

Lesson Plan

NEUROHEADWAY

Neuroscience Into Education

Session 1: Introduction to ENERGY

Learning opportunities include:

- What is **Energy**?
- How we use **Energy**? Where from **Energy** comes?
- Careers in **Energy**

*Activities are explained in more detail later in the document

Slide	Subject	Description	Duration (6 min)
1-4	Introduction	Introduction in to the presentation	3
5-9	Definitions	Definition of the Energy. Where and what for do we use energy.	5
10-17	Shapes of energy	Shapes of energy will be described basic characteristics of each type of energy will be mentioned and how we can use this shape of energy. Short video about this is available on the following link: https://www.youtube.com/watch?v=fjuvatloSzY	15
18-27	Energy sources	Classification of energy sources. Main advantages of the renewable and nonrenewable energy sources will be presented. Impact of energy usage on environment will be presented. Short video about energy resources is available at: https://www.youtube.com/watch?v=YzNUanYhrps	15
28-34	Technologies for usage of renewable energy	Short description of technologies for utilization of renewable energy sources.	10
35	Careers in Energy	Short presentation of possible careers in the field of Energy.	2
36-40	Module review and questions	Short review of the lesson will be presented and questions about energy will be asked.	10

Introduction:

What is the energy?

Definition of energy.

Energy is the property that must be transferred to an object in order to perform work on, or to heat, the object.

Which shapes of energy we know?

List shapes of energy that we use. Pictures of energy usage (transportation, heating, cooling, electricity, industry, food, etc.)

Where from energy comes?

Classification of energy sources (renewable/nonrenewable). Advantages and drawbacks?

How do we use energy?

Where from comes most of the energy that we use? What are the consequences of this kind of energy usage? Global warming, environment protections.

How can we use energy?

Technologies for energy utilization of renewable energy sources?

Careers in Energy?

List of professional jobs in energy field?

What have we learn?

Short summary of previous chapters.

Short quiz.

Short quiz about energy with few questions.

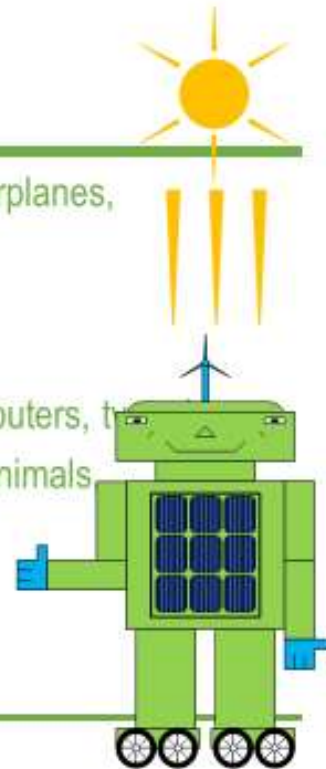
Power point Example

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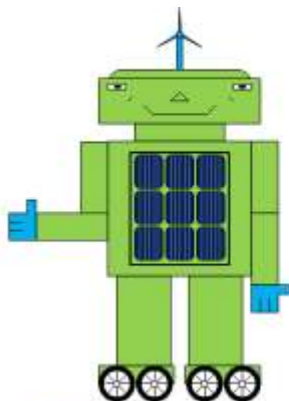
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We need energy for:

- ▶ Transportation (e.g. oil in cars, buses, airplanes, ships,...)
- ▶ Heating (gas, oil, wood, electricity,...)
- ▶ Industry (food factories,...)
- ▶ Electricity (lighting, mobile phones, computers, ...)
- ▶ All living things need energy (humans, animals, plants,...)
- ▶ Etc...



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We can see that energy is very important to us.

So, I will tell you one secret.

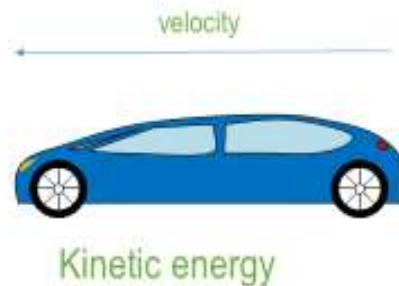
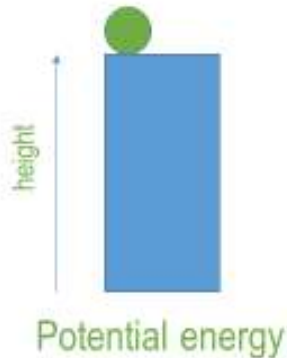
The energy can be neither created nor be destroyed it just can be transformed from one shape to another one.

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9

Mechanical energy

We have two types of mechanical energy:
Potential energy and kinetic energy



Gravitational energy



Gravitational Energy consequences of gravitational field. Keep us staying on the Earth

Thermal energy

Heating and cooling

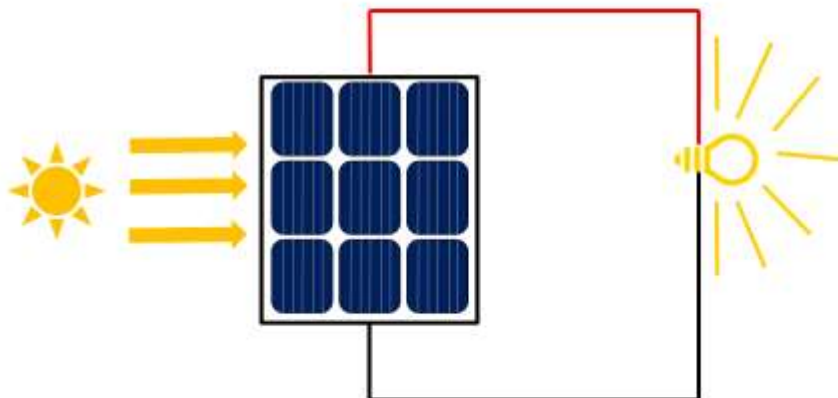


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13

Electrical energy

Electricity



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14

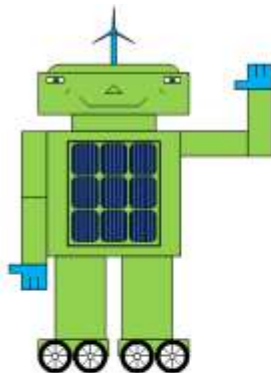
Nuclear energy



Nuclear power plants generate electricity using nuclear fission.

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16



Now when you have learned
what kind of shapes of energy
we have,

lets find out where energy comes
from.

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18