Ministry for Education, University and Research

DGSI

Departement for information Technology Systems

Technological Innovation in the School System

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www.istruzione.it/innovazione/index.shtml

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INTRODUCTION

According to Alvin Toffler *"**the new illiterate" won't be he who doesn't know how to read but rather he who doesn't know how to learn".***

This quote rightly summarizes the hardest challenge that educational systems have to face and points out the importance of the relation between technology and didactic communication. A world which is increasingly characterised by the use of technologies – especially by Net technologies – calls for a redefinition of the way in which knowledge is transmitted as well as a redefinition of the teacher's new role.

The strategies to adopt in order to fulfil this challenge cannot be different from the ones based on an effective use of technologies for didactics and on the development of projects which enhance collaborative learning.

All that involves, first of all, giving greater importance to the use of Didactic Technologies considered both as technical instruments and source of knowledge, able to affect deeply the different phases of mental growth. Secondly, traditional learning paths, considered as starting points in the process of learning, and which should last with the passing of time, must be taken into consideration.
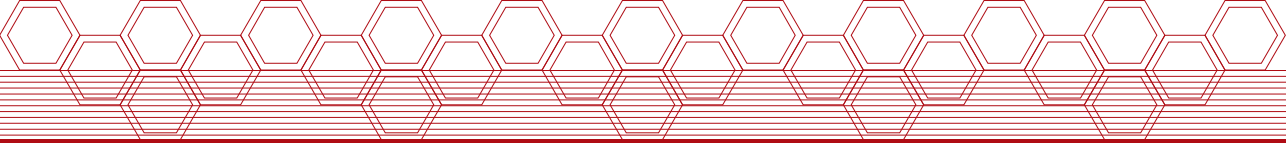It's consequently necessary to introduce innovative learning contexts and to make them easily accessible to the school population - as well as to consider the path of life-long learning as the individual's own responsibility.

In this setting the use of Information and Communication Technologies, considered as a tool offering people new opportunities in the learning process, acquires a decisive role. This new perspective stresses the need for educational offers, based on new methods which should significantly exploit all the potentialities of ICT, offering learners focused paths which at the same time should work inside virtual communities learning collaboratively.
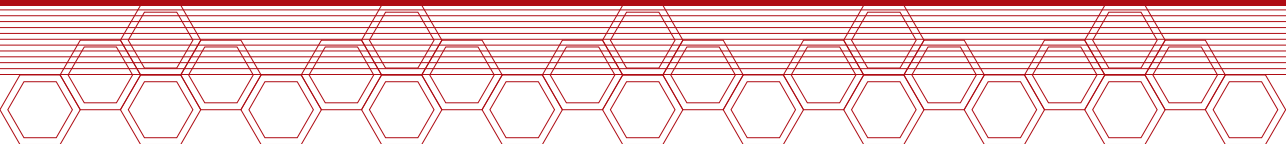
The Department for Information Technology Systems, with the help of the projects presented here, aims to enhance the shift from an "Information Society" to a "Knowledge Society" where technology is the tool enabling people to be active and aware citizens in daily reality.

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NATIONAL PROJECTS

HSH@network

The **"Hospital School Home @ network"** project features the role of technology and multimedia communication ensuring uninterrupted studies and health care in cases where patients are hospitalised or housebound.

The aim of the project is to create, with the help of very sophisticated technology, a model which would allow:

- a technological link between long stay patients or patients under domiciliary therapy and the class they belong to, so that they can continue with their education, be more motivated to study and, at the same time, avoid being isolated while carrying out their school work;
- an exchange of didactical methodologies among teachers in the hospital and those operating in schools;
- the development of intensive teachers training courses, both in presence and at a distance, which concern the use of the most advanced technologies that act as a backing system for teaching methods relating to ill students;
- a net of pilot schools in hospital with adequate technological equipments that act as educational, technical, organizational support for the realization of a school service in hospital, as well as a home learning service, in connection with the school of origin;
- the realization of a portal offering services both to operators and users of the school in hospital;
- a video conference service allowing students to follow the lessons taking place in their school of origin.

http://www.istruzione.it/innovazione/progetti/hsh.shtml

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Libraries in schools

With the Project **"Libraries in Schools"**, the school library opens up to the territory and to the world of private and public libraries: the schools involved will be able to take advantage of the services offered by the National Library Service, as it already occurs in many University Libraries. The following are some of the services offered: the interlibrary loan (the book will be sent from the library owning the book to the library where the book is requested), the document delivery service (a print of documents owned by other libraries), the shared cataloguing (the school collects data and instantly classifies it, adding to the cataloguing form only the information concerning the school library). Training courses are scheduled for documentalist teachers, library staff, teachers and students. The aim is to furnish the school library with professional management and to encourage a skilled and keen use of information, whether structured or not (Research and quality of information in Internet). It will also be possible to reach the on line catalogue of school libraries involved in the project as well as a wide range of services from the portal: among these is the access to a digital resources repository and to specialised data banks. http://www.istruzione.it/innovazione/progetti/biblioteche-nelle-scuole.shtml

For Tic

The **National teachers training programme on information and communication technologies (For TIC)** has scheduled a wide training action (concerning about 200,000 teachers) grouped into themes and users, adopting a mix of training activities both in presence and through the Internet.
More precisely, a blended 50-50 system is adopted, including:
• activities in presence;
• virtual classes;

- thematic and disciplinary forums;
- net labs;
- the presence of a counsellor in the school of origin (only for the 1st level).

The program includes 3 different training paths:

- a ground course, addressed to teachers with little or no basic knowledge in ICT. The targets for this course are a basic knowledge in computer technology, abilities connected with the didactic use of ICT, some core matters on computer technology and finally some theories on communication;
- a training course that aims at building up the profile of a teacher with expertise both in didactics and technologies: on teaching resources present on the net, on the impact of ICT on different school subjects, on learning strategies, on learning and assistance given by the net and on evaluation of both learning and teaching strategies. The target is therefore teachers with a thorough teaching experience together with good knowledge in ICT;
- a course aiming at training a teacher to be in charge of all the school's technological resources and to manage and develop them according to the needs of the school. This course targets teachers who already possess technology expertise and background.

http://www.istruzione.it/innovazione/progetti/tic.shtml
http://puntoeduft.indire.it/160mila/auth/index.php?action=logon
http://www.invalsi.it/Monfortic/

Kidsmart

In 2000-01 the IBM Foundation, along with the MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca - Italian Ministry for Education, University and Research) introduced the Kidsmart project in Italy (a project that IBM had already tried in more than 30 countries all over the world). The project aims at an "easy-to-use" approach to technology for the very young, encouraging learning strategies through creative play and games. The tool used within the Young Explorer Project is a brightly coloured multimedia post with rounded forms, especially designed to be easily visible and safe.

http://www.fondazioneibm.it/reinventingeducation/wellcome.htm

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Internet@school

The **"Internet@school"** project was the result of efforts made by the MIUR and the Ministry of Communications, and the cooperation between the Ugo Bordoni Foundation and Media Lab Europe.

This undertaking has many notable supporters, among whom Prof. N. Negroponte, and makes use of experience gained in other fields and appropriately adapted to the school world. Thanks to an extensive use of computer technologies, it has made possible the wiring of school buildings and the link between school and home. Internet@school uses the most modern technologies such as the WLAN Nets telecommunications.

http://www.internetascuola.fub.it/

BroadBand

The target of the **Broadband** Project is an ADSL link between schools, mainly for the purpose of carrying out administrative operations, and for other purposes.

A non stop connection to Internet at school encourages the formation of local school nets, which allow various kinds of users, in a controlled and regulated way, to access the Internet for many different activities (access to the features of the MIUR Information Technology System, but also web surfing when the students are in the Lab.)

The same Band speed is likely to be reached by the telephone company by means of bidirectional satellite technology, in areas without coverage.

http://www.mininnovazione.it/ita/intervento/banda_larga/task_force/index_r.htm

Smaller Islands

The **"Smaller Islands"** project connects through the net all schools gathered in the "Consortium of smaller islands" and is based on a professional cooperation between schools, and fosters any initiative which will benefit the student's growth.

The aim is to give teachers and students living in the area the opportunity to share a new way of working with the help of the net. What it means to do is to improve all the insular schools so as to develop:
• a new model useful for the organization and management of human resources;
• a shared technological platform among all operators;
• a set of strategies matching the needs of this area;
• the net inputting of all the experiences made from an educational point of view.

http://www.arcipelagoscuola.it/hub/tsite.home[home]

Web Aerospatial Channel

The **"Web Aerospatial Channel"** project came into being after an agreement between the MIUR and the Aerospatial Agency about a pilot initiative that involved a group of schools. It is divided into three educational paths, one of which concerns aeronautics and two concern space. Didactical units, visits to the installations and/or location sites placed in the national territory, and the deepening of the school syllabuses are the elements composing these educational paths.

http://www.spazioallescuole.it/web/index.asp

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SeT Project

The **"Science and Technology"** project sets out to promote science and technology in schools and to improve the quality of teaching.

The main feature of this project is to foster integration between scientific and technological teaching. The wide diffusion of computer technologies, data communication and multimedia provides new scope for growth in technology and science.As far as didactics is concerned, the use of a PC as a lab tool or as a data processor is quite common in some schools, but modern technologies now offer a wide range of tools still to explore.

The framework of the SeT Project also includes a web portal run by INDIRE (National Institute for Innovation and Educational Research), the purpose of which is to help schools in the teaching of scientific subjects, as well as to improve the knowledge of projects connected to the scientific and technological world.

SeT makes available material and study activities about Information and Communication, about major natural events, mathematical methods, about discoveries which will change our lives and, generally speaking, all that concerns scientific education.

http://www.indire.it/set/

Street Teachers

It tries to rescue school dropouts by imparting information and communication through experiments with new learning environments.

The project will take place in 2 Italian regions, Piemonte and Campania, and it will integrate with already existing projects.

http://www.istruzione.it/innovazione/index.shtml

Mountain Communities

The **"Mountain Communities"** Project deals with a wide range of undertakings, such as the realisation of facilities, which will prevent school drop-out, enhance social integration among people inside and outside the school context, reduce the Digital Divide, help to overcome the isolation of people living in remote areas, through the promotion of school as a socially integrating place and as a means for cultural, social and economic growth.
The project will take place in the Italian regions of Molise and Calabria and regards the experimentation of several innovative technologies, among which:
• wireless connection;
• broadband satellite log in.
http://www.istruzione.it/innovazione/index.shtml

The School in prison

The **"school in prison"** project is an experiment in new educational environments and supplies. There are special courses in ICT for students who are temporarily detained. The use of technology is likely to help them in overcoming their isolation and to encourage them to get in touch again with the outside world.
The use of technology will renew the motivation for studying and the development of mental abilities and creativity.
Thanks to this project, education will be an integrating part of a social rehabilitation program.
The project concerns two Juvenile Detention Centres: "Casal del Marmo" in Rome and "Malaspina" in Palermo.
http://www.istruzione.it/innovazione/index.shtml

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Management Game

It is a project that, through virtual simulation of company management, intends to spread the values of business management among young people, to foster the attitude of "self-management" and to facilitate the acquisition of indirect competences, stimulating the capacity to team work and to work for a common goal. This project is involving some schools in the Region of Puglia.
http://www.managementgame.it/

WBLS

The **Web Based Learning System** Project finds itself in the midst of a changing cultural context dealing with the teaching of Information and Communication Technologies.

While in the 80s the conceptual aspects dominated, later the practical ones prevailed. Today all efforts – also on an international scale – go towards a more balanced attempt to reconcile both these requirements.

The project tries to define what knowledge, competences and skills a student should have regarding Computer Science and ICT, while it tends to bridge the gap between the school world and the University.

The Project concerns the University of Bologna which is creating an educational path divided into units as well as an educational training for high school teachers.

The students of the Italian regions hosting the Project (Emilia Romagna and Marche) will receive credit points which are acknowledged by some of the Universities in the Regions.
http://www.istruzione.it/innovazione/index.shtml

Marte

M@RTE (Moduli di Apprendimento su Rete Tecno-Educativa / Educational Learning Units on a Technological/Educational Net) is a very ambitious project co-designed with the Region of Sardegna.

Its goals: teachers' training, creation of a portal concerning the school world; experimentation of appropriate and skilful teaching methods.

Other significant elements are: production of learning material for Net sharing, finding of new teaching techniques tending to the improvement of an interdisciplinary approach; building up and experimenting a sort of network dealing with concepts and learning practices in the various study matters.

http://www.consorziotecnofor.it/marte/

Linux@School

This project focalises on the importance of Open Source, in particular stressing the Linux operative system.

Promoted by the IBM Italian Foundation, in collaboration with the MIUR, the project concerns High Schools, especially Technical and Vocational schools.

Thanks to Linux Project, students and teachers can interact and try new technologies as well as have access to Information Technology Systems and to the Educational contents concerning Open Source.

This particular tool, available in schools:

- facilitates students and teachers to have access to educational materials, to test and experiment complex systems;
- promotes the study of Open source products especially conceived for schools - such as : e-Learning and collaboration systems;
- encourages flexible and easy access to systems and services based on Internet.

http://www.istruzione.it/innovazione/index.shtml

Maths On-Line

The project is the result of a close collaboration between the MIUR and the METID of the Polytechnic in Milano. The project was tried in 2002-2003 by the Regional School Office for the Lombardia region.

The project consists of an educational e-Learning program on Maths intended both for students attending the last year of High School and who wish to deepen and consolidate their knowledge of maths as well as for those Maths teachers who are interested in on-line teaching strategies on their subject.

"MathOnLine" therefore stems from dual needs:

* the need to make the many areas in Maths better understood by final students by providing them with stimulating, amusing and effective learning strategies;
* the acquisition, among High School teachers, of strategies concerning technology, didactics and methodology useful for the teaching of Maths.

http://www.mathonline.it/
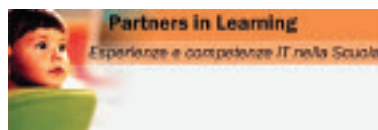
Think.com Progect

The MIUR together with Oracle Italy have signed an agreement to start the Project called THINK.com also in Italy.

This project has already been adopted in Europe by Denmark and the United Kingdom and in the rest of the world by Australia, Canada, Chile, China, New Zealand, Thailand and the U.S.A.

It is about an innovative educational area, exploiting the potentialities of Internet and providing schools, students and teachers with a collaborative on-line tool.

Some schools in Rome and in its province, which have already gained some experience also at a European level, have been selected to take part in a first THINK.com experimentation.

www.istruzione.it - www.think.com.

Partners in Learning

The MIUR and Microsoft have signed an agreement on the global Program **"Partners in Learning-Experiences and ICT abilities in school"**.
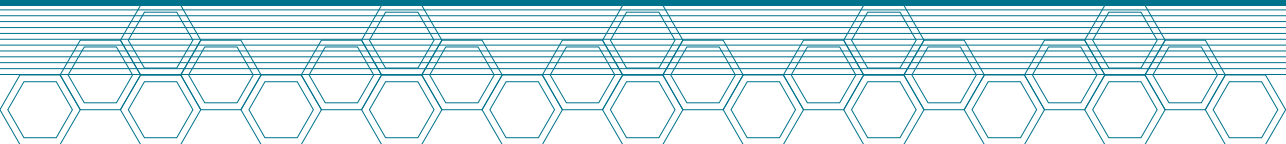
This initiative comprises many projects such as:

- the "Microsoft IT Academy" – an alternative educational technology program which provides schools with tools and services that schools can use to offer high profile courses designed to obtain the certificates requested on the labour market;
- "Learning through the Net" - a portal where teachers can find useful and effective teaching strategies and resources.
- "Fresh start for donated PCs" – let schools that own donated PCs to have a free licence of operative systems like Microsoft Windows 98 and/or Microsoft Windows 2000.

http://www.istruzione.it/innovazione/progetti/pil.shtml

EUROPEAN PROJECTS

Netd@ys

Netd@ys is an initiative of the European Commission promoting the use of new media (multimedia, Internet, videoconference or new audio-visual facilities) in the area of education and culture culminating in a showcase of online and offline events during the Netd@ys week in November. When first launched in 1997, Netd@ys focused on raising awareness of new media, sounds and images as resources for learning and teaching. As this has largely been achieved, Netd@ys now focuses more on the quality and educational content of the ventures grouped under its umbrella and encourages linking and partnerships between educational and cultural organisations and companies in both the public and private sectors.

Netd@ys provides an open platform for all those who wish to display their experiences of educational and cultural networking and who wish to develop international links with the creative use of new media in day-to-day learning.

Netd@ys brings together people of all backgrounds and origins making it possible to create projects based on different cultural heritages and traditions. Promoting an understanding of our diverse heritage is essential to fostering understanding in a multicultural world. New technologies can be used to study traditions, cultures and artistic developments in the EU and beyond. Netd@ys participants can learn more about the history of particular countries, especially new comers to the European Union, and the impact that different cultures have on the world.

http://www.netdayseurope.org/

Cined@ys

Promoted by the European Commission, its aim is to exploit the European cinematographic heritage.
Audiovisuals hold a key role in today's communication and the cinema, as ever, is a very important element for the building up of a common European frame.
The emphasis placed on the visual arts as part of the education system is evident by the interest shown by local authorities, offices, associations and both public and private organisations.
http://www.cinedays.org/

ENIS

Enis (European Network of Innovative Schools) is a net of almost 300 European schools using ICT in an innovative way.
It is part of the European Schoolnet (EUN) and was established in 2001 and has since been operative.
Its aim is to reinforce innovative strategies concerning the use and integration of ICT at school.
The Net is conceived as a virtual place, able to host learning communities operating collectively, organised either as learning groups or as practice communities where each member increases and shares skills and abilities.
http://enis.eun.org/   http://enis.indire.it

Minerva: Robotics

The MIUR is a member of the Minerva National Commission established by Indire (National Documentation Office for Innovation and Educational Research) within the European Program Socrates. It is in this program that a wide range of other projects related to the application of technological innovations to teaching methods are offered.
The Project "Edurobot" is presently carried out.
Its aim is to set up a network of schools, teachers, research institutes and scientists, coordinated by the School of Robotics, so as to enable them to carry out activities in the field of Robotics, Telecommunications and distance learning, experimenting the work methodology used by the scientific community.
This Project is in collaboration with the CNR (National Research Council) in Genoa, School of Robotics.
http://www.scuoladirobotica.it/EduRobot.htm

eLearning Awards

Founded by the European Schoolnet, it identifies and rewards the most effective users of ICT for learning.
To participate all you need to do is to show the day-to-day activities at school.
http://elearningawards.eun.org/

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SERVICES

e-Didateca

e-didateca, set up in collaboration with the Technical School "B. Pascal" in Rome, is a portal which gives access to a multimedia tools bank (such as software-ipermedia-videos) which can be easily downloaded (from the Internet) and can be used for didactic purposes. Schools and Research Institutes supply its repository.

From its portal, it is possible to access other services enabling the use of the data bank and the use and compilation of a vast array of multimedia resources for didactics.

www.e-didateca.it

SD² (essediquadro)

It is a Documentation service on didactic software, available on the Internet, realised and run by the Institute for Didactic Technologies of CNR (National Research Council) in collaboration with the MIUR.

It offers a vast documentation on digital resources for education, available on the national and international market.

It especially offers:

• a data bank for didactic software (more than 3000 cards on both Italian and foreign commercial products), either on and off-line;

• a section containing a methodological analysis dealing with the didactical use of this software;

• a selection of tested, documented and ready-to-download Open Source didactical products.

The information is a complete guide to users looking for the right product to adopt and how to use it successfully.

http://sd2.itd.ge.cnr.it/

OTE

OTE (TEchnological Observatory) is a web-based service supplying schools with:
- information and a range of technical analyses for the acquisition and use of software, in particular the Open Source software, at school;
- hints about the migration towards open source platforms, documents transfers and the re-use of software;
∑ on-line samples collection of school nets interesting for their technology and organization;
- an observatory on web access and web consulting for disabled people;
- a survey on Net security in schools;
- suggestions for safe net surfing for young people.

The observatory is a support for the C path FOR -TIC project and supplies, for students following the C course, the data base of Best Practices with a consulting system. All services are available only on the Internet.

http://www.osservatoriotecnologico.it/

GOLD (Global On Line Documentation)

This is a shared data bank of excellence in schools.
It's an environment created together with INDIRE (National Documentation Institute for Innovation and Educational Research), offering teachers a wealth of experiences to share and develop the best and highly innovative results created in schools.
http://gold.indire.it/

Didactical Software Evaluation

INDIRE (National Documentation Institute for Innovation and Educational Research) together with the MIUR have drawn up a project on "Didactical software evaluation". Inside this portal, it is possible to access a data base, with descriptions and evaluation cards, processed either by schools and experts, about multimedia products in education.

Editors can have their products evaluated in order to obtain a quality stamp.

http://www.indire.it/software/

DIA

The **DIA** (Digital Image Archive) data bank, developed in collaboration with INDIRE, gives schools access to a specific resource for multimedia didactics.

DIA makes it possible to browse an ever-growing archive of more than 8,000 copies for students and teachers, offered by museums, foundations, offices, private and public companies.

http://www.indire.it/archivi/dia/

Handitecno

Made by INDIRE, this portal gives teachers access to technical-didactic cards about any kind of disability.

In Handitecno all possible problems tied to any disability are examined and, where possible, solutions are offered.

Users and experts can constantly be in touch inside a community, and ask for advice and relate their experiences.

http://www.indire.it/handitecno

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Winiride

WINIRIDE is useful for the classification and management of resources of a multimedia library or a school documentation centre.

It can stock both multimedia and paper documents, handle purchase proposals and borrowings, make cards of the catalogue hypertextual with the help of links to files or to Internet sites.

http://www.indire.it/winiride

Multimedia Service Service

This centre enables the Department for Information Technology Systems to provide multimedia and data communication services for:

• Video conferences (following ITU standards) point to point or multipoint, both in Italy and abroad with four ISDN lines;
• Events on web streaming;
• VHS films on big screen;
• Reception and recording of TV and satellite programs.

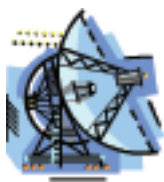# Permanent Observatory of Multimedia Equipments

The Department of Information Technology Systems has built a web procedure enabling the quick search of technical resources for didactics already existing and working in schools.

This web procedure is to be carried out on line.

The aim of this procedure is to allow the Regional School Offices and the Central Administration Offices to plan for future actions, matching e-Europe 2005 planned strategies.

http://www.istruzione.it/area_riservata/attrezzature_tecnologiche.htm

Parabolic aerials

The MIUR and RAI Educational (a branch of the Italian Public Radio and Television Company), in support of the new School Reform, are working on the technology to facilitate the reception of satellite TV programs, especially the ones concerning the English language. Elementary schools, if not already equipped, will be supplied with a parabolic aerial, a digital decoder, and links to a fruition decoder which can be extended up to five other links (that is, the classes involved in the experimentation, plus a multimedia lab/or a linguistic lab.)
The project, which will, at first, concern primary schools and later secondary schools, plans to install 20,873 parabolic aerials.
http://www.istruzione.it/innovazione/news/parabole.shtml

Post@teachers

"Post@teachers" undertaken by the MIUR, is available in Internet and focuses on School Community services (that is, teachers-students-families).
Practically, teachers, after registering in the Administration site, can get an e-mail account on the domain "istruzione.it", accessible either by web mail or by any other e-mail client set up in his/her PC.
In the medium run, the aim is to create a virtual community and to supply it with ad hoc services offering real added value.
To start, a newsletter focusing on teachers' problems has been drawn up and sent to all the registered users.
http://www.istruzione.it/innovazione/progetti/posta.shtml

DivertiPC

DivertiPC, realised in collaboration with the Department for the School Systems, enables elementary school children to become familiar with new technologies and, gradually, other interactive activities - such as a sketchbook to be coloured and a labyrinth - and a wealth of educational multimedia games expressly designed for the Italian teaching methodology. Moreover, this project offers open spaces that can be customized by the pupil, as well as educational and interdisciplinary activities, for a dynamic approach to learning through playing.
With "DivertiPC", about 80% of the activities will be in Internet and only the resting 20% will be accessible on a satellite TV channel dedicated to the project. This choice lies in the importance, as far as the study of new technologies is concerned, given to interactive activities made with the help of a PC.
http://www.ildivertipc.rai.it/

Divertinglese

The "Divertinglese" TV programs, produced by RAI Educational (Italian Radio and Television Company) in collaboration with the MIUR, are part of the educational offer fostering the acquisition of competences concerning the English language in primary schools, according to the rules of the newly introduced Italian school Reform.
This program is a television aid which makes teaching more flexible and creates diversified learning paths for different targets.
This television product, thanks to its being easy accessible either in school and at home, may also improve relations between school, children and parents.
RAI Educational has programs which are suitable to introduce the English language in primary schools by enhancing a playful and interactive approach and an awareness of the visual arts.
The project has been realised in collaboration with the Department for the School Systems.
http://www.ildivertinglese.rai.it/

Explora

Explora is the new scientific satellite channel by RAI Educational in collaboration with the MIUR and CNR (National Research Council).

With EXPLORA WEB it is possible to watch in video streaming any program or study material which is in Internet.

Explora targets different kinds of users: the Italian scientific community, which can benefit from sharing information and knowledge; University students and High School students; national economical players.

Finally, it aims at bringing the public closer to the Italian world of research, via news, information and studies on projects, initiatives and events.

The project has been realised in collaboration with the Department for the School Systems.

http://www.explora.rai.it/

Sun Microsystems

The MIUR and Sun Microsystems have agreed the free distribution of Star Office licences, for didactic, research and management purposes involving all kinds of Italian schools, so that all licences can be available to students, teachers and administration staff.

The package StarOffice includes tools for word processing, the creation of spreadsheets and graphical files, the realisation of slideshows, photographic touch up, relational database use and web publication.

http://www.istruzione.it/innovazione/news/2003/staroffice.shtml

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