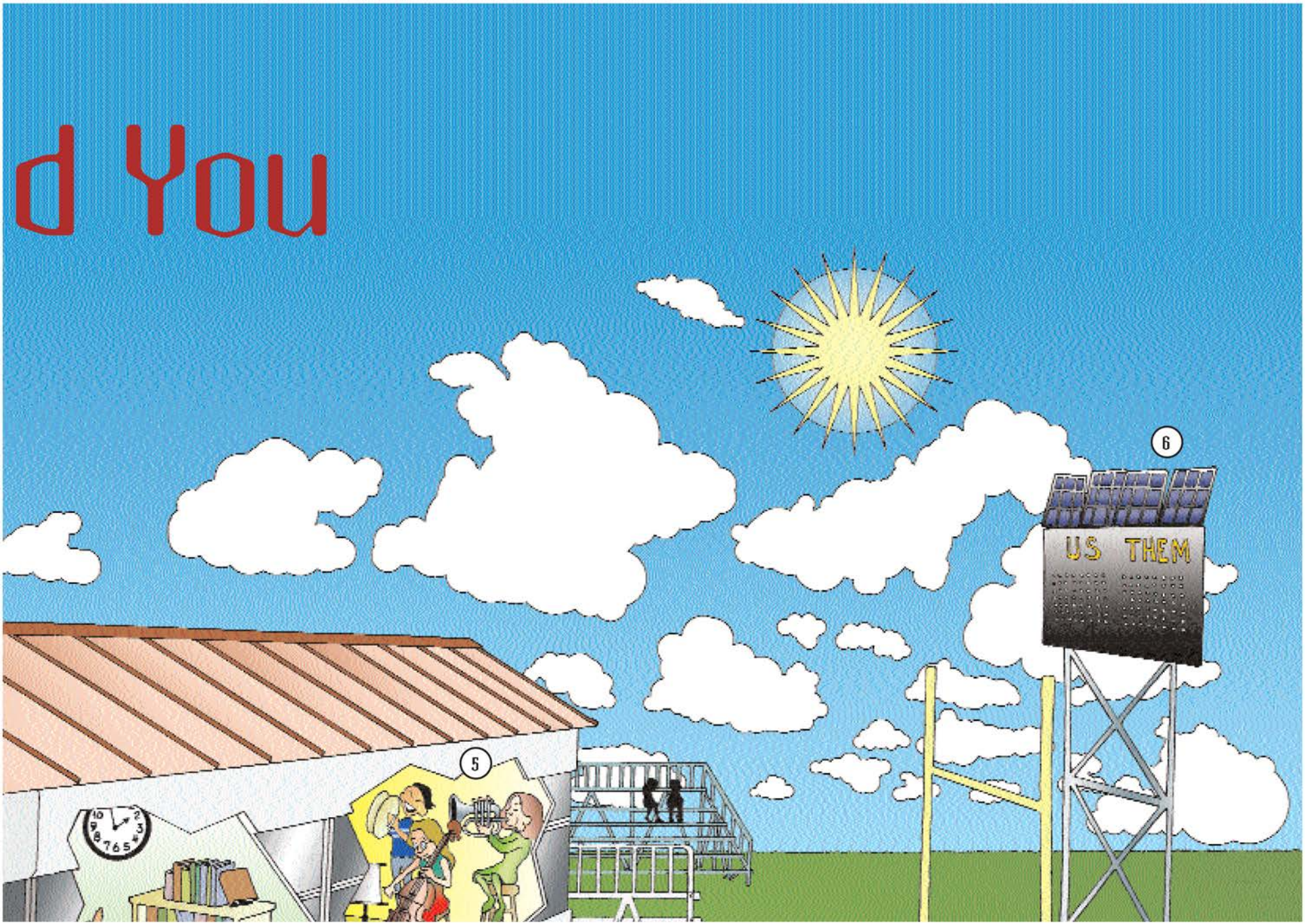
NERGY

All Around

Your School, All Aroun


d You
6
US THEM
5

W

1 The Heat's On

Thermal energy from hot magma within the Earth heats subsurface water, which erupts at the surface as a geyser. It is also extracted as steam and piped to the school to provide heat for the swimming pool.

2 Follow the Bouncing Kids

The flexing of the trampoline illustrates the transformation of potential energy (when the trampoline is depressed or stretched), to kinetic energy as the trampoline tosses the child up in the air, to potential as the child reaches the top of the bounce, to kinetic as the child descends, and back to potential as the trampoline again is depressed.

3 Corks A-Poppin'!

In the Bunsen burner, chemical energy in natural gas is released by burning to produce heat (thermal energy), which causes the water in the flask to boil (mechanical energy), raising the pressure in the container and forcing out the cork (mechanical energy).

4 Round and Round

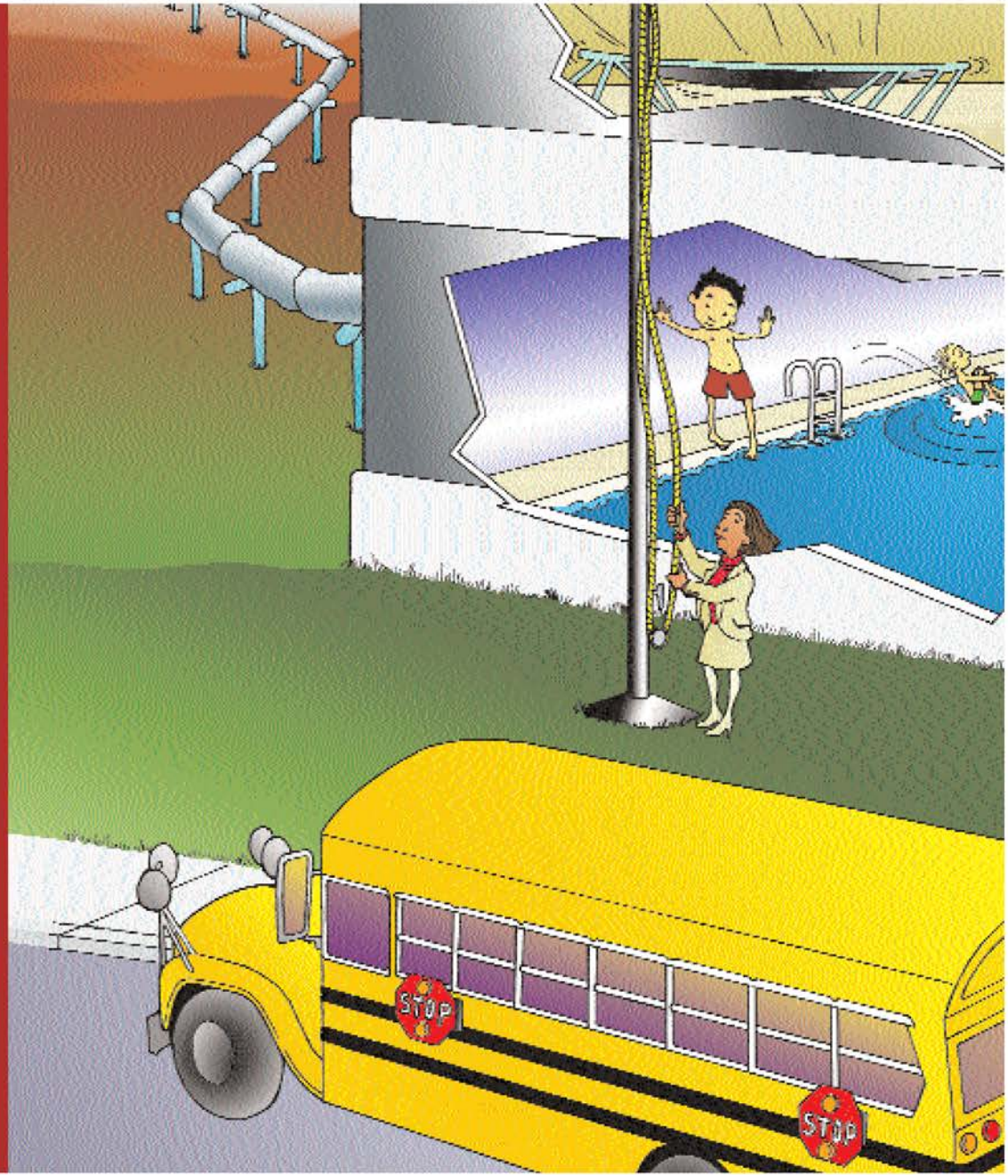
The gerbil spins the wheel, converting chemical energy to mechanical energy to turn a belt connected to a generator. This, in turn, converts mechanical energy into electricity (electrical energy), to power the light (radiant energy), allowing the gerbil to see where it's going–round and round!

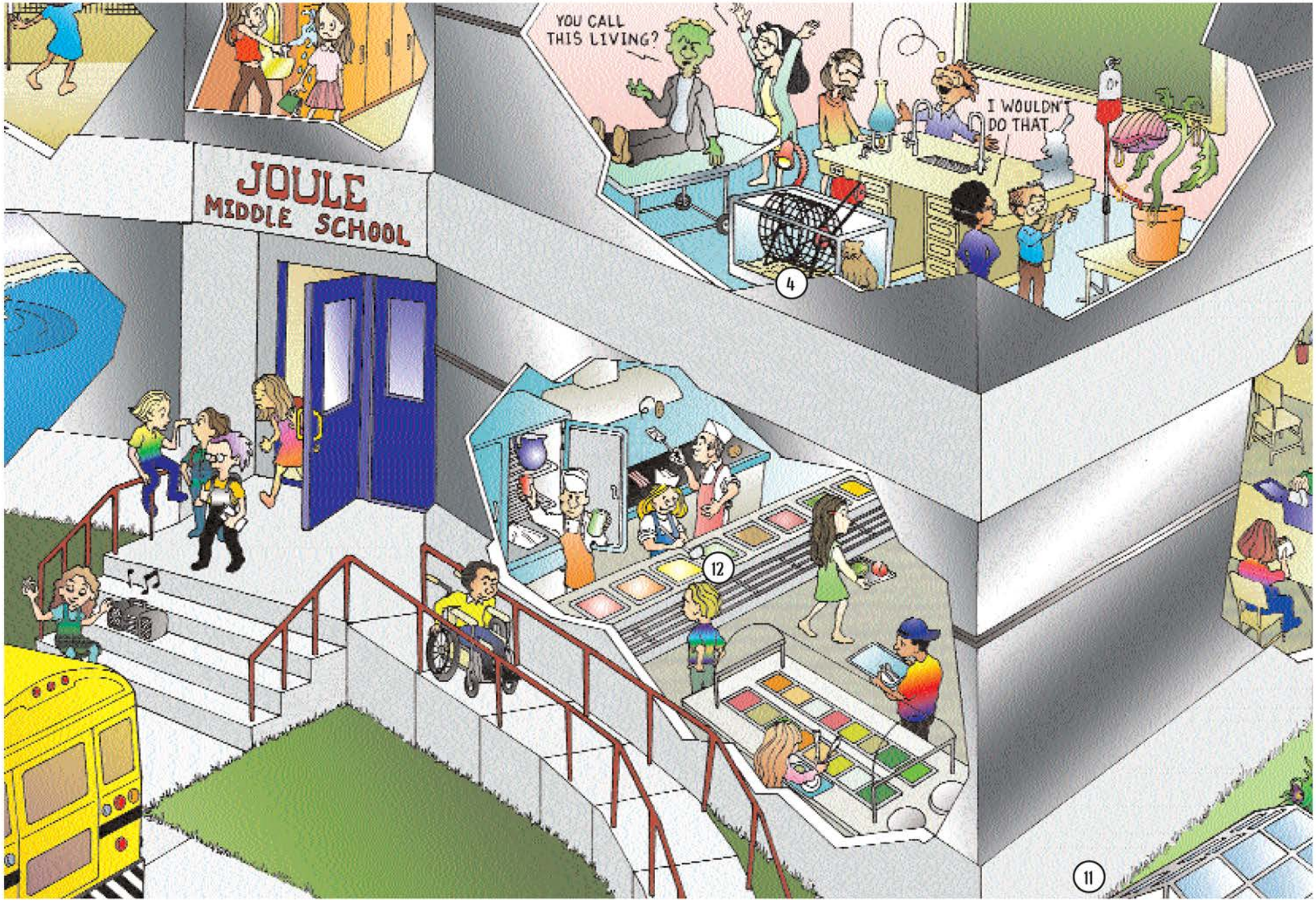
5 Sound Off!

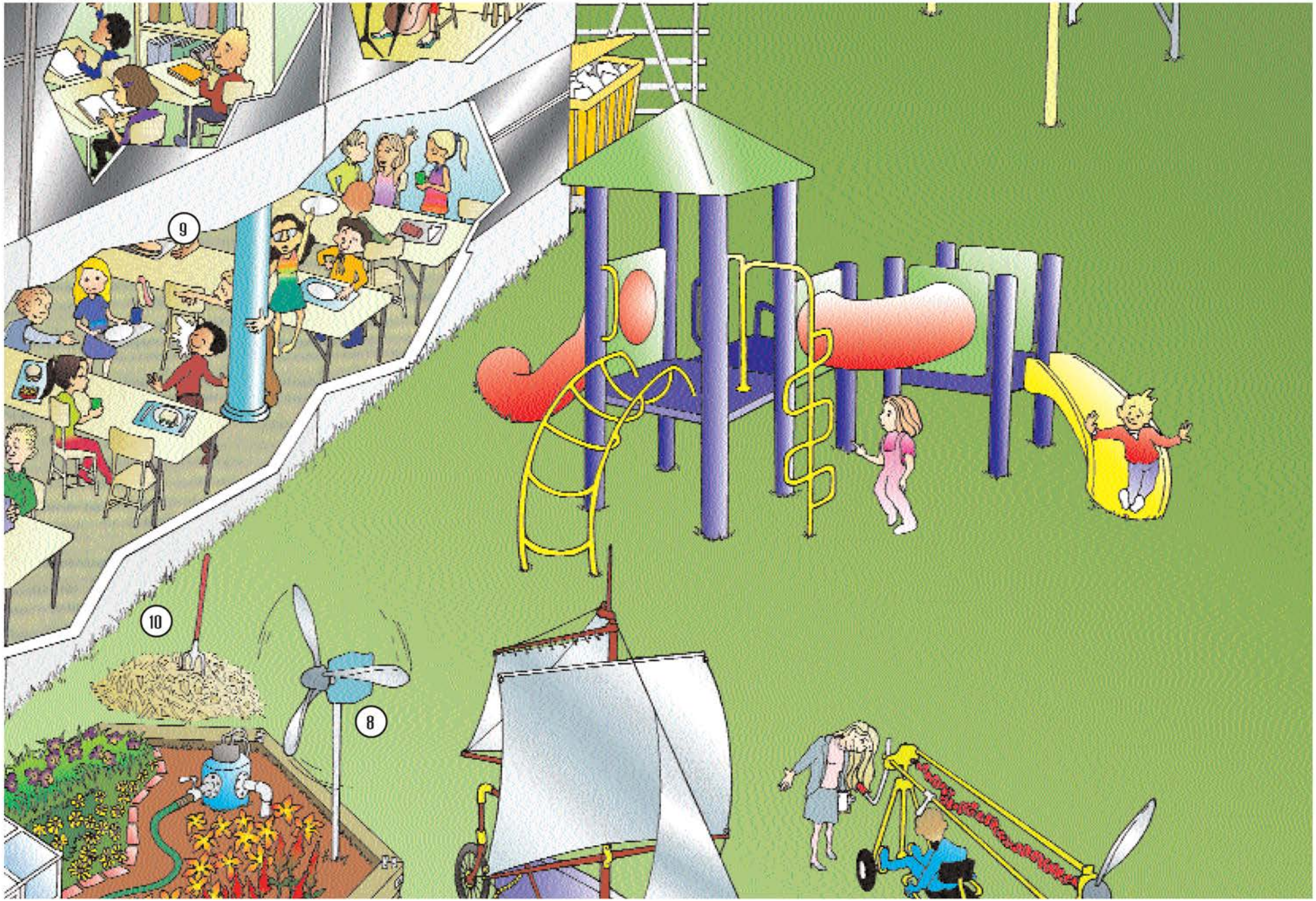
A student uses mechanical energy to clang the cymbals, producing sound, another form of mechanical energy.

6 What's the Score?

Solar panels collect radiant energy from the sun and convert it to electrical energy, which powers the lights in this scoreboard (radiant energy). Some solar signs use batteries to store the electricity in chemical form for use at night.




JOULE
MIDDLE SCHOOL
YOU CALL THIS LIVING?
I WOULDN'T DO THAT
4
12
11


9
10
8

7 Try a Bike

Chemical energy stored in a student's body is converted to mechanical energy and transferred to make the bike move, also mechanical energy.

8 Thar She Blows!

Wind (mechanical energy) results from heating of the air by the sun (solar energy). The wind moves the windmill's blades to run a turbine, which produces electricity to operate a water pump. The raising of groundwater by the pump (mechanical energy) causes the sprinkler to move back and forth (also mechanical energy).

9 Food Fight!

We all know that food provides chemical energy to active students. The human body uses the chemical energy for movement and other functions. But what about that food fight in the cafeteria? Flying hot dogs have kinetic energy, too.

10 More Than a Heap

What a waste! The organic material (chemical energy) in the mulch pile will be used as fertilizer in the nearby garden. As it decomposes, it produces thermal energy and another form of chemical energy (methane gas). In this instance, the methane is not being collected but is escaping into the atmosphere.

11 The Greenhouse Effect

Radiant energy from the sun passes through glass and is converted by plants into chemical energy. Greenhouses are sometimes called "hothouses" because the radiant energy is also converted into thermal energy (heat), which is trapped inside the glass structure.

12 Hot Stuff in the Cafeteria

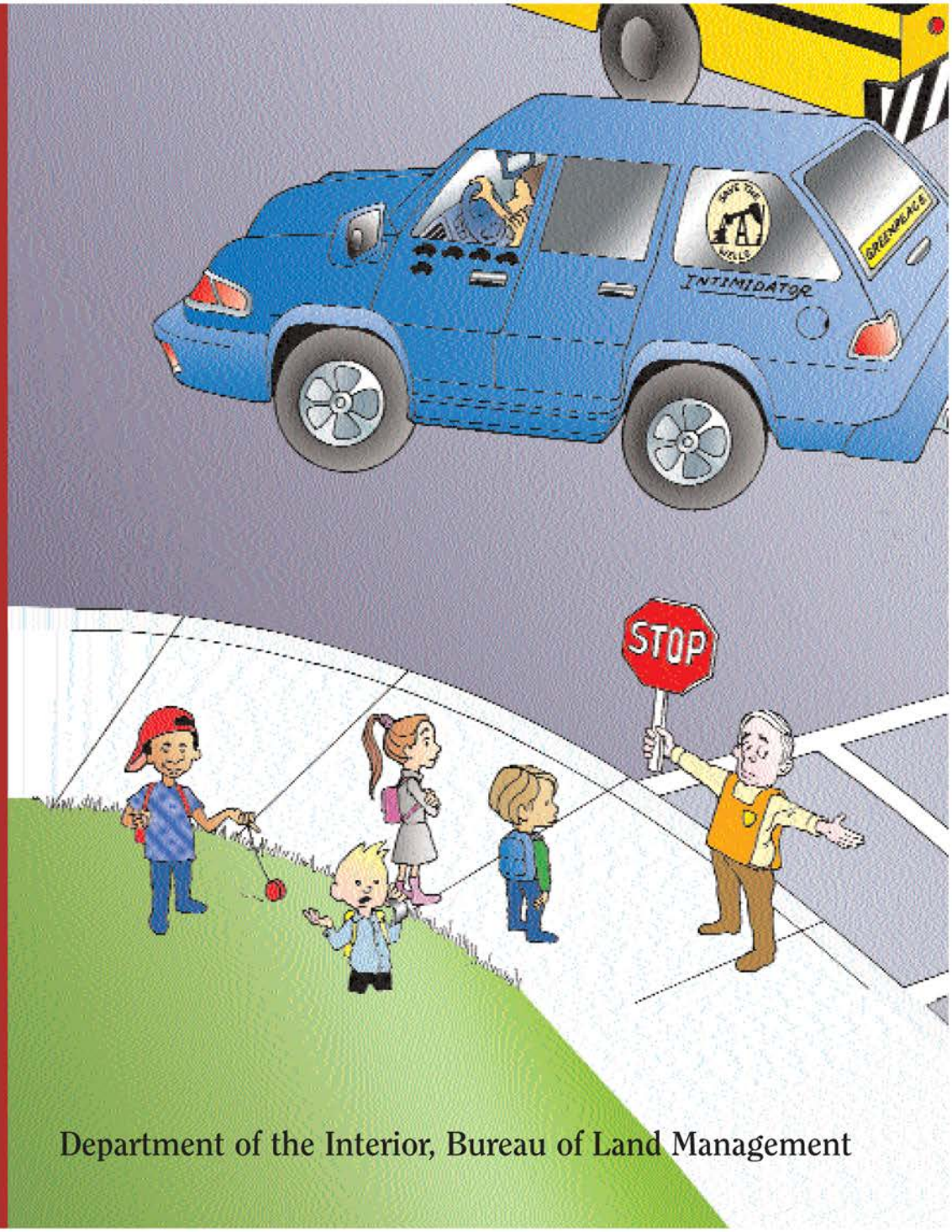
The good news is that the hot food section in the cafeteria is being heated cleanly and efficiently by trays standing in hot water heated by thermal energy provided by the burning of natural gas (chemical energy). The bad news: It's still cafeteria food!

13 Two Engines Throbbing as One

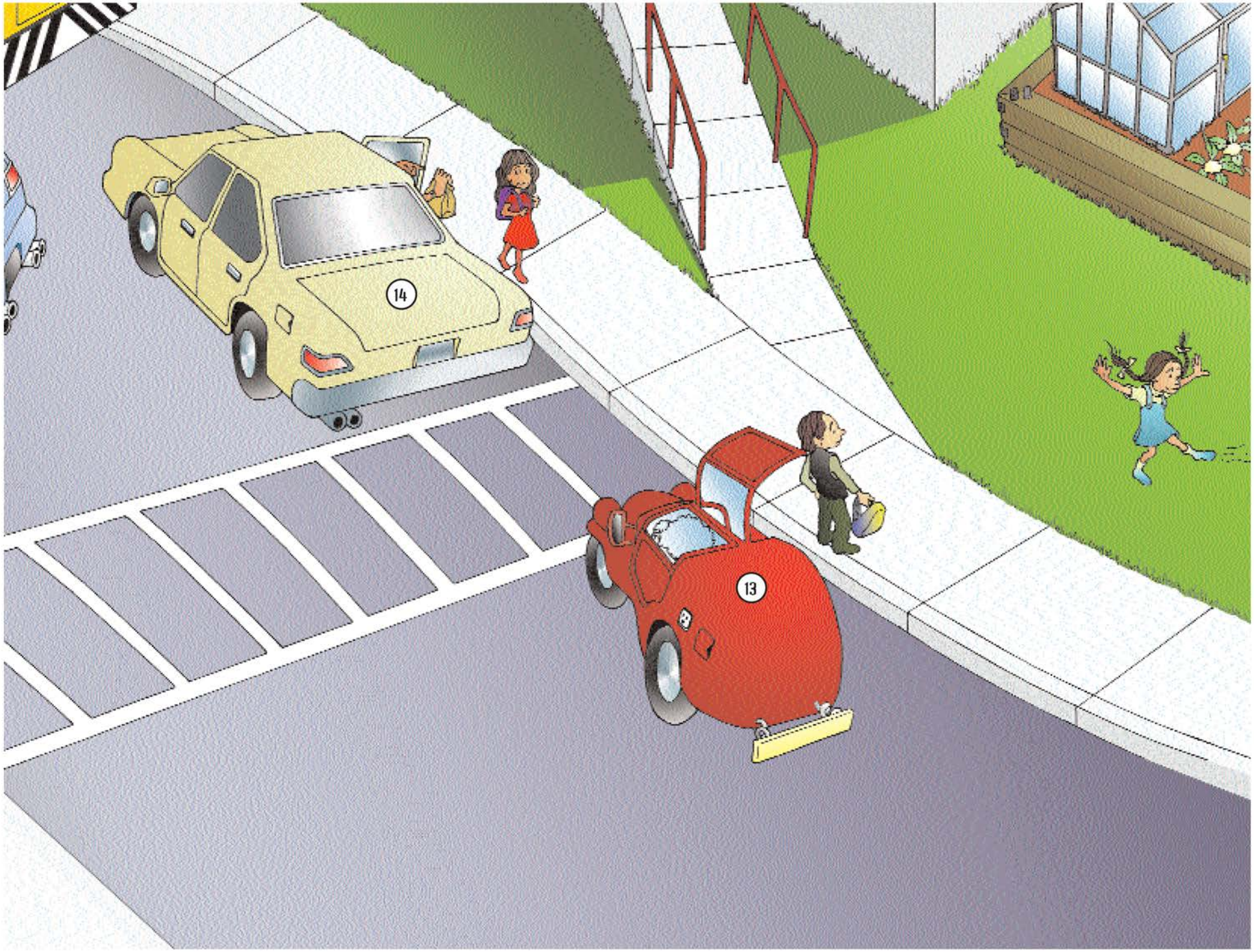
A marriage of gasoline (chemical energy) and storage batteries (electrical energy) powers hybrid electric vehicles. Gasoline powers an internal combustion engine and the battery powers an electric motor. Chemical and electrical energy are transformed into mechanical energy.

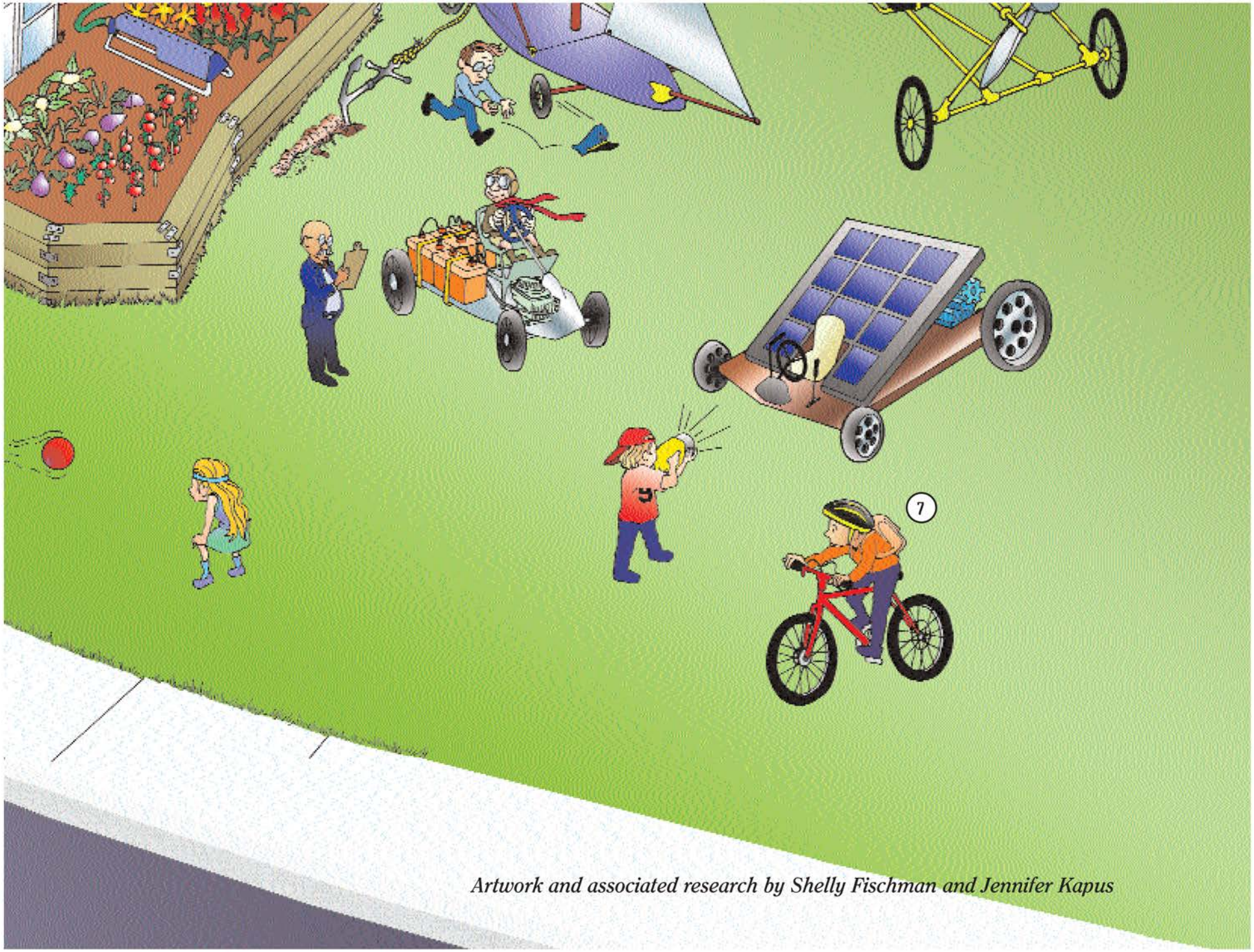
14 Auto-Motion

Fossil fuels are great storehouses of chemical energy. The gasoline-powered car in the parking lot converts the chemical energy in the gasoline to thermal energy in the engine, to mechanical energy in the motion of the pistons that move the car.



Department of the Interior, Bureau of Land Management


14
13



Artwork and associated research by Shelly Fischman and Jennifer Kapus