p>6 persons / 3 days (coordination of the evaluation and evaluation rapport)</p> <p>1 person / 4 days (coordination of the evaluation rapport)</p> <p>1 persons / 3 days (organizing working session at University of Education Karlsruhe, Germany)</p> <p>7 persons / 3 days (working session at Karlsruhe, Germany)</p> <p>1 person / 2 days (follow up of website, by partner in Poland)</p> <p>2 persons / 5 days (coordination of the project)</p> <p><i>2*6 working days (evaluation by local feedback group)</i></p> <p>total: 58 working days</p>
					<p>TOTAAL: 733 working days</p>

8. Contribution to transversal policies

- promote equal opportunities between women and men;
- promote equal opportunities for disabled persons;
- contribute to the fight against racism and xenophobia;
- promote social and economic cohesion;
- promote ICT in education and eLearning;
- promote language learning and linguistic diversity;
- promote the recent enlargement of the Union;
- promote sustainable development;
- promote stability and security;
- tackle the future challenges to education and training systems and lifelong learning;

Two of the participating countries are Poland and Malta. Both countries joined the EU in 2004. By participating in the Comenius 2.1-project STIPPS, both countries will be integrated in the project on an equal level with Germany, France, UK and Belgium.

Science can no longer be presented as a mere collection of facts and knowledge. Science need to be seen as linked to our human and personal values. The increase of literacy in Science is needed within our society so that every citizen can place scientific evolutions in their context and can cope with scientific, but also every day life problems by using a logic way of thinking based upon the scientific thinking process. This scientific thinking is also related to technical expertise and it will induce the creation or development of high-tech industries or firms that are of fundamental importance for Europe's growth and development.

In science there are a lot of specific words and terms that are of great importance for understanding scientific materials or problems. To integrate this scientific language in the project, we will also contribute to the basic science literacy that is needed in our society.

Furthermore, it is hoped that the international encounters within the participating institutions and the international workshops they will organize will help the participating teachers to exchange experiences with people from other countries. And we hope that everyone who will be partly or fully involved within this project will be confirmed how profitable it can be to train pupils in using and integrating the scientific thinking method and how useful this will be for The Europe of tomorrow.

9. Other aspects (maximum 1/2 page)

There is much variety among the participating countries: two countries which just joined the EU; Malta and Poland, and four "old" EU countries: France, Germany, EU and Belgium. The countries are not only geographically different. They are also democratically different and as a result of this they are also at different stages in the process towards reaching a European standard with regard to teacher training. Through the planned STIPPS project, we will develop a global learning line based upon a global scientific thinking process that can be used in all European countries. The different curricula of the participating countries will be compared and acknowledged. As a result of this, the project will become an important part of (pre) primary and teacher training guidelines.

Intensive preparation and an assessment of the project through working sessions in each of the participating countries is planned on a regularly basis. As a result of this, it is hoped that the project and its aims with regard to European Citizenship will give others the courage to carry out a similar project.