

## **Liceo Scientifico Statale "Bruno Touschek" Grottaferrata (Roma), Italy**

### **Local institutions to deal with Agenda 21 & sustainability**

Municipality of Grottaferrata, where the school is located and municipality of Frascati, very close to the school, where a significant part of our students lives. Grottaferrata is defined "The town of books" because the institutions here are very active in promoting reading in all its forms.

The two municipalities involved operate according to the following plans :

- Renewable energy in cooperation with the Province of Rome and University of "Tor Vergata" through the consortium "Hypatia" aimed at a combined action of research on new technologies for sustainable development, the safeguard of the environment and the acquisition of the so-called green skills and their subsequent application in future jobs.
- Mobility through projects of bike and car sharing
- Environment campaigns for the safeguard of the Parco of Castelli Romani with schools involvement.
- The Municipalities of Grottaferrata and Frascati are adopting the model defined "smart city" a European project aimed at improving the quality of life in urban areas. In particular the project "Crypta.it" is based on five actions such as installing solar panels on every public building, extension of wifi area , total activation of the electronic identity card, renewal of public lighting , setting up of power stations for electric cars.
- Exhibitions to foster environmental sensitivity
- Voluntary associations operate at different levels for integration and support of people in need.

### **The school "B. Touschek" past and present Agenda 21 actions**

- Monitoring of waste to determine the type of waste we produce in our school
- Study of waste management in our school
- Presence of bins for recycling in each class, along school corridors
- Inclusion of waste in our curriculum
- Reducing, reusing and recycling waste
- Making students aware on the topic
- Installation of 88 solar panels on the roof of the school
- Use of outdoor spaces by creating small green gardens

### **Most important problems identified in our town by students**

#### **▪ Environmental problems**

- Excessive overbuilding in the area, caused by the expansion of the city
- Excessive congestion on the roads

- Increase of deforestation in woods around the town
- **Economical problems**
  - Financial difficulties of small businesses in the historic centres
  - Tax evasion
  - Reduction of State funds to Local Municipalities
- **Social problems**
  - Difficulties for people to move among towns of Castelli Romani caused by the inefficient transport services
  - Housing problems caused by the high rates of renting and purchasing
  - Increase of economic difficulties for a lot of families due to the loss of jobs in consequence of European Austerity Laws
  - Increase of elderly people as a consequence of a low-birth phenomenon
  - Increasing of homeless people and migrants
  - Reduction of State funds for the assistance of disabled people
  - Lack of events and activities for young people
- **Cultural problems**
  - Some problems of intolerance towards extra communitarian people
  - Lack of awareness of environmental problems
  - Reduction of State funds to Schools to carry out more cultural projects
  - Lack of advertising campaigns for local cultural institutions, such as libraries, museums and places of archaeological interest.



# Liceo Bruno Touschek

## Grottaferrata, Italy

Past and present Agenda 21 actions



# Our School Agenda

- How are we involved in Agenda 21 activities?
- What kind of action have we taken so far to reduce the impact on the global environment?
- What are we going to do in the future?

# Liceo Bruno Touschek in action

Waste

Energy

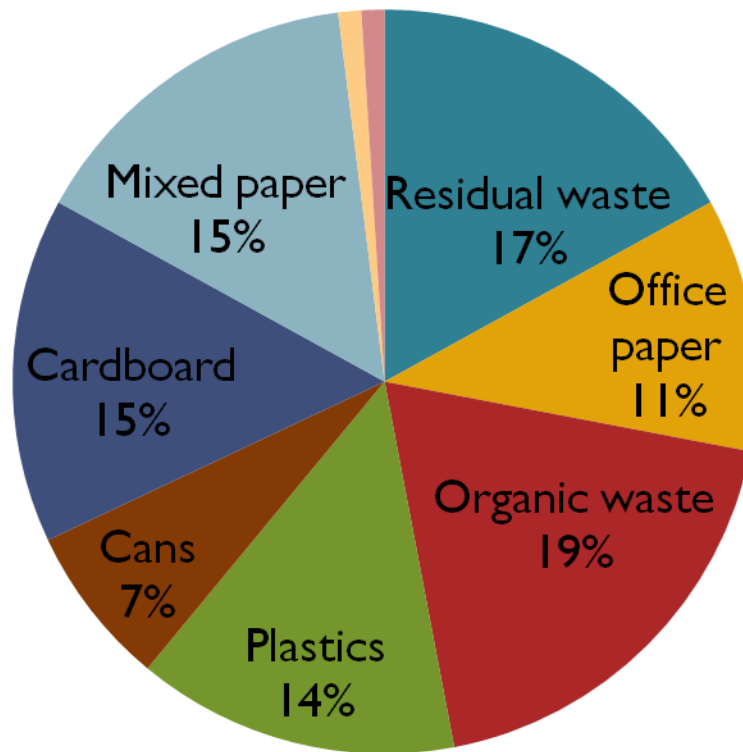
Meetings

Gardening

# Typical school waste

Source: Waste watch

Aluminium foil 1% **Waste production** Glass 1%

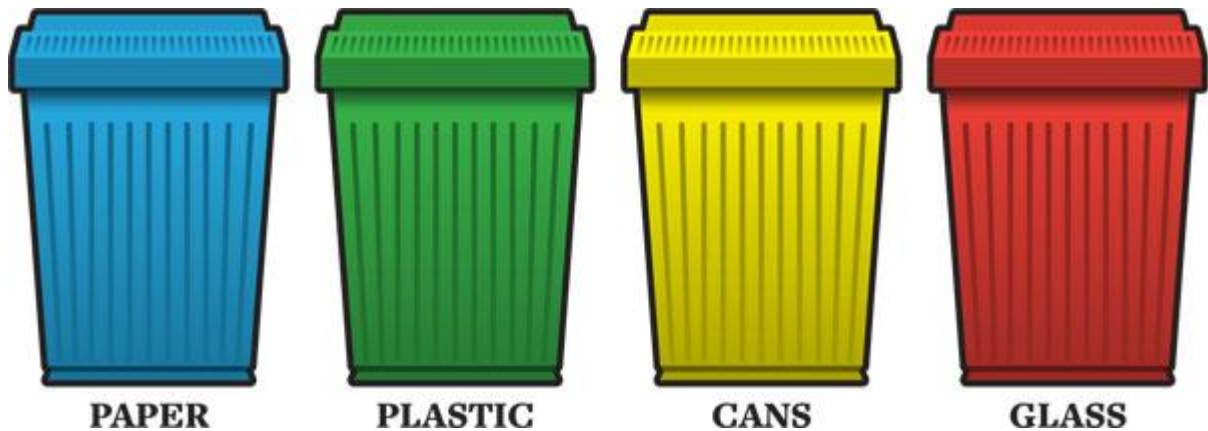


# Actions taken in our school

- In every classroom there are recycling and rubbish bins for
- Residual waste
- Paper



Bins for paper, glass, plastic, organic, cans and residual waste have been put along the corridors, in the offices and outside the school, where they are finally collected by our municipality.








# Taking action


- We are conscious that this is not enough so..
- What actions are we going to take in order to tackle the issue of waste?
- What can we do to minimize this impact?



# How much waste do we produce in our school?

- The school bin
- Let' s investigate on the waste management in our school
- Where does waste end up?

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- Carrying a waste audit
  - The waste check
  - Let's classify and weight our waste

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- How does waste fit into our curriculum?
  - Waste and the different school subjects
  - A questionnaire

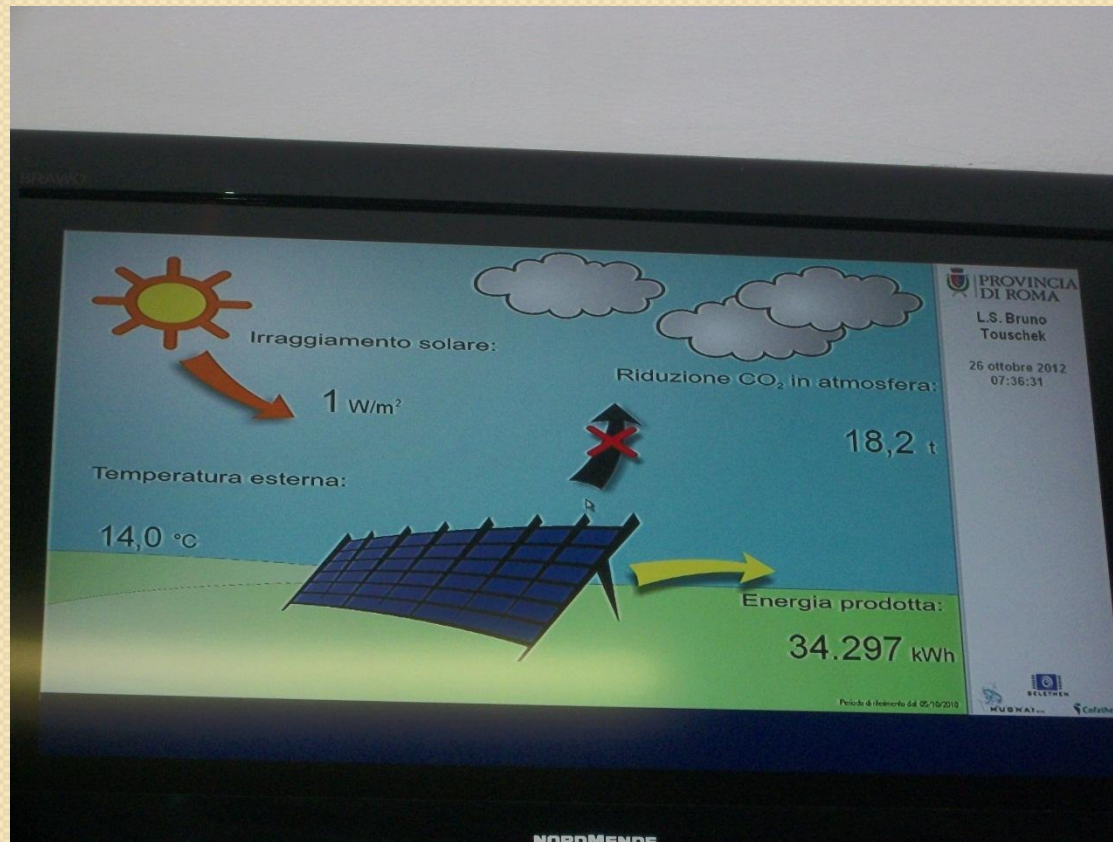
# Practical steps

- Waste prevention and re-use
- Recycling
- Is there a treasure in our trash?
- The three R's – Reduce - Re-use – Recycle

Should be our top priorities



# OUR SOLAR ENERGY MONITOR





Our 88 solar panels

**The panels installed on our rooftop allowed us to experience the practical benefits of their solar electric system in action and we witnessed how Science is positively impacting our environment.**





Our green roof

**Our school went solar more than two years ago. The Province of Rome in fact installed two different photovoltaic plants of 44 panels each and so far we have produced Kw 44,959 of solar energy and reduced Co2 emission of tons 18,2**





**We feel proud to be  
part of a school  
community that is  
reducing  
greenhouse gas  
emission**

Let's reduce greenhouse effects

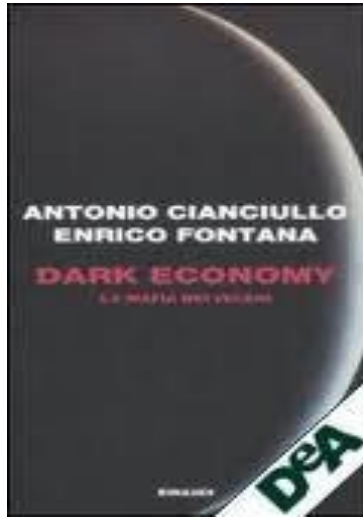


The Province of Rome action plan

**So far the Province of Rome has installed solar panels in about 300 schools and it is estimated that 103 million Kw will be obtained with a saving of 22 tons of oil, whose effects are the reduction of 54 tons of Co2 emission into the atmosphere.**



# «Dark Economy» and Eco-mafie



Last year in our Lyceum, we met the authors of this book. It deals with Eco-mafia and the "dark" "illegal" traffic of toxic refuse and their travel from Italy to China and Africa. Students had previously read and discussed the content of the book in classroom with their teachers; they had also taken part in a TV talk show in which was dealt the problem of collecting and recycling refuse. The aim of these activities was to approach students to a new "green" economy. The conference held in our school was very effective also because local authorities were present and a lot of matters related to our school, such as solar panels , waste sorting, were faced.

# Conference “Energy&sustainability”

Oct 23, 2012 in our school library

- All the energy we have on the Earth comes from the Sun.
- All the methods to produce energy has the result to produce about the 50% of wastes.
- The most important energetic source in the world is coal.
- Renewable sources have a lot of problems too, in particular the bad cost-benefit ratio; because they haven't a good efficiency.
- **The conclusion is that all types of energy aren't sustainable, because they leave a mark on the world; so to reconcile energy and sustainability we need research and education and above all a new social consciousness.**



# Gardening project

## «Walking and Growing»

- In our school there is the project “Growing a garden and Walking”:
  - the purpose of this project is to establish a relationship between the students and nature by walking and growing an organic garden at our school!
- Our teacher Mr. Sambuco takes care of the project



# Our garden







# Our pomegrenate tree

