

Systematic approach to TBSE implementation

at beginning of ... a long way

Anna Pascucci
TC2 Naples – Italy
Sevres, March 22, 2012

A. G. 1/15

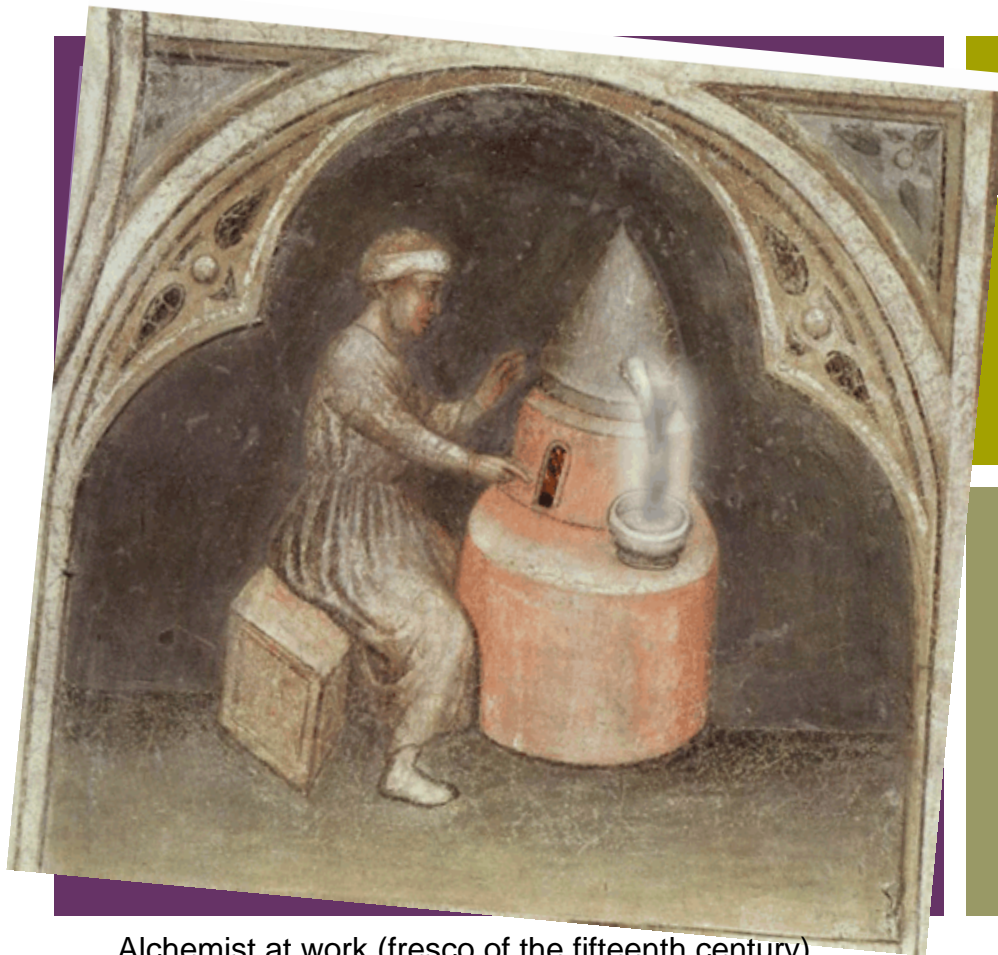


DISSEMINATING INQUIRY-BASED
SCIENCE & MATHS EDUCATION IN EUROPE

TC2 Naples - Italy

ANISN – National Association of Natural
Science Teachers

Anna Pascucci



Alchemist at work (fresco of the fifteenth century)

The alchemists called the philosophers' egg, the stove, where they tried the fusion of many different substances.

...as an alchemists

The background

The models

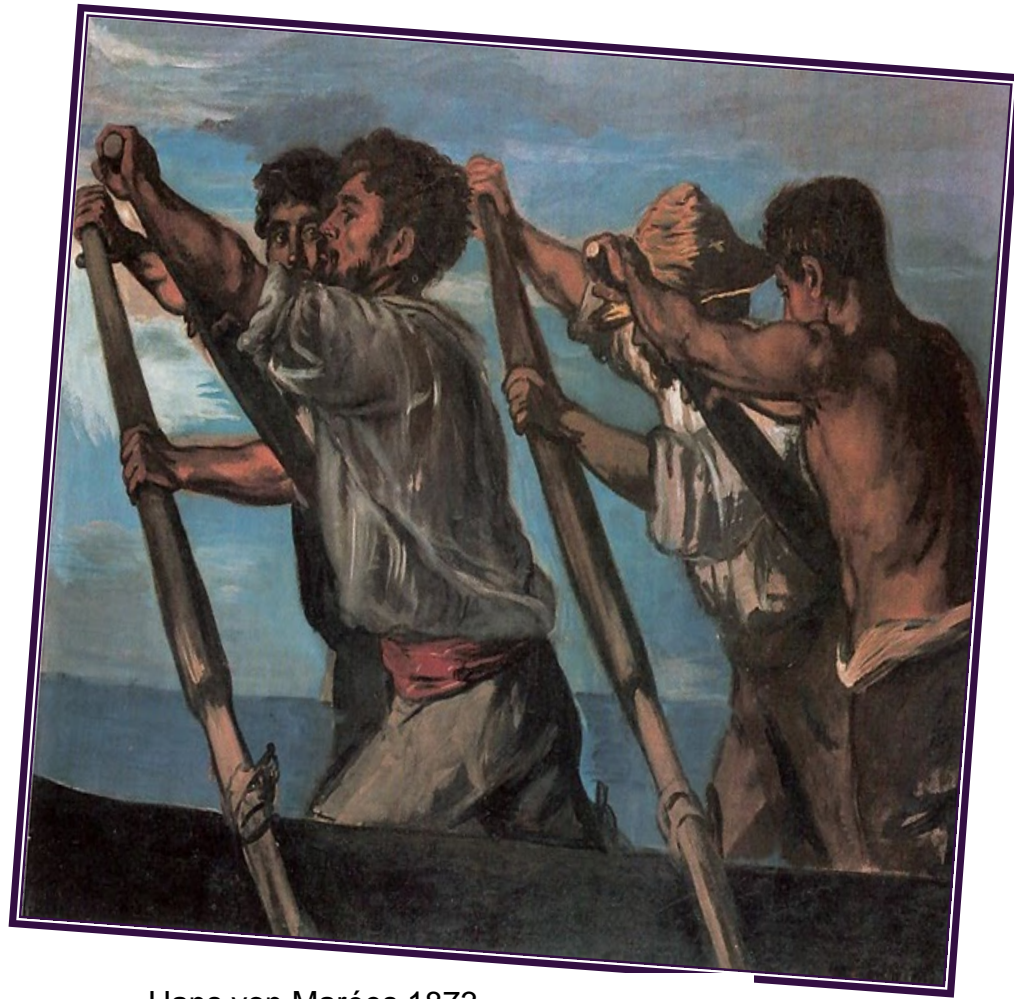
The strategic plan

The implementation

TC2 Naples - Italy

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Anna Pascucci



Hans von Marées, 1873
Fishermen rowing
Fresco at the Stazione zoologica Anton Dohrn

...as fishermen rowing

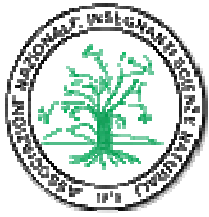
The background

Who we are

Fibonacci Project TC2 Naples - Italy

ANISN – National Association of Natural
Science Teachers

Anna Pascucci



ANISN

National Association of Natural Science Teachers

- Non profit Association
- Organization for teachers training and enhancement of students' excellence recognized by the Ministry of Education (DM. 177/00 art. 4 – Dir. n°90/03 art. 6 ; D.M. 28/7/2008)
- Active in Science Education since 1979
- 2000 members: science teachers (all kind of schools), scientists, researchers in science education
- 28 Sections in all Italian regions, schools and teachers networks
- National (www.anisn.it) and local websites
- Specific working groups for different activities



ANISN – Main activities (1)

Local

Teacher training courses, summer schools, conferences, workshops in collaboration with schools, universities, science centres, scientific institutions, museum and local authorities

National

- Participation to teachers training national projects on education led by the Ministry of Education (SeT, Plan ISS, PON Science)
- Natural Sciences Olympiad for middle and high schools students
- Specific annual and multi-annual Projects
- Summer schools, workshops, conferences



ANISN – Main activities (2)

International

- Participation to European Projects : Edu-Geo, Volvox, Evolution MegaLab, Science on Stage
- **Fibonacci Project**
- International Biology Olympiad - IBO
- International Earth Science Olympiad – IESO
- Permanent collaborations (ELLS – European Molecular Biology Laboratory; European Teachers Associations)

...as a young explorer



How we
started an
IBSE project

Background

key issue

Observing the traces on the ground.
To build on the experiences

SeT – Science and Technology Project; **Senis Project**; **Plan ISS** –
teaching experimental sciences; **PON Scientific Education**

2008

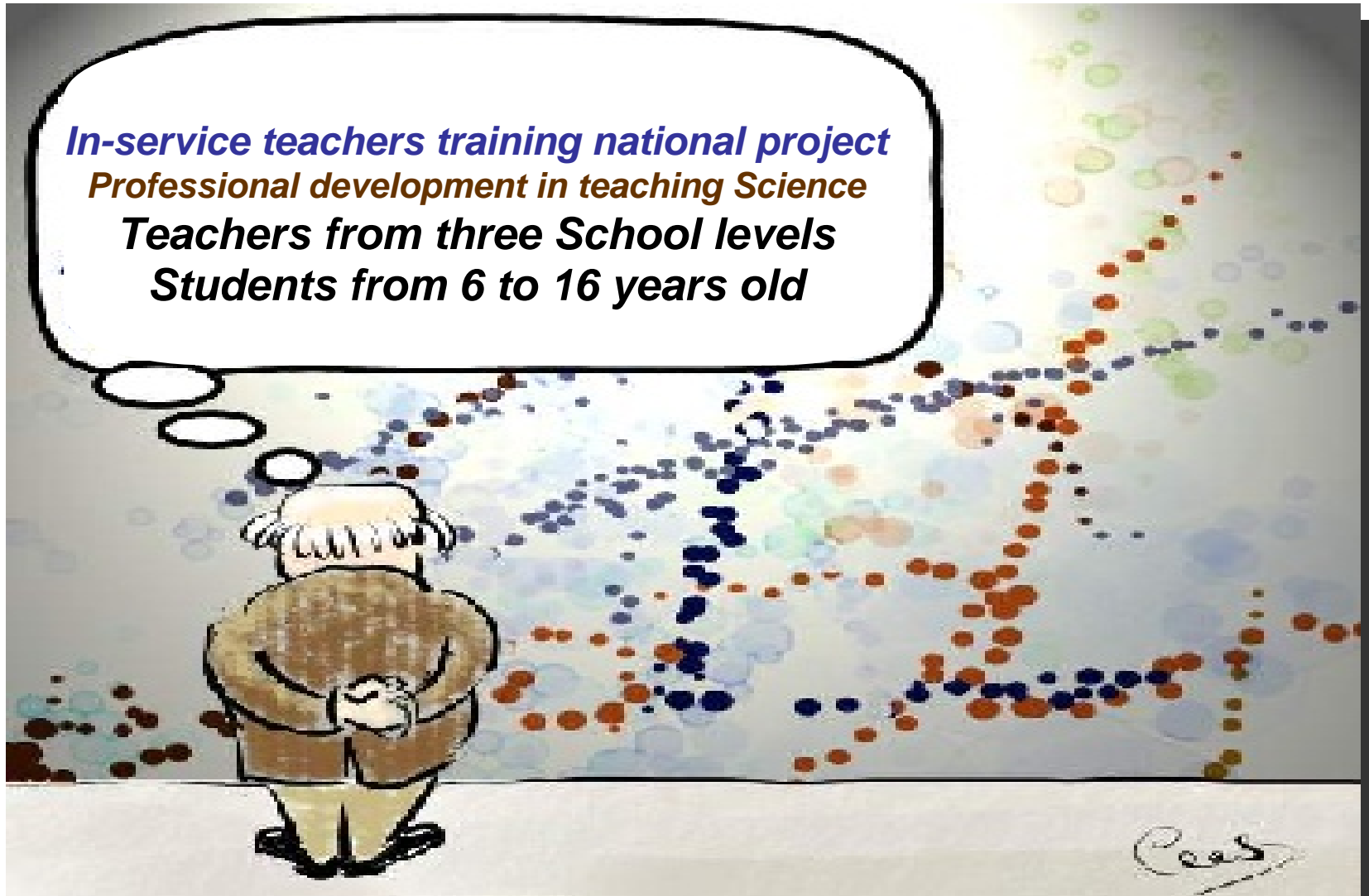
It's important develop a new program starting from experiences of the previous ones

Plan ISS

Teaching Experimental Sciences



In-service teachers training national project
Professional development in teaching Science
Teachers from three School levels
Students from 6 to 16 years old



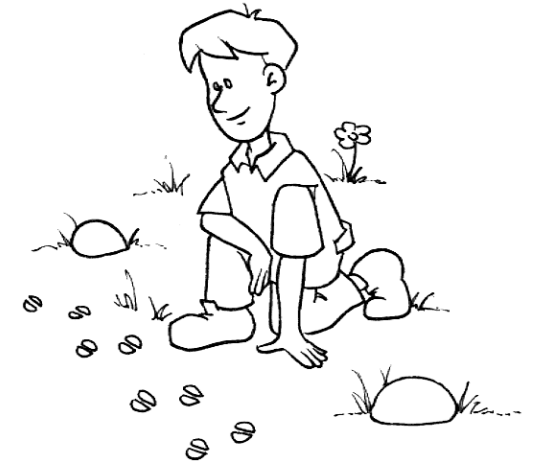
Plan ISS

Teaching Experimental Sciences

ANISN has been one of the proposers of Plan ISS that involves many science teachers and schools from primary to high schools.

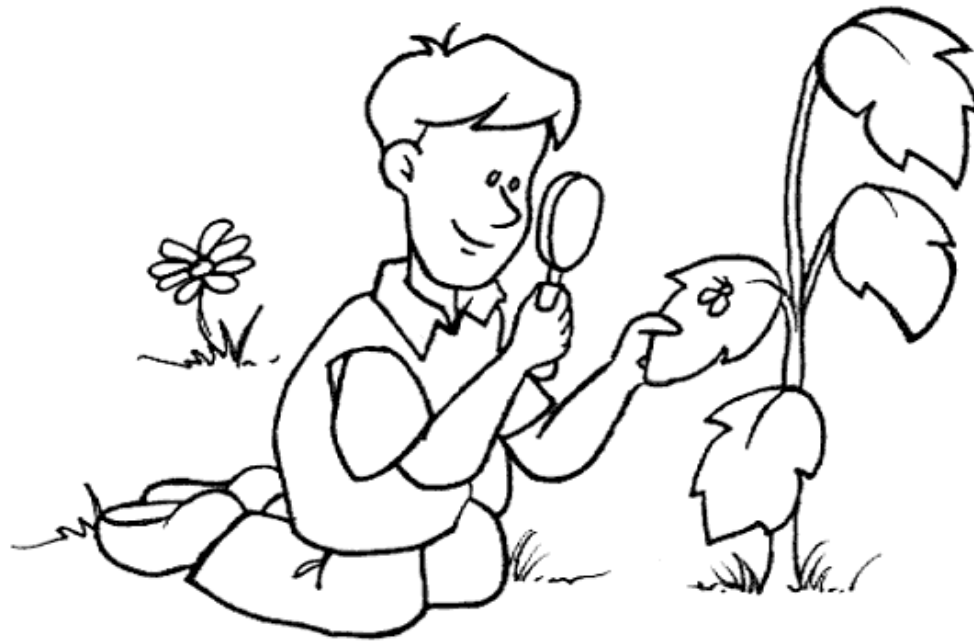
The plan ISS started as a pilot project in Nov. 2005, under the guide of the Italian Ministry of Education in collaboration with the main Italian Teacher Associations

The model of Professional Development of the ISS Plan and the general architecture contains some elements, similarities and strategies (*setting up peer collaborating communities; the role of the teacher as a “mediator” rather than a “provider” of knowledge*) which have been useful for building up and developing the Fibonacci project in Italy.



The background

...as a young explorer



How we
started an
IBSE project

The models

key issue

Exploring and **studying** IBSE Project in Europe visiting other RC

Paris, Saint Etienne, Poitiers, Chatenay-Malabry, Berlin,
Stockholm, Aaberna, Brussels

2009!

...as a group of young explorers



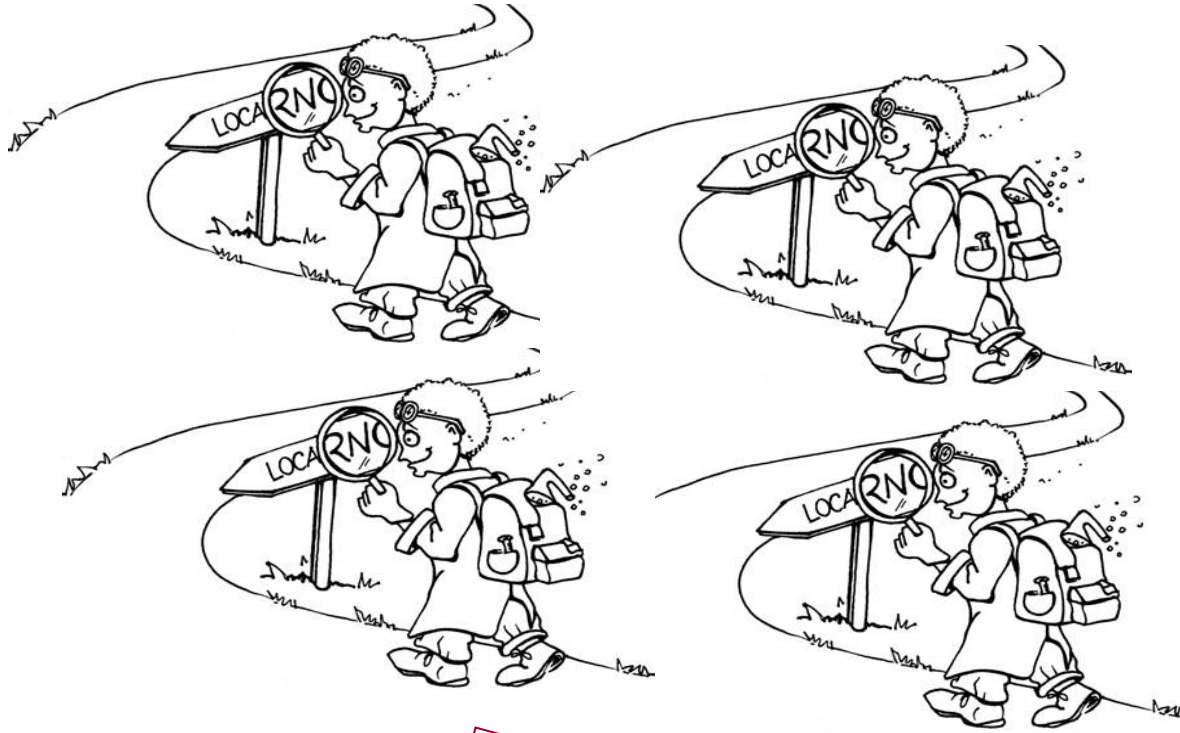
How we
started an
IBSE project

GROUP WORK

key issue

Studying, comparing, sharing, designing

Paris, Saint Etienne, Poitiers, Chatenay-Malabry, Berlin,
Stockholm, Aaberna, Brussels



How we
started an
IBSE project

The strategic
plan

key issue

Two years ago !

Choosing and planning our
strategic road...

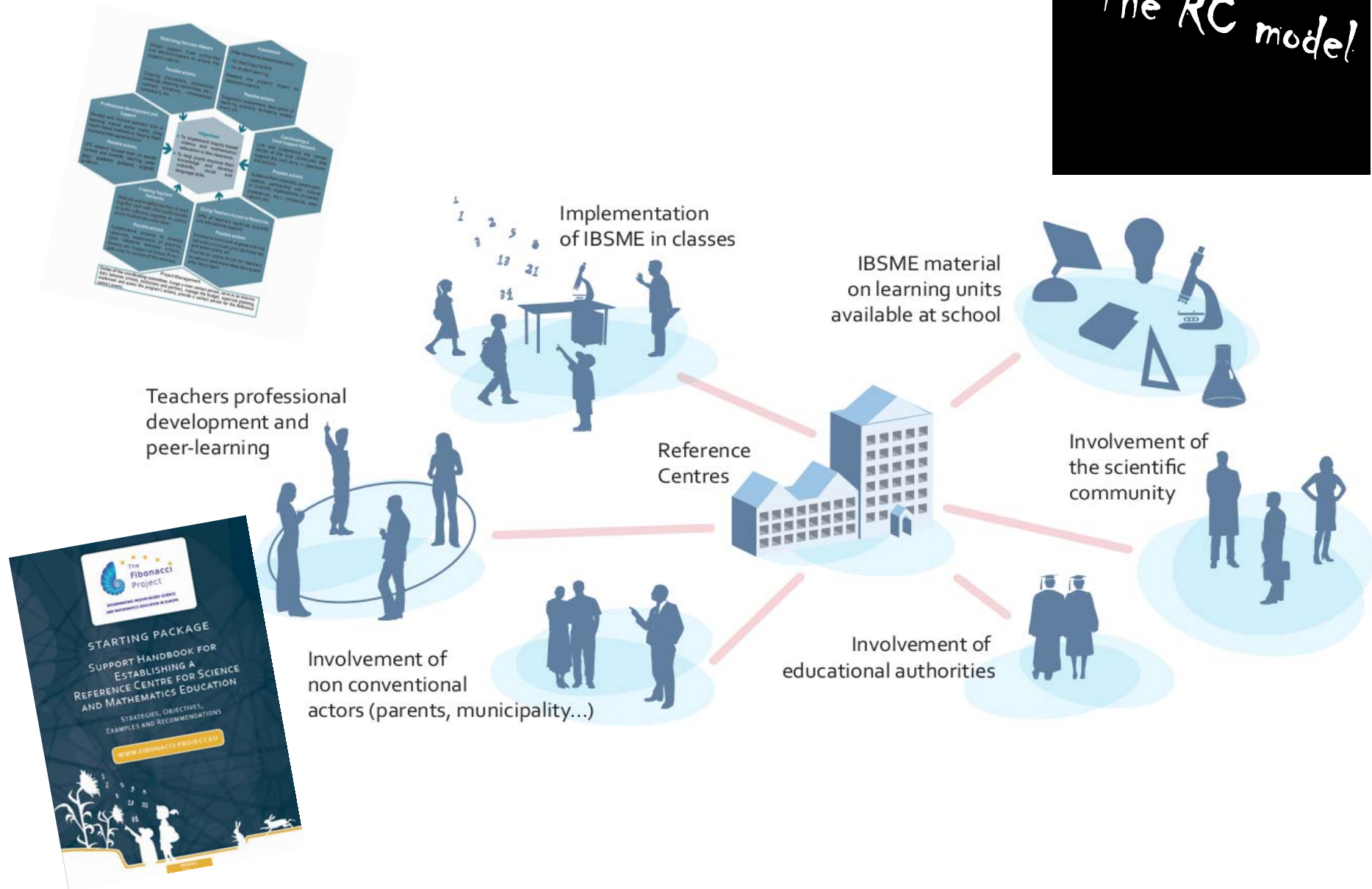
...from March 2010

...to begin our IBSE journey!



Fibonacci RC model

The RC model



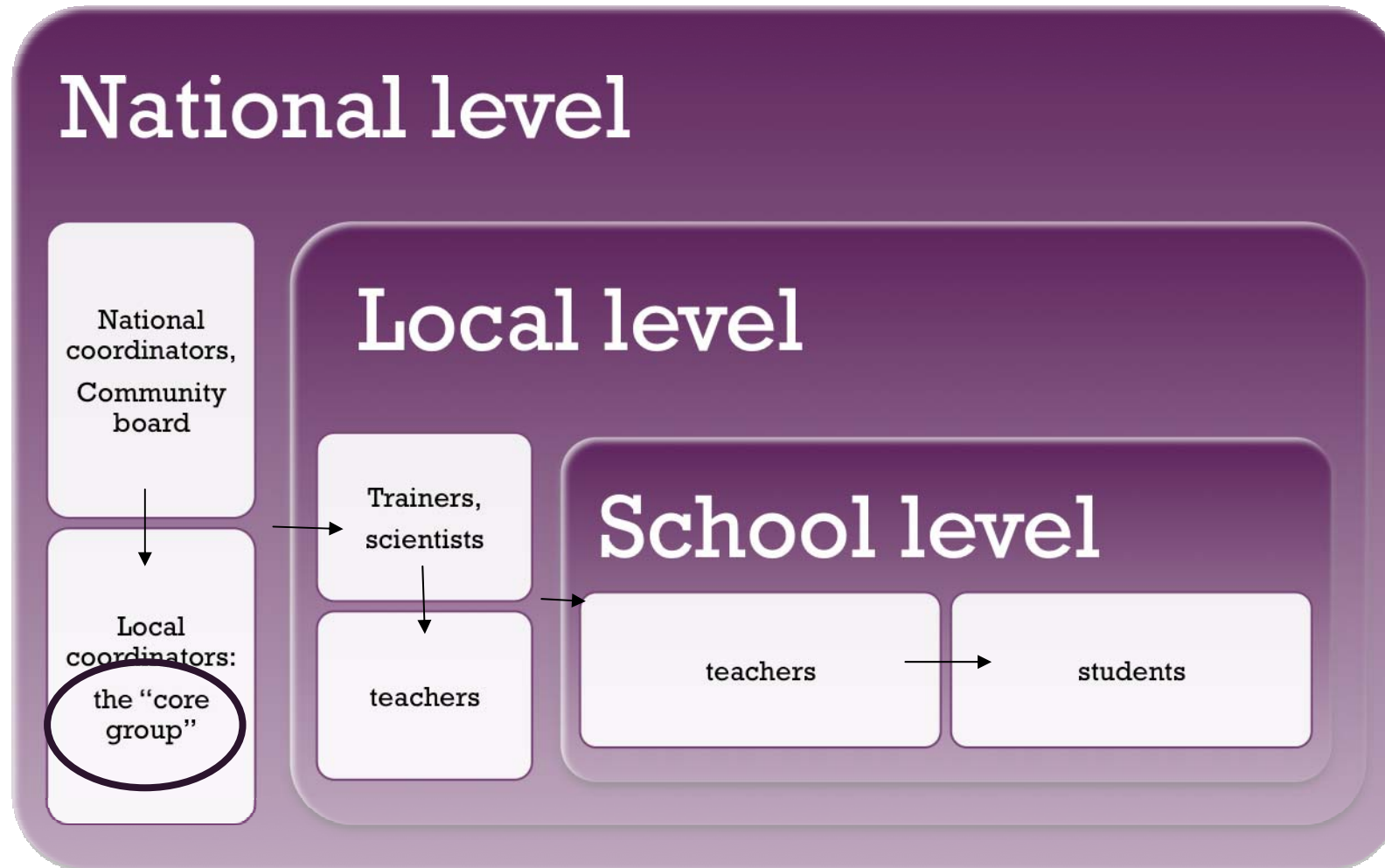


Choice of the RC place

key issue



Coordination levels and actors



key issue

Local coordinators: **the core group**

Feel and BE PEER → be open to listen, discuss, converge

A shared MISSION → common route

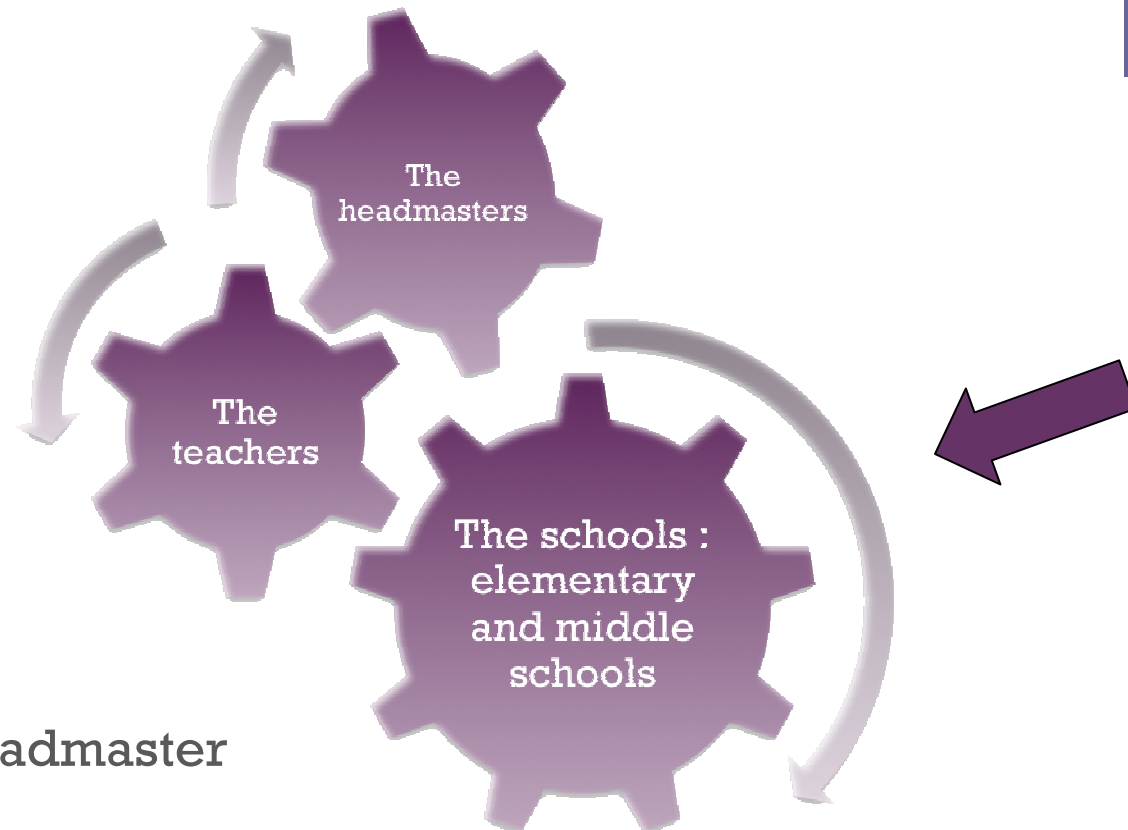
A shared WAY to obtain results → common strategy

A continuous flow of energy....of hard work...





Choice of the school network



■ Strategies :

... role of the headmaster

....at least two teachers for each school

... a dedicated one day/afternoon a week

key issue

Twinning strategy

- International → TC1 Saint Etienne – France

Contacts
Field Visits
Training
Resources
Materials

→ Friendship !

- Local → schools network (2° year)

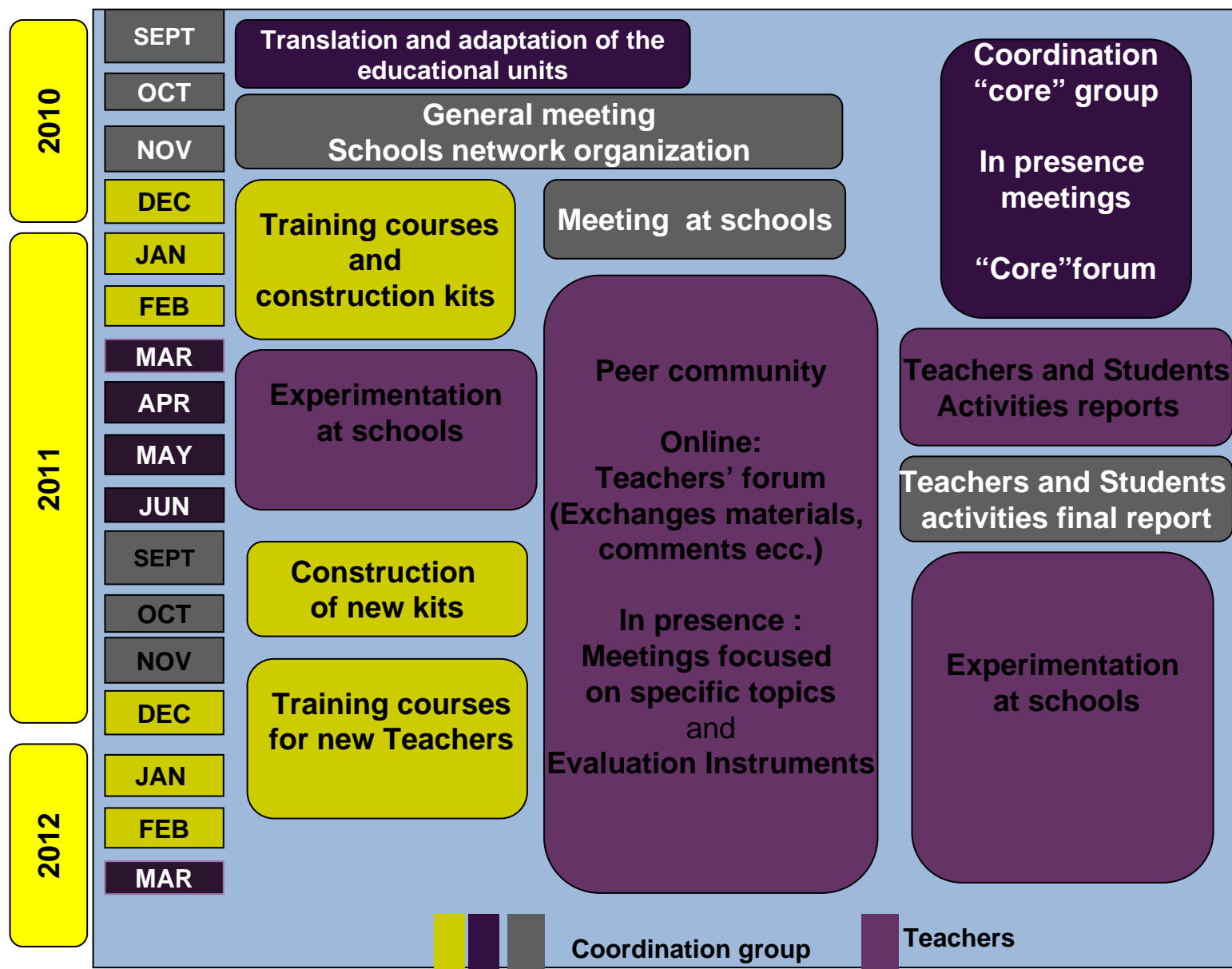
- National → other RC in Italy



Main steps

- Selection of 10 schools 2 elementary, 4 middle, 2 high schools, 2 comprehensive (elementary and middle schools)) for the local schools network
- Creation of a national coordination group composed by Anna Pascucci, Isabella Marini, Silvia Zanetti
- Creation of a training group of trainers and expert teachers for local activities : 5 people : Antonella Alfano, Maria Alfano, Ernestina De Masi, Giulia Forni, Laura Salsano
- Selection of the main documents useful for the starting phase : translation of the booklets of the starting package, translation and adaptations of 10 modules (La main a la pate, Pollen, Fibonacci)
- Placement of the Fibonacci centre : Stazione zoologica “Anton Dohrn” <http://www.szn.it/> (one of the main and prestigious research institute in Naples and also ranked among the top research institutions in the world regarding marine biology and ecology)
- Training courses of 38 teachers belonging to the schools network : 5 training courses starting from November until February
- Twinning activities (contacts, field visits in December in Saint Etienne , training courses in Saint Etienne of the local coordination group : 5 people from 14 to 17 November 2010)

Plan of the main activities



Fibonacci IBSE Self Reflection tool

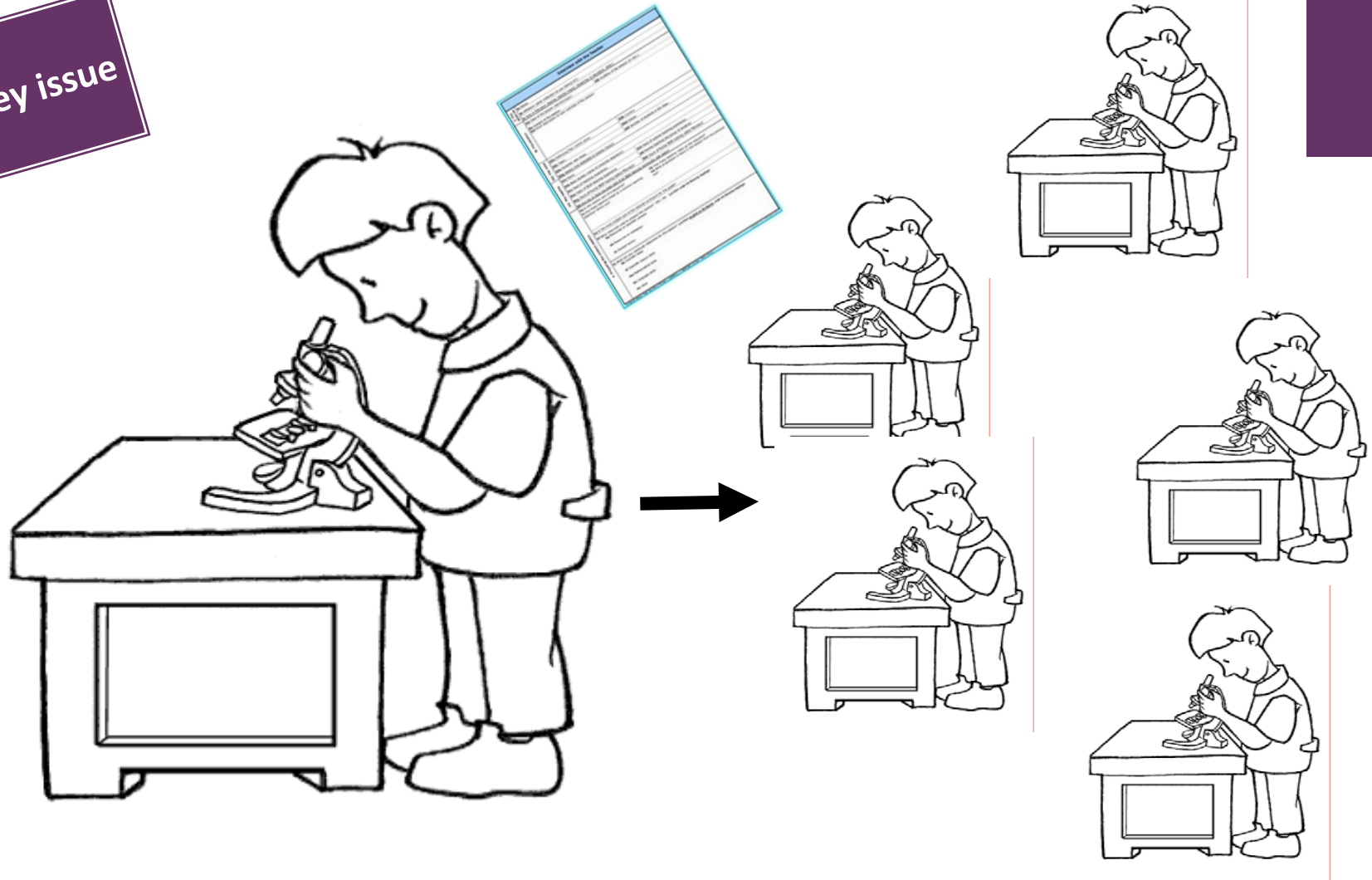
key issue



- ...from the core group to a bigger group
- School year 2011/2012 6 → 30 teachers

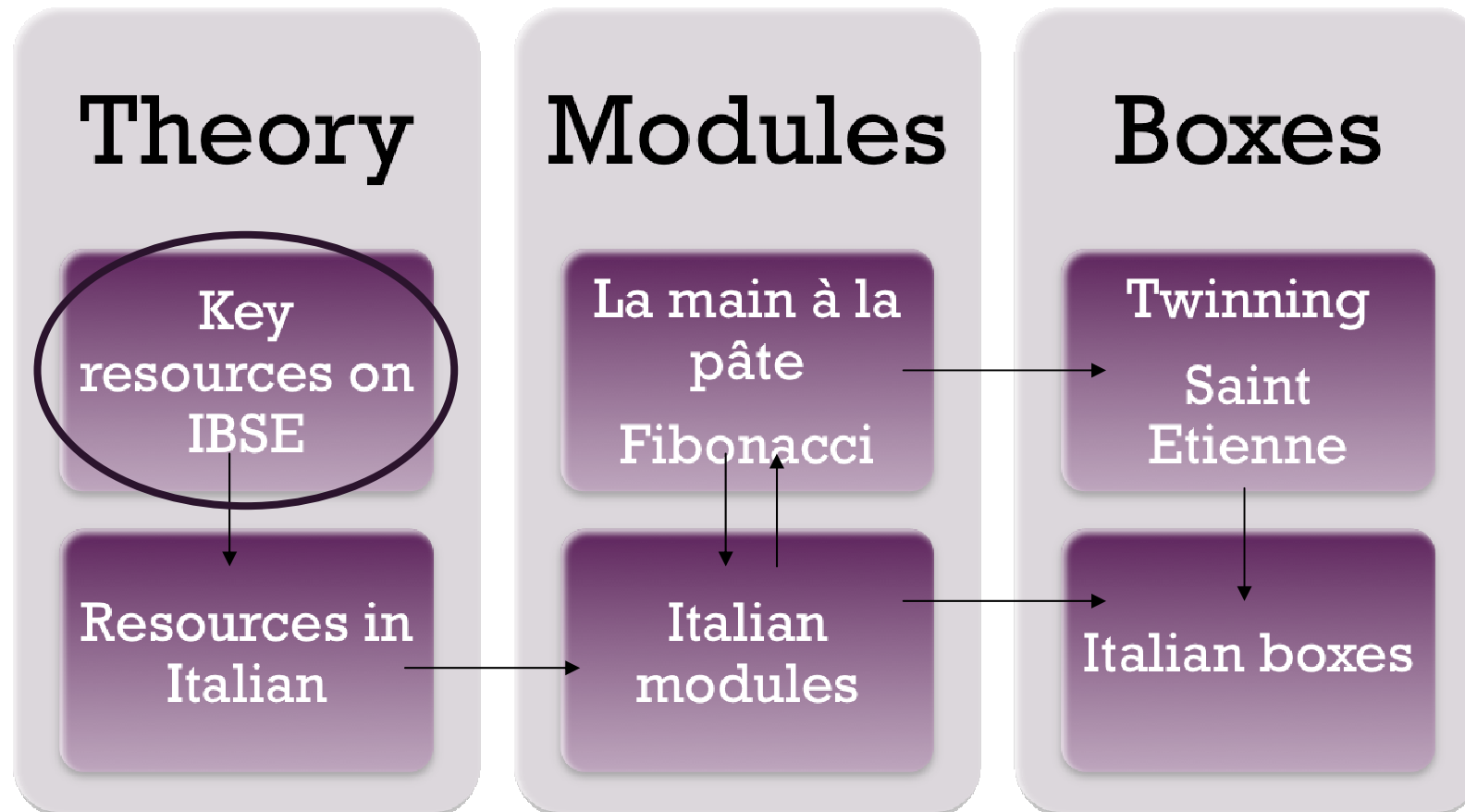
Fibonacci IBSE Diagnostic tool

key issue



■ **The challenge** : ...from the core group to a bigger group

Resources and materials





Hans von Marées, 1873
Fresco at the Stazione zoologica Anton Dohrn

10 → 12 schools
38 → 60 teachers
950 → 1600 students

9 modules
12 → 30 kit boxes

Implementation

Some data
2010 → 2011

Fibonacci Project

TC2 Naples - Italy

ANISN – National Association of Natural
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Key issues of the strategic plan

- Choice of the RC model
- Choice of the actors: (the coordinators, the “core” group, the trainers, the teachers)
- Choice of the schools network
- Peer communities
- Local approach
- Twinning strategy
- Training and activities plan

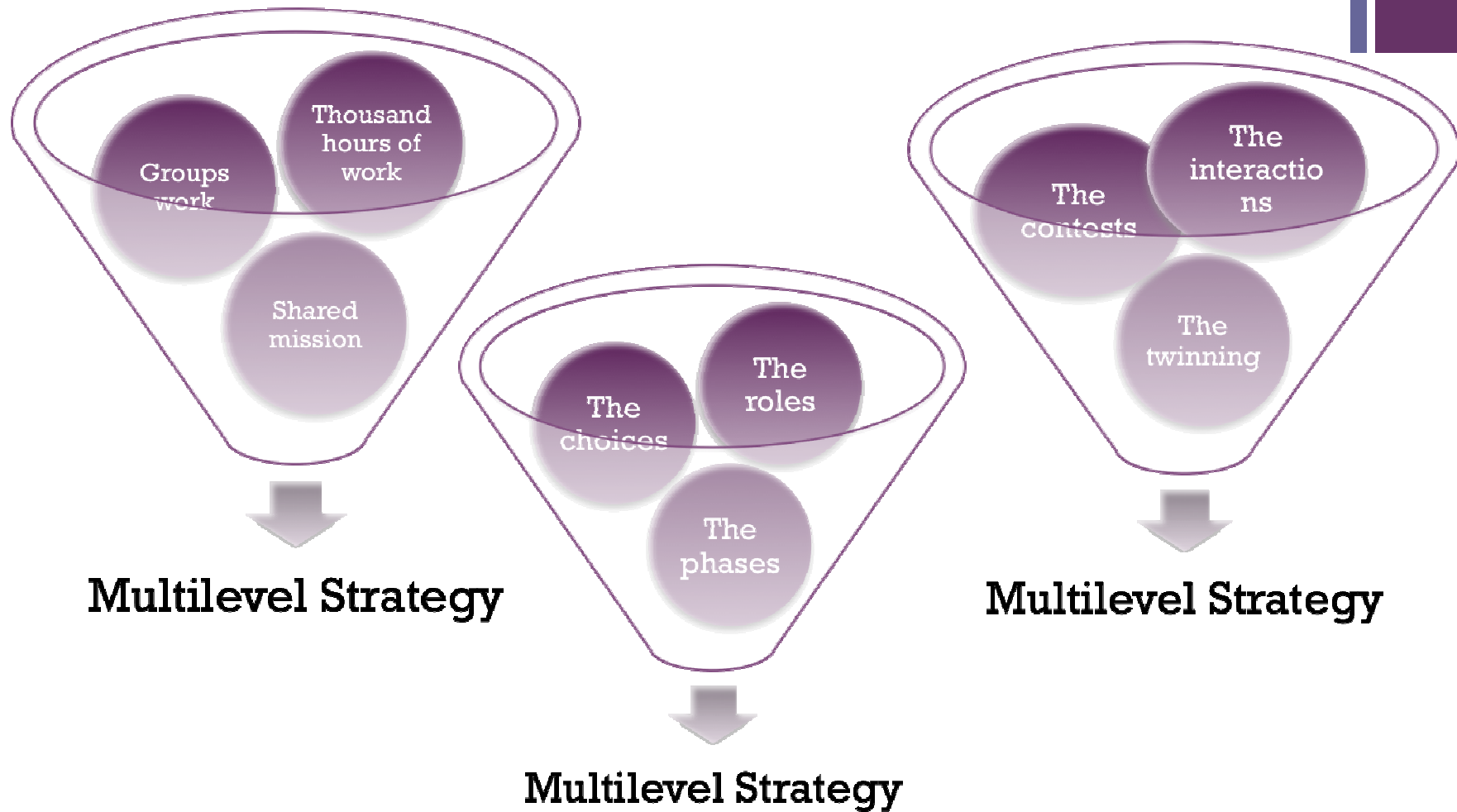


key issues

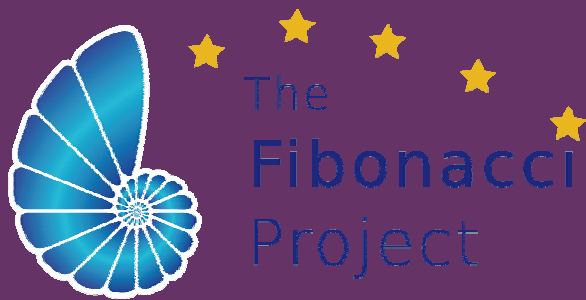
**...we NEED human dedicated resources
NO ONE IS PAYED FOR HIS/HER WORK**

key issues

Main ingredients



From Naples to ...



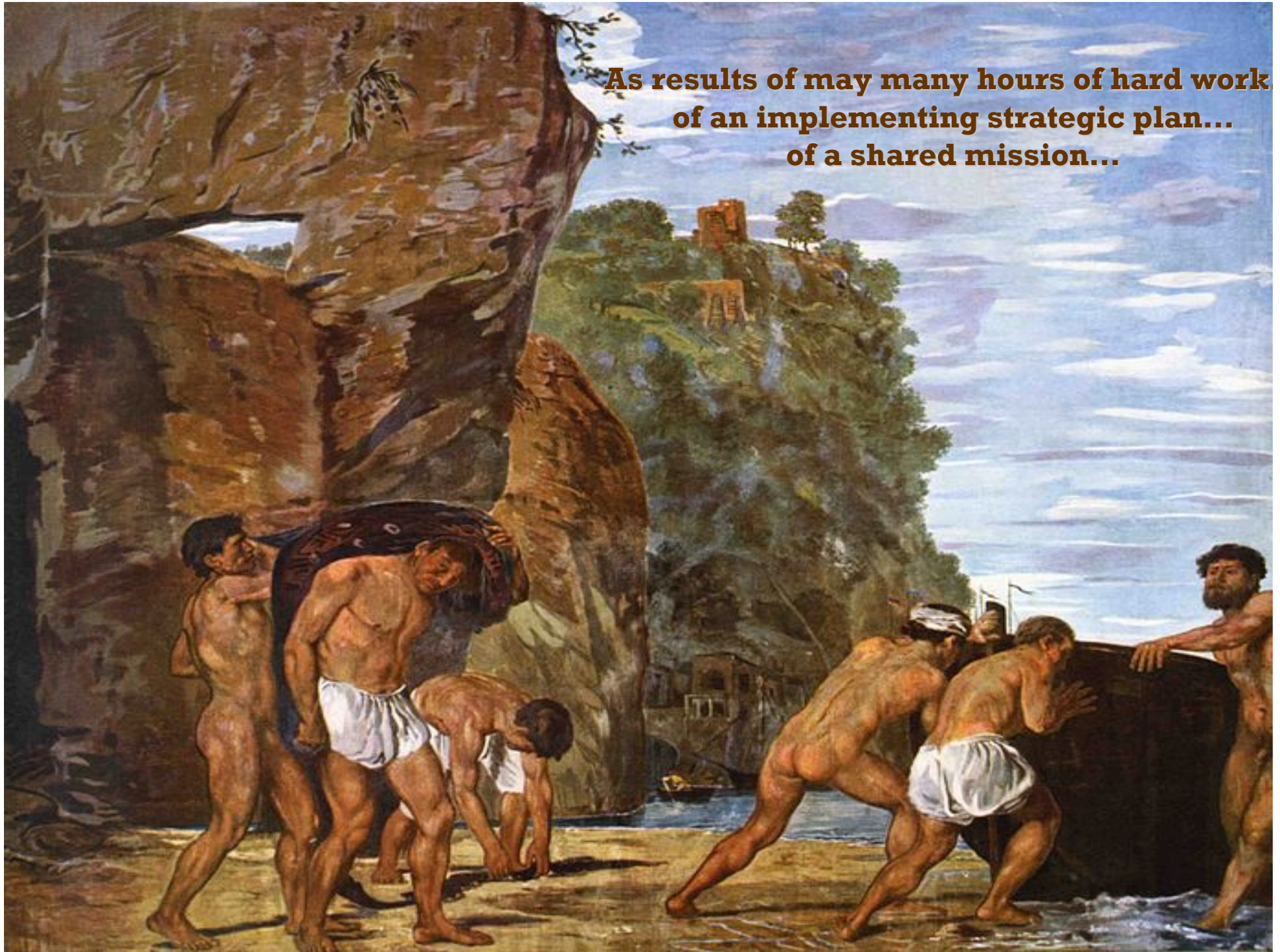
DISSEMINATING INQUIRY-BASED SCIENCE
AND MATHEMATICS EDUCATION IN EUROPE



**...TC2 Naples Fibonacci Centre rows
to new places in Italian peninsula**

...from September 2011

**As results of may many hours of hard work
of an implementing strategic plan...
of a shared mission...**





The National
Program

Implementation

Accademia dei Lincei
Ministry of Education
ANISN



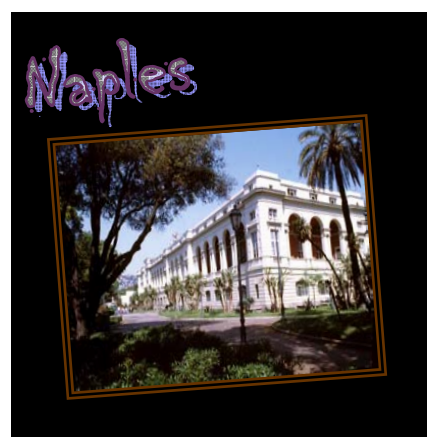
Program *Scientiam Inquirendo Discere* - *SID*

Naples, Rome, Venice, Vicenza, Pisa

...from 2011



Rome



*45 schools
35 teachers trainers
150 experimenting teachers
4500 students*

...from September 2011

Program Scientiam Inquirendo Discere - SID

ANISN – National Association of Natural
Science Teachers
Anna Pascucci

Program *Scientiam* *Inquirendo Discere* - *SID*

- In **May 2010** the *Accademia dei Lincei* has signed an agreement with the *French Academie des Sciences*. In the executive protocol, ANISN is responsible for the operational actions promoted by the agreement in collaboration with the "La main à la pâte" French team.
- An agreement has been signed **in November 2010** between the *Accademia dei Lincei* and the *Ministry of Education and Research* for the introduction of the IBSE approach in the Italian School system in cooperation with ANISN.
- The Ministry of Education and Research has also accepted to fund this project for a period of **three years**.

*The National
Program*

The main steps

Program Scientiam *Inquirendo Discere - SID*

- The model of RC
- The twinning strategy
- The actors: (the coordinators, the “core” group, the trainers, the teachers)
- The schools network
- The peer communities
- The local approach
- The training plan



www.lincoeistruzione.it

*The National
Program*

*The multilevel
strategy*



National training courses
2011, December 12-13



Venice



Istituto Veneto
delle Scienze e arti



Rome



Accademia Nazionale
dei Lincei

Naples



Stazione zoologica
Anton Dohrn

Pisa



Scuola Normale
Superiore

Program Scientiam Inquirendo Discere - SID



...from a **fisherwoman rowing**



...welcome in Italy for a marvelous IBSE journey



Grazie

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