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Gravitational and Wind Energies: Forms of Energy for Kindergarten

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It was discussed in the article Kindergarten Physical Science: Energy, Force, and Motion that there are two main categories of energy. And these are the potential energy and the kinetic energy. And under these categories are the more specific types of energy which include gravitational, chemical, elastic, wind, heat, and electrical energies. Of the types of energies mentioned, the first three are classified as potential energy, wind being kinetic, and heat and electrical energies as both potential and kinetic.

Values integration: Realizing the importance of energy conservation and renewable energy.

Discussing and demonstrating the different forms of energy can be easily done inside your home or in your backyard. Bear in mind that children in the kindergarten level are able to comprehend and appreciate concepts more effectively if discussions are aided with clear demonstrations or examples.

Different Forms of Energy

This didactic material is mainly aimed at introducing the two common forms of energy to your kindergartner - gravity and wind. But before doing so, let us slightly tackle the other forms of energy to establish the fact that gravity and wind are not the only types of energy that exist in the world.

Chemical energy, as its name implies, is energy stored (therefore potential) within the chemical substances of objects. Through certain chemical processes, this potential energy is then converted into light, heat, or electrical energy. Examples of objects with chemical energy are batteries, food, wood, and gasoline. Another type of energy under the potential energy category is the elastic energy. This is the energy stored when the object is subjected to a temporary stress or strain. Perfect examples of objects with elastic energy are coiled springs and rubber bands.

In the next type of energy, take your child to the kitchen and let him/her watch you cook some fried eggs. Point out that heat energy is the one that helps you cook your food. Heat from the burner travels to the frying pan and eventually to the eggs. Moving on to electrical energy, the battery is still the best example. Take out the batteries from your child's toy and point out that inside the cell are various chemicals capable of producing electrical energy. Place the batteries back into the toy and turn it on. Explain to your child

that electrical energy produced by the batteries is the one that makes his/her toy working. With this Energy Sources worksheet, you can help sharpen your child's understanding of different types of energy and their uses.

Energy Sources

Energy is the ability to do work. You can find it in many places. Three familiar sources are electricity, food, and sunlight.

Look at the pictures on the left. Where do they get their energy? Circle the correct answer on the right.

boy

food

electric batteries

sunlight

flowers

electricity

sunlight

food

toy robot

sunlight

food

electric batteries

fridge

food

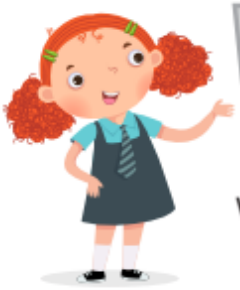
electricity

sunlight

Wind Energy and Gravitational Energy

Wind is a form of kinetic energy. This is due to the fact that wind is a byproduct of the difference in temperature between air over land and air above the sea. Land air heats up faster and therefore rises as the cooler air from the sea gushes inland taking its place. This movement of air due to the difference in air temperature produces wind energy. It is also important to note that wind can be harnessed to produce electric energy through wind mills and is considered as a renewable source of energy. Through the help of wind mills, electricity is produced at a cheaper cost.

To make your child appreciate more the power and nature of wind energy, you can let him/her work on Which Direction Will it Go? and Will It Move? worksheets.



Which Direction Will it Go?

When objects are blown by wind, they will move in the opposite direction of the wind source.

Which direction will each object move? Check the correct answers.

Will it Move?

We cannot always see force. Wind is an example of this. Complete the maze by following items that the fan will move.

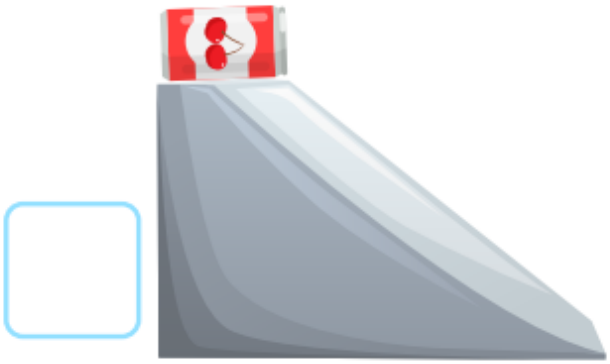
On the other hand, there is a force which keeps us on the ground - gravity. Gravity is that unseen force that pulls things towards the Earth's surface. Gravitational energy is energy stored on an object depending on its position or how high it is from the ground. A perfect example of gravitational energy at work would be letting your child play on the swing. Gravitational energy is very much observable in our daily lives. The worksheets Ramps, Ramps All Around Us, and Down It Goes give a clear picture on how gravitational energy works on different things.

Ramps

Objects move down a ramp at different speeds. Check off the picture that shows the object that will move **faster**.

1.

2.



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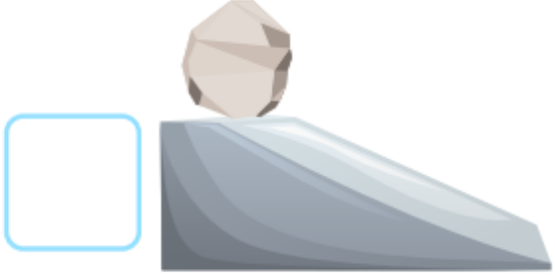

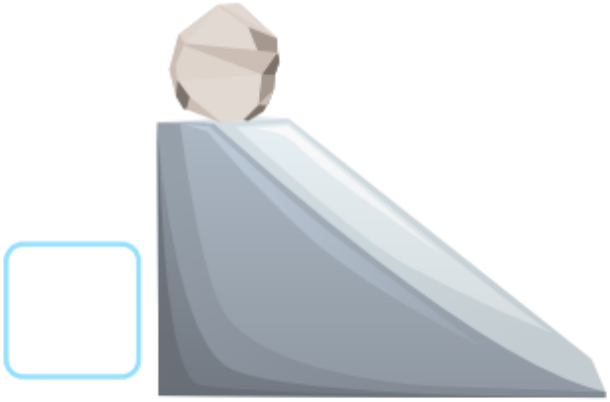

Ramps All Around Us

Circle the ramps.

Down it Goes

Rule: Force can pull things down.

Circle the pictures that are examples of a force pulling something down.