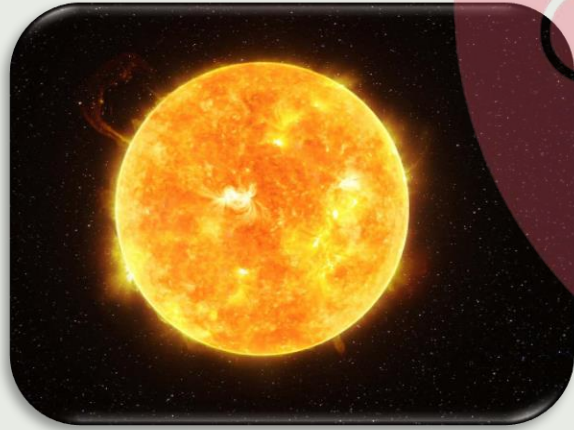


Devices and Energy

Concept 3.1 Unit 3



Lesson 1 Can you Explain ?



The sun



Calculator



Mobile phone

- Most of energy we use is produced inside the sun.
- Energy can be changed from one form to another.

What types of energy transformations are required for sunlight to operate devices ?

- Different devices can convert the **light energy** that comes from the sun into different forms of energy such as in solar powered calculators , the solar cells change the **solar energy (energy of sunlight)** into **electrical energy** which is used to operate the calculator.
- Most devices depend on electricity , and to generate electricity , we can convert the energy of the sun in different ways.

تتعلم

Activity 2 Energy in Remote-Controlled Cars

➤ Look at the opposite picture , then put (√) or (X) :

1. The child in picture (1) use a remote control to move the car. (X)
2. The child in picture (2) can move the car remotely. (√)
3. Both cars in the opposite pictures need electric energy to move. (X)



Energy in Remote-Controlled Cars :

- Many toys such as trucks, cars, planes, boats, and small robots may operate remotely = (By remote-control).
- However , all of these toys need energy to move and perform activities like spinning in the corners and moving forward or backward remotely.



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➤ How do those toys get energy?

Batteries are resources of chemical energy that is converted to electrical energy



Electrical energy is converted into kinetic energy or sound energy to move the toys

What do we do when the batteries of these toys run out ?

Batteries can be recharged by connecting to the device to a nearby charger or replacing by new ones

➤ Complete the following sentences using the words below :

(kinetic – chemical – electrical)

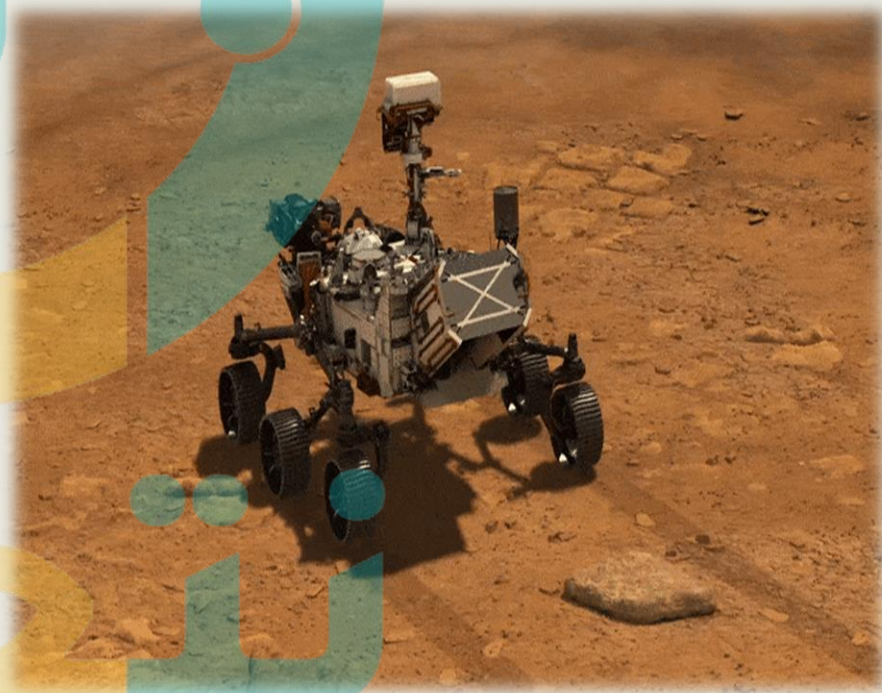
1. The energy stored in batteries is **chemical** energy.
2. In batteries of a remote-controlled toy , chemical energy is converted into **electrical**energy , which is converted into **kinetic**energy or sound energy.

Activity 3 Mars Rover

Have you ever seen a picture of an exploration rover on mars ?

Mars exploration rover :

- Mars is about **54 kilometers** away from Earth , so the spacecraft takes **about 6 months**.
- Many missions have sent to mars but none of these missions included people, but they had vehicles or robots which are **operated remotely**.
- The “ **Mars Rover Curiosity** ” which travels on the surface of **mars** , is one of the most well-known of these robots.
- These robots , like remote-controlled toys , require energy to be operated but the batteries used in the toys cannot be used in in mars rover Curiosity as it is too distant from a store or charger plug on Earth.



What is the resource of energy that curiosity exploration rover needs to be operated ?

Curiosity rover uses solar panels and batteries (which are charged by solar energy).

- Solar panels convert **solar energy** into **electrical energy**.
- **Electrical energy** from the batteries powers the vehicle's sensors and converted into **kinetic energy** and **thermal energy** as the vehicles moves around Mars surface.

➤ Complete the following sentences using the words below :
(kinetic – solar – electrical)

1. The solar panels on the curiosity exploration rover convert**solar**.....energy into**electrical**.....energy , which is converted into**kinetic**.....and thermal energy.