CRMs Memory Card Game

BARIUM ($_{56}$Ba)	BISMUTH ($_{83}$Bi)	ANTIMONY ($_{51}$Sb)
Baryte (BaSO₄)	Bismuthinite (Bi₂S₃) [By-product of Pb and W extraction]	Antimonite (NaSb(OH)₆)
Property: High specific gravity	**Property:** Sn-Bi Low melting point	**Property:** Slow development of ignition
Weighting agent in drilling fluids (Oil production)	Fusible alloys in solders (replacement of harmful metals (lead))	Flame-retardant plastics

Target age Age 15 and over	
Level of difficulty ☐ Easy ☒ Medium ☐ High	

Key words:

CRMs applications, CRMs properties, Minerals, Substitutes.

Abstract of the activity:

Simple card game that can be used with a group of students for them to learn, by playing, the main properties and uses of several critical raw materials, as well as their importance nowadays in our technological society. They will also be introduced to the current worldwide environmental and socioeconomically concerns.

The main aim of the game is to match the cards of the elements properties with their corresponding application. For this purpose, cards will be faced down on the table and students will turn them over by turns.

Learning Goals

- CRMs economic importance and risk supply.
- CRMs minerals, manufacturing, properties and uses.
- CRMs environmental and social impacts.

Summary

Specific Abilities - *At the end of the activity the student will be able to:*

- Identify Critical Raw Materials, their origin, properties and applications in real life products.

Cross-curricula Links-

- Geology: minerals
- Economy: renewable and digital technologies key sectors, circular economy.
- Environment Sciences: mining and e-waste generation impacts, ecological footprint.
- Social Sciences: mining social concerns, child exploitation and soldiers.
- Politics: European Commission policies about Critical Raw Materials.

Prerequisites *- Knowledge and skills necessary for carrying out the activity*
- Basic materials properties knowledge.

Time requirement

☐ 1 h   ☐ 15 min

Learning and Teaching Support Materials - What you can find in the toolkit

1. Teachers' Card.
2. Awareness-raising, environmental and social impacts.
3. Fact Sheets.
4. Game Instructions.
5. Student's Play Cards.
6. Access to a prepared Kahoot!

RM Ambassadors

Authors

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