



TeachEngineering

STEM Curriculum for K-12

Exploring Energy: Energy Conversion



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Concept Review:

What Did We Learn Last Time?

Motion energy is called kinetic
energy

It depends on the mass and speed of an object.

Stored energy is called potential
energy.

Energy can be stored in many forms, such as:

gravitational energy

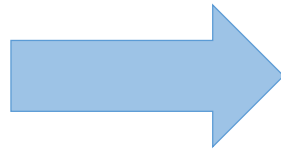
chemical energy

heat/thermal energy

elastic energy

Energy Transfer

Energy can be transferred from one **form** to another, from one **object** to another, or even from one **place** to another.



Energy can be transferred
in many ways.

potential → kinetic

kinetic → potential

potential → potential

kinetic → kinetic

Force

Energy can be transferred **from one object to another** by a force (by the objects pushing or pulling on each other).

A force can also transfer energy **from one form to another.**



Electricity

Electricity is the flow of electric charge through a conductor. Energy can be transferred from one place to another and from one form to another by electricity.



power plant

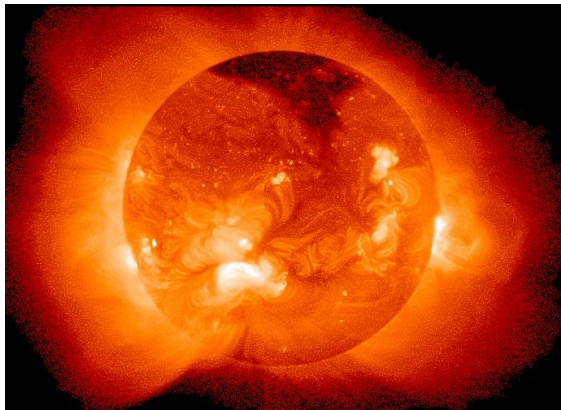


electricity towers



houses

Energy Can Also Be Transferred in Other Ways



light



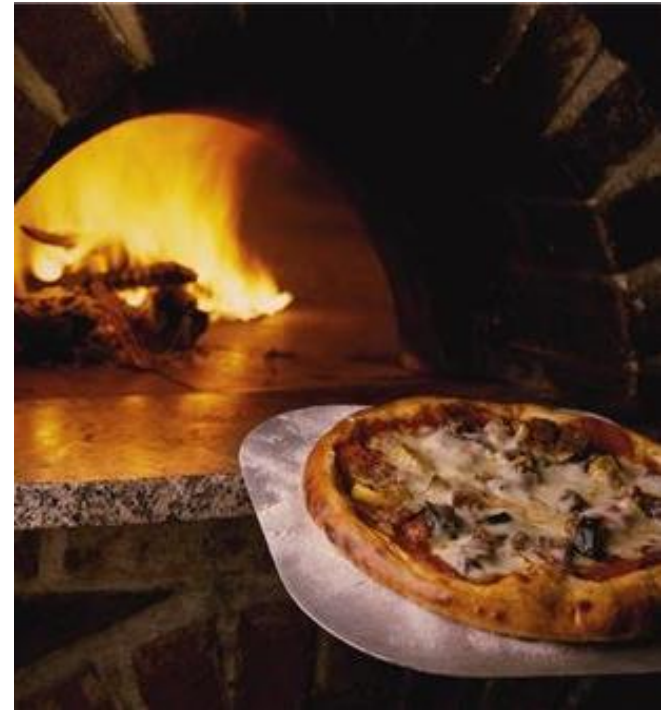
sound



heat

Energy Transfer

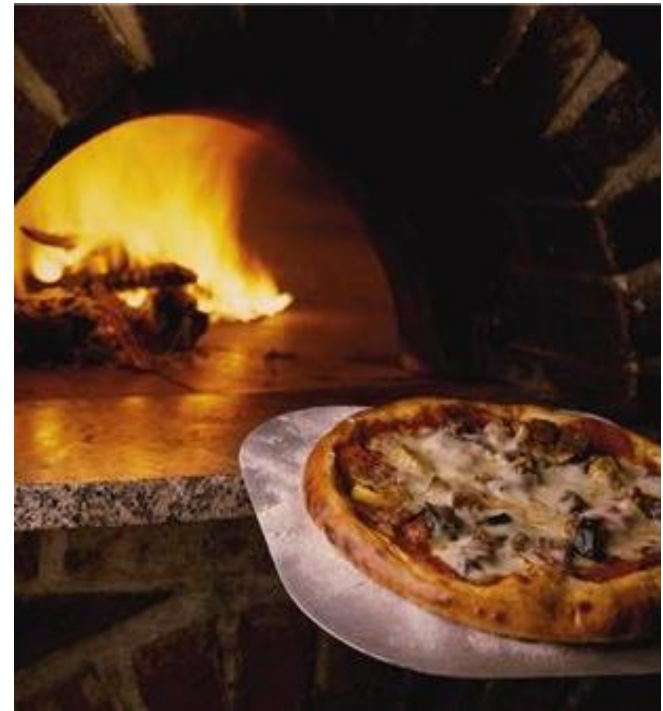
Energy transfer is very useful...



Energy Transfer

Energy transfer is very useful... but the transfer is never perfect.

Some energy always goes places we don't want it to go.



Remember:

Energy Transfers Are Not Perfect



When energy is transferred, some energy is usually “lost” as heat , sound or light .

Energy Transfer Example 1: Light Bulb



power plant



houses



electricity towers

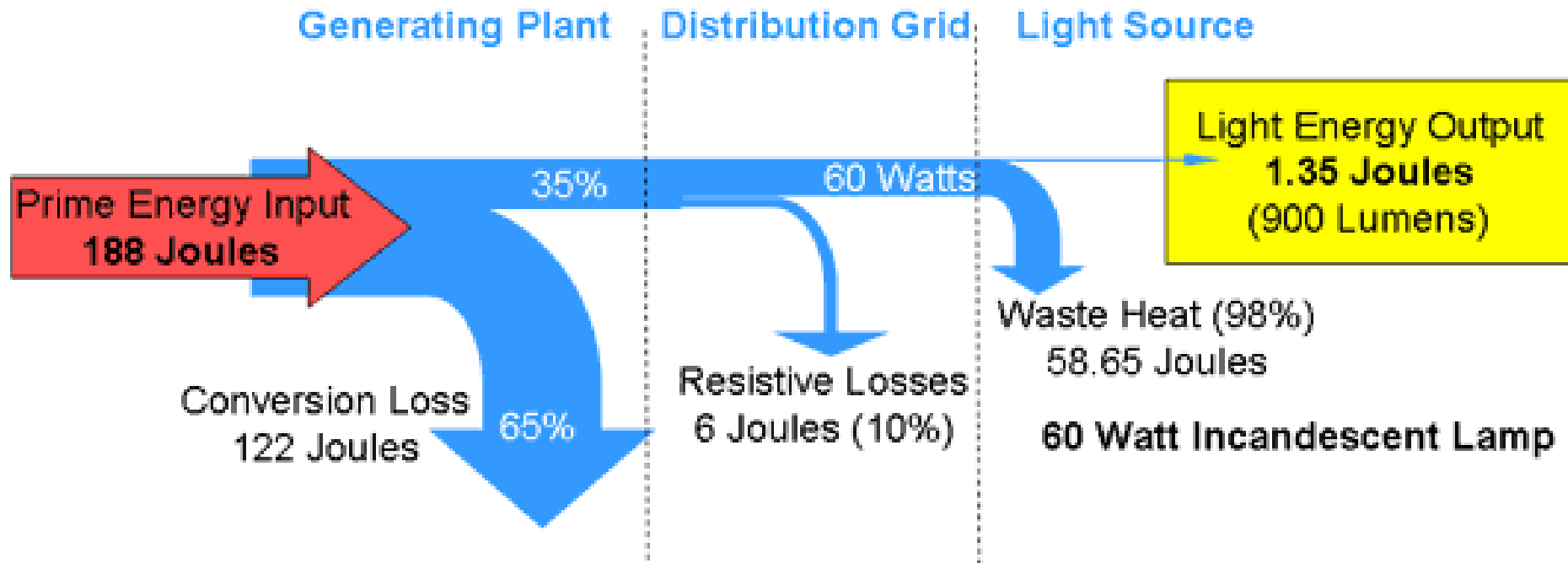


60-watt light bulb

“Lost” Light Bulb Energy



Energy Efficiency of Incandescent and Fluorescent Lamps



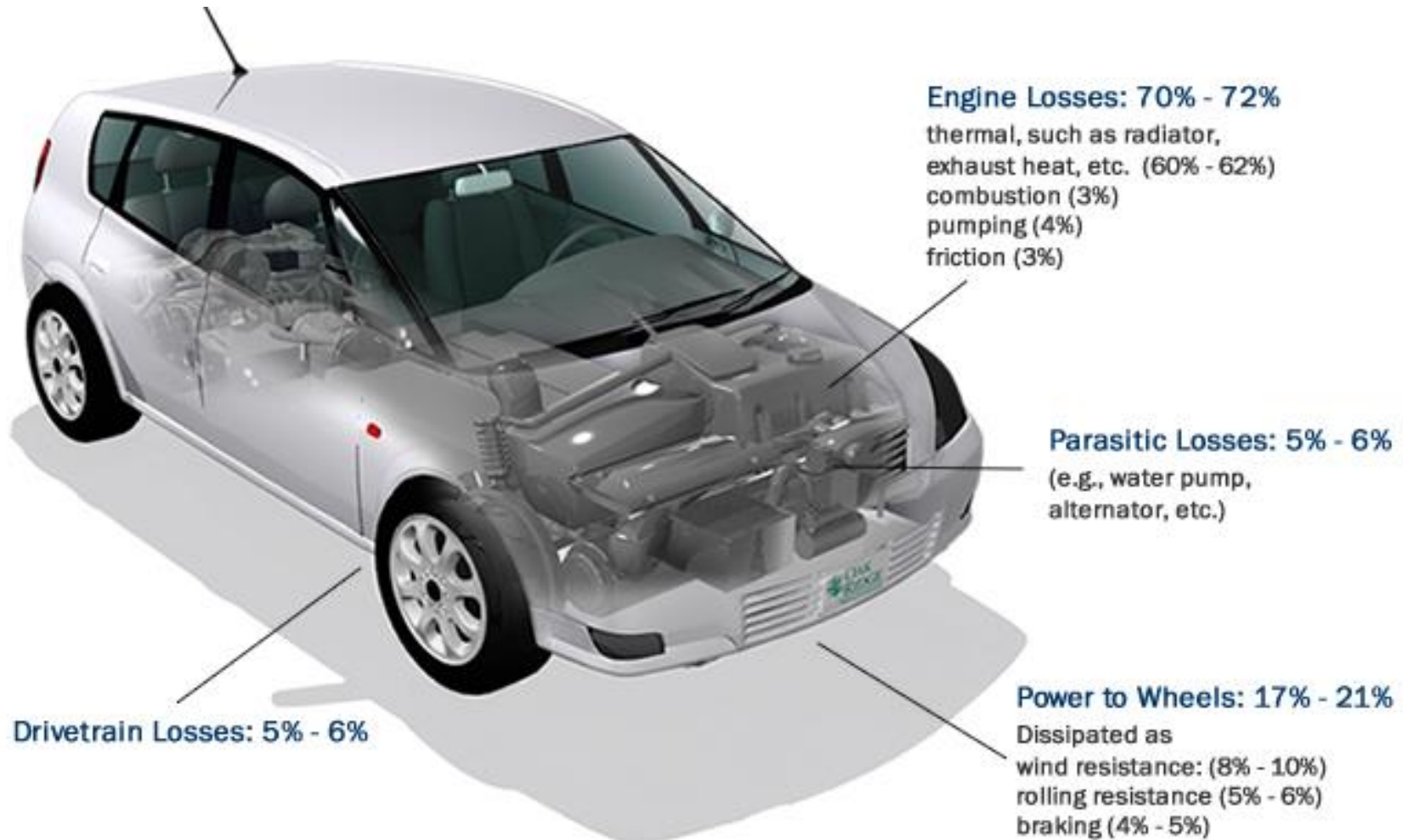
Source: Woodbank Communications Ltd.

Energy Transfer Example 2: Car

chemical → kinetic



“Lost” Car Energy



Assignment

Write about something you saw today that would not be possible without energy transfer.

Include your observations about:

- **What was the original source of energy?**
- **What was the final use of the energy?**
- **How was energy transferred?**
- **How was energy “lost”?**