Energy Transformations

Energy Transformations: An Example

- When a light is shined on a radiometer, it begins to spin.
- The radiometer changes one type of energy to another.
  - Light energy turns to heat energy.
  - Heat energy causes the radiometer to spin.
  - The spinning radiometer is an example of mechanical energy.

Light → Heat → Mechanical Energy

- These changes of energy from one form to another are called **energy transformations**.

Important Energy Transformations

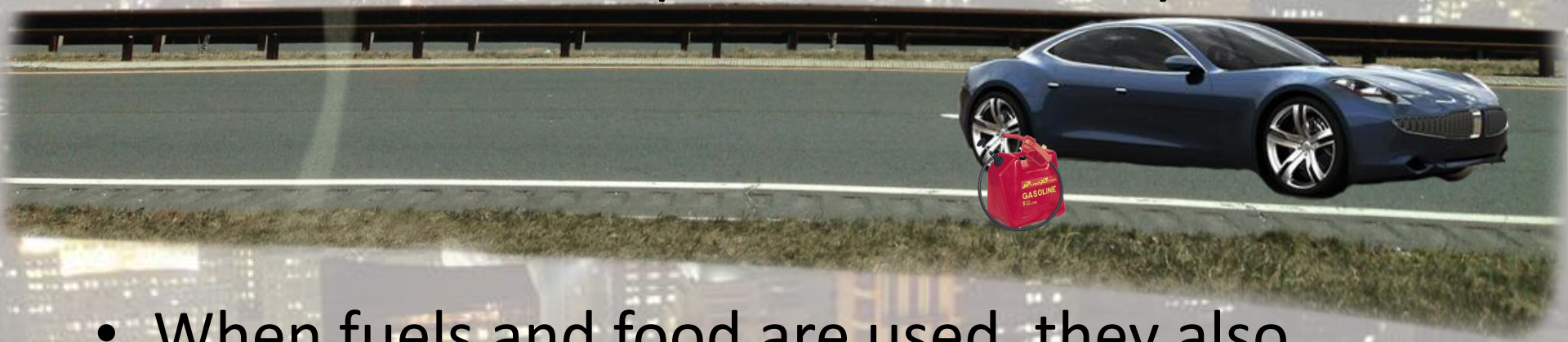
Our lives depend on energy transformations, particularly those involving:

- Chemical energy,
- Electrical energy, and
- Thermal energy.

Transforming Chemical Energy

Fuels and food are chemicals that are used for energy

- Food energy is used to move muscles.
- Fuels are used to move cars and other machines, and to produce electricity.



- When fuels and food are used, they also release heat

Transforming Electrical Energy

Appliances transform electrical energy.

- Electric lights transform electricity to light.
- A toaster transforms electricity to heat.

- A radio transforms electricity and radio waves to sound.

Transforming Thermal Energy

Heat can transform *to* other forms of energy and can come *from* other forms of energy.

- Hot metals glow, giving off light.
- Hot water produces steam that can run a steam engine.
- Burning fuels (chemical energy) give off heat.
- Electric stoves give off heat.

Thermal energy always flows from higher temperature to lower temperature.