Conference on Circular Economy and Education

*Porto, June 6 2016*

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Project: Cork
Education for a Circular Economy Learner’s Project Pattern

1st task
Students involved:
• 16-19 years old
• Professional Course of Tourism Technician

Beneficiaries:
• School community (students, parents, teachers, municipality)

2nd task
Analyse Curriculum, “mandatory” to be part of it

3rd task
Think about a natural/cultural resource in Portugal – “Cork”; Start Nine Steps approach
Attention - Picture Assessment: Attitude
In Portugal the cork oak is the National Tree and occupies 23% of the national forest area.
1. Attention- Show the bark of the tree

- Cork is the bark of the tree (Quercus Suber L.) known as Cork oak.
During cork harvest, the tree remains standing while large sections of its outer bark -- the cork itself -- are cut and peeled from the tree. Cork oak is unique in its ability to regenerate its outer bark.

After a tree reaches 25 years of age, it can be stripped of its cork once every 9 to 12 years without causing damage to the tree. A single cork oak, which lives up to 200 years, can be harvested over 16 times. Meaning that it is mandatory to cut the bark of the tree so that it continues living and the bark growing again!
2- Understand- If cork is not used anymore?

• Environmental consequences?/ Unemployment? Social problems?
• Assessment- Assess if learners are aware of the problem-
  Knowledge and skills through research made by students - Internet
Results of the research- 3. RELATE

• According to the WWF - World Wild Fund for Nature:

- Over 100,000 people in southern Europe and north Africa directly and indirectly depend on these forests.

- Around 700 companies directly depend on this economy;
Approximately 10,000 jobs are in factory work;

6500 jobs in forest harvesting and thousands of indirect jobs (catering, tourism, etc.);

Manufactured cork: around 70% in stoppers is intended mainly for export;

Threats: fire, deforestation, agricultural expansion, disease and climate change.

Threats: increased demand for alternative wine stoppers. As the market for cork decreases, fewer cork oak landscapes will be conserved and the species will be placed at greater risk.
4. Analyse- Let’s visit the company, talk to the workers/owners

- Portugal owns 54% of the total Cork Oak Trees forest in the World;
- Many benefits to the ecosystem: cork oak forests account for 10 million tons of CO2 absorption every year.
- Cork is a unique raw-material:
  - 100% natural
  - 100% recyclable
  - 100% renewable
• VERY LIGHT
• ELASTIC AND COMPRESSIBLE
• IMPERMEABLE TO LIQUIDS AND GASES
• THERMAL AND ACOUSTIC INSULATOR
• FIRE RETARDANT
• HIGHLY ABRASION RESISTANT
• HYPOALLERGENIC
• NATURAL TOUCH

THREE C - Creating Competences for a Circular Economy
5. Value

• Analysing the research/work done so far, it is possible to see that something has to be done to maintain the cork oak trees and its many uses (bark of the tree).

• The Rainforest Alliance is working with cork producers throughout Spain and Portugal to help them achieve Forest Stewardship Council (FSC) certification to ensure the continued protection of their cork oak forests and provide for the families that depend on the cork harvest.

• But that is not enough
6. Solve- What options/solutions do we have based on Circular Economy? Knowledge/Skills

Present the videos:

https://www.youtube.com/watch?v=zCRKvDyyHml

Linear Economy vs Circular Economy
What can we do more based on Circular Economy?

- Cork stoppers
- Floor and Wall coverings
- Composite cork
- Insulation cork
- Raw materials
7. Design

Students- “Our biggest legacy is to use our resources and skills.”
“Made to be made again”

When this step was reached, a student thought about an idea she had for a research work she was doing and she related it to circular economy:

S. John, the Baptist (24th June) is celebrated in over 30 cities in the country, and one way of celebrating is benching each other on our heads with plastic hammers. Thousands of people buy plastic hammers every year and after using it for one night, they throw it away? Would there be anyway of reusing/recycle them, and create a new product using cork too?
• S. John, the Baptist (24th June) is celebrated in over 30 cities in the country, and one way of celebrating is benching each other on our heads with plastic hammers. Thousands of people buy plastic hammers every year and after using it for one night, they throw it away?

• Would there be anyway of reusing/recycle them, and create a new product using cork too? This question made us go back the steps and reintroduce the approach. The Student made her own/direct approach of the Nine Steps.
Nine Steps Approach
Plastic Hammers “São João”

• **Attention** – Plastic Hammers on the floor or trash after the celebration

• **Understand** the problem - Thousands of Plastic hammers - environmental? Plastic thrown away?

• **Relate** - What does it do to us?

• **Analyse**- Problem tree
5. Value-economical and environmental issues

• Visit the factory of plastic hammers- BRUPLAST- the only one in Portugal

The information acquired was very important for the project (the Town Hall of Porto makes a selective collection and sorts the used plastic hammers found on the streets or in the garbage and brings it back to the company. Only part of it is reused.

THREE C - Creating Competences for a Circular Economy
Solve through…

THREE C - Creating Competences for a Circular Economy
Design

• First Design a plastic bottle with the shape of the accordion of the plastic hammer with a capacity of 0.5L, which can be transported and used easily every day.
• After its use, one can be compressed, which will make its transportation much easier everywhere you go, not needing much space. This will be reusable

• A market study was made:
  a) 70% sensitive to environmental issues;
  b) 55% drink tap water
  c) 50% uses reusable
  d) 83% carries the bottles everywhere
• After presenting this idea to the owner of the company, we got an answer we didn’t want- the material used for the plastic hammers cannot be used for drinking liquids!! But he gave the student the name of the company recycling plastic (LIPOR) and of the company working in the food industry.

• The product is now being designed with the help of a designer and of a technician.