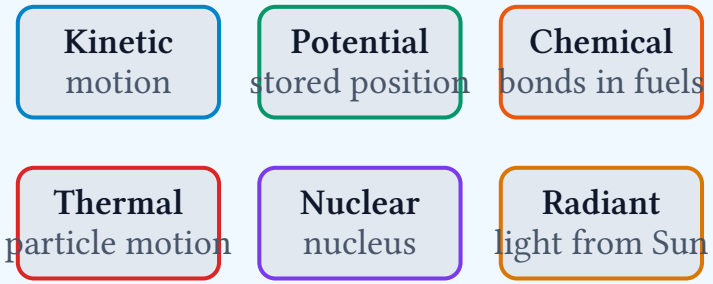
Science 10

Unit B: Energy flow in technological systems

Forms of energy

Locating energy

- A falling ball, a burning candle, and a solar panel all involve energy, and each one shows a different form.
- Alberta classrooms: furnace heat, bus fuel, wind turbines on the horizon.



· transforms between forms: total energy is conserved in a closed

Energy as a measured property

- Energy is a property we measure in a system, like its speed or temperature.
- Solar energy is radiation from the Sun, and it is Earth's main incoming supply.

Key terms

mechanical energy

Energy associated with motion or position.

chemical energy

Potential energy associated with the arrangement of atoms and bonds.

thermal energy

Energy associated with the random motion and interactions of particles in a system.

nuclear energy

Energy associated with changes in atomic nuclei.

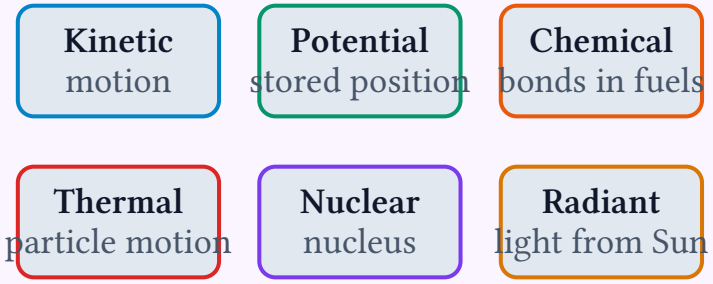
Key terms

solar energy

Electromagnetic energy transferred from the Sun.

Five forms of energy

- Mechanical energy is the energy of motion and of position.
- Chemical energy is stored in fuels, food, and ATP.
- Thermal energy is the energy of particle motion, which shows up as a temperature change.
- Nuclear energy comes from changes in the nucleus, as in a reactor or in the Sun.
- Solar energy is the radiation that arrives from the Sun.



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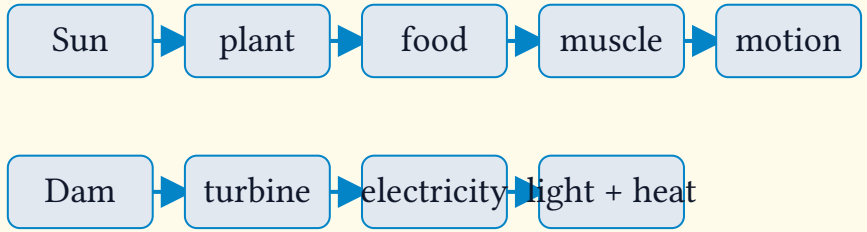
Observing energy

- You notice energy when it transfers from one place or form to another.
- Look for changes in motion, shape, temperature, or light.
- Constant temperature and constant speed (no friction): no net energy transfer into the system.



An energy chain

- Follow sunlight stored in wheat, then in bread, then in a student's motion and body heat.
- Name the form at each stage, and name the evidence you would actually observe.

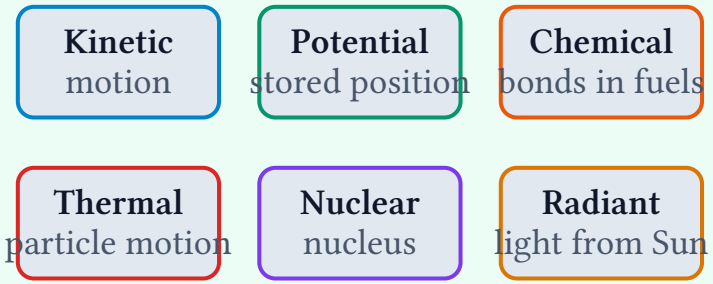


Each step: measurable changes in temperature, motion, or light

Alberta examples: hydro, oil sands upgrading, wind, solar farms

Station classification

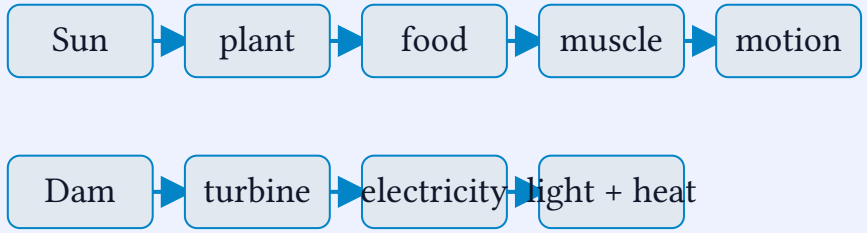
- At each station, name the dominant energy form and the evidence you can observe.
- Include at least one technology and one example from outside a machine.



· transforms between forms: total energy is conserved in a closed

Alberta energy contexts

- Hydro, natural gas, wind, and solar installations transform energy for communities.
- Discuss why naming the form matters for engineers and environmental stewards.

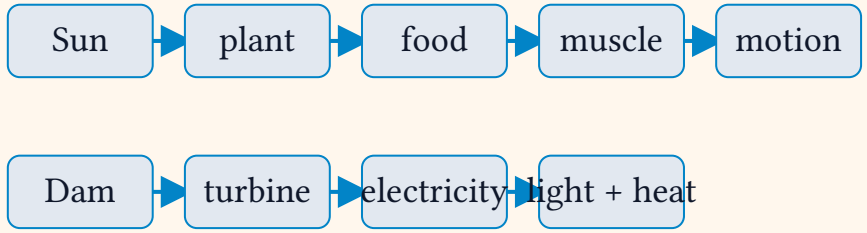


Each step: measurable changes in temperature, motion, or light

Alberta examples: hydro, oil sands upgrading, wind, solar farms

Traditional technologies

- Indigenous tool making, structures, and heating use the same thermodynamic ideas.
- Efficient use of locally available materials reflects deep knowledge of energy transfer.



Each step: measurable changes in temperature, motion, or light

Alberta examples: hydro, oil sands upgrading, wind, solar farms

Form classification sort

- Teams sort examples into mechanical, chemical, thermal, nuclear, solar; defend one card.
- A complete answer gives evidence of transfer, such as motion, a temperature change, or light.

Energy-form retrieval check

- Trace energy from sunlight to wheat, food, a moving cyclist, and the surroundings.
- Classify the dominant energy evidence in a raised ball, a burning fuel, and warm water.
- Explain why a generator transforms energy from one form to another.

Image credits

USFWS Mountain-Prairie, Sunset Storm with Lightning Over Seedskadee National Wildlife Refuge, public domain