

Hello, little energy museum!

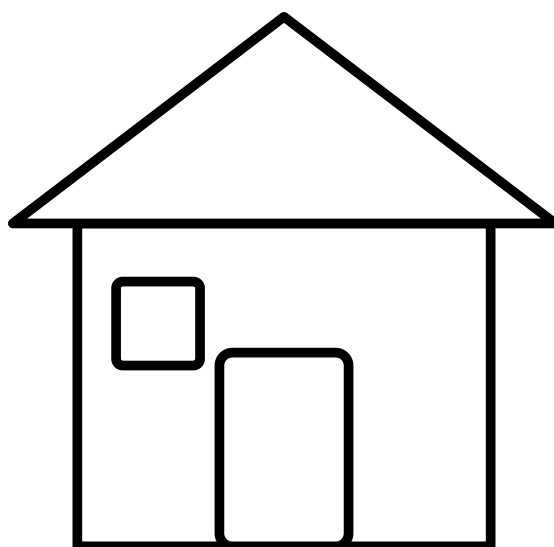
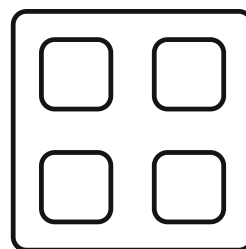
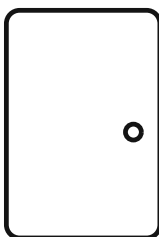
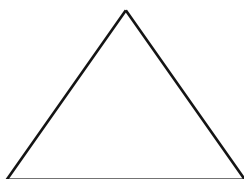
Color the otter and the lamp. Point to the light.



An imaginary miniature, not a working machine. All activities use paper. A grown-up can say: real nuclear power stations use energy from tiny nuclei to make heat, then electricity through several steps.

Parts make a whole

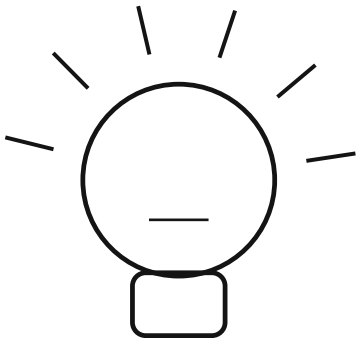
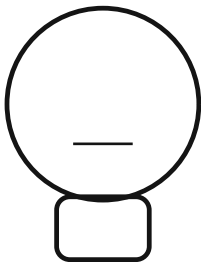
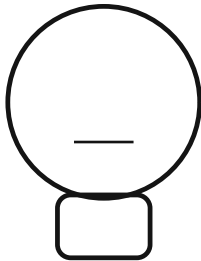
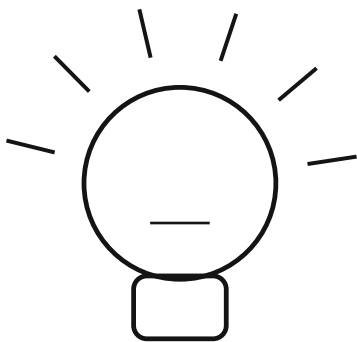
Point to the roof, door, and window. Find them on the house.



A warm-up for looking at parts and whole things. A house is much bigger than an atom; these are different kinds of models.

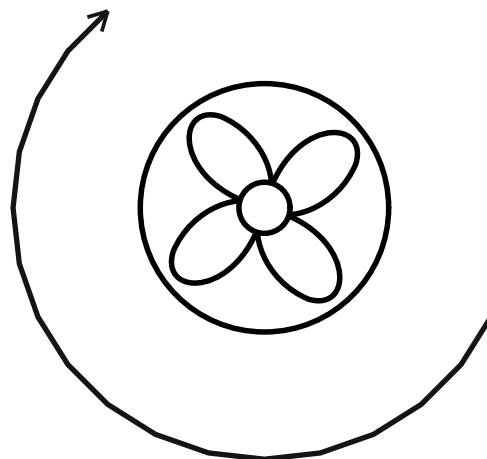
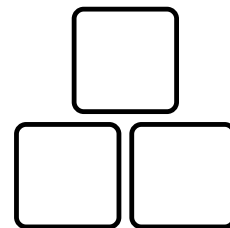
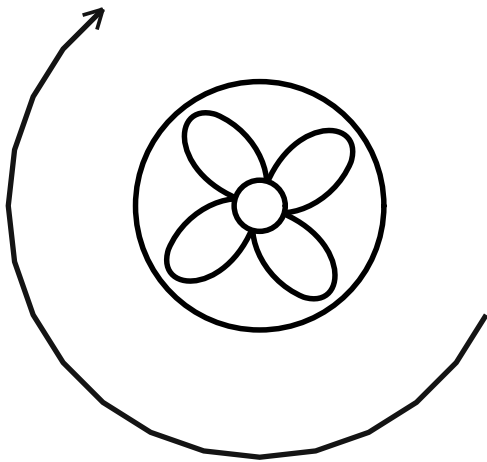
Which lights are glowing?

Circle the two glowing lights. The little rays are picture clues.



Turning marks

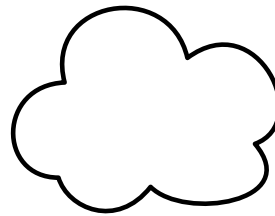
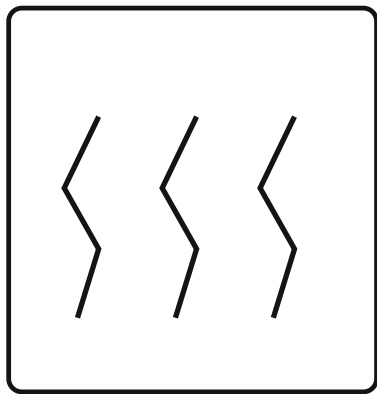
Trace the curved marks beside each turning wheel. Make a turning motion with your hand.



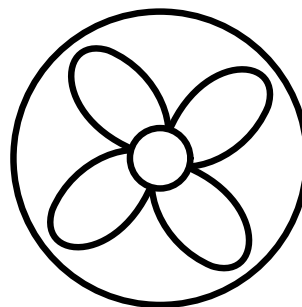
Curved arrows mean turning in these drawings. A still picture alone cannot show whether a real object is moving. No real wheel is being powered here.

Warmth, steam, turn

Follow the picture story: heat, steam, a turning wheel.



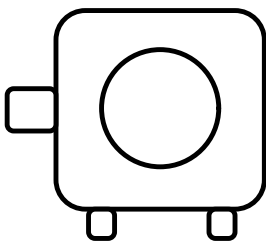
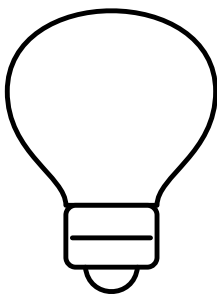
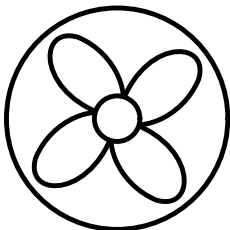
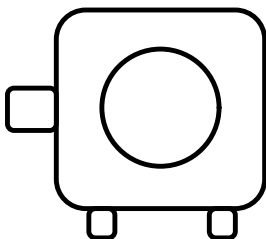
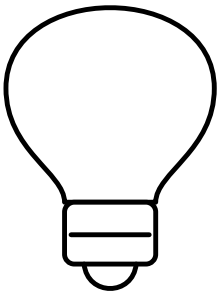
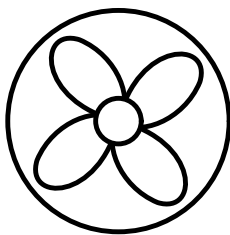
Draw turning marks beside the wheel.



Heat can make steam that turns a turbine. Puffy marks stand for steam; visible white plumes contain tiny water droplets. A paper story, not an experiment.

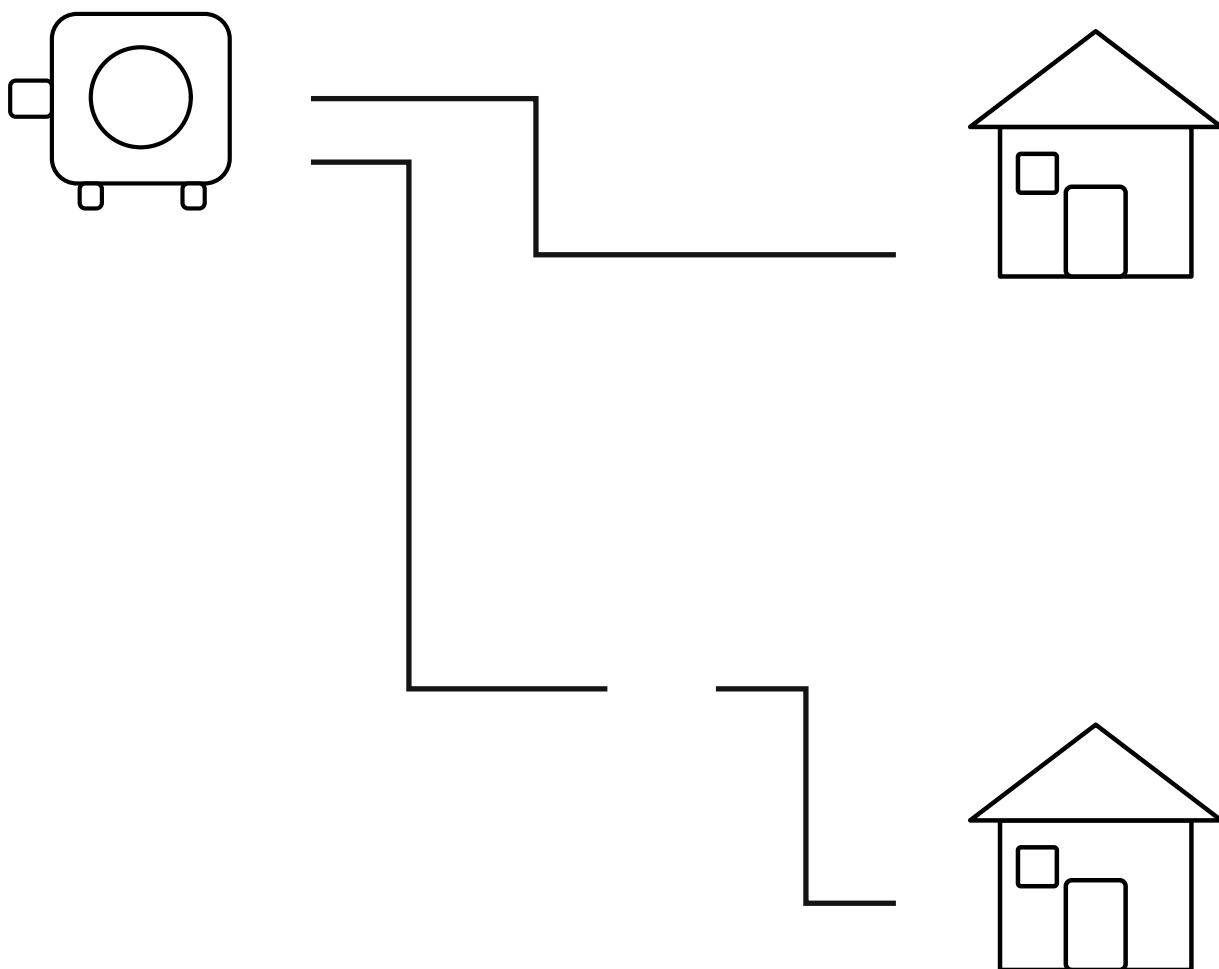
Machine picture pairs

Draw a line between each matching pair.



A connected route

Trace the unbroken line from the machine to a house.



Point to the gap in the other route.

A connection puzzle. Real electricity needs a complete circuit and more equipment than shown; it does not travel like a little parcel choosing one road.

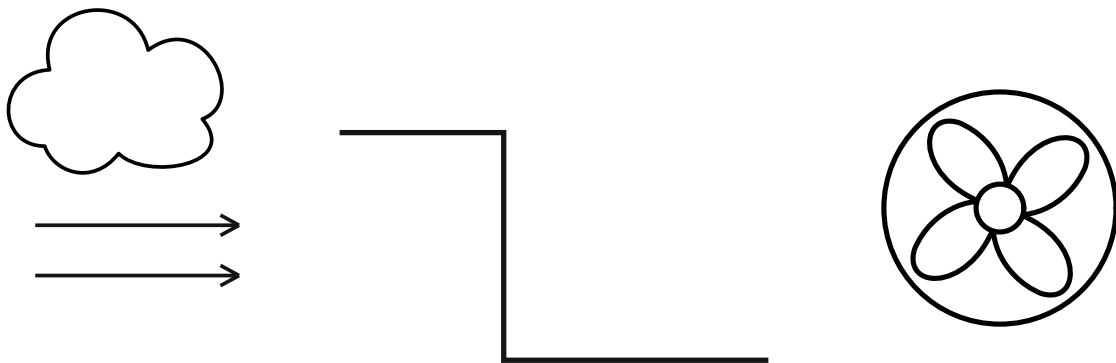
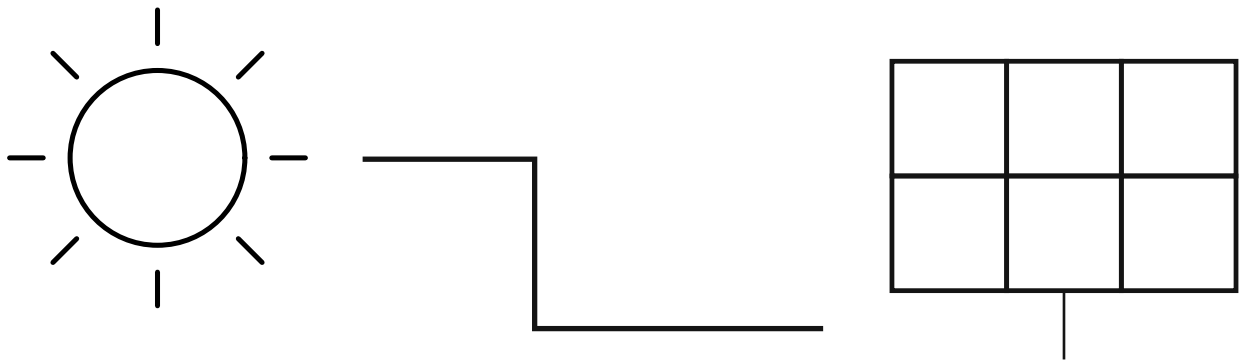
Tap the little lights

Count the lights in each row. Match them to their dots.



Sun and wind helpers

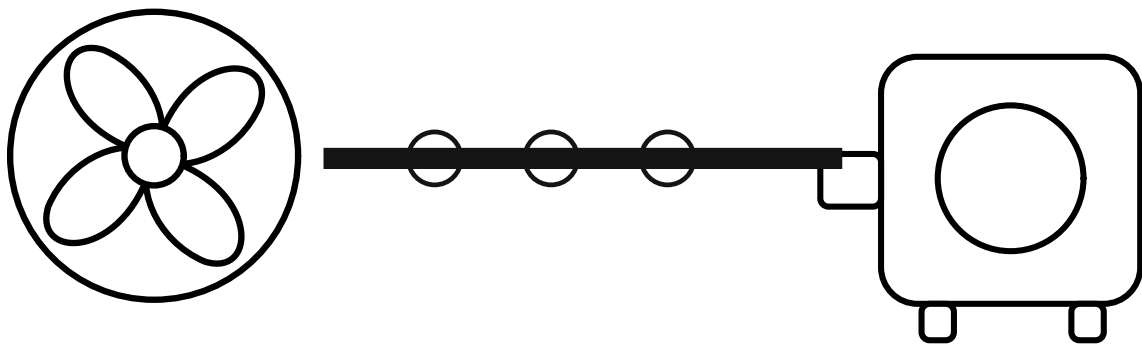
Trace sunshine to the panel. Trace wind to the turning blades.



Solar photovoltaic panels change light into electrical energy without a turbine. Wind can turn turbine blades connected to a generator. Nuclear power stations have a different source of energy.

A turning connection

Trace the thick shaft from the wheel to the generator. Add turning marks.

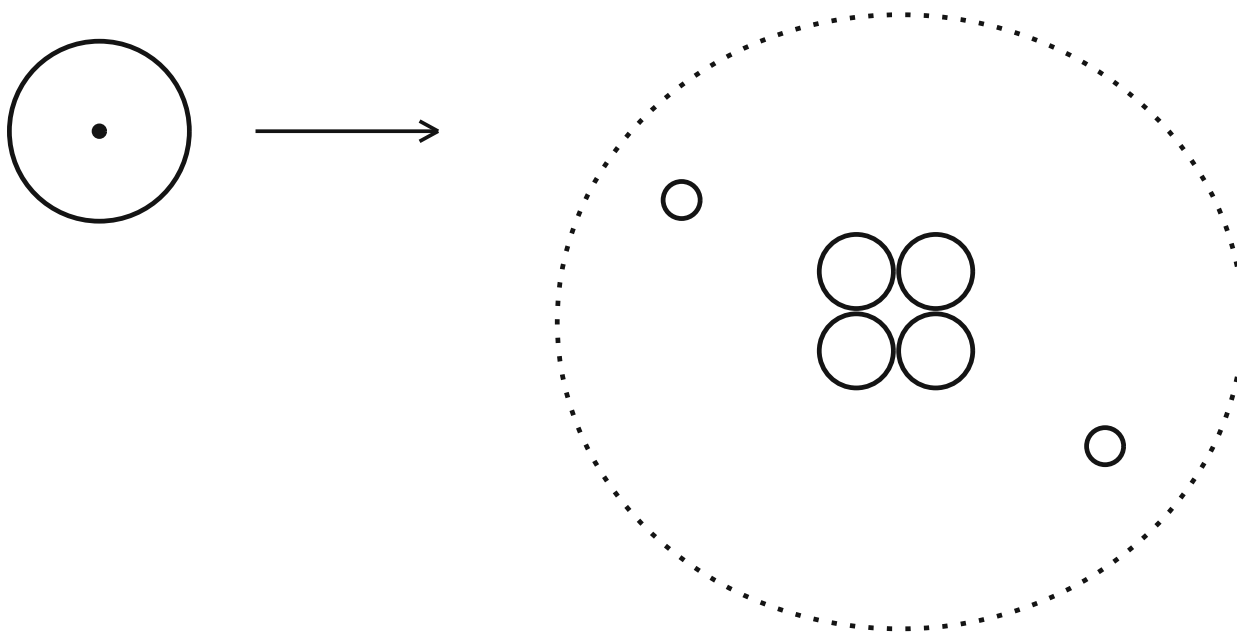


Pretend to turn one hand, then the other.

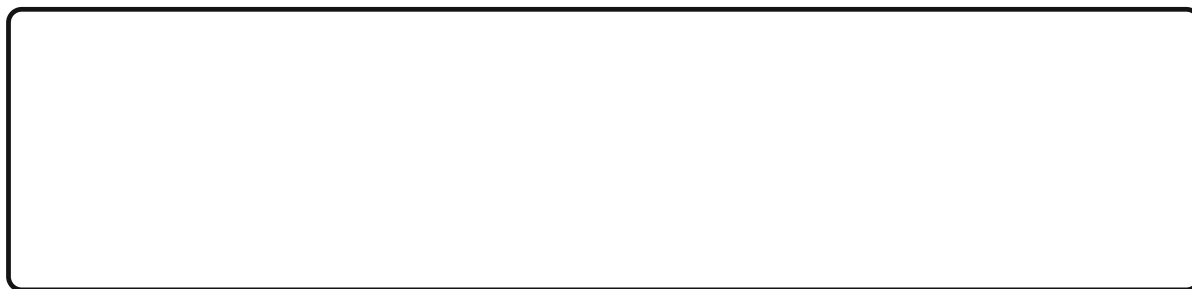
A turbine can turn a generator through a shaft. The generator changes movement into electrical energy. This picture leaves out the real machine's many other parts.

Tiny, then imagined bigger

Point to the tiny dot. Color its pretend enlarged atom picture.



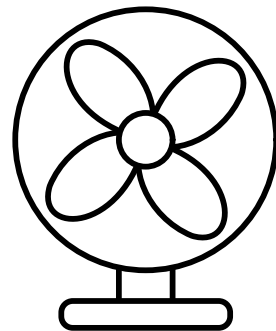
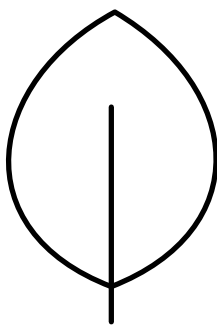
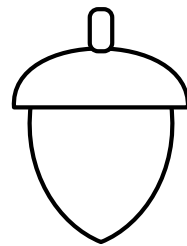
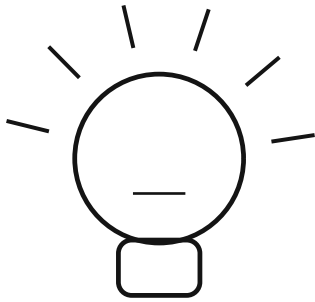
Draw something too small for your eyes to see.



Everything pictured is a model, not a true scale view. Atoms have a tiny nucleus and electrons around it. The dotted region is not a wall or an orbit; electrons are not little planets.

Electricity in the town

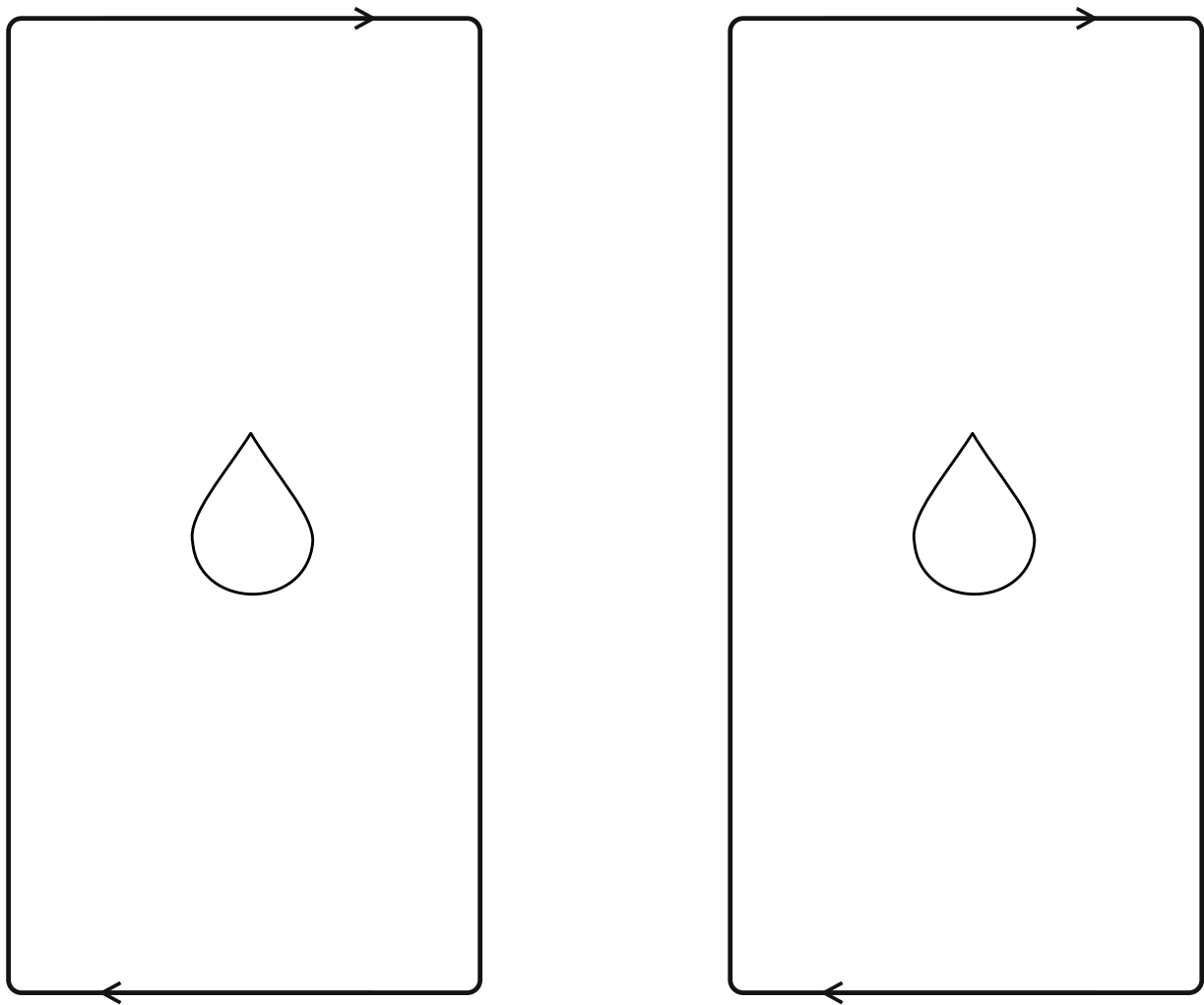
Circle the two things that can use electricity: a lamp and a fan.



A lamp can change electrical energy into light and heat. A fan changes it into movement and heat. Do not touch outlets, wires, or powered equipment for this activity.

Two separate paths

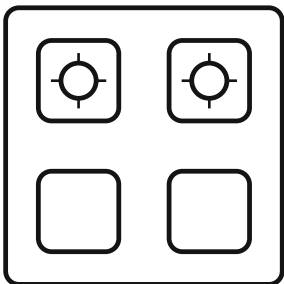
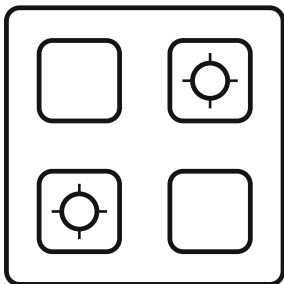
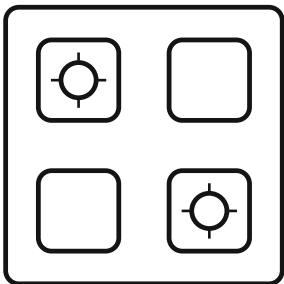
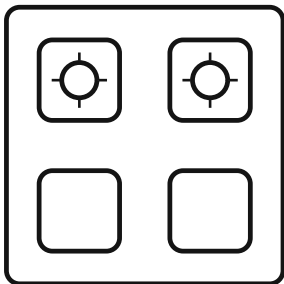
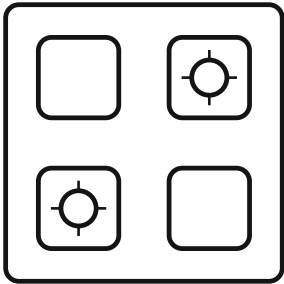
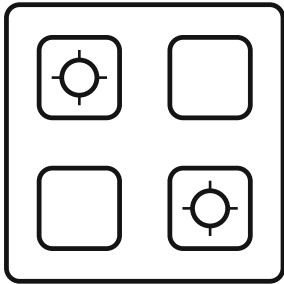
Give each path a different color. Stay on your path all the way around.



A tracing model of separate water paths. Some power stations have water circuits that stay separate while heat passes between them. This picture is not a complete power-station diagram.

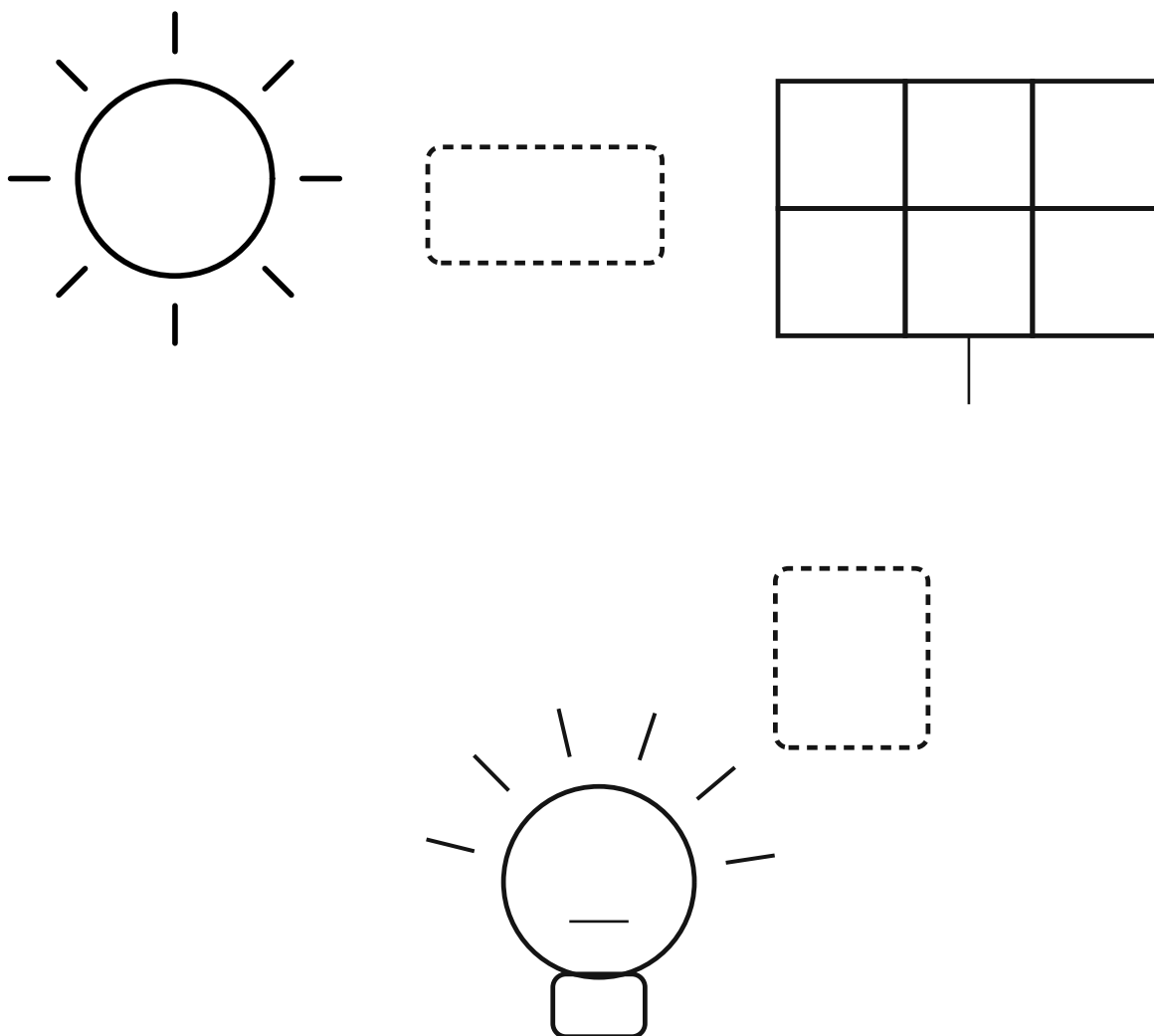
Window-light pairs

Join windows with the same glowing-square pattern.



Finish a sunshine story

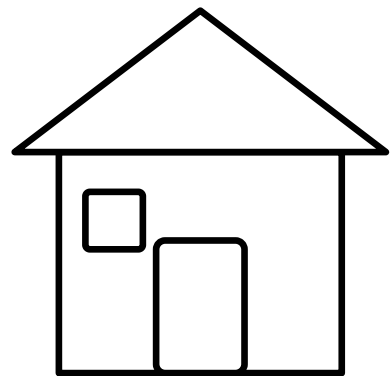
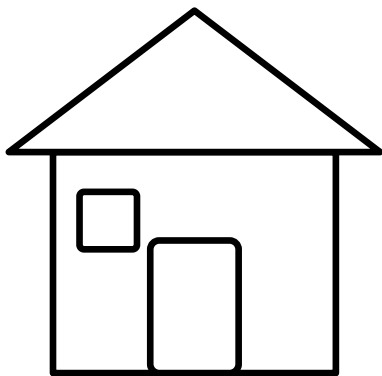
Draw arrows from the sun to the panel, then from the panel to the lamp.



Solar PV panels can supply electrical energy. Real systems need wiring and may need other equipment; this picture leaves those details out. Arrows show an energy story, not a full electric circuit.

My glowing town

Draw a light in each house. Add one turning machine for your pretend town.



Your turning machine goes here.

All imaginary and made on paper. Ask a visitor to point to something that glows and something that turns. Many different drawings are welcome.

Grown-up guide

No science vocabulary test is needed. Begin with pointing and pretend play.

The tiny-to-town idea

Atoms have nuclei and electrons. Nuclear fission can release energy that heats a reactor. Commercial nuclear power stations use further steps, including steam, a turbine, and a generator, to supply electricity. Children need only notice a few pictures in that story.

Models have limits

The art is an imaginary miniature. Particle pictures are not to scale and dotted electron regions are not orbits. Puffy steam symbols, moving marks, and energy arrows are drawing conventions. They do not make a real machine or a complete electric circuit.

Different energy routes

A turbine drives a generator mechanically. Solar PV panels make electrical energy from light without a turbine; wind can turn a turbine. Do not tell children that all electricity needs steam or that electricity comes directly from a splitting nucleus.

Keep it paper-only

No powered devices, hot water, chemicals, radioactive materials, or practical experiments are used. In real nuclear plants, trained people manage safety, cooling, and radioactive materials; stopping fission does not remove all heat.

Make it easy

Use crayons or colored pencils and a pencil. Print at Actual Size or 100%. Read aloud; a finger trace or spoken choice counts. Stop after a few pages and return later. No scissors or glue are required.

Sources for grown-ups (click a title in the PDF)

DOE: How a Nuclear Reactor Works

EIA: Electricity generation and the grid

DOE: Electrons

Answer and conversation notes

Celebrate careful looking. Open drawings do not have a single correct design.

- 1 Any light noticed in the imaginary scene is a useful observation.
- 2 Find the roof above, door below, and window on the whole house.
- 3 Glowing lights: upper left and lower right. Rays are the picture clue.
- 4 Trace the curved turning marks by the two wheels, not the blocks.
- 5 Heat symbol, steam symbol, turbine. Add curved marks to the wheel.
- 6 Turbine to middle; generator to bottom; bulb to top.
- 7 The upper route is unbroken. The lower route has a gap.
- 8 Light groups 1, 3, 5 match bottom, top, and middle dot groups.
- 9 Sunshine connects to solar panel; wind connects to turbine blades.
- 10 Trace the shaft connecting turbine and generator; pretend turning.
- 11 Tiny dot at upper left; enlarged model at upper right. Any small thing may be drawn.
- 12 Lamp upper left and fan lower right can use electricity.
- 13 Two separate closed paths. Either color or different pencil patterns work.
- 14 Top-left to middle-right; middle-left to bottom-right; bottom-left to top-right.
- 15 Arrows: sun to panel, panel to lamp. Other equipment is omitted.
- 16 A light in each house plus an invented turning machine is enough.