LESSON PLAN - POLAND

By J. Jarota

DATE: 23.10.2010
CLASS: 5a
SUBJECT: NATURAL SCIENCES
GROUP SIZE: 15
DURATION: 45MIN
TOPIC OF THE LESSON: Exploring our region.

GENERAL OBJECTIVE:

- Students can describe the Silesian Region

SPECIFIC OBJECTIVES::

- Students can locate the Silesian Region on the map;
- Students can name the natural resources present in the Silesian Region;
- Students can describe the features of the Silesian Region landscape;

METHODS: Explanation, brainstorming, discussion, film presentation, working with a map.
FORMS OF WORK: group and individual work.
TEACHING AIDS: textbooks, a map of Poland, thematic maps, a film, atlases.

STAGES OF THE LESSON:

1. Teacher greets students and presents the topic of the lesson.
2. Students locate the Silesian Region on the map, they mark it and their home town – Gliwice.
3. Teacher presents a film showing the formation of the Silesian Region.
4. Students, using textbooks, thematic maps and atlases, find the answers for the following questions:
    - What natural recourses can you find in the Silesian Region?
    - What was and is the meaning of coal for the Silesian People?
    - Why do we call the landscape of the Silesian Region ‘ industrial-urban’?
    - What was the reason of the development of heavy industry in the Silesian Region?
    - Why is the natural environment of the Silesian Region so destroyed?
    - Name the cities belonging to the Upper Silesian Industrial District.
5. Teacher checks the answers.
6. Students write down a short note about the Silesian Region.
7. Teacher says goodbye to students.

ROMANIA

Proiect multilateral Comenius
(2010-2012)
TOWARDS A GREENER FUTURE

Şcoala cu clasele I-VIII
„Vasile Lucaciu” **Carei**
Str. Vasile Lucaciu Nr. 16
ROMANIA
http://vasilelucaciucarei.wordpress.com
e-mail: scoalavasilelucaciu@yahoo.com
tel/fax 0261861186

This project has been funded with support from the European Commission within Lifelong Learning Programme-Comenius. The European Committee and National Agency are not held responsible for the contents of published materials and the use of them.

Lesson Project

Applicative educational field trip

Subject-matter: Biology,Geography

Location: Foieni Forest

Target group: 24 , 8th-grade students

Topic: Aspects of plant diversity in various ecosystems and the study of certain adaptations to the systems in question

Period: 1 day

Aim:
- acquiring knowledge concerning some specific features of the plants growing in various ecosystems;
- developing skills in examining the adaptations to the environment;
- training the ability to identify such plants.

Objectives of the trip:
- putting together collections of leaves and fruit;
- making up herbariums;
- defining the characteristics of certain trees and shrubs;
- establishing the importance of forest, water and agricultural plants;
- recognizing certain types of ecosystems;
- identifying plants and animals belonging to the envisaged ecosystems;
- increasing awareness towards the damages brought about to the environment;
- finding ways of protecting the area;
- environmentally managing the area.

Required resources:
- to put down observations and label collected material: notebooks, pencils, stickers;
- to examine the biotopic components: thermometers, mechanical portable cup anemometer;
- to observe the biocenosis components and to collect samples: magnifying glasses, pincers, crates;
- to collect botanical material: metal cases, plant press, newspapers, sample portfolio, labels, plastic bags, envelopes for seeds and fruit, cardboard boxes;
- for photodocumentation: camera;
- for documentation: determiners and botanical atlases.

Managing the students into groups of 6:
1. botanists collecting ruderal and segetal herbal plants;
2. botanists collecting forest herbal plants;
3. botanists collecting woody plants organs;
4. ecologists.

Trip schedule:

Presence and gear are checked in the Biology lab at 8.00 a.m.; utensils and materials are distributed to each activity group.

Regulations with regard to preventing any possible accidents while walking and applications is brought to attention. Everybody signs the minutes according to which they have been instructed as to the above mentioned regulations.

The walk is going to take about 3-4 kilometres. Along the route, students should identify several species of ruderal weed: e.g. the common burdock (Arctium lappa), the stinging nettle (Urtica dioica), the thorn apple (Datura stramonium), the mallow (Malva silvestris), the knot grass (Polygonum aviculare), the amaranth (Amaranthus), the goosefoot (Chenopodium), the cockleburs (Xanthium), the elder tree (Sambucus l.), the common hawthorn (Crataegus monogyna). In Foieni Forest, trees are represented mainly by oaks, among which one could also find isolated specimens of hornbeams, beeches and crabsapple trees. Students will observe human intervention in the forest (trees felled, deserted hearths, household waste, animal droppings).

By means of direct observation, they will note the lower temperature and luminosity as well as the higher air and soil humidity in the thicket of the forest.

Once they have reached the spot where applications are to be performed, students make a stop in the meadow biotope. An overall observation will take place with an emphasis on the fact that they are now in a forest cut (secondary ecological succession) where the biotope and the biocenosis make up a hayfield ecosystem (plain lawn). They will also note the seasonal aspect (vernal, for instance).

In order to accomplish applications, student groups are going to be set out within the area so that they might not inconvenience one another. Each group will accomplish the application according to their worksheets.

Ecologists will determine the air and soil temperature, the soil type, the seasonal aspect, describing the state of the biotope.

Botanists will take notes on the plants they have met and will press the unknown ones, being expected to conclude that vividly coloured flowers are pollinated by insects, which, owing to this feature, are drawn to them, while plants without coloured flowers like, for example, Poaceae, are pollinated by means of the wind and produce a large quantity of pollen.

The teacher is going to guide the observation, the proper use of the resources and measurement utensils, the determination, cropping and preservation of the natural biological material as well as the correct process of recording the results.

The students groups will stay in touch through each group's responsibilities so as that the specific lists should be properly filled in.

Eventually, the following materials are to be produced:

- weather description;
- floristic list and flora description;
- plant adaptation examples;
- biotope description.

Students are subsequently moved to a second location, the forest biotope. Within the overall observation, one should pinpoint the fact that they are in an oak forest, where there could also be found some other woody species. The seasonal aspect stays the same.

The student groups will accomplish the applications in turns so that activities should proceed in an orderly fashion.

Ecologists will note down the air and soil temperature as well as the humidity, luminosity and precipitation parameters.

Botanists will note down the species they meet at the level of the grass, shrub and tree strata, collecting unknown plants for further study. They will observe amentiferous species (hornbeam, beech, oak) whose male flowers are called aments and produce a large quantity of pollen as an adaptation to anemophilous pollination. They will note that the shade plants present a darker green colour as an adaptation to these conditions (e.g. the asarabacca).

Leaving the forest, students are going to walk to a nearby agricultural ecosystem. They will identify several segetal species such as the thistles (Cirsium), the field bindweed (Convolvulus arvensis), the couch grass (Agropyrum), the bristle grass (Setaria), which they will note down and crop for their herbariums. They will also observe that, compared to the forest, this ecosystem presents less stability, requiring a certain degree of maintenance in order to ensure its balance. The teacher's responsibility is to make sure that students proceed to collecting plants and plant organs, or to systematic determinations correctly.

Since there is also an aquatic ecosystem close to the forest, students are going to walk to a lake area where the ecologists will note the temperature, transparency, odour and PH value of the water, observing its degree of pollution, eutrophication and limpidity, whilst the botanists will observe the plants on the brim and in the offing as well as the creatures hereabout.

In the end, students will compare and contrast the meadow, forest, agricultural and water ecosystems.

The conclusions drawn on the field applications shall refer to:

- fulfilling assignments by groups within the mentioned ecosystems;
- assessing the observation outcome and distinguishing achievement by groups;
- the necessity of protecting the forest ecosystem (or the area);
- checking results and determining the unknown plant species;
- revaluating the collected materials and data as reports, herbariums and environmentally focused collections.

Once the time granted to observations is up, students will check and order their materials, complete their observations, debate on the results.

The trip ends with the return of the students to school, where they are going to hand over the collected materials and the instruments they have used.

The subsequent turning to account of the trip is going to take place in the Biology lab, where, under the teacher's supervision, the collected material is to be processed, pressed, dried and preserved so that it could be kept in the laboratory and used as intuitive resource in Biology classes.

Students can also make up portfolios comprising a series of reports on topics such as: *The Foien Forest Flora* or *Wild-Growing Plants in Agricultural Environments and Ways to Control Them*. There is also the possibility of a scrapbook with photos taken during the trip or of a CD with pictures that could be shown to students in other classes, etc.

Labour protection measures considered along the field trip:

1) While walking :
- students will advance in a disciplined way avoiding to turn off from the planned route;
- they will neither get ahead of, nor stay behind the group;
- jostling one another or playing with the study materials are forbidden.

2) During halts in the forest:
- students will be careful not to set out accidental fires;
- they will not litter.

3) On ecological applications:
- students will stick with their groups so that they wouldn't disturb the forest animals;
- they will not tamper with any of the animal activity products (nests, eggs, anthills, etc.)
- they will only collect the strictly necessary number of plants;
- they will carefully handle pointy and sharp utensils to avoid any accidents;
- they will avoid being stung by poisonous insects;
- they will not eat any the wild, possibly harmful, forest fruits;
- they will not push one another on the brim of lake and will not enter the water;
- should it rain, they will not take shelter under the trees, etc.

Assignments for each student group:

I. The ecologists (6 students)

Objective:
- measuring and determining certain ecological factors;
- describing the observed ecosystems biotopes.

Assignments:

1) Measuring the temperature:
- they measure the air temperature at a 2-metre height;
- the thermometer is left for 15 minutes, then read, and the results are put down in notebooks;
- they measure the soil temperature with an appropriate thermometer in the section dug out with a spade;

- the thermometer is left for 15 minutes, then read, and the results are put down in notebooks;
- they measure the water temperature, its transparency, odour and PH.

2) Determining wind intensity and direction:
- students face the wind and, with a help of a compass, they establish the point from where it blows;
- its intensity is established by means of the portable cup anemometer;
- the results are written down in notebooks.

3) Visually determining the degree of atmospherical nebulousness and cloudiness.
4) Determining light intensity:
- it is to be observed in various points: in the open, at the ground level of the grass stratum, in and under tree crowns;
- relative assessment (strong, moderate, weak, shady light).

5) Determining air and soil humidity:
- through direct observation (tactile and visual) one should establish: highly humid, humid or adequately humid air; dry or highly dry air; dry, fresh, humid or highly humid soil;
- students record the results obtained in each ecosystem;
- weather is to be described comparatively for each of the three ecosystems.

6) Describing the biotopes (geographical position, wind, temperature, humidity, luminosity, soil, surface, etc.) within a chart.
7) Establishing vertical strucure in the three ecosystems (tree, shrub, grass strata).
8) Determining the seasonal aspect and specifiying plant vegetative stages;
9) Observing human intervention in the three ecosystems.
Utensils and materials: air thermometer, soil thermometer, anemometer, compass, tape measure.

II. The botanists
Objective: determining and cropping plants, observing adaptations in terms of wind and insect pollination.
Assignments:
1) Determining known plants on the spot using determiners if necessary.
2) Cropping unknown plants in labelled plastic bags, recording the place and subsequent determination in the Biology lab.
3) Students are required to give examples of insect pollinated plant and to explain the adaptations they have observed.
4) They are also asked to mention wind pollinated plants and the adaptations this type of pollination presents.
5) Collecting: gall leaves, both from the bottom and the top of the stem, wind and insect pollination adapted flowers, diversely coloured flowers.
6) They should give examples of plants which present fruit and seeds adapted to wind spreading.
7) Drawing up the list with trees, shrubs, dycotyledonous and monocotyledonous herbal plants.
8) Overall description of the flora highlighting prevalent plants.

Utensils and materials: magnifying glass, deplanter, determiners, plastic bags, labels, plant press, newspapers, etc.

Results of the observations and determinations performed within the four ecosystems

Table 1

Abiotic climactic factors	Meadow	Forest	Agricultural area	Lake
Air temperature				

Soil temperature				
Water temperature				
Water transparency				
Water PH				
Wind direction and intensity				
Nebulousness				
Light intensity				
Air humidity				
Soil humidity				
Precipitations				

Conclusions:

In the forest, the air and soil temperature is lower, the wind and light intensity is weaker, the air and soil humidity is higher than in the meadow and agricultural ecosystems.

List with determined plants (from among one can select according to circumstances or case):

Table 2

Meadow	Forest	Agricultural area
Trees: -	Trees: Quercus robur (oak), Carpinus betulus (common hornbeam), Fagus sylvatica (common beech), Tilia cordata (small-leaved linden), Ulmus foliacaea (field elm), Robinia pseudacacia (black locust), Malus silvestris (wild apple)	Trees: -
Shrubs: Prunus spinosa (blackthorn), Rosa canina (dog rose), Sambucus nigra (black elder)	Shrubs: Crataegus monogyna (common hawthorn), Cornus mas (European cornel), Ligustrum vulgare (wild privet), Viburnum lantana (wayfaring tree)	Shrubs: -
Herbal plants – *Poaceae Family*: Bromus arvense (field brome), Festuca pratensis (meadow fescue), Dactylis glomerata (cock's foot), Agrostis stolonifera (creeping bentgrass) *Composite Family*: Carduus acanthoides (spiny plumeless thistle), Taraxacum officinale (common dandelion), Achillea millefolium (yarrow),	Herbal plants – *Labiatae Family*: Lamium purpureum (red deadnettle), Lamium maculatum (spotted deadnettle), Ajuga reptans (blue bugle) *Compositae Family*: Fragaria vesca (woodland strawberry) *Rosaceae Family*: Agrimonia eupatoria (common agrimony) *Liliaceae Family*: Asparagus tenuifolius (narrow-leaved	Herbal plants – *Poaceae Family*: Setaria glauca (yellow bristlegrass), Agropyrum repens (couch grass) *Compositae Family*: Cirsium arvense (creeping thistle), Centaurea cyanus (cornflower), Lactuca serriola (prickly lettuce), Taraxacum officinale (common dandelion) *Brassicaceae Family*:

Artemisia absinthium (common wormwood), Cichorium intybus (chicory) *Fabaceae Family*: Coronilla varia (crown vetch), Lotus corniculatus (bird's foot trefoil) *Rosaceae Family*: Potentilla anserine (common silverweed) *Rubiaceae Family*: Gallium verum (lady's bedstraw) *Ranunculaceae Family*: Delphynum consolida (forking larkspur) *Labiatae Family*: Salvia pratensis (meadow sage)	asparagus), Allium ursinum (ramsons), Polygonatum officinale (Solomon's seal) *Cruciferae Family*: Dentaria bulbifera (European bittercress) *Boranginaceae Family*: Symphytum officinale (common comfrey) *Poaceae Family*: Phleum pratense (Timothy-grass) *Hypericaceae Family*: Hypericum perforatum (St. John's wort) *Aristolochiaceae Family*: Asarum europaeum (asarabacca) *Moss, lichen, fungi*	Lepidium ruderale (narrow-leaved pepperwort), Thlaspi arvense (field penny-cress) *Chenopodiaceae Family*: Atriplex oblongifolia (oblong-leaved orache), Chenopodium hybridum (maple-leaved goosefoot) *Euphorbiaceae Family*: Euphorbia esula (green spurge) *Lamiaceae Family*: Stachys annua (annual woundwort) *Convolvulaceae Family*: Convolvulus arvensis (field bindweed) *Amaranthaceae Family*: Amaranthus retroflexus (common amaranth) *Plantaginaceae Family*: Plantago lanceolata (ribwort plantain)

Conclusions:

- Both dycotyledonous and monodycotyledonous herbal plants prevail within agricultural and meadow environments, while in the forest one would mainly come across woody plants (trees and shrubs).
- Adaptations to entomophilous pollination: vividly coloured, odouring and nectaripherous flowers (e.g. bedstraw, chicory, dandelion, crown vetch, bird's foot trefoil, all-saints' wort, hedge nettle).
- Adaptations to wind pollination: lesser flowers, devoid of floral layer, which produce large quantities of pollen, ears or aments: oak, hornbeam, beech, elm, cornel, nettle, species belonging to the Poaceae Family (bromegrass, orchard grass, hair grass, etc.).
- Seeds and fruit present morphological adaptations in order to be able to hover more easily: down cover (dandelion, willow) or wings (linden, ash, elm, sycamore maple).

Seasonal aspect:

Vernal (late spring):

- trees in leaf with shaken flowers;
- shrubs in leaf with small fruit;
- summer herbal plants in bloom or even in fruit.

Trip revaluation:

Back at school, in the Biology or Geography lab, students will process the collected material, will press the plants to make up a herbarium of the researched area and will subsequently organize a contest to recognize the plants determined along the trip.

Conclusions with respect to the educational field trip:

- the field trip is attractive and relaxing both for the students and the teacher;
- acquiring new knowledge occurs directly, amidst nature;
- the trip reinforces the ability to observe natural phenomena;
- it provides a good opportunity to review information previously learnt in Biology classes;
- the teacher is thus given the possibility to turn his own experience to good account;

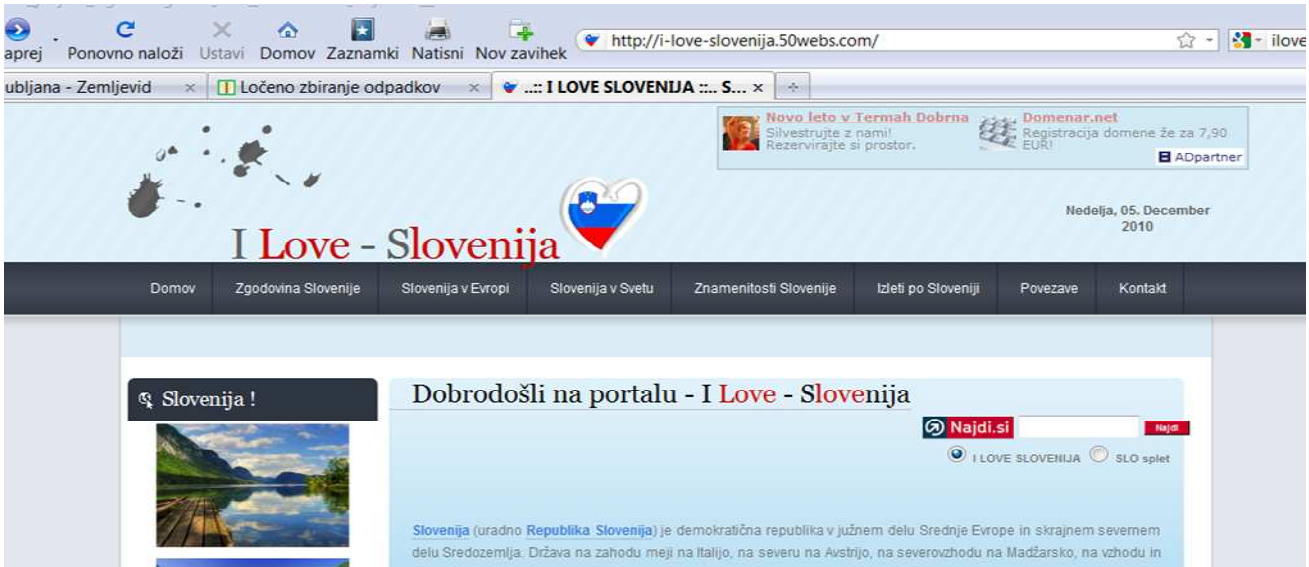
- it builds up a healthy ecological behaviour;
- it has both an informative and a formative dimension.

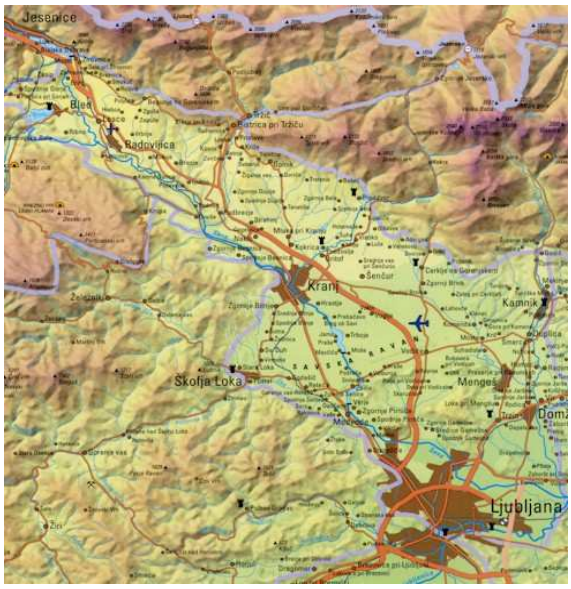
LESSON PLAN - SLOVENIA

Teachers: Mojca Likar, Ema Borovničar
SUBJECT: SOCIAL SCIENCE **RAZRED:** 5 Duration: 1 lesson **Datum**:
TOPIC: **WHERE ARE WE?**
UNIT: Ljubljana – the capital of Slovenia
TEACHING METHODS: frontal, individual, explanation, description, report, discussion, working with text, observation, demonstration, problem solving, practical work, working with ICT, (excursion – following this lesson);
ACTIVITIES AND SKILLS:
describing, exchange of opinions, discussing different materials, searching the Internet, planning, ICT skills, collecting data, comparing.
TEACHING AIDS: Textbooks Družba in jaz, atlas of Slovenia, map of Slovenia
Lesson plan:

Students locate the Republic of Slovenia on the map, they mark it and find the capital - Ljubljana.

http://i-love-slovenija.50webs.com/





Ljubljana is situated in central Slovenia, in the Ljubljana basin. It is surrounded by mountains and hills. *Students locate the basin on their maps.*

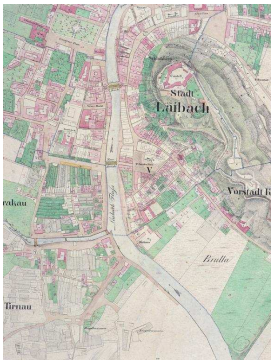
Ljubljana has a continental climate with warm summers and moderately cold winters. The warmest months are July and August (25° - 30°). The coldest month is January.
Thunderstorms are very common from May to September. Snow is common from December and February.
The city is known for its fog.

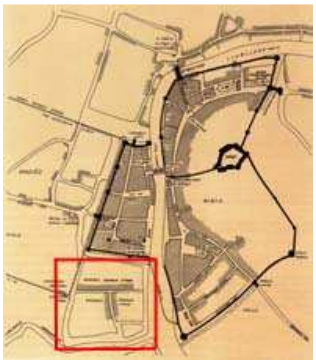
On the southern edge of the Ljubljana basin lie the Ljubljana Marshes. 2000 years BC this place was inhabited by pile dwellers.

And today?

The Ljubljana Marshes are a habitat for numerous endangered plant and animal species. In 2008 it was proclaimed as a landscape park. It's an important water protection area supplying drinking water to a wide area. http://www.ljubljanskobarje.si/

From year 1 to 500 AD the Ljubljana of today was inhabited by Romans. Ljubljana was called Emona. The Romans were excellent builders. They built aqueducts and sewage pipes.





In the Middle Ages Ljubljana was built at the foot of the Castle hill, along the Ljubljanica river.
The inhabitants were not very environmentally conscious.

Today Ljubljana is the capital of Slovenia. It is an important cultural, political, educational and trade centre. Some important institutions:


Parliament


Cankarjev dom


National and University Library


University of Ljubljana

Museum of Natural History

Getting to Ljubljana

You can reach Ljubljana by train, by bus, by car or by plane
http://www.visitljubljana.si/si/zemljevid/?orgid=76465&zoom=true

Ljubljana is a clean city. We try to reduce litter and recycle.
http://www.jhl.si/snaga/locevanje
Ljubljana on Wikipedia. http://sl.wikipedia.org/wiki/Ljubljana
Railway station http://www.slo-zeleznice.si/
Bus station http://www.ap-ljubljana.si/
Airport http://www.lju-airport.si/