Energy Forms and Changes

Spoken Tutorial Project
http://spoken-tutorial.org
National Mission on Education through ICT
http://sakshat.ac.in

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Learning Objectives

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- **Demonstrate Energy Forms and Changes, PhET Simulation**

System Requirement

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- **Ubuntu Linux OS v 14.04**

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- **Java v 1.7.0**

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- **Ubuntu Linux OS v 14.04**
- **Java v 1.7.0**
- **Firefox Web Browser v 53.02.2**

Pre-requisites

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- **Learner should be familiar with topics in high school physics**

Learning Goals

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▶ **To conserve energy in real-life systems**

Learning Goals

- **To conserve energy in real-life systems**
- **To compare thermal conductivity of different objects**

Learning Goals

- **To conserve energy in real-life systems**
- **To compare thermal conductivity of different objects**
- **About different forms of energy**

Learning Goals

- **Predict how energy flows when objects are heated or cooled**

Learning Goals

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- **Design energy systems**

Learning Goals

- **Predict how energy flows when objects are heated or cooled**
- **Design energy systems**
- **Study how energy changes from one form to another**

About Energy

- **Energy is the capacity to do work on objects**

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- **Energy is the capacity to do work on objects**
- **It is a scalar quantity**

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- **Energy is the capacity to do work on objects**
- **It is a scalar quantity**
- **In SI system, it is measured in joules**

Forms of Energy

Forms of Energy

- **Energy exists in nature in several forms such as-**

Forms of Energy

- **Energy exists in nature in several forms such as-**
  - **Mechanical energy**

Forms of Energy

- **Energy exists in nature in several forms such as-**
  - **Mechanical energy**
  - **Electrical energy**

Forms of Energy

- **Energy exists in nature in several forms such as-**
  - **Mechanical energy**
  - **Electrical energy**
  - **Thermal energy**

Forms of Energy

- **Energy exists in nature in several forms such as-**
  - **Mechanical energy**
  - **Electrical energy**
  - **Thermal energy**
  - **Light energy**

Forms of Energy

- **Energy exists in nature in several forms such as-**
  - **Mechanical energy**
  - **Electrical energy**
  - **Thermal energy**
  - **Light energy**
  - **Chemical energy**

PhET Simulation-Link

https://phet.colorado.edu

Assignment

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- **Heat Iron block and Brick block at the same time**

Assignment

- **Heat Iron block and Brick block at the same time**
- **Place heated Iron block above the heated Brick block**

Assignment

- **Heat Iron block and Brick block at the same time**
- **Place heated Iron block above the heated Brick block**
- **Explain the observation**

Assignment

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- **Select cycle-generator system**

Assignment

- **Select cycle-generator system**
- **Explain why the cyclist must be fed in order to continue to pedal**

Assignment

Assignment

- **Set up different systems and let it run for a while**

Assignment

- **Set up different systems and let it run for a while**
- **Observe the energy transformations in each system**

Assignment

- **Set up different systems and let it run for a while**
- **Observe the energy transformations in each system**
- **Tabulate your observations**

Summary

- **How to use Energy Forms and Changes, PhET simulation**

Summary

- **To conserve energy in real-life systems**
- **To compare thermal conductivity of different objects**
- **About different forms of energy**

Summary

Summary

- **Predicted how energy flows when objects are heated or cooled**
- **Designed energy systems**
- **Studied how energy changes from one form to another**

About the Spoken Tutorial Project

- **Watch the video available at http://spoken-tutorial.org /What_is_a_Spoken_Tutorial**

- **It summarises the Spoken Tutorial project**

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- ▶ **Gives certificates to those who pass an online test**

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Forum for specific questions

- **Do you have questions in THIS Spoken Tutorial?**
- **Please visit**

  http://forums.spoken-tutorial.org
- **Choose the minute and second where you have the question**
- **Explain your question briefly**
- **Someone from our team will answer them**

Acknowledgements

Acknowledgements

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- **More information on this Mission is available at http://spoken-tutorial.org /NMEICT-Intro**