

ACTIVITY 1: Cradle-to-Cradle Project

Activity Objective: Using Chapter 16 and Internet resources design or construct a cradle-to-cradle product and identify the nutrient used to build it.

Definition:

Cradle-to-cradle (C2C, cradle 2 cradle, regenerative design) is a term used in life-cycle analysis to describe a material or product that is recycled into a new product at the end of its life, so that ultimately there is no waste. It is a biomimetic approach to the design of products and systems. It models human industry on nature's processes viewing materials as nutrients circulating in healthy, safe metabolisms. It recommends that industry must protect and enrich ecosystems and nature's biological metabolism while also maintaining a safe, productive technical metabolism for the high-quality use and circulation of organic and technical nutrients. Cradle to Cradle is a wholistic (whole is greater than the sum of its parts) economic, industrial and social framework that seeks to create systems that are not only efficient but also waste free. This model is not limited to industrial design and manufacturing; it can be applied to many aspects of human civilization such as urban environments, buildings, economics and social systems.

Architect William McDonough and chemist Michael Baumgart created and trademarked the process where they proposed an alternative approach using nature as mode, where waste food waste equals food with wasted at one level becoming the nutrient at the other level, which they termed Cradle-To-Cradle. Cradle to cradle design integrates the biological and technical where technical nutrients as they are called are recycled continually. Design and production used biodegradable materials so they can become part of another products after they are used.

The corn-based calm positive fabric used in a chair called the MIRRA Chair (Designed by Herman Miller) is a technical (biological) nutrient. The MIRRA chair can be returned to the biological system. Technical (biological) nutrients are materials that are biodegrade. It is possible to design packaging, shoes, clothing, and cleaning products as technical (biological) nutrients. Some materials that could be technical (biological) nutrients may not be used like wool with fire retardants, which could not be mixed into the biological cycle.

When a Cradle-to-Cradle product has reached the end of its useful life is returned to the manufacture for disassembly and reuse. The plastic used in the new MIRRA chair is a technical nutrient. The fiber in interlaced carpet tiles is a technical nutrient and can be returned to the biological system. Toxic and hazardous substances also known as X ingredients cannot be returned to the biosphere. Manufacturers can apply for cradle to cradle certification with silver gold and platinum levels.

Steelcase makes biodegradable furniture and Corning makes biodegradable insulation. Shampoos and conditioners from Aveeno and Procter & Gamble and their shipping boxes can also be cradle-to-cradle items and return to the biosphere. Climatex Lifecycle, which is a blend of pesticide- and residue-free wool and organically grown ramie, dyed and processed entirely with nontoxic chemicals.

REVIEW VIDEOS

Cradle to cradle design | William McDonough: <https://www.youtube.com/watch?v=IoRjz8iTVoo>

What is Cradle to Cradle?: <https://www.youtube.com/watch?v=fP8PRA-OajU>

Materials: Chapter 16, paper, computer, printer. Internet Access, materials as needed to make your cradle-to-cradle product.

Procedure:

1. Work as partners or small teams.
2. Research and brainstorm the cradle-to-cradle concept and design.
3. Based on the text in chapter 16 and an Internet search create a design for a cradle-to-cradle product and if feasible actually make that product.
4. Create a Power Point presentation on the results of your design if you cannot actually build the products.



RUBRIC

4 World-Class Learner	3 Proficient Learner	2 Developing Learner	1 Emergent Learner
Learner at this level has gone beyond mastery of knowledge, skills, & attitudes described in project. World-class learner consistently exhibits high-quality performance.	Learner at this level has had opportunities to apply knowledge, skills, & attitudes of component of project. Proficient learner has mastered essential attributes, thus proving mastery.	Learner at this level has been exposed to & had opportunity to apply knowledge, skills, & attitudes of project. Developing learner may have only a few essential attributes to master before mastery.	Learner at this level may or may not have been exposed to knowledge, skills, & attitudes required by academic standards of the project.

1= Emergent Learner

2 = Developing Learner

3 = Proficient Learner

4 = World-Class Learner