






Summary

BE SMART ABOUT SMARTPHONE



	Target age	
	Age 12 to 18	
	Level of difficulty	
	<input type="checkbox"/> Easy <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	
	Key words:	
	Minerals, raw materials in Mobile phone, European map of mineral deposits, experiments, costs of raw materials	
	Abstract of the activity:	
	Through group work, students become scientists who must figure out what other raw materials they need to finished production of a smartphones. Each group is given 5 minerals and 5 raw materials to work on and through experiments and exercises:	
	1. identify minerals, 2. find out from which mineral a certain raw material is extracted, 3. if these raw materials are found and mined in Europe, 4. in which part of the mobile phone the raw materials are missing, 5. how much raw materials cost.	
	The toolkit can serve as a basis and entry point for many discussions, from the chemical and physical properties of raw materials, how they are extracted and processed, environmental impact and human conditions in mines as well as raw material deposits, critical raw materials, raw material consumption in modern electronic devices and the economic aspects.	
	Learning Goals	
	<ul style="list-style-type: none"> • Students identify minerals. • Students explain the connection between minerals and raw materials. • Students understand the role of raw materials in society. • Students analyse the path from minerals to the final product (e.g., smart 	

Summary

phones are used in the toolkit).

- Students express their opinions on the issues involved in manufacturing of products.



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

- Know how to identify minerals and raw materials.
- Understand that raw materials need to be found and mined.
- Understand that we use raw materials in smart devices.
- Explain the supply chain of raw materials and problems connected to them.

Cross-curricula Links



- Ecology/Environment
- Chemistry
- Geography
- Physics
- Technology
- Social Sciences: i.e. human conditions, ethics
- Economics/Economy



Prerequisites - *Knowledge and skills necessary for carrying out the activity*

- There is no need for prior knowledge - instructions are provided.
- Students must be information literate.



Time requirement - *plus eventually other boundary conditions (i.e. Instruments)*

3 h and 45 min (5 * 45 min)

Instruments: *tablets or computers (internet)*

Learning and Teaching Support Materials:



1. Teacher Card
2. Procedure/s- Module 1
3. Students' Card 1
4. Students' worksheet
5. Support material (5 work posters with instructions)
6. Ppt presentation for a lesson
7. Prepared evaluation in PDF

Summary

RM
Ambassadors

Authors

Nina Valand, Geological Survey of Slovenia, nina.valand@geo-zs.si;

Rok Brajkovič, Geological Survey of Slovenia, rok.brajkovic@geo-zs.si