

Students' Card

MemoRAEE

Objective: How to build the game and play with it

Introduction

Many electronic devices in everyday use, such as smartphones, televisions, lamps, printers contain specific materials and metals that need to be recovered and recycled once the equipment stops being used. Other materials, on the other hand, are extremely hazardous and only proper disposal of EEE at the end of its life prevents it from being released into the environment. Many metals are crucial for various applications, not only in electronic devices, but also in low-carbon energy technologies (e.g. wind turbines, low-energy lighting) and sustainable mobility (e.g. hybrid car batteries).

Certain components, necessary for the creation of electronic devices, are defined as Critical Raw Materials, which are of strategic economic importance and characterised by a high supply risk. For this reason, in 2011, the European Commission drew up the first list of Critical Raw Materials (CRM), which is updated every three years. It follows that recycling is an important source of secondary raw materials, which can contribute to the security of supply of Critical Raw Materials and to a more circular European economy.

Based on the latest assessment published in 2020, the latest CRM list includes 30 Critical Raw Materials.

This activity will allow:

- to discover the most utilized Rare Earth Elements in daily electronic devices;
- to think about the end of life of such devices and learn their proper disposal for a correct management and recycling. In this way the Rare Earth Elements, together with other metals, can be recovered as secondary raw materials.

Necessities

List of materials/tools

- Print the sheets with the cards front and back;
- Print out the sheet with the questions for the teacher to ask during the game;
- 1 pair of scissors;



Procedure

1. Print out the cards and question sheet for the quiz (**CARDS to print and QUESTIONS to print**),
2. Cut out each card following the border;

How to play

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Once the cards have been printed and cut out, check that there are 60 cards to get 30 pairs.

The class is divided into teams of 4-5 pupils, each team will have its own complete pack of cards. Each team lays the playing cards turned over on the back on a table. The teacher first asks each team a question from the **QUESTIONS to print** to start the game.

The teacher must remember to mark these first questions so that they are not repeated for the next phase of the game.

The student in each team who guesses first starts the round: he/she turns over 2 cards on the table to try to form the first pair. The game states that the pair is correct when the blue symbols at the bottom of both turned over cards match. There can be more than one symbol on each card, in which case all symbols on each card must match.

The pair formed is only valid if the blue symbols on each card are the same. Once the correct pair has been found, the student will find 2 cards in his hand: one with the representation of an electronic device and the other with the representation of a component inside it.

The component card describes what it is and how it is handled once the equipment is at the end of its life. Each time a pair is formed, the component cards are removed from the table and the student gets one point. The student who guesses the pair of cards continues with the next round until he or she makes a wrong pair. On the first mistake, the turn passes to another student in the team. Whoever earns the most points wins the game.

When all the teams in the classroom have finished the game and each team declares a winner, we move on to a new game phase. At this point, the teacher takes the **QUESTIONS to print** sheet to ask the whole class, divided into teams. The winner of each team becomes the 'team leader' who, on behalf of his or her team, must answer the question asked by the teacher correctly, after consultation with the other members of the group. The team that answers the most questions correctly wins and the game ends.

MemoRAEE Cards

*For the game, you must print and cut out the cards in the document (**CARDS to print**), similar to those shown below:*

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