



Energy MindMap

(Resource ID: 187)

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This teaching resource is allocated to following University:

BOKU - University of Natural Resources and Life Sciences Vienna

Institution:

Institute of Safety and Risk Sciences (BOKU Wien)

<http://www.sustainicum.at/en/modules/view/187.Energy-MindMap>



Individual work



**Independent of
the number of
students**



**Up to 3 lecture
units**



**Internet
connection
necessary**



English, German

Energy and the different ways to use it are crucial factors in human life. Understanding the term energy and its transformation and storage possibilities are therefore very important. The digital MindMap should support the understanding of interrelations. The MindMap also allows you to zoom in to get more detailed information by keeping track of the big picture simultaneously.

What is it

The MindMap is a simple illustrated presentation of different areas linked to energy. Thanks to the Google maps API the pictures can be moved and it is possible to zoom in on them. On the different zoom levels the information can be presented in more and more detail. So you can switch quickly between the overview and the details.

The MindMap is available online and runs on most browsers independently of the operating system. The information will be updated from time to time, but the users do not have to make any efforts.

What needs to be prepared

Time needed for preparation depends on the previous knowledge of the lecturer but generally it is not much. Lecturers that plan to use the digital MindMap should get an overview on the content and its corresponding position within the MindMap. During the experimenting phase, it is recommended to think about possible tasks for students and to identify specific parts of the presentation that you would like to look at in more detail. If you would like to create more complex topics, that are not included in the MindMap, you should check if there is enough supplementing information available over the internet.

How is it used

One way is to let the students explore the MindMap at home. You can support the process by some easy tasks where the students have to look for information within the MindMap as for example:

Which criteria are used to compare energy storage?

What is potential energy?

A more complex task is to compare information within the MindMap:

How many years of production of fossil fuels are left and why is it difficult to determine?

Is a fuel cell an energy storage or transformer?

There are also tasks that use information from the MindMap to solve easy calculation and estimation tasks:

How much energy is stored in a tile falling from a roof?

How much energy is stored in an falling icicle?

More complex tasks can be solved by doing additional research:

By how many degrees celsius would the temperature of a glass of water increase when using the energy of the falling tile?

How many wind turbines are needed to replace a coal-fired plant?

Please note that the last examples were used to illustrate the easy conversions that are possible by using the term energy. The MindMap

should improve the understanding of energy. It is not meant to be used only for calculations.

It is also possible to use only parts of the MindMap in a presentation. The zoom levels are available as individual images as well.

Teaching Tools & Methods



Computer program

Learning Outcomes

A comprehensive understanding of

- the term energy
- Its wide range of possible applications
- the possibility to perform easy calculations

Relevance for Sustainability

To understand the term sustainability, you have to understand the term energy first, in most cases. The basic understanding of energy storage is as important as understanding the different possibilities of energy transformation.

Related Teaching Resources

No specific previous knowledge / related resources required

Preparation Efforts

Medium

Access

Free