EKFI PLUS:
Innovation through cooperation

CIRCULAR ECONOMY | WP5 OVERVIEW - LEARNING MATERIAL CO-DEVELOPMENT

Leading organization: HELLENIC GRAPHIC-MEDIA RESEARCH LAB GRAPHMEDLAB – UNIVERSITY OF WEST ATTICA (E10031602 - EL)

Evangelos Syrigos - Dr. Gerasimos Vonitsanos

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STUDENT MANUAL

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CHAPTER SAMPLE: 2. European Policy

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PREFACE

- An extensive work by an enthusiastic team of experts
- Sharing knowledge, expertise and passion for a better, greener future
- Developed collaboratively by 5 schools across Europe [Belgium, Estonia, Greece, Spain and the Netherlands]

- Content levels:
  -Level 1 deals with the general concepts of circular economy in the mentioned industries and can be used in VET
  -Level 2 focusses on assignments for students in higher education.

- Includes student and teacher manuals, lesson plans, and assessments

STRUCTURE

2. European Policy

2.1. Introduction to European Circular Economy Policy

2.2. Circular Economy European Policy & European Graphic Industry Strategy

2.2.1. European Green Deal

Paris Agreement on climate change

European Green Deal

The problem. Climate Change actions

STRUCTURE / ORGANIZERS

2.2. Circular Economy European Policy & European Graphic Industry Strategy

2.2.2. European graphic industry interests & Circular Economy European Policy

Eco-design requirements [depending on the product categories to be regulated]

- **durability, reliability, reusability, upgradeability, repairability, easy maintenance and refurbishing of the product;**
- **minimum content of recycled materials in the products;**
- **easy disassembly, reconstruction and recycling of products and materials;**
- **environmental impact during the life cycle of the products, including their carbon footprint and environmental footprint;**

STRUCTURE

2.2. Circular Economy European Policy & European Graphic Industry Strategy

2.2.3. The European industrial strategy & the accelerating twin transitions

Examples

Example:

We can make a number of changes in our digital lives to reduce our environmental impact in this area:
e.g. extending the life of all smartphones by just 1 year would save 2.1 Mt CO2 per year by 2030, equivalent to taking 1 million cars off our roads.
e.g. switching from 4G to 5G networks can reduce energy consumption by up to 90%.

STRUCTURE

2.2. Circular Economy European Policy & European Graphic Industry Strategy

2.2.3. The Europ. industrial strategy & the accelerating twin transitions

Examples

The main digital carbon footprint sources
Examples: • Websites, multimedia, online games, online shopping, social media, metaverse platforms, cloud computing, e-learning, video streaming, mobile phones and AI.
Every time we access a website, stream a video (the streaming of video and audio content, especially in high resolutions), etc., data is transferred between our device and the servers that consume energy, mainly from the servers and the network equipment involved.
The production of digital devices such as smartphones or laptops and tablets also requires energy and raw materials.

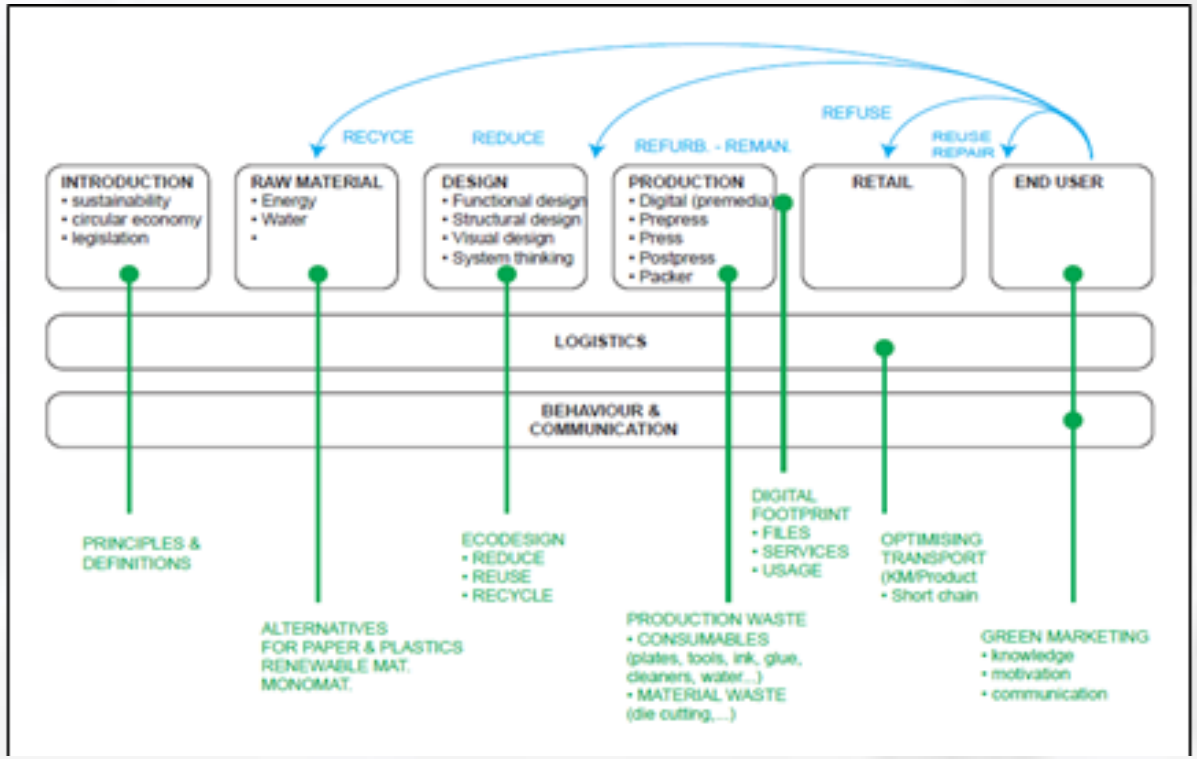
STRUCTURE

3. Certification and Circular Economy

3.1 Introduction

Figures

Figure 3.1 The overview Chain (B. Calis)



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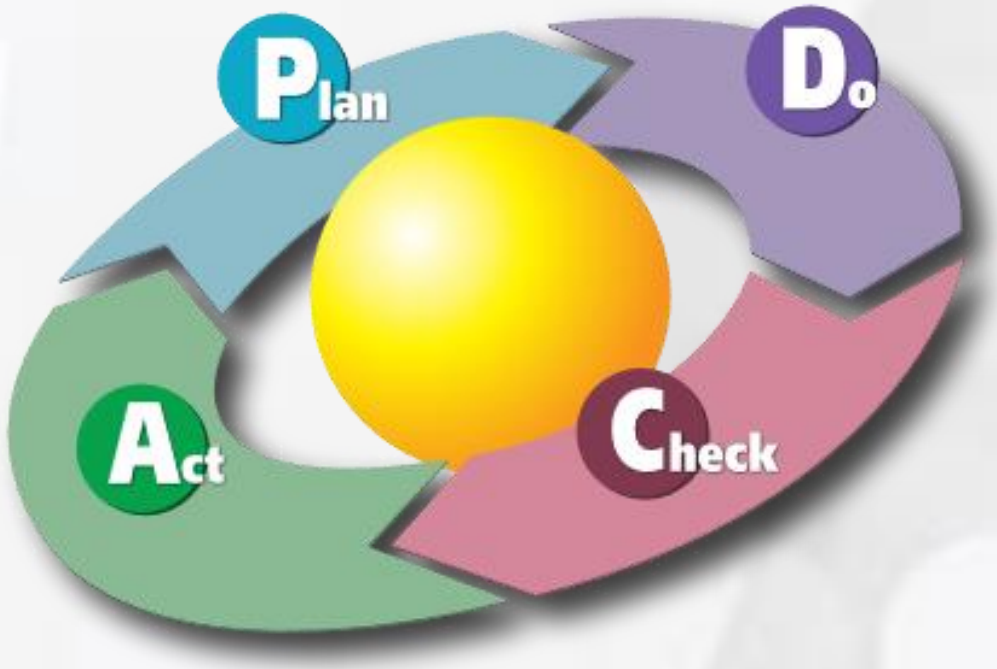
STRUCTURE

3. Certification and Circular Economy

3.3 Benefits of using a certification tool for circular entrepreneurship

Figures

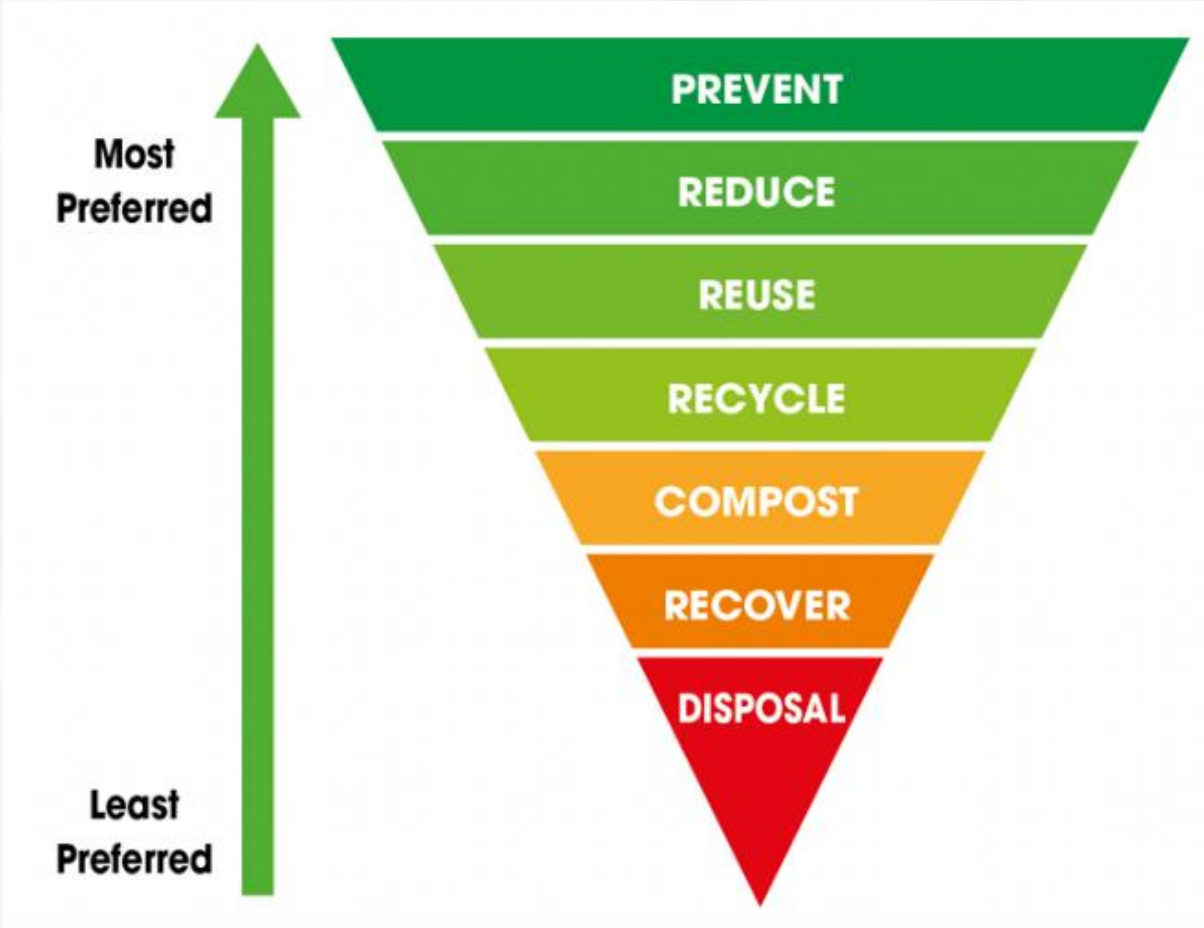
Diagram PDCA circle by Karn G. Bulsuk



STRUCTURE

Figures

6.11 The waste hierarchy model (Bart Calis)



STRUCTURE

Figures/Pictures

6.6. Concentrated refill packaging (Bart Calis)

STRUCTURE

Tables/ Lists

Steps to reduce the digital carbon footprint (organizations must initiate)

- Understanding emission categories. Every IT leader should understand the basic principles of broadcasting. Emissions are divided into three categories: a) direct emissions produced by a company (from company vehicles, processes, greenhouse gas leaks, construction), b) indirect emissions from purchased energy such as electricity, and c) indirect emissions related to a company's operations company or a supply chain (raw materials and precious metals for making digital devices).
- Increasing the life cycle of the devices (e.g. in 4 instead of 3 years). The equipment must continue to be compatible with new software upgrades and have technical support.
- Optimization of data storage and the use of cloud technologies.
- Use of cloud technologies after ensuring that applications are well designed.
- Strengthening cloud technologies with green energy, e.g. from renewable energy sources, such as windmills, solar farms etc.)
- Building greener software. Developers must design with its digital carbon footprint in mind.

STRUCTURE

Tables

Parameters scope 1 en 2		Example A	CO_2 (of Example A)	Example B	CO2 (of Example B)
1	Electricity	Grey, 150.000Kwh, per year	.....	Solar energy	.....
2	Gas	Grey, 25.000m3., per year	.....	Solar energy	.....
3	Cars	4 cars, 2000 liters per year, per car (2x cars Diesel, 2x Petrol)	.....	cars all Electric	.....
4	Air travel	800 km	.....	0 km	.....
Example A TOTAL CO_2:			.....	**Example B** TOTAL CO_2:	.....

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Evaluation / Self-Evaluation

Questions:

3. What are the major issues over which the new 'Proposal to revise EU legislation on packaging and packaging waste' (2022) has caused friction in the European Parliament between policy makers, industry and environmentalists?

4. Digital transformation, in addition to its positive impact on combating climate change and reducing carbon dioxide emissions, also has direct and indirect environmental impacts. You mentioned some of them.

2. 5. Future Trends and Outlook

- Actions needs to be scaled up at EU and global level to achieve the shift from a linear economy to a circular economy by 2025.
- The collective effort started with chemicals, eco-labelling and innovation, critical raw materials and the non-toxic environment should pick up the pace
- It should continue to support investment, as well as research and innovation.
- In the future, however, it is hoped that C.E. will be mainstream practice by all, embedded in business models, production systems, general and vocational education/training, and government actions at every level.

2.6 Summary

European Circular Economy Policy aims to preserve products, equipment and infrastructure for a longer period of time, thus improving the efficiency of these resources and while minimizing the use of natural resources. Public policies: are targeted courses of action that are based on law Policy-makers: interact to make policy decisions in the EU. **Cultural and Creative Industries (CCIs) ecosystem** and **Graphic Arts and Digital Media industry** as CCIs sub-sector (print, books & publishing, audiovisual, etc.) is an important part of Europe's economy, represents approximately 4% of EU value added and plays a big role in promoting innovation & creativity in other industries as multiplier. […]

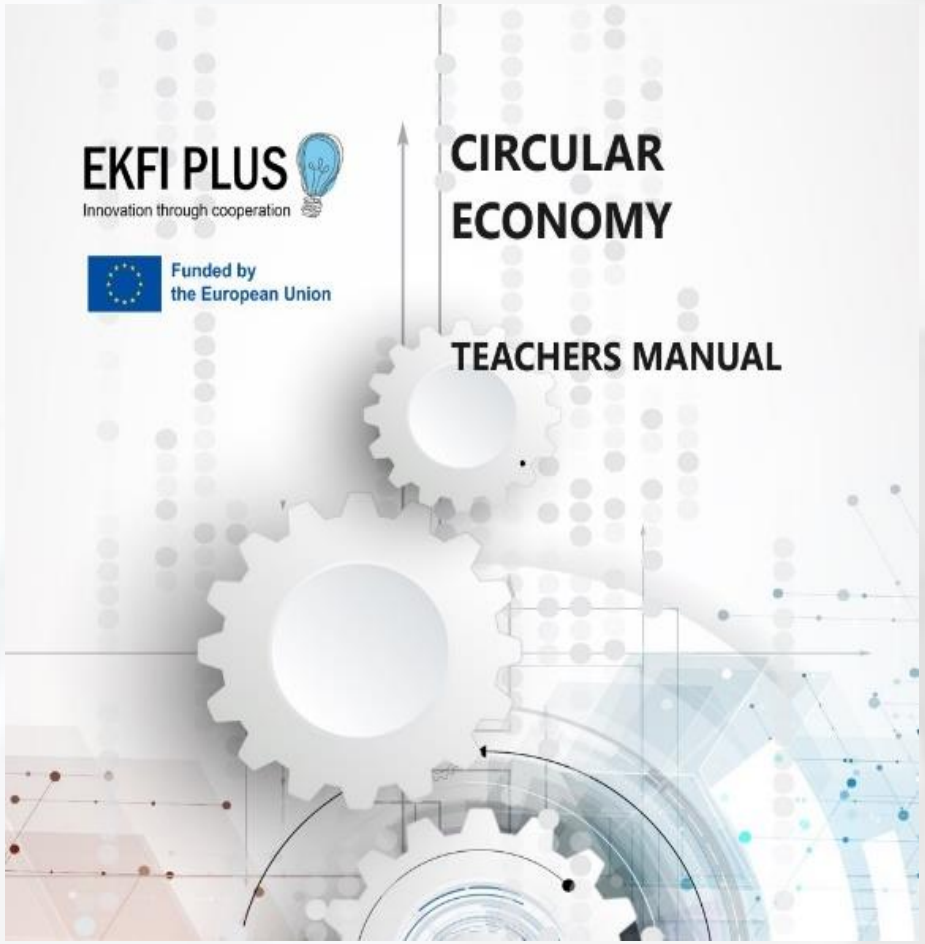
SOURCES

Directorate-General for Environment (2023). *Industrial emissions and safety,* https://environment.ec.europa.eu/topics/industrial-emissions-and-safety_en

Document 52022DC0140. *Communication from the Commission to the European Parliament, the council, the European Economic and Social Committee and the Committee of the Regions on making sustainable products the norm*, https://eur-lex.europa.eu/legal-content/en/txt/?uri=celex%3a52022dc0140&qid=1649112555090

E.C. (2023). *Ecodesign for Sustainable Products Regulation*, https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products-regulation_en

TEACHER'S MANUAL



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1. Preface

In front of you lies an extensive work of an enthusiastic team of experts that has taken a lot of effort, patience and time. In these learning materials on Circular economy we have tried to share our knowledge, expertise and first and foremost passion for a better and greener future for the Printmedia, Sign and Packaging industries. In this preface you will learn more about how this work was developed and some useful tips on how to use it.
Within the project 'Innovation through cooperation (EKFI PLUS)' five schools from Belgium, Estonia, Greece, Spain and the Netherlands have worked on the learning materials together. […]

Thank you very much in advance,
The EKFI PLUS Team

2. European Policy (Title)

2.1. Objectives of the lesson (The aim)

The aim of this subject is mainly for students to understand the **role and importance of the European Circular Economy Policies** the last years and in the immediate future, with reference to industrial strategy the accelerated twin transitions, the Circular Economy Action Plan (CEAP) and related policies (plastics, waste/recycling, critical raw materials, industrial emissions, and green claims.

Particular emphasis is placed on understanding the **strategy and interests of the European Graphic Industry in relation to C.E. European Policy**, in areas such as **Eco-Design** as the design of **Functional Signs, Digital printing**, and of course the complex issue of **Packaging**.

2.1. Objectives of the lesson (Specific goals)

Knowledge (VET and HE)

- Explain the importance of European policy for the development of the Circular Economy at a global level
- Articulate the eco-design requirements, depending on the product categories to be regulate
- Describe the design process of eco-friendly functional signs […]

Skills/Ability

- Describe the European Green Deal
- Analyze the environmental characteristics of digital printing methods
- Being able to search for visual material and information on European Parliament […]

Attitudes (VET/HE)

- Accept or reject the hidden environmental costs of tech and the “digital carbon footprint”
- Express a preference for environmentally friendly design decisions and sign construction materials […]

2.2. Programming and timing of the lesson

In this lesson we focus on European Circular Economy Policy.

Total hours = 3 didactic hrs classroom time (2+1 hrs).

The programming has been carried out considering that each session is of one hour, however the material is adjusted to 50 min to allow the initial reception of the students and the recapitulation of activities developed at the end.

Approximate scheduled time (total didactic hours 2 hrs/100 min)	What	How	Media/Tools
5 min	Introduction		
15 min	Theory: general concept of European Green Deal & Climate Change actions	Teacher's presentation - with powerpoint - questions/answers	Projector, digital whiteboard or computers
35 min	Theory of European graphic industry interests & C.E. European Policy (Signs, Packaging, Digital printing) The European	Teacher's presentation - with powerpoint - questions/answers	Projector, digital whiteboard or computers

How

- Teacher’s presentation:
  a. with powerpoint,
  b. questions/answers

- Student activities in groups, Short discussion of the results per group

- Last remarks, questions

- Assignment: examples of use of […] in the real life of the students

Assignments

Assignment: ‘Submit a Good Practice’

- Write a group report on the … holistic 'retirement' management of equipment, machinery, materials and waste of the training school unit in which you are training.
- Propose with a written report the best eco-friendly signs options per category and document your choices.
- Work in groups

Assignments

Assignment: ‘Submit a Good Practice’

https://circulareconomy.europa.eu/platform/en

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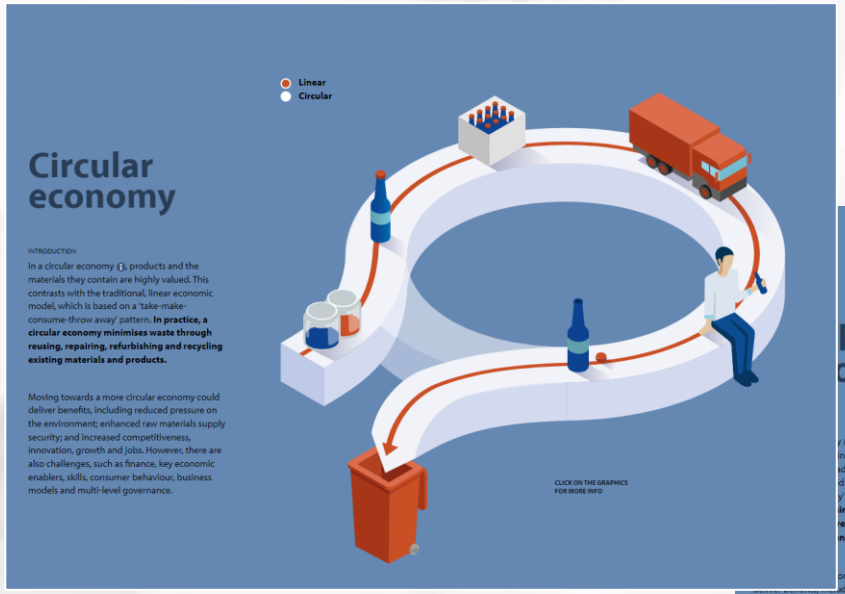
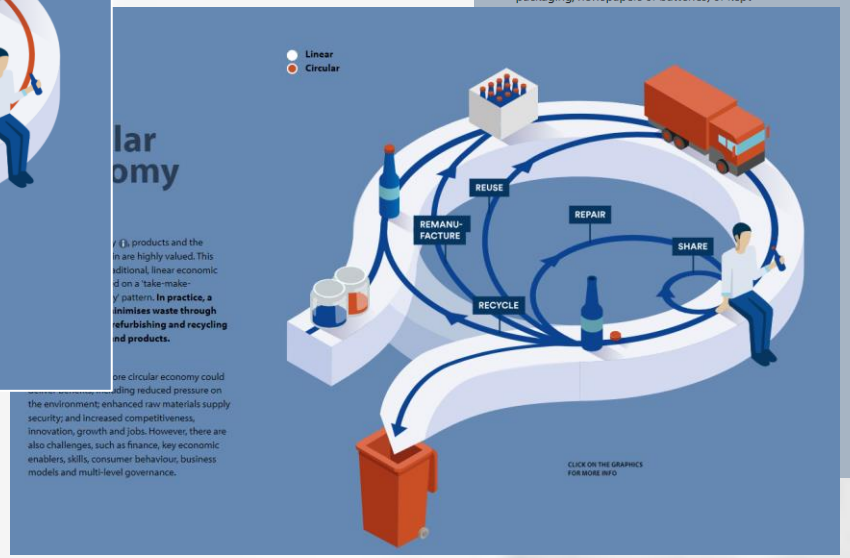
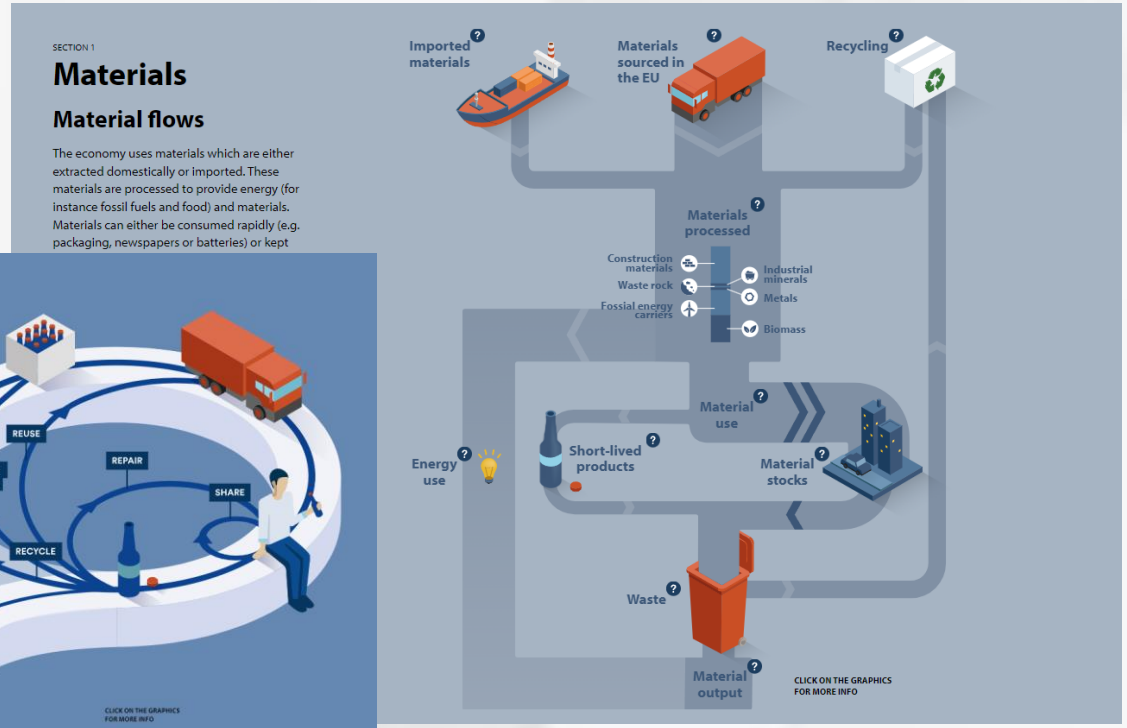
Footnotes / Activities

Indicative source of illustration (Interactive Infographics): Circular Economy | EPRS - European Parliament

(Circular economy minimises waste through reusing, repairing, refurbishing and recycling existing materials and products)







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PRESENTATIONS

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2. European Policy

2.2. C.E. European Policy & European Graphic Industry Strategy

2.2.1. European Green Deal

- Paris Agreement on climate change

The European Green Deal is E.E.'s road map towards sustainable development and is planned to be implemented in practice, through a wide range of actions (D2), and by integrating the dimension of sustainability in all policies. It has an emblematic goal of making Europe the first climate-neutral continent by 2050.

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The main digital carbon footprint sources

Examples:

- websites, multimedia, online games, online shopping, social media, metaverse platforms, cloud computing, e-learning, video streaming, mobile phones & AI.

Every time we access a website, stream a video (the streaming of video and audio content, especially in high resolutions), etc., data is transferred between our device and the servers that consume energy, mainly from the servers and the network equipment involved.

The production of digital devices such as smartphones or laptops and tablets also requires energy and raw materials.

The manufacturing process also produces emissions, as does the disposal of these devices at the end of their life cycle.

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Programming and timing of the lesson

Didactic hours 2	What	How	Media/Tools
5 min	Introduction		
15 min	Theory: European Green Deal & Climate Change actions	Teacher's presentation	Projector, digital whiteboard or computers
35 min	Theory of European graphic industry interests & C.E.E.P. (Signs, Packaging, Digi-printing) The twin transitions	Teacher's presentation - with powerpoint - questions/answers	Projector, digital whiteboard or computers
30 min	**Assignment I. (1)** Newly established Graphic Media company - organization of the supply of eco-friendly signs	-student activities in groups - short discussion of the results per group	Computers, Internet access (Possible Extended Time for Assignments)
10 min	Theory consumers of plastics	- presentation - assignment: examples of use of packaging in the real life of the students	Whiteboard
5 min	Closure	Last remarks, questions	Whiteboard

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Assignments

Indicative source of illustration (Infographics)

Circular Economy | EPRS - European Parliament (Circular economy minimises waste through reusing, repairing, refurbishing and recycling existing materials and products),

SOURCE:

https://www.europarl.europa.eu/thinktank/infographics/circulareconomy/public/index.html#production-today

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"Thank you for your attention …’’

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