Car 51 is a solar car that competed in the 1993 World Solar Challenge. The car is now being refitted by Year 12 students for their engineering studies.

**Energy: Solar Electric**

Gears have allowed us to increase or decrease the amount of work we do without additional energy from us. Here the gears of a bike are shown.

**Energy: Kinetic when moving – Chemical from rider’s muscles**

Formula SAE vehicles are down sized racing cars built and raced by tertiary students. Many of the cars have been adapted to run on bio fuels.

**Energy: Motor - Chemical Motion - Kinetic**

Solar Car Kelly runs entirely on electricity gained from its solar arrays over its top surface. Additional power is gained by regenerative braking.

**Energy: Motor - Electrical Motion - Kinetic**

The Nissan Leaf runs on electricity. Recharging is shown here using a special connection found in the car’s boot area.

**Energy: Motor - Electrical Motion is Kinetic**

Plants need moisture via their roots and carbon dioxide through their leaves in the presence of sunlight before photosynthesis can take place. Only then can a plant release oxygen.

**Energy: Chemical**

A fire needs 3 conditions to exist. Fuel, oxygen & ignition temperature. What follows is a chemical reaction where heat is produced.

**Energy: Fire - Chemical Heat - Thermal**

The Jatropha plant is poisonous to animals but the nuts produce oil that when refined becomes a bio-fuel.

**Energy: Chemical**

One of Sydney Harbour’s light houses. Once lit by fossil fuels, today most function using electricity from either the grid or adjacent solar arrays.

**Energy: Light**

Vehicle being refuelled with hydrogen

**Energy: Motor - Chemical & Thermal during combustion. Motion of the vehicle**

Motion - Kinetic + some Thermal (friction between road, tyres & moving parts)

**Energy: Potential & Kinetic**

Cranes lift objects. The higher the object the greater the potential energy. When lowering an object the potential becomes less and kinetic increases.

**Energy: Potential & Kinetic**

The rotation of a wind turbine enables two like magnetic poles to push themselves apart. The resultant rotation gives rise to an electrical charge.

**Energy: Motion - Kinetic - Electrical**

A small solar panel runs this toy car. Electricity from the panel goes directly to the motor to produce motion.

**Energy: Motor - Electrical Motion is Kinetic**

Tele communication can rely on radio waves to send messages across a nation. Here a repeater tower boosts the radio signal.

**Energy: Sound**

Plants gain energy from the act of photosynthesis. Animals benefit from this energy when they eat plants.

**Energy: Chemical**

Sailing relies on favourable winds. Winds push sails forward to create motion.

**Energy: Kinetic**

Paragliding is a sport that relies on the motion of a boat or vehicle and favourable winds. Staying aloft depends on manipulating cords.

**Energy: Kinetic**

Electrolysis is a chemical reaction where water, a compound is separated into the elements Hydrogen & Oxygen by electrical means.

**Energy: Chemical & Electrical**

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