

Lesson Plan – Hamilton in Europe

Goals:

Exercise and improve mathematical modelling and graph theory skills and applications.

Commented description of materials to be used:

Hamilton in Europe is based on Hamiltonian paths, where a graph represents the shortest route to pass by all depicted points (cities) and go back to the starting point (city).

Suggestions:

The length of the chain used plays an important role in the level of experimentation.

Strategies:

After experimenting with the paths on the map, we guide learners through some graph configurations to determine the shortest and longest path possible. We provide other routes and preconditions to find the shortest path possible by using a pen/pencil and paper without removing it from the paper.

Suggestions:

Prompt learners to try different routes and discuss how we can simplify our path.

Appraisal / Evaluation of Students:

We use a set of different routes and preconditions to complete the path.

Suggestions:

Inquire about differences between routes and preconditions of the Hamilton and Euler paths.

Assessment of lesson:

We compare the competence of learners in solving the Hamilton and Euler paths at the beginning and the end of the lesson. Also, we qualitatively try to understand whether the students can use a graph to map out the shortest route to a destination.

Suggestions:

A series of questions can be made on how to assess the viability of a path.

Closure:

Overview of activity and key points, feedback from learners for further improvements and/or adjustments to be made.