

Physical Aspects of School Excursion on the Jura Upland

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Abstract

The contribution shows the physical aspects of the school excursion for the 4-6 class pupils of the base school. The subject "Nature" in these classes, includes some elements of physics, chemistry, biology and geography. On the excursion the pupils can observe optical, hydrostatic, aerostatic, thermic and other physical phenomena.

Introduction

The Jura Upland is the region between Kraków and Częstochowa. This region is one of the most interesting areas of Poland. The most significant values of the Jura Upland are: its beautiful landscape of the most bizarre, fantastic rock forms with many caves, the curative properties of the climate, and the pure water of the rivers. The main route is called Eagles Nest's Route and it runs from Kraków to Częstochowa. It consists of many ruins of the castles situated along it. This region is very interesting from a physical point of view, too.

The most interesting for physics observations is a region around the little town near Częstochowa – Olsztyn. In this town, on the rock hill, there are found the monumental ruins of the medieval castle. In a south there is a place of forest reserve, Falcon Mountains with many caves.

1 The physical phenomena on the school excursion on the Jura Upland

On the school excursion for the 4-6 class pupils of the base school, the pupils can observe very interesting physical phenomena and discuss problems as follows:

1.1 Optical phenomena:

- Blue sky – Why the colour of the sky is connected with atomic structure of the air?
- Shadow of trees – Is the propagation of the light rectilinear?
- Eye accommodation in dark caves –
- Accommodation – What is a physical process?
- Various colours in a nature – Why can we see the colour?

1.2 Hydrostatic and aerostatic phenomena :

- Birds – Why birds fly?
- Rivers, water reservoirs – Are rivers and water reservoirs connected vessels?
- Green trees – How is a water transported to a top of a tree?

1.3 Thermal phenomena :

- Clouds – What is the structure of the various clouds?
- Dew – How and where is a dew formed?
- Wind on the top of rock hills – How is wind formed?
- Temperature in caves - Why is the temperature constant inside a caves?
- Erosion of rocks – Why can an ice out a rock?
- Sun – Is the Sun a source of energy?, Why do green plants need the Sun?

1.4 Other phenomena :

- Compass – Why does the compass needle always point north ?
- Lime rocks – How were the lime rocks on Jura Upland created?
- Stalactites and stalagmites in caves – How were these calcite creations created?

Conclusions

In summary, school excursions to Jura Upland are always a great opportunity to use a base school physics knowledge to explain several environmental phenomena. Direct contact with nature and its connections with physics increase children's interest in the subject. It will benefit them later – in these subjects taught in gymnasium and higher classes of secondary school.