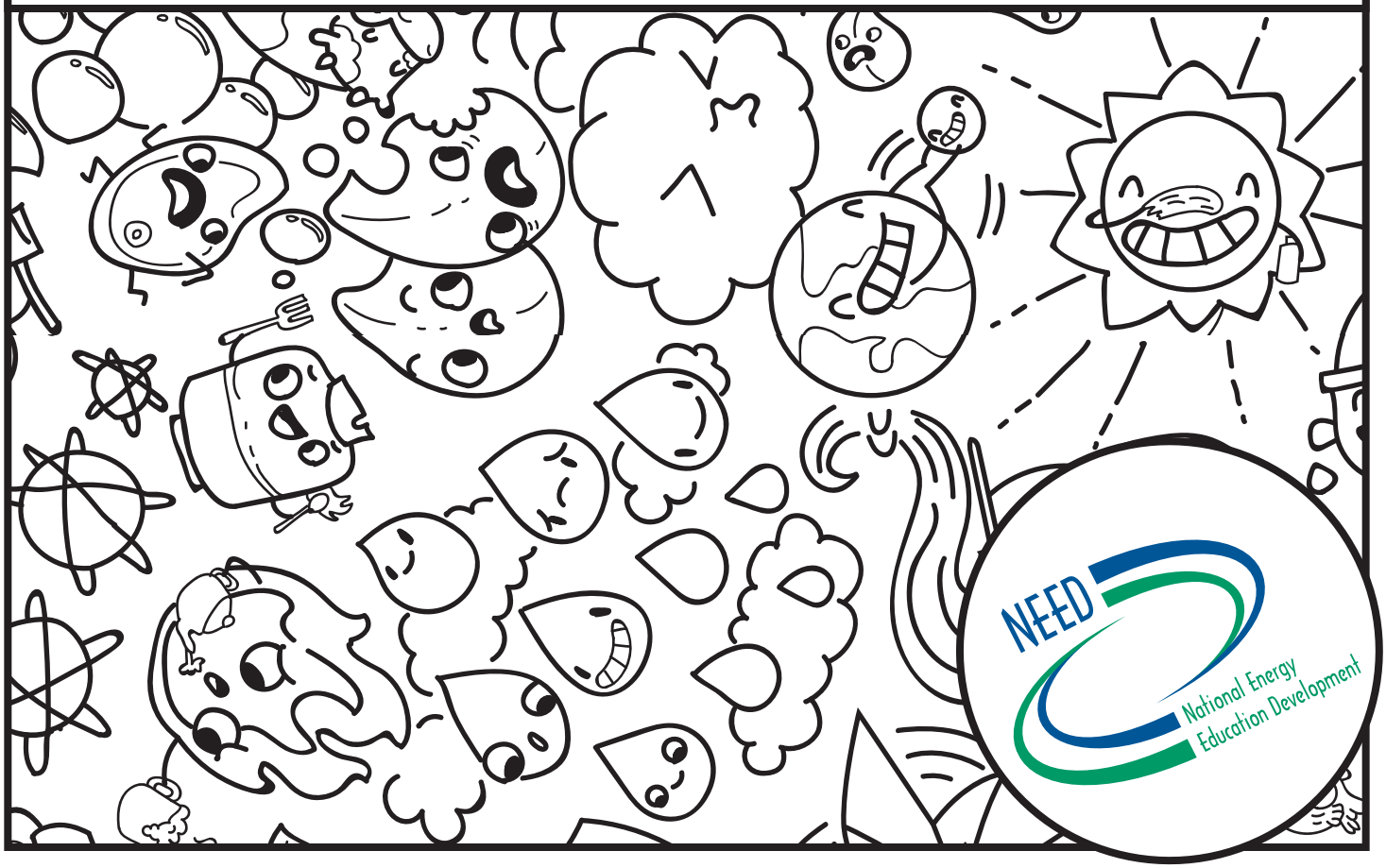
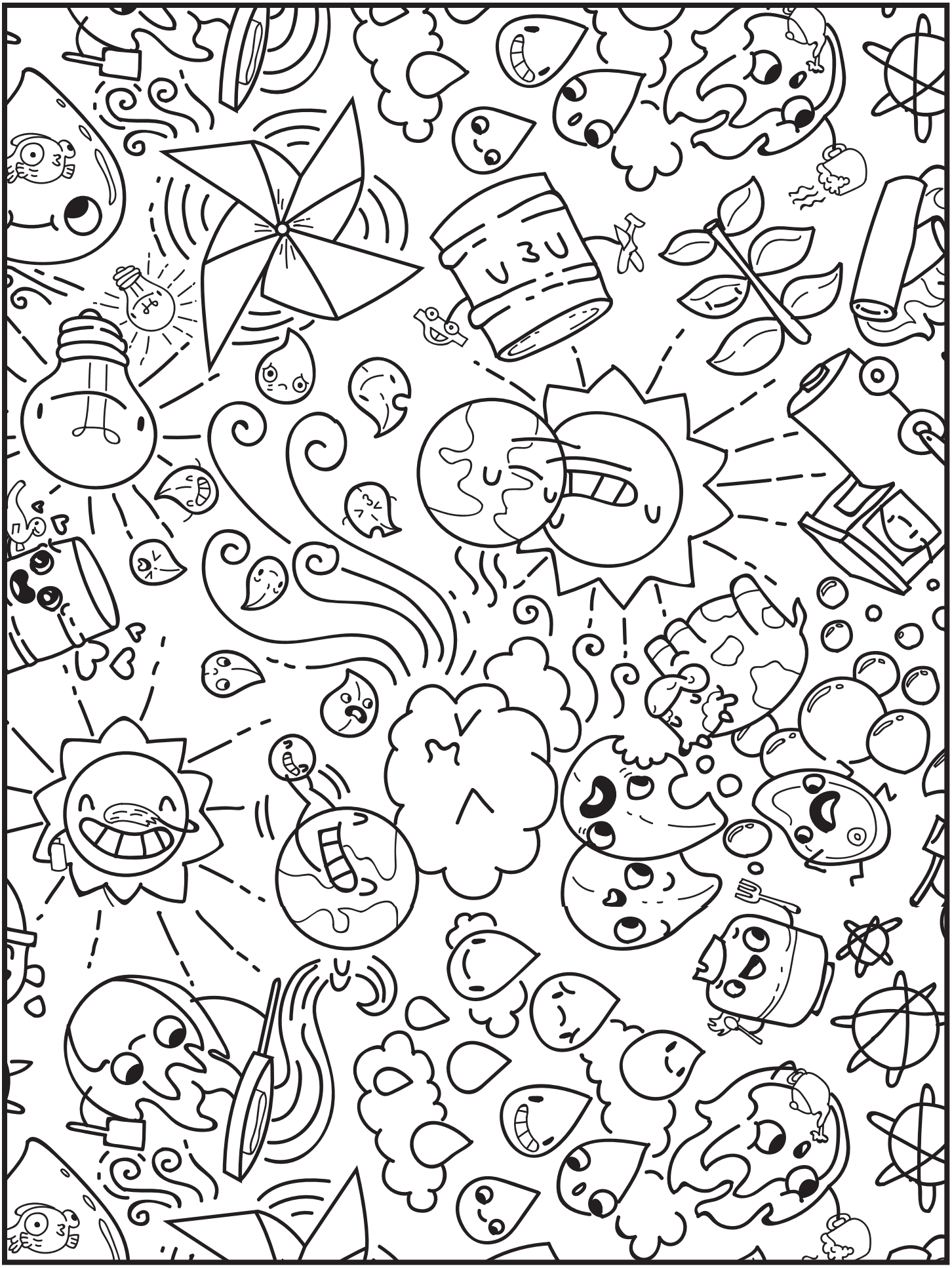
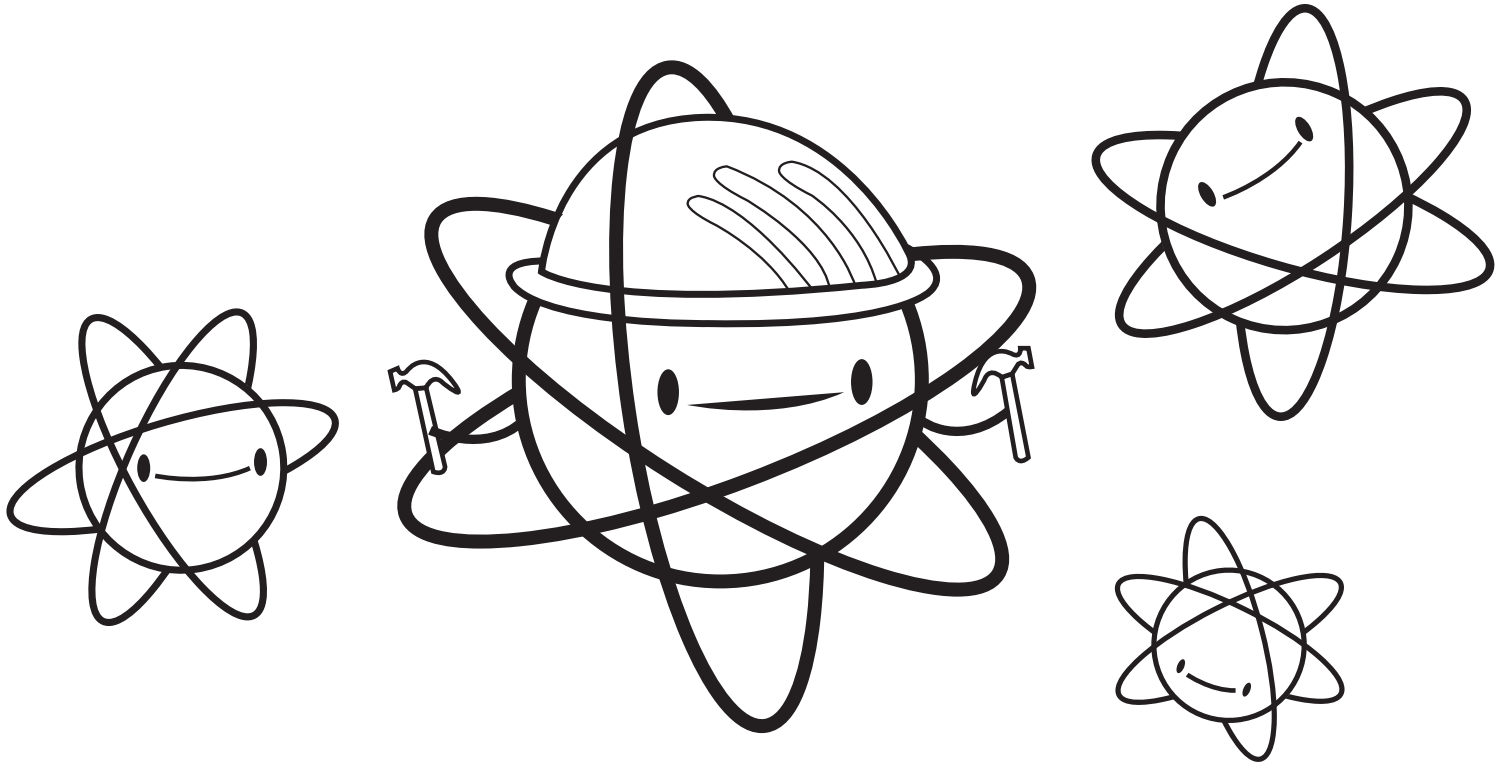
COLOR SOME ENERGY!







ATOMS MAKE UP EVERYTHING

Everything is made of atoms—every star, every tree, every animal. Even people are made of atoms. The air and water are, too. Atoms are the building blocks of the universe. They are very, very tiny particles. Millions of atoms would fit on the head of a pin.

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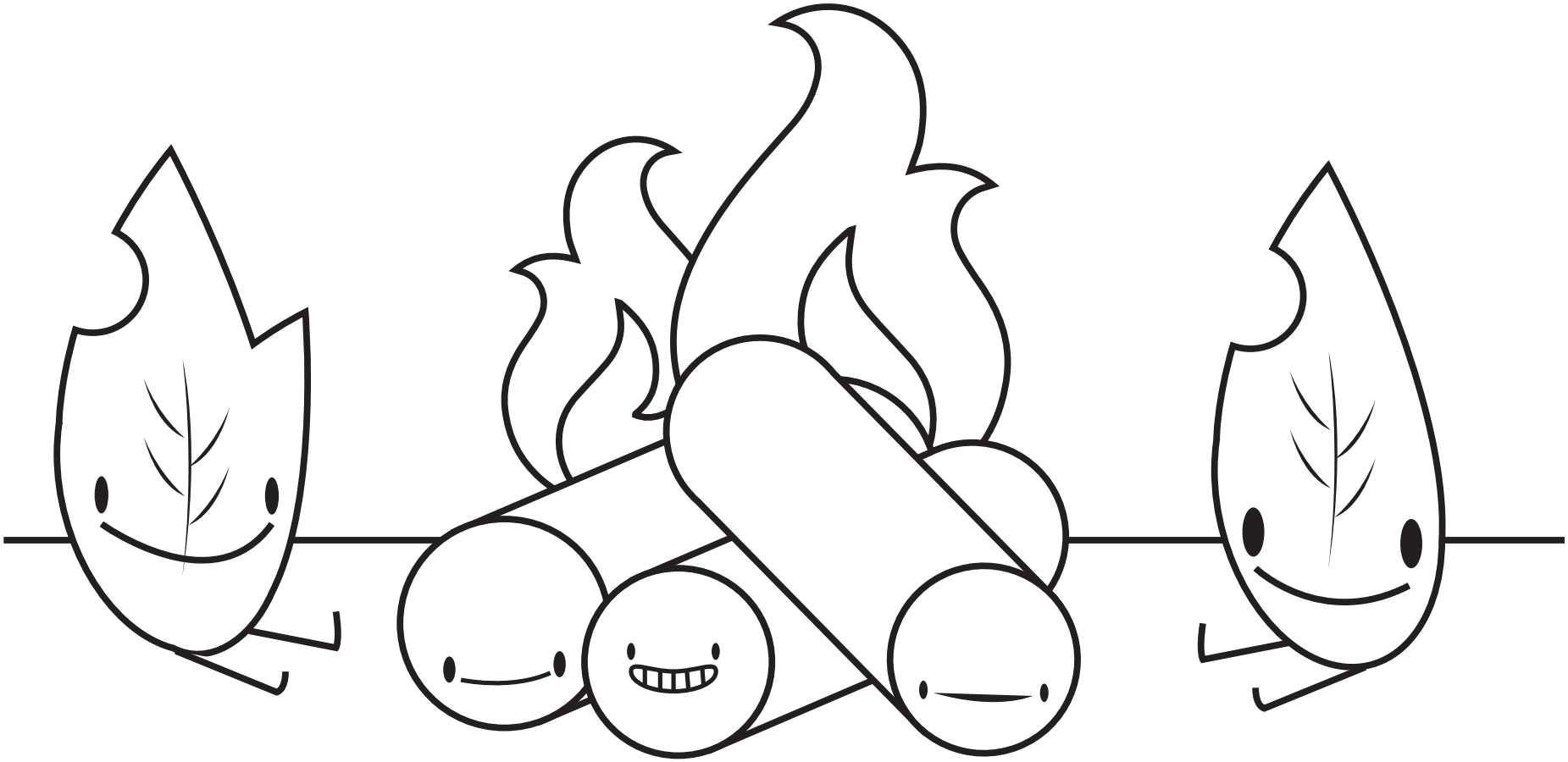

BIOMASS IS ANYTHING THAT IS ALIVE OR WAS ALIVE A SHORT TIME AGO

Trees, crops, garbage, and animal waste are all biomass.
Most of the biomass we use for energy today is wood and biofuels made from plants.
We burn these items to make heat and power our vehicles.

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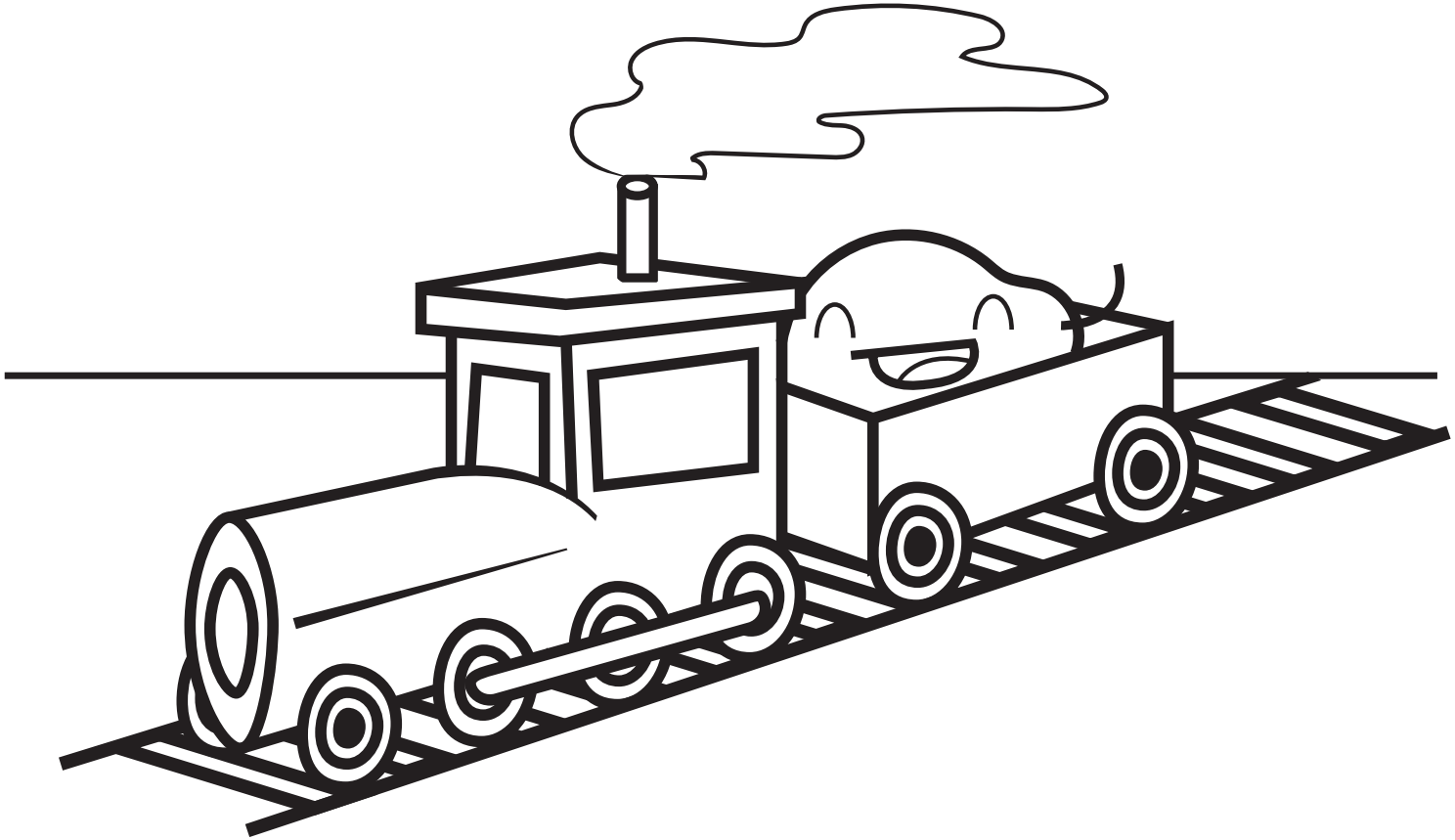

COAL HAS ENERGY

Coal looks like shiny, black rock. Coal has lots of energy in it.
When it is burned, it makes heat and light energy.
Many years ago, Native Americans burned coal to make pots.
The early settlers didn't use much coal—they burned wood.
People began using coal in the 1800s to heat their homes.
Trains and ships used coal for fuel. Factories used coal to make iron and steel.
Today, we burn coal mainly to make electricity.

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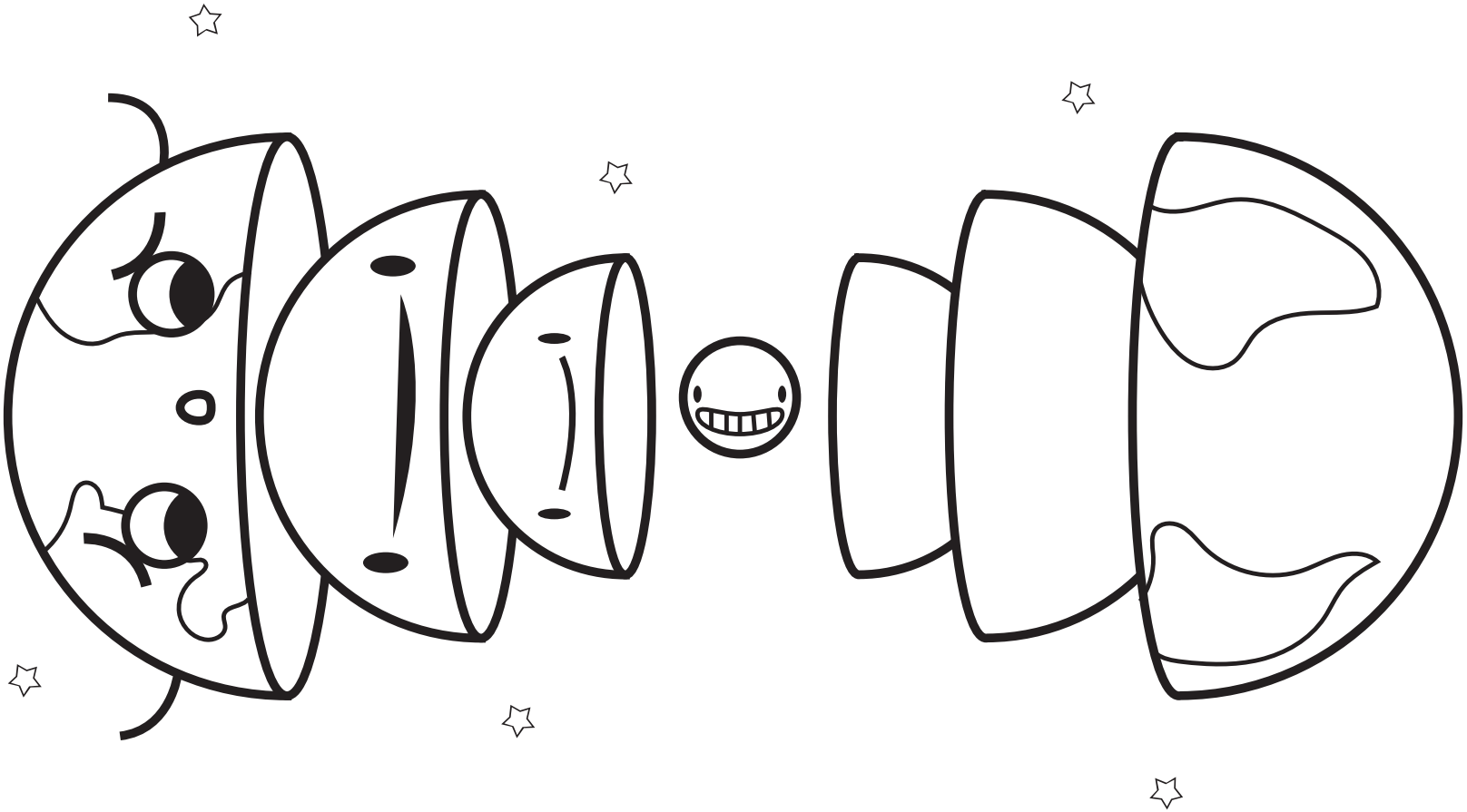

THE EARTH IS HOT

Geothermal energy is heat inside the Earth. The inside of the Earth is very hot.
Sometimes this heat comes near the surface. We can use this heat to warm our houses. We can make electricity with it.

The Earth is made of parts or layers, like a hard boiled egg. At the center is a core of iron.
Around that is an outer coreof iron and rock so hot the rock is melted. This liquid rock is called magma.
The middle layer is a mixture of rock and magma called the mantle.
The shell of the Earth—with the oceans and mountains—is called the crust.

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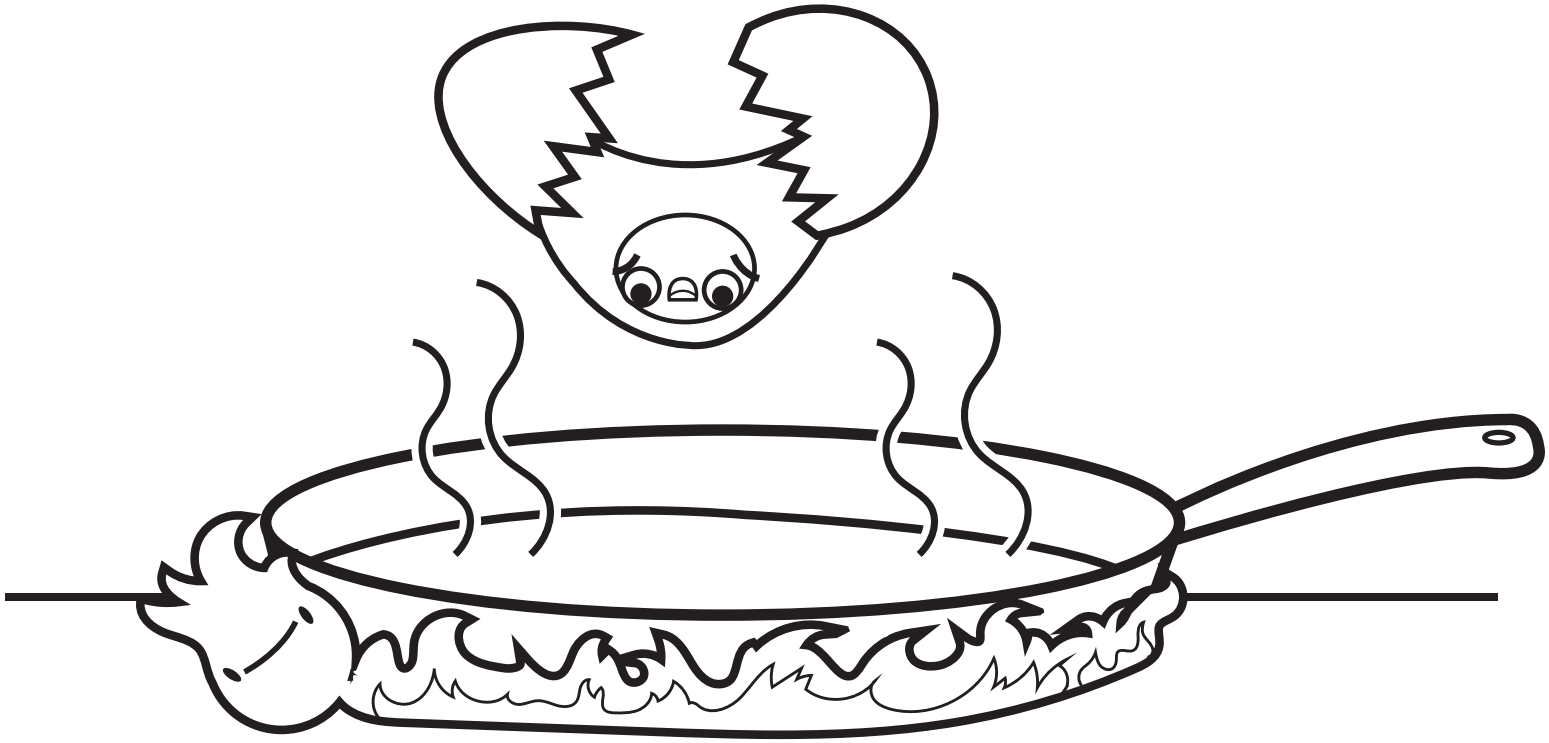

WE USE NATURAL GAS EVERY DAY

Almost everyone uses natural gas.
Most homes use natural gas for heat.
So do schools and hospitals.
Many stoves and water heaters use natural gas, too.

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PETROLEUM IS NOT MADE OF DINOSAURS

Petroleum was formed from tiny sea plants and
animals that died hundreds of millions of years ago.
This was *before* dinosuars lived.

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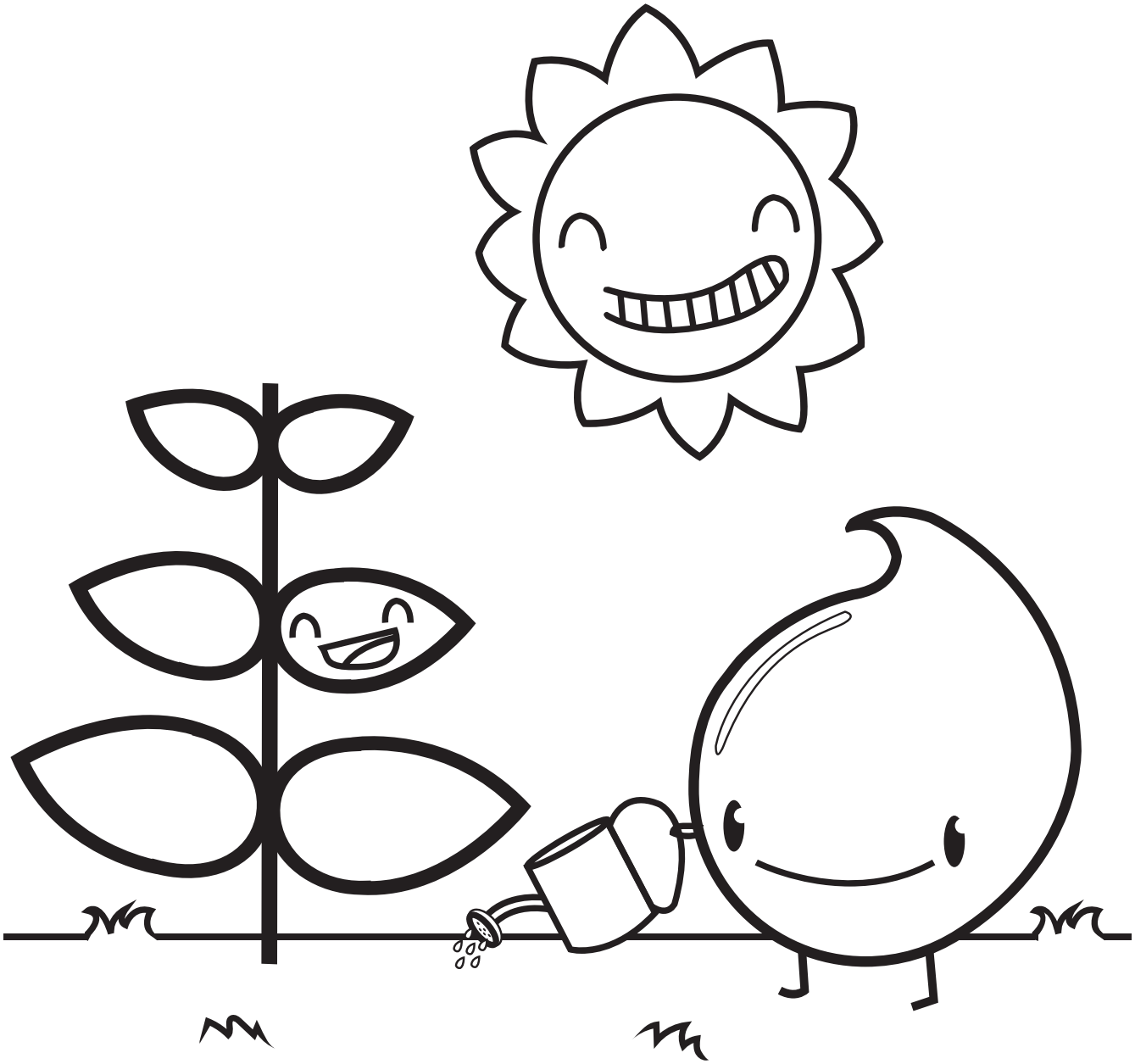

PHOTOSYNTHESIS

All living things need energy to grow.
Plants use water and light from the sun to grow.
Plants change the energy from the sun into sugar and store it in their roots and leaves.
This is called photosynthesis.

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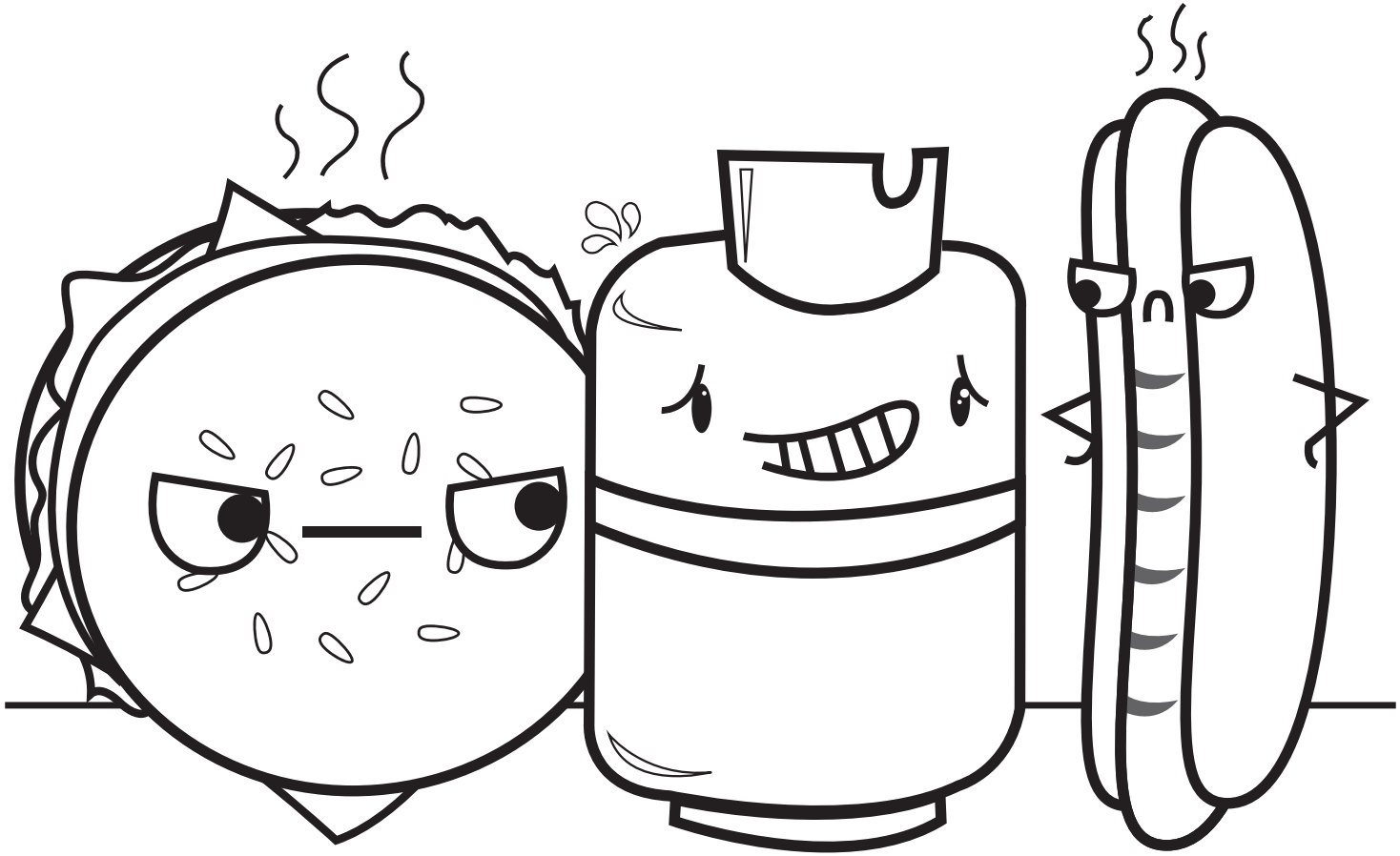

PROPANE IS USED AT HOME

Propane is mostly used in rural areas that do not have access to natural gas service. Homes use propane for heating, hot water, cooking, and clothes drying. Many families have barbecue grills fueled by propane gas. Some families have recreational vehicles equipped with propane appliances.

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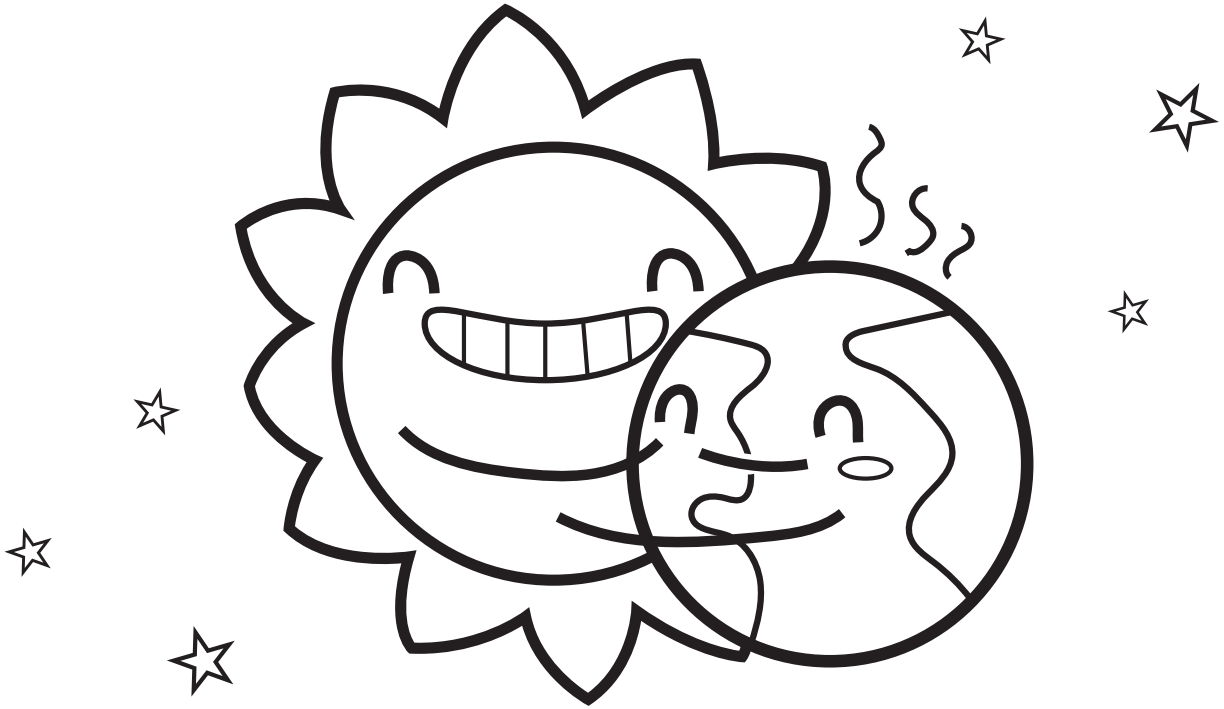

WE USE SOLAR ENERGY IN MANY WAYS

All day, we use sunlight to see what we're doing and where we're going.
Sunlight turns into heat when it hits things.
Without the sun, we couldn't live on the Earth—it would be too cold.
We use the sun's energy to heat water and dry clothes.

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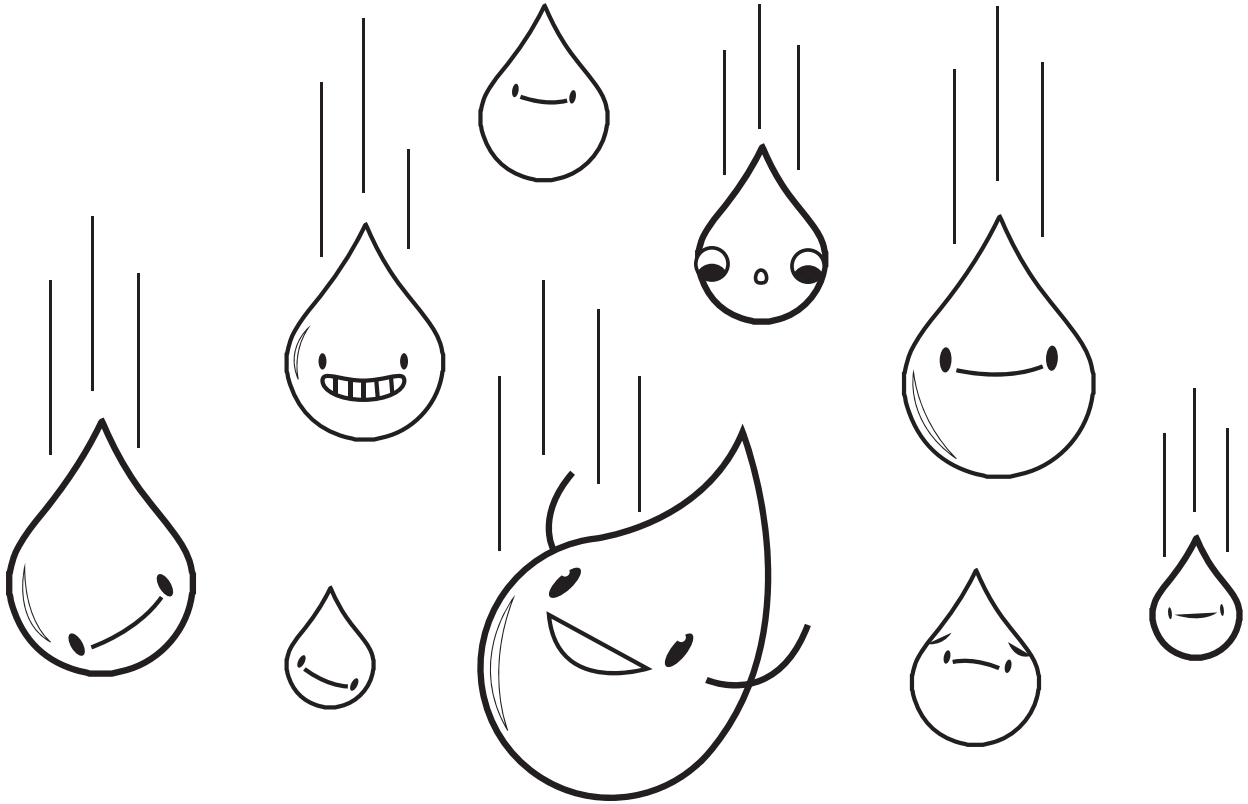

ENERGY FROM MOVING WATER

Hydro comes from the Greek word meaning water.
Hydropower is the energy we make with moving water.
Moving water has a lot of energy. We use that energy to make electricity.

Gravity—the force of attraction between all objects—makes the water move.
Gravity pulls the water from high ground to low ground.
The rainthat falls in the mountains flows down the valleys to the oceans.

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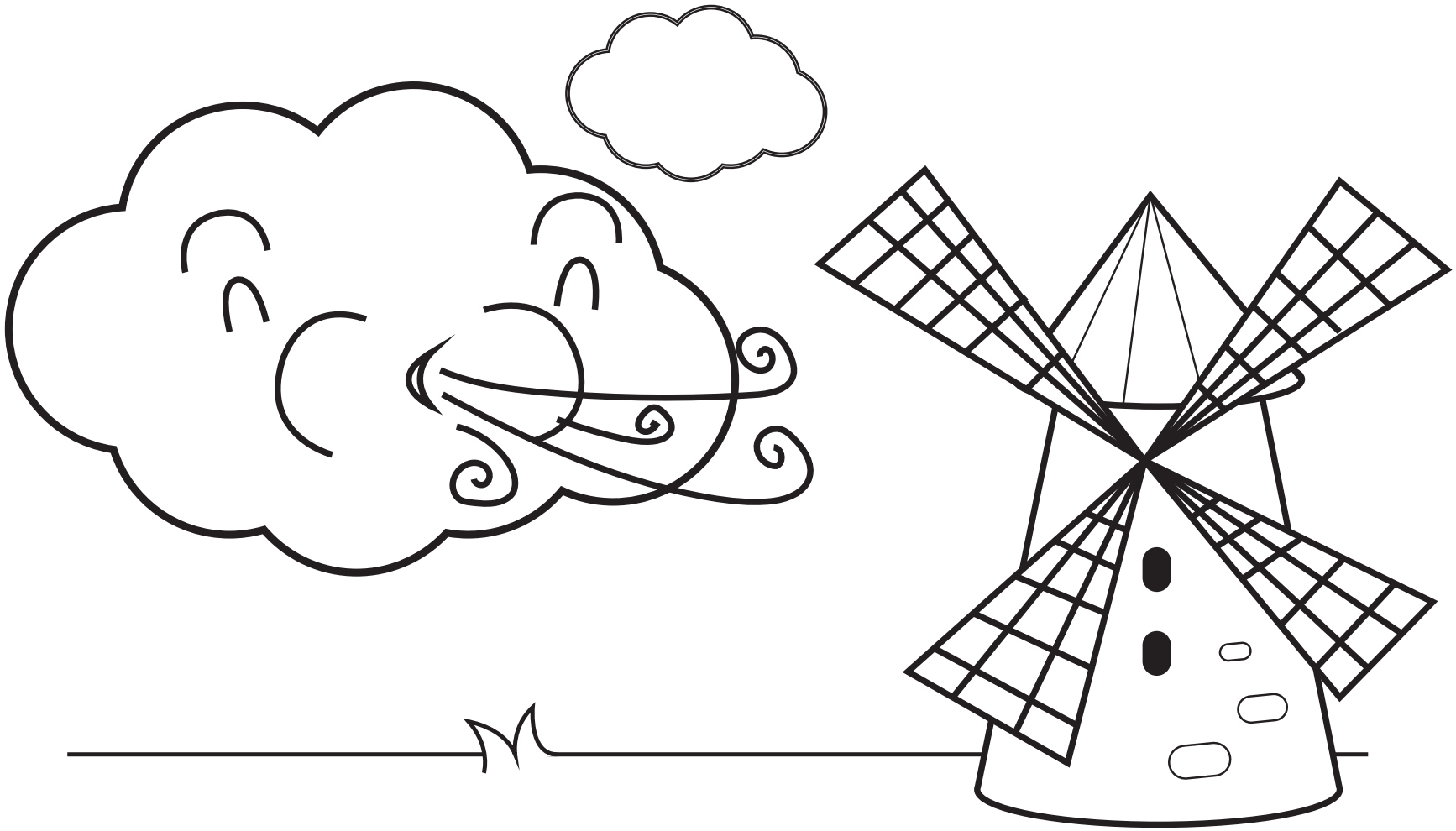
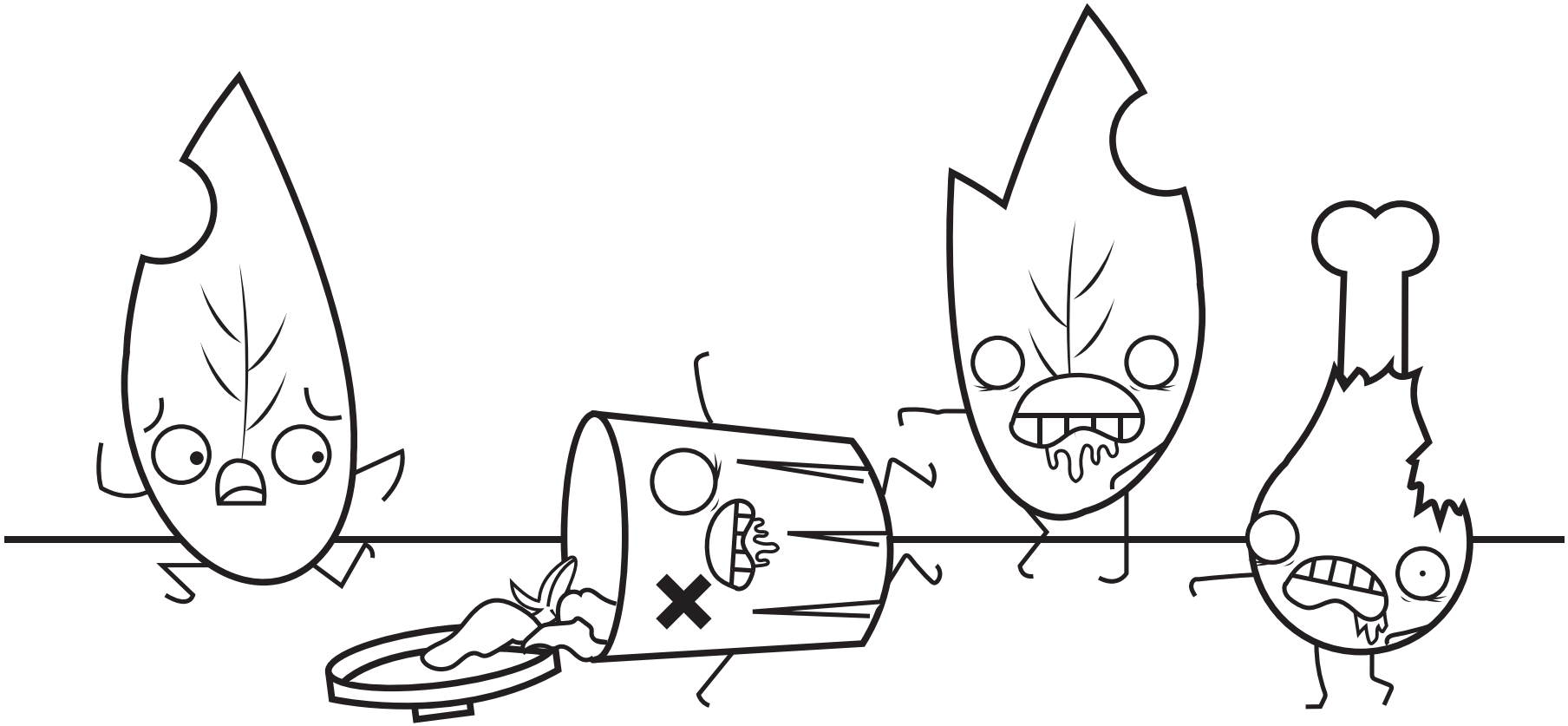


WIND IS MOVING AIR

We can use the energy in wind to do work. Early Egyptians used the wind to sail ships on the Nile River. People still use wind to move sailboats. In the Netherlands, people used windmills to grind wheat. The Pilgrims used windmills to grind corn, to pump water, and to run sawmills. Today, we use wind to make electricity.



DYING TO GIVE YOU ENERGY

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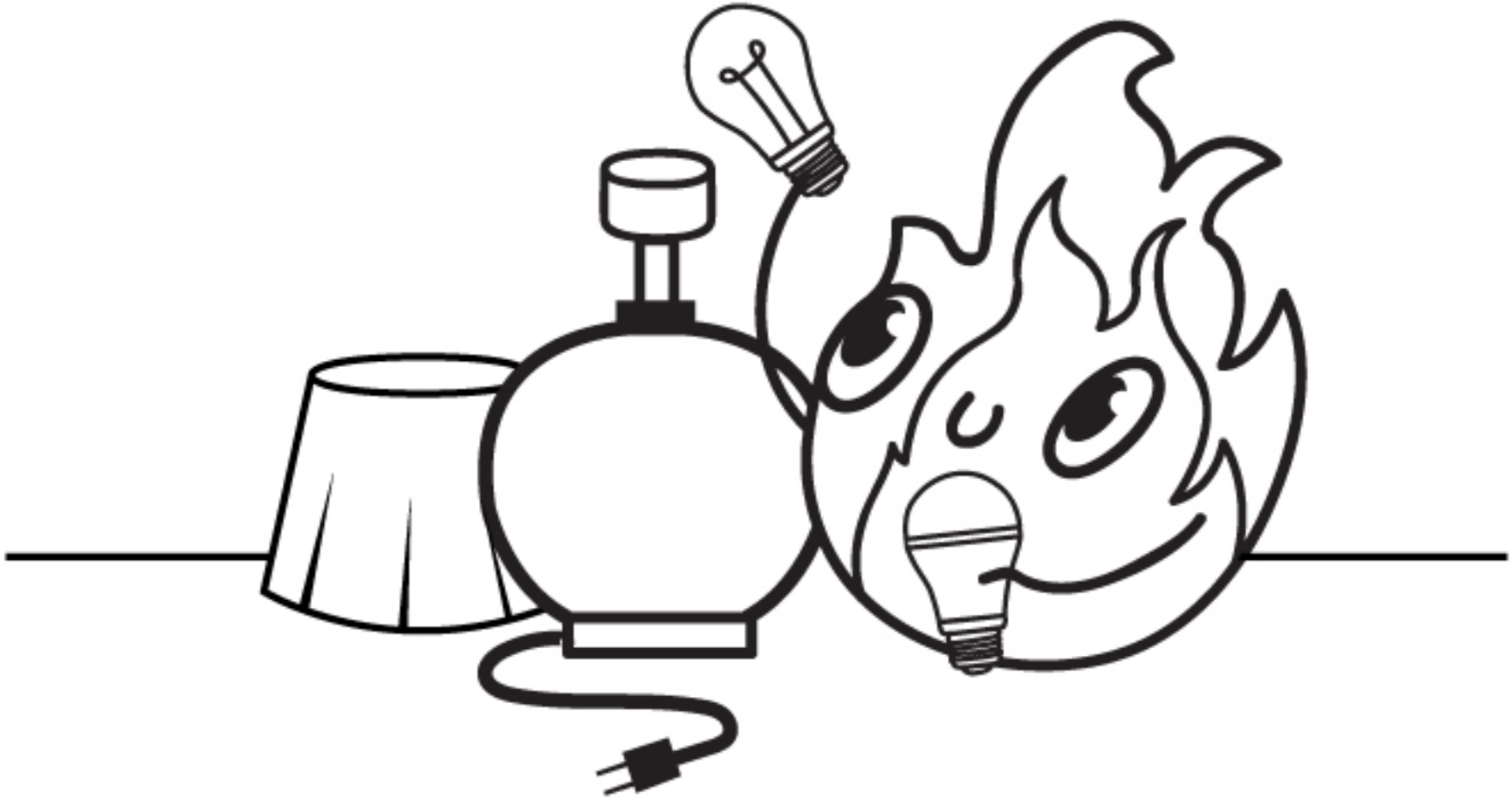

SAVE ENERGY WITH LIGHTING

Homes and schools use energy for lighting. We use electricity to light most buildings.
Turn off lights when you leave a room. Use the sun's light whenever you can. Use outdoor lights only when needed.
Use only the light you need for a task. To read, for example, use a reading lamp, not an overhead light.
Use energy-saving fluorescent lights in schools. At home, use energy-saving compact fluorescent light bulbs (CFLs) or light emitting diodes (LEDS) instead of incandescent light bulbs. They save energy and money.

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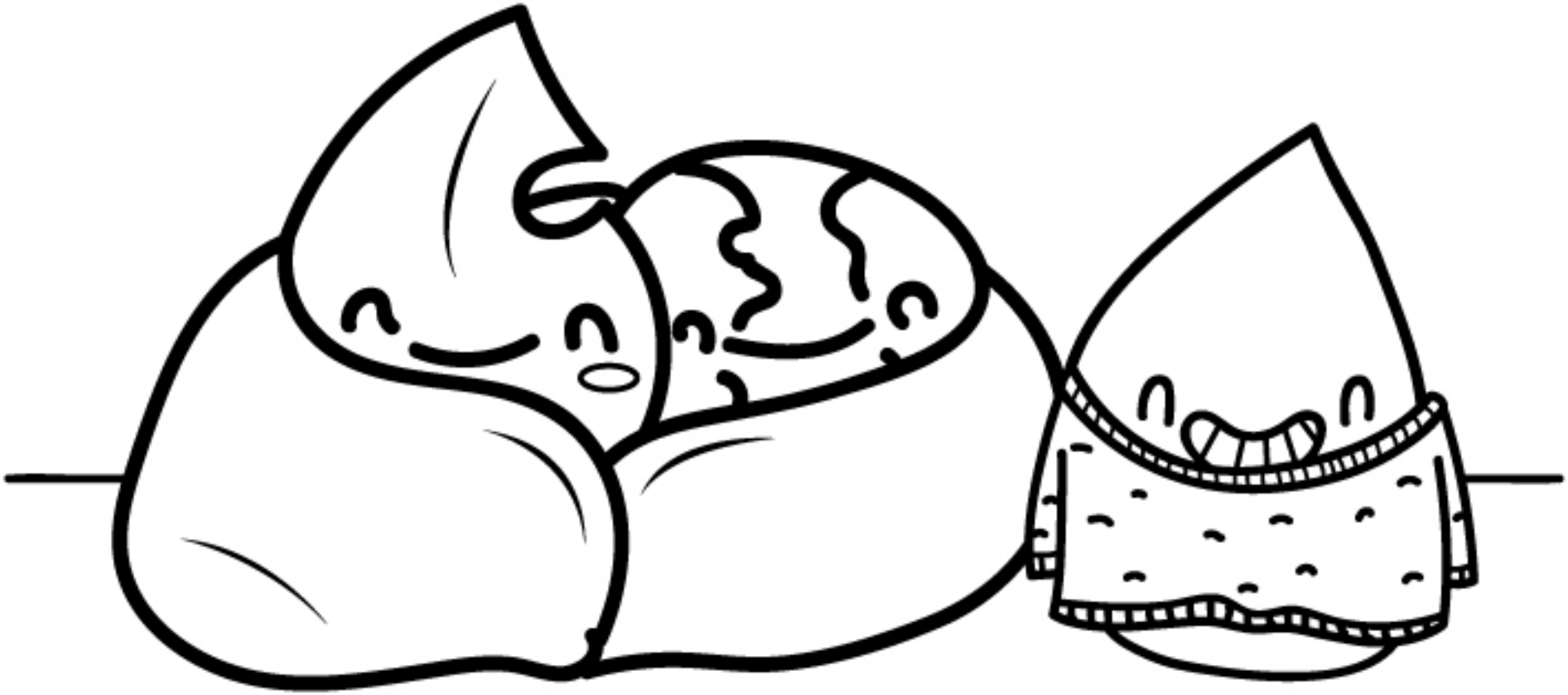
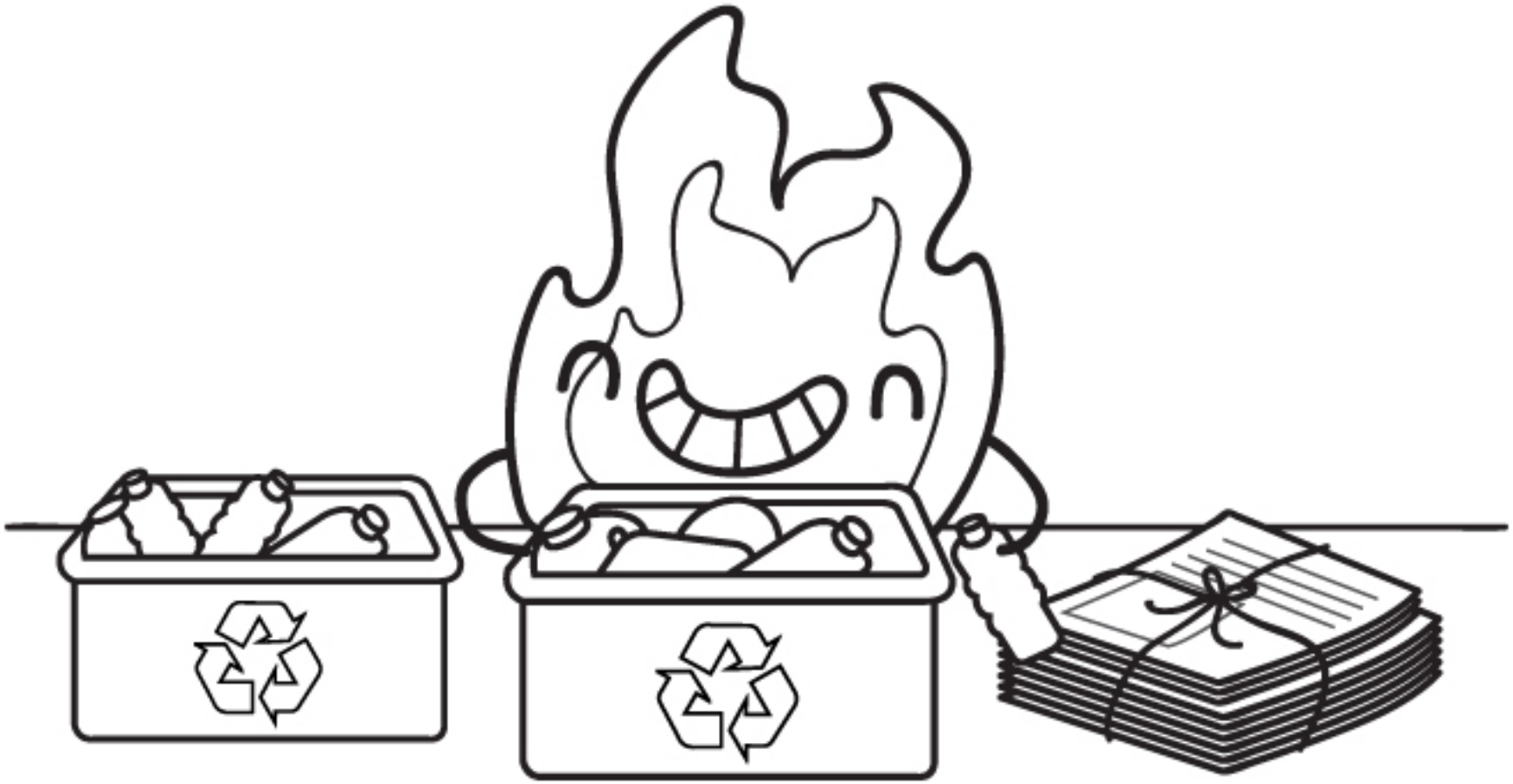


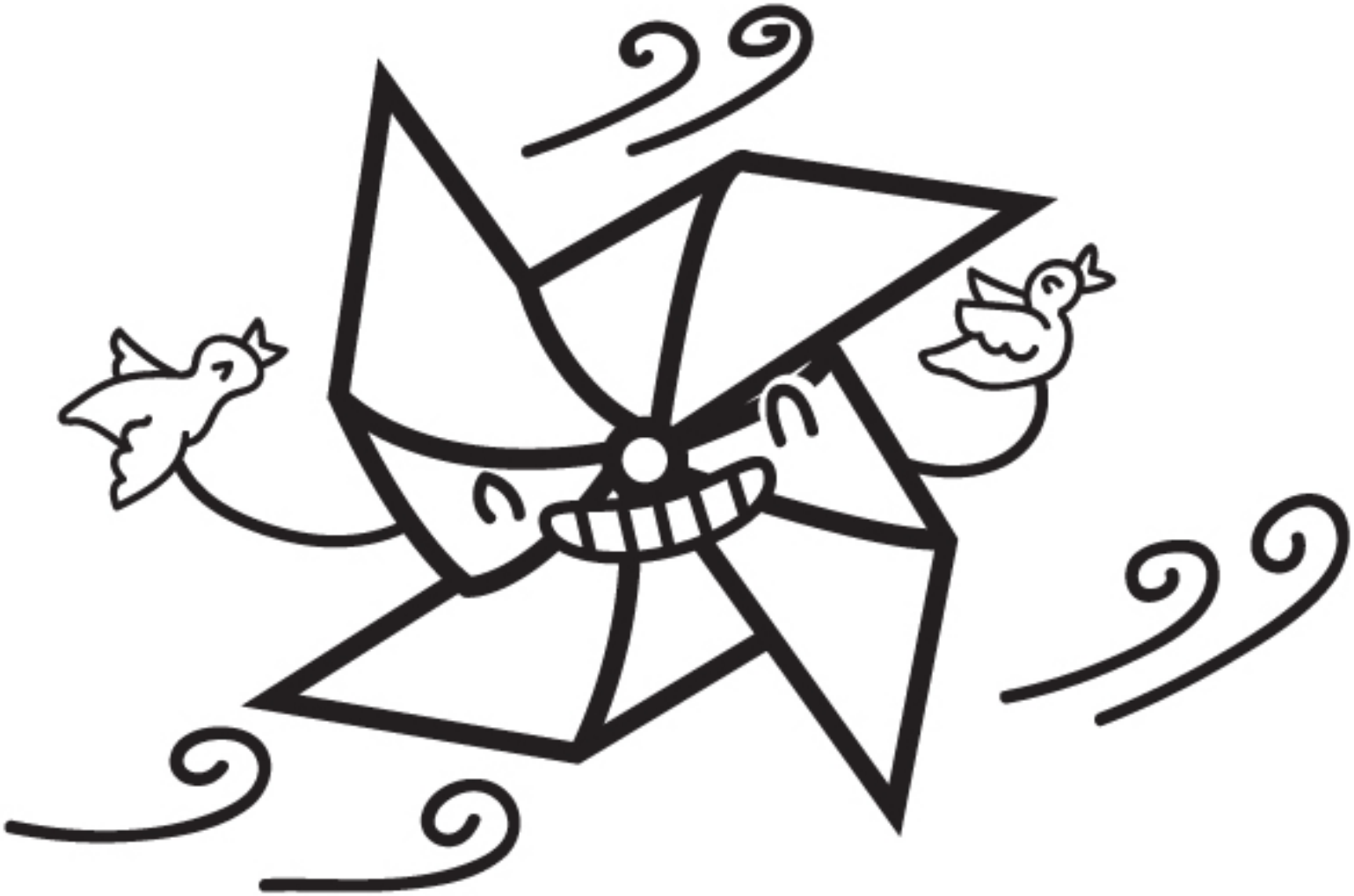
Save Heat

It takes a lot of energy to heat houses and water. If the heat is on, keep doors and windows closed.
Wear warm clothes instead of turning up the heat.
At night, use blankets to stay warm.
When you take a bath, use only the water you need.
Don't stand in the shower for a long time. Heating water uses energy.



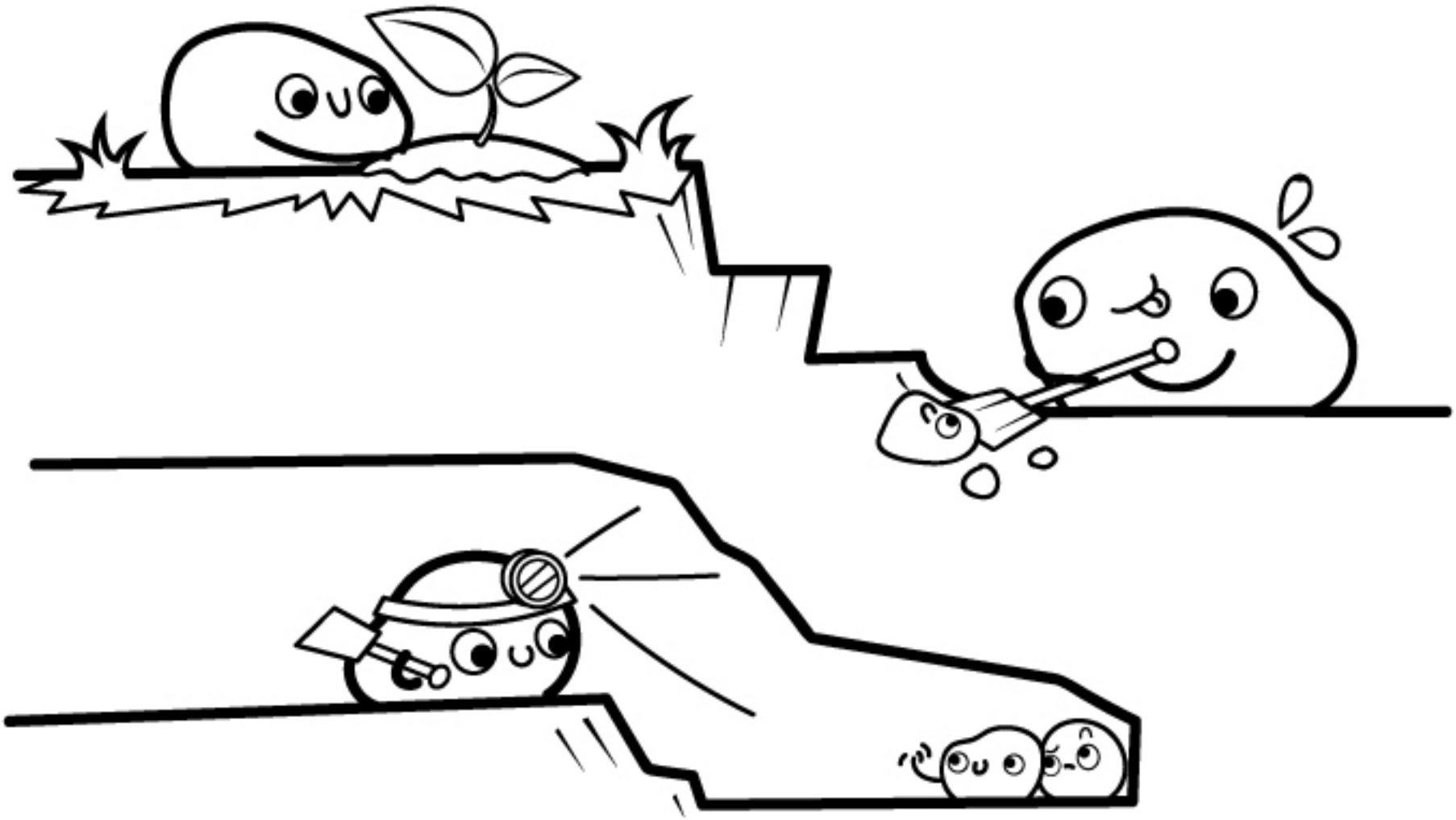
RECYCLING

You can recycle lots of things—cans, paper, glass, and plastic. It only takes a minute to recycle, and it saves energy. It takes a lot of energy to dig up metal and make a can. It only takes a little energy to make a new can from an old one. Cans can be recycled over and over again. Plastic bottles can be recycled into more plastic bottles, clothes, shoes, and rugs. Paper can be recycled into boxes and bags. Don't throw away anything you can recycle.



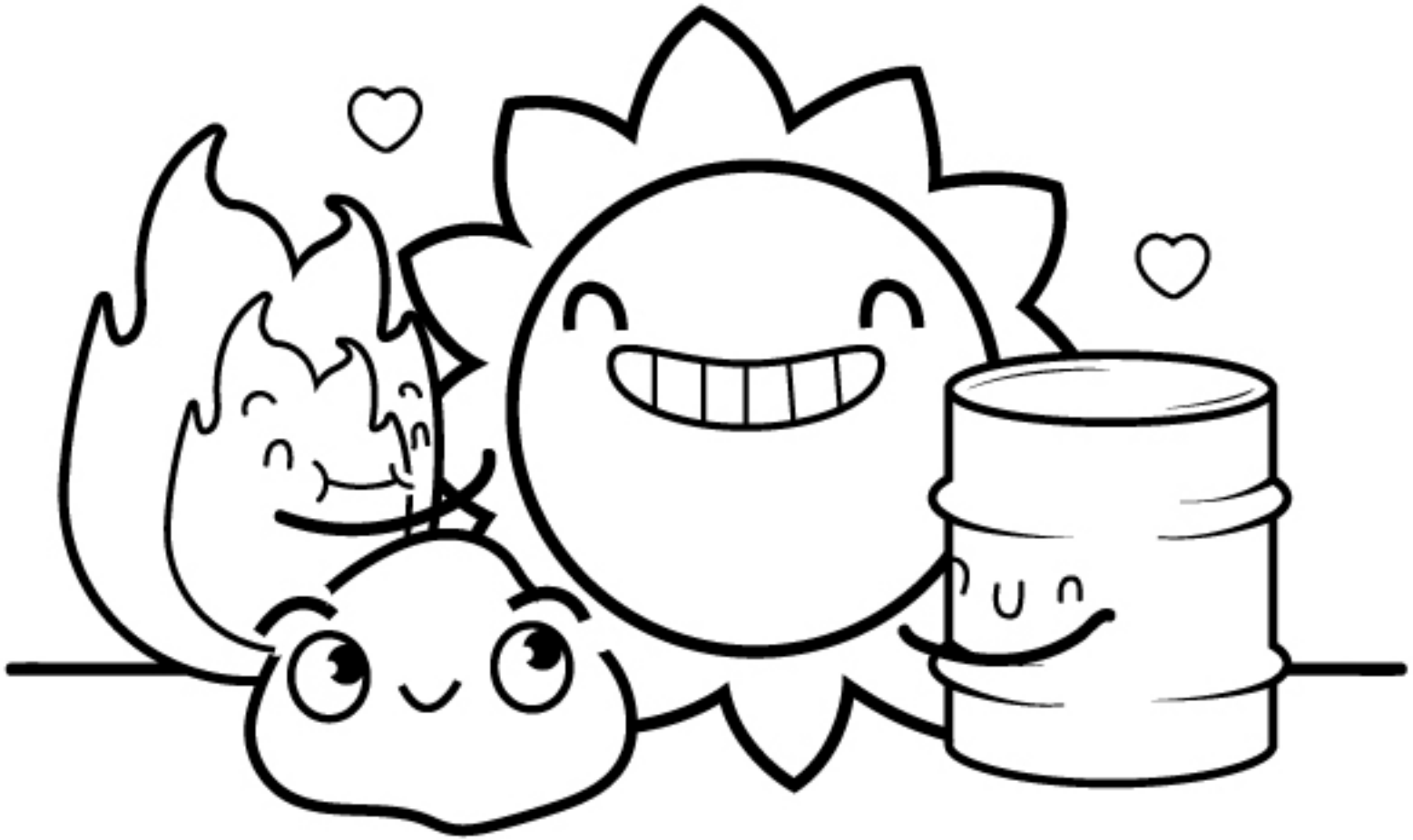
Animals and the Wind

Animals also depend on the wind for survival. Many animals depend on smell to warn them of danger.
The wind can carry smells a long way. Animals can stay away from predators and catch prey with help from the wind.
Birds soar in the sky and migrate with the help of the wind.
Some tiny animals even depend on the wind to carry them from one living area to another.



DIGGING FOR COAL

Most coal is buried under the ground. We must dig it out—mine it.
If the coal is deep in the ground, tunnels called mine shafts are dug down to the coal.
Machines dig the coal and carry it to the surface. This is called **deep mining**.
If coal is near the surface, miners dig it up with huge machines.
First, they scrape off the dirt and rock, then dig out the coal. This is called **surface mining**.
After the coal is mined, they put back the dirt and rock. They plant trees and grass. This is called **reclamation**.



FOSSIL FUELS CONTAIN ENERGY FROM THE SUN

Coal, oil, and natural gas are called fossil fuels because they were made from prehistoric plants and animals.
The energy in the plants and animals originally came from the sun.
We use the energy in fossil fuels to cook our food, warm our homes, run our cars, and make electricity.
Most of the energy we use today comes from fossil fuels.

WE USE PETROLEUM EVERY DAY

What would we do without petroleum?

Our country would come to a stop. Most of our cars, trucks, and planes are powered by fuel made from oil.

Our factories use oil to make plastics and paints, medicines and soaps.

We even burn oil to make electricity. We use more petroleum than any other energy source.

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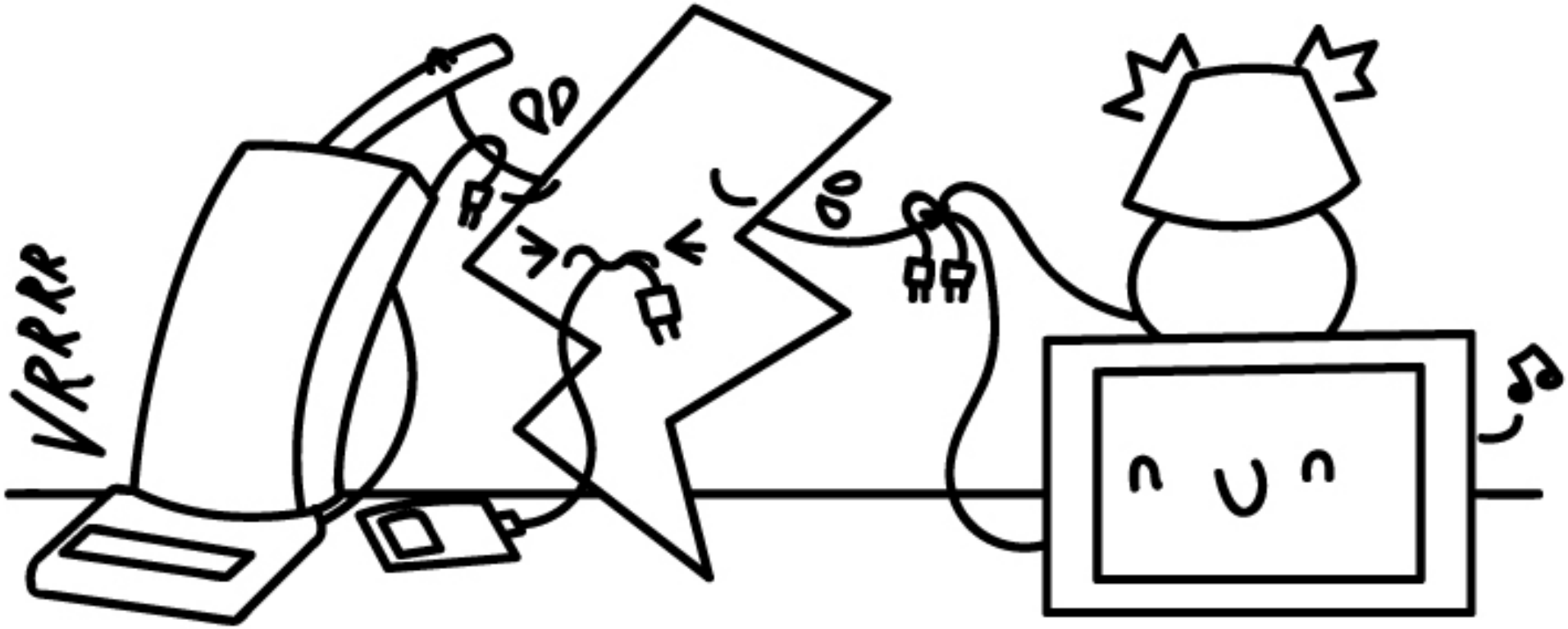

WE USE ELECTRICITY EVERY DAY

Electricity does a lot of work for us. We use it many times each day.
It lights our homes, warms and cools our rooms, and helps us keep them clean.
It runs our TVs, DVD players, video games, computers, and fax machines.
It cooks our food and washes the dishes. It can power our lawn mowers and leaf blowers.
It can even run our cars.

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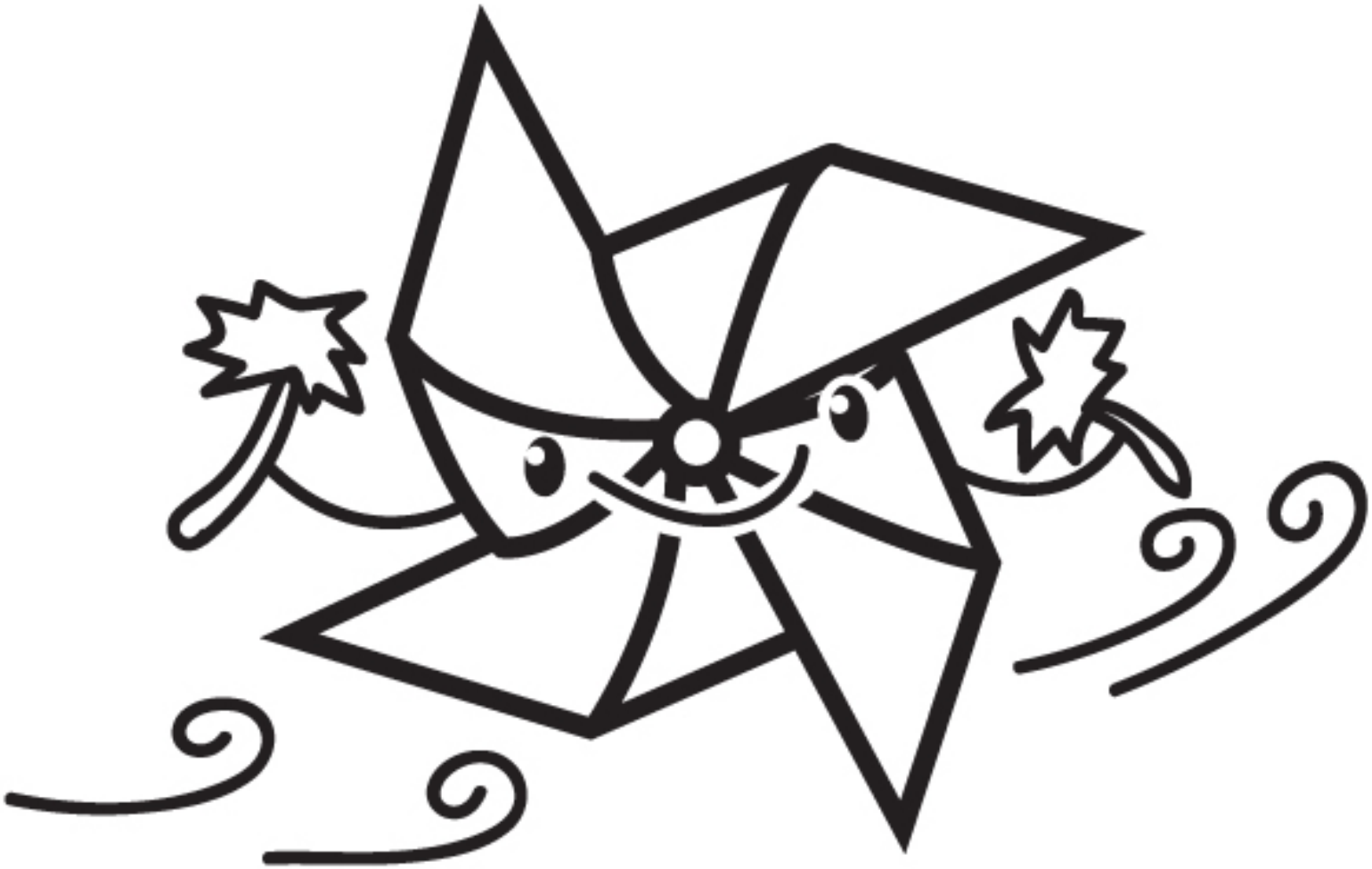
COAL CAN POLLUTE THE AIR

When coal is burned, it can pollute the air.
Power plants and factories work hard to keep the pollution from getting into the air.
They clean the coal before they burn it. They use scrubbers to clean the smoke before it goes into the air.



Plants and the Wind

Some small plant seeds are very light. They are carried by the wind to new places. This is an important part of nature.
The plant seeds are carried away from their parents. They spread out across the land.
As they grow in new places, they don't have to compete with other plants for nutrients, water, and sunlight.
Many plant seeds, spores, and fruits use the wind to survive.

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