

STUDY MODULE: ROCKS AROUND US

The NEED project study module designed for the Finnish Stone Center comprises of new hands-on exercises, an exercise booklet for pupils, handbooks for teachers and guides, posters and equipment, and other related materials. The study module is developed by Seija Juntunen and Tuula Keinonen, University of Eastern Finland, Joensuu. More info about the Finnish Stone Center: <http://kivikyla.fi/en/>.

Study module

'Rocks around us' concerns rocks and minerals, and their use in society.

Pedagogical background:

The pedagogical philosophy of this study module is based on the idea of linking geology to society, everyday life and the environment. The module develops thinking, learning and problem-solving skills as well as information management skills. Instruction relies on an investigative, problem-centred approach.

Objectives:

The main objective is to learn to understand the significance of rocks for mankind, society and everyday life. Its other objective is to learn some basics about rocks and minerals.

Level and curriculum links:

The study module is designed for 5-6th and 9th grades; which means 11-13 and 15-16 year old pupils. In the 5-6th grades, the module is linked to Physics and Chemistry, while in the 9th grade, to Geography.

Time required:

The module's exercises at school, previous to visiting the Finnish Stone Center, take 1-2 hours; exercises at in the Finnish Stone Center take 2-4 hours, and after the visit, there are still 1-3 hours of exercises at school.

Activities / tasks in the learning process: (all are included in the exercise booklet)

Topic orientation: use of rocks

1. Mind-map about the use of rocks
2. Observation: The use of rocks in everyday life environment
3. Stone buildings and monuments
4. Rocks in interior decoration

What kinds of rocks exist?

5. Inquiry: Examining the structure and exterior features of rocks
6. Deduction: Rock types

What are minerals?

7. Inquiry: Examining the features of minerals
8. Problem-solving: The use of minerals

Where are rocks used and what is their significance?

9. Problem-solving: The use and deposits of soapstone and granite
10. Problem-solving: Defining the use of geological materials
11. Sustainable use of geological materials
12. Geology as a career: What does a geologist do
13. Cultural aspects, rock paintings
14. Rocks and geological materials belonging to the home area

Summary and assessment

15. Summary of the use of rocks
16. Self assessment

Examples of exercises and materials from the study module

Exercise booklet for pupils (24-pages):



MITEN RAAKA-AINEITA KÄYTETÄÄN?
Mistä vesisäiliöstä kivi on?

Etelällä, kiviä paljon. Suomessa kiviä on ollut aina vuorokauden raaka-ainetta. Miten vesisäiliöstä kiviä käytetään?

raaka-aine	määrä(kg)	tuotteet ja käyttökohteet
Kupari Cu		
Rauta Fe		
Alumiini Al		

Käsitellään seuraavana alkuina.
Pöytäkirja kiviä vesisäiliöstä vesisäiliöstä? Miten? Miten kiviä vesisäiliöstä vesisäiliöstä vesisäiliöstä?

ERILAISIA KIVILAJEJA
Kiven rakenne antaa vihjeitä kiven alkuperästä ja syntytavasta.
Tutustu kiviä käyttäessäsi: Käsittele kiviä.
Tutustu kiviä käyttäessäsi: Käsittele kiviä.

kivilaji	kivitalityyppi
granitti	
vaikantili	
gnaisi	
vaikantili	
vaikantili	

Tiesitkö?
Suomen pohjoisissa osissa on paljon kiviä. Kiviä on paljon Suomessa. Kiviä on paljon Suomessa. Kiviä on paljon Suomessa.

Materials and equipment for examining and identifying rocks and minerals:



Poor man's GIS exercise with transparent map layers to discover deposits and quarries of granite and soapstone:



Materials for learning about how rocks are used:

- Wall posters with stickers of geological materials like copper, iron, aluminium, brick, glass, gravel, sand..
- Card series about where granite and soapstone are used, to discover ways of using these two rocks and consider why a certain rock is used in a certain object.



a)

b)