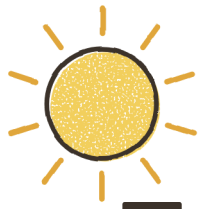


FIELD & FABLE • A UNIT STUDY

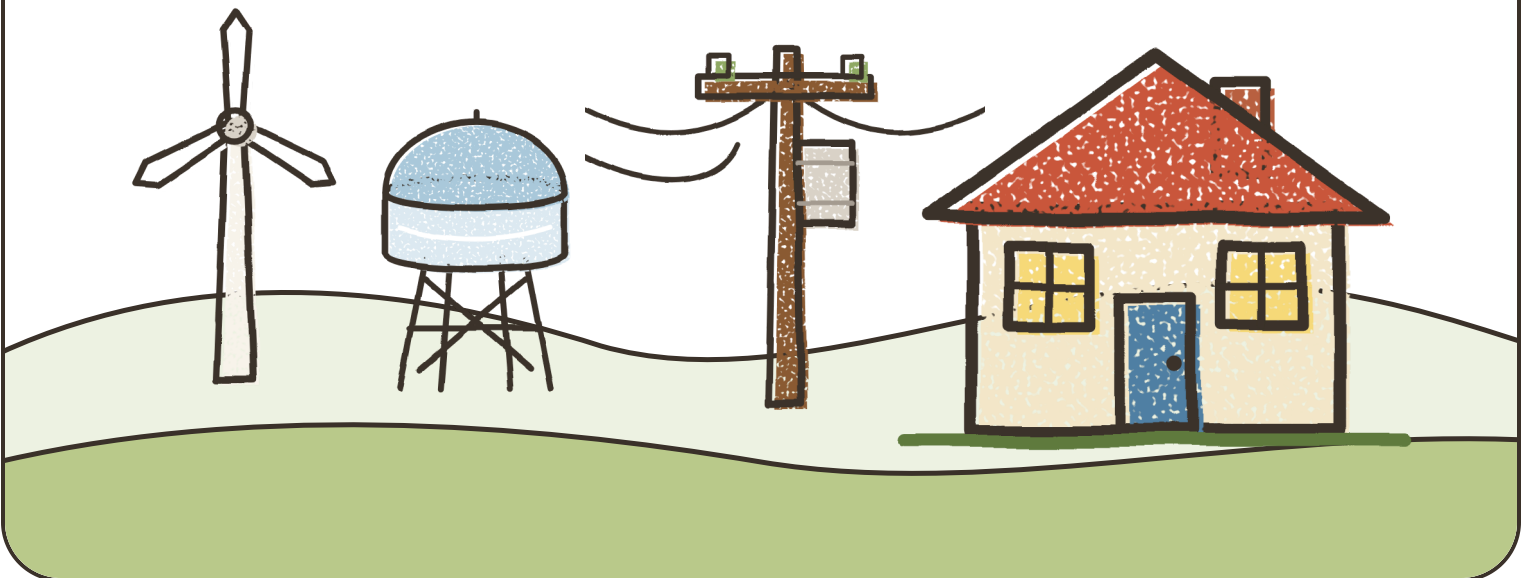


How Our House Works



Five days

We follow the wires, the pipes, and the warm air to find out where the power and water come from, how the heat works, and where it all goes after you flush.



Flip the switch. Turn the tap. Feel the warm air. Flush!

How to use this



Here's how we use these pages at our table. Take what helps and leave the rest.

1 Short lessons work best

Ten to fifteen minutes is about right at this age. Stopping while your child still wants more is what makes them glad to come back tomorrow.

2 Read the books out loud

Hearing good books read aloud builds vocabulary and attention long before kids can read them on their own. Reading a favorite twice is a good thing.

3 Ask them to tell it back

After a story, ask, "What do you remember?" Putting it into their own words helps kids remember it, and a drawing counts too.

4 Their drawings are a record

A child's drawing shows you what they noticed. Instead of fixing it, try asking, "Tell me about your picture." You'll often hear details you missed.

ABOUT THIS UNIT

Kids use power, water, and heat all day without ever seeing where they come from. Each day this week takes one of four questions and follows it back to the start, mostly by looking around your own house and yard. Your child's questions along the way are often the best part of the lesson.

PRINTING

Print the cream parent pages once and the white activity pages for each child. Pick the pages that fit your child. Nobody has to finish every page for the week to be a good one.



Kids this age love knowing how things work. A flashlight and a peek under the sink can be the highlight of the week.

The week at a glance



Here's one way to spread out the week: one question a day.

● FIVE DAYS, ONE IDEA AT A TIME

Day One	Where the power comes from. Read <i>Switch On, Switch Off</i> . Find the wire to the house and the meter.
Day Two	Where the water comes from. Read <i>The Magic School Bus at the Waterworks</i> and peek under the sink.
Day Three	How the heat works. Find the thermostat and a vent. Do the thermostat page.
Day Four	Where it goes after you flush. Read <i>Toilet: How It Works</i> and watch inside the tank.
Day Five	The whole house. Do the house hunt, build a shoebox house, and cook eggs.

● GATHER

- flashlight
- shoebox, straws, yarn, tape
- crayons
- two clear cups
- toilet paper, paper towel
- eggs and a pot

● ADAPT

Not writing yet: your child tells you, and you write a few of their words.

New writers: copy one word or one short line.

Older kids: read the meter each morning, or draw a map of your pipes.

● GROWN-UP JOBS

Outlets are only for plugs, because the power in the walls is strong enough to hurt even though it's quiet. The breaker box, the green box in the yard, the furnace panel, the heavy toilet tank lid, and the boiling pot are grown-up jobs.



The books

Read these out loud in any order. Your library may have others on the same subject, and those work just as well.

1 Switch On, Switch Off

MELVIN BERGER

A clear look at how electricity gets from the power plant to the lamp in your room, from the Let's-Read-and-Find-Out Science series for young kids.

2 The Magic School Bus at the Waterworks

JOANNA COLE AND BRUCE DEGEN

Ms. Frizzle's class rides from a cloud, through the waterworks, and out a faucet. It was the very first Magic School Bus book.

3 Toilet: How It Works

DAVID MACAULAY WITH SHEILA KEENAN

Kids laugh their way through it and come out understanding the tank, the bowl, and the trip to the treatment plant.

4 The Little House

VIRGINIA LEE BURTON

A little country house watches a city grow up around her. It won the Caldecott Medal in 1943 and shows how homes have changed.

● TELL IT BACK

After a reading, close the book and ask, "What do you remember?" One detail, a long retelling, or a drawing are all good answers. Kids remember more when they get to say it themselves.

The poems



One short poem to learn this week and one to enjoy hearing.

● TO LEARN BY HEART

TRADITIONAL NURSERY RHYME

**Jack and Jill went up the hill
To fetch a pail of water;
Jack fell down and broke his
crown,
And Jill came tumbling after.**

Before houses had pipes, families carried every bucket of water home from a well or a spring. “Crown” is the top of your head.

● TO READ ALOUD

ROBERT LOUIS STEVENSON

**My tea is nearly ready and the
sun has left the sky;
It’s time to take the window to
see Leerie going by;
For every night at teatime and
before you take your seat,
With lantern and with ladder
he comes posting up the street.**

This is the first verse of “The Lamplighter” (1885). Before electric streetlights, a lamplighter lit each lamp by hand every evening. “Posting” means hurrying.

● HOW WE LEARN A POEM

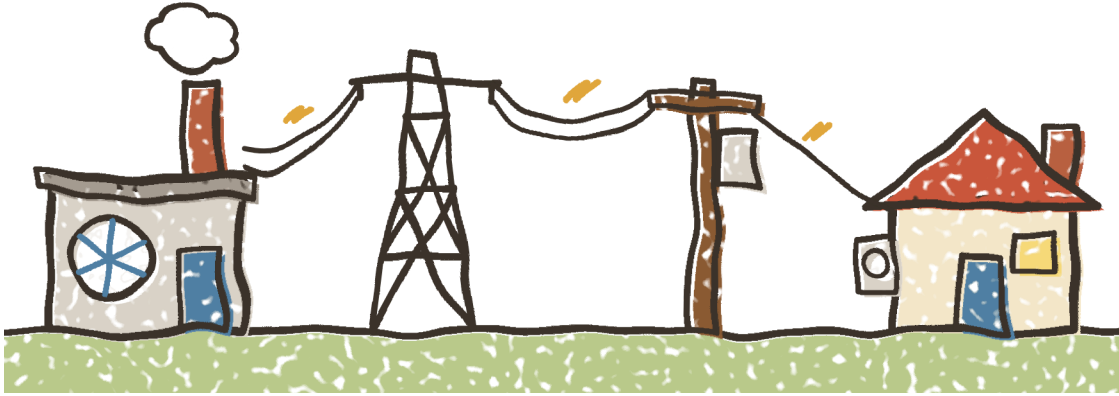
Say the short poem once a day, at the same time, in your normal voice. By Friday many kids can say most of it, because hearing something every day is how memory works at this age. If they want to join in, great.



Act it out! Carry an empty pail up a little hill in the yard, then tumble down onto the grass.



Where does the power come from?



- 1 Power plant**
Makes the electricity.
- 2 Power lines**
Carry it a long way.
- 3 Transformer**
Gets it ready for houses.
- 4 Meter**
Counts what we use.

● FOR THE PARENT TO KNOW

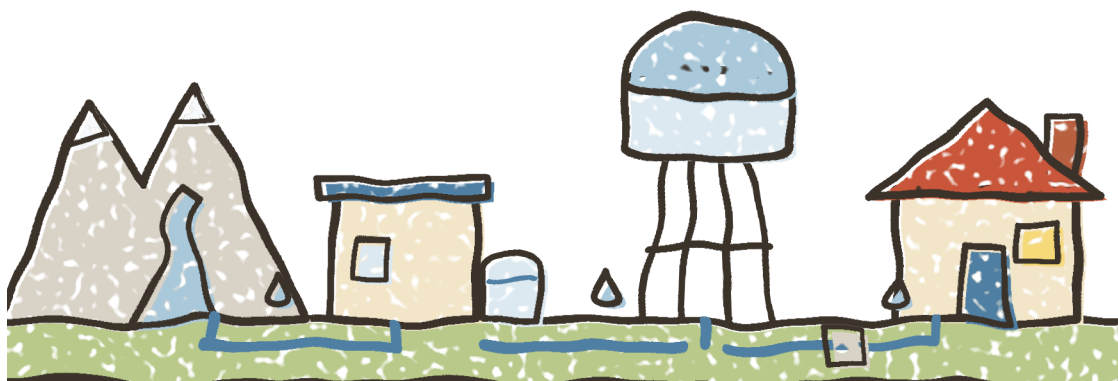
Most electricity is made at a power plant. Some burn natural gas, some use falling water at a dam, and some catch the wind, but each one spins a generator, where magnets turning past coils of wire push electricity along. Power lines carry it to town, and a transformer on a pole or in a green box turns it down to the amount a house can use. The meter counts how much we use, and wires in the walls take it to every outlet and light.

● TRY IT TOGETHER

- 1** Flip a light switch off and on and ask, “Where do you think the light comes from?” Any guess is a great place to start.
- 2** Walk outside and find the wire that comes to your house, or the green box near the street if your lines are underground.
- 3** Find the meter on the outside wall. If it shows numbers, check them again tomorrow. They go up as the house uses power.
- 4** Ask what would stop working if the power went out. Kids think of lights first, so help them find the refrigerator and the furnace fan too.



Where does the water come from?



- 1** **River or well**
Where the water starts.
- 2** **Treatment plant**
Cleans it to drink.
- 3** **Water tower**
Holds it up high.
- 4** **Pipes**
Bring it to the faucet.

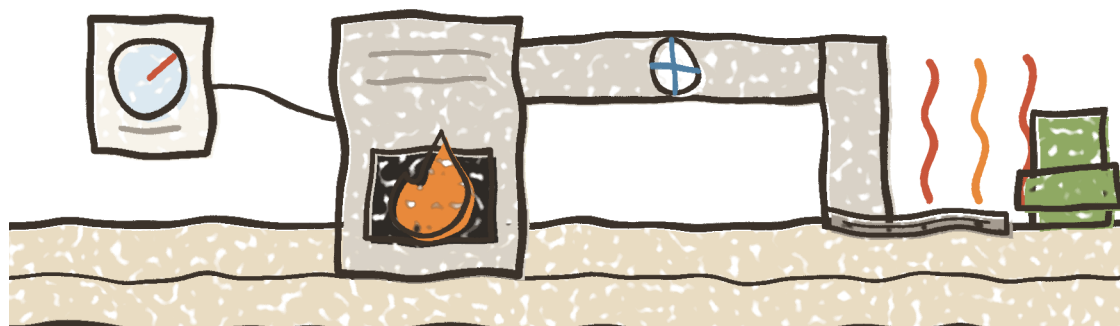
● FOR THE PARENT TO KNOW

Town water usually starts in a river, a lake, or deep underground, where wells pump it up. At a treatment plant it's filtered and cleaned so it's safe to drink. Then it's pumped up into a water tower or a big tank on a hill. Because the water sits up high, its weight pushes it through the pipes under the street, past your water meter, and out the faucet. Many country homes have their own well and pump instead.

● TRY IT TOGETHER

- 1** Turn on a faucet and ask, "Where was this water yesterday?" Any guess is a great place to start.
- 2** Look under the kitchen sink with a flashlight. One pipe brings cold water, and one brings hot water from the water heater, a big tank that keeps it warm.
- 3** Find your water meter. It's often in a box near the street or in the basement. When someone runs water, the dial moves.
- 4** If your town has a water tower, drive by and look up. Kids love knowing that the big tank is what pushes water to their sink.

How does the heat work?



- 1 Thermostat**
Tells the furnace when to start.
- 2 Furnace**
Gets hot and warms the air.
- 3 Fan and ducts**
Push the warm air along.
- 4 Vents**
Let it out into the room.

FOR THE PARENT TO KNOW

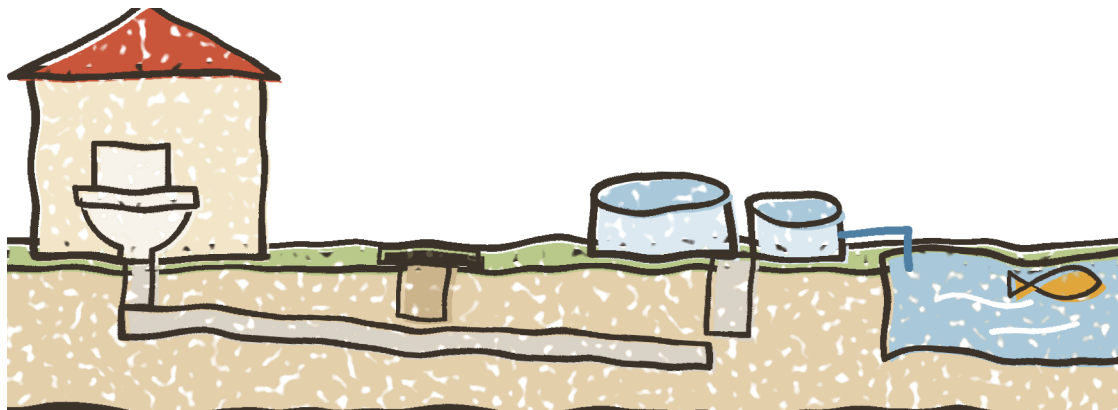
Many houses have a furnace. When the house cools down below the number on the thermostat, the thermostat tells the furnace to turn on. The furnace burns natural gas or uses electricity to get hot, and a big fan blows air past the hot parts. Ducts in the walls and floors carry the warm air to the vents in each room, and bigger vents called cold-air returns pull cool air back to be warmed again. Some homes use a heat pump, radiators, or a woodstove instead.

TRY IT TOGETHER

- 1** Find the thermostat together and read the number. Ask your child what they think will happen if you turn it up a little.
- 2** Turn it up two degrees and listen. Most furnaces click and hum, then start blowing warm air within a few minutes.
- 3** Hold a strip of tissue over a heat vent, then over a cold-air return, the bigger grill. It flutters up over the vent and gets pulled toward the return.
- 4** Talk about why we close doors and wear sweaters when it's cold. Keeping warm air in means the furnace runs less.



Where does it go after you flush?



- 1 Toilet**
Sends it down the drain.
- 2 Sewer pipe**
Carries it under the street.
- 3 Treatment plant**
Tiny living things clean it.
- 4 River**
Clean water goes back.

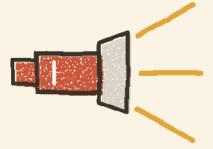
● FOR THE PARENT TO KNOW

The tank holds water. Pushing the handle lifts a rubber flap, and the water rushes into the bowl and carries everything down the drain. Under the house, the drain joins a big sewer pipe under the street, and most of it flows downhill to a treatment plant. There the solids settle out, helpful bacteria eat the waste, and the cleaned water goes back to a river. Many country homes have a septic tank in the yard that does the same job.

● TRY IT TOGETHER

- 1** With a grown-up lifting the heavy lid, look inside the toilet tank. Flush and watch the flap lift and the tank fill back up.
- 2** Talk about the three things that go in a toilet: pee, poop, and toilet paper. Wipes and toys can clog the pipes because they don't fall apart.
- 3** Drop a square of toilet paper in one cup of water and a paper towel in another, and stir. The toilet paper falls apart, and the paper towel stays whole.
- 4** Outside, look for round metal covers in the street. Many are manholes over the sewer pipes, so workers can climb down to fix them.

Activity and craft



One thing to do around the house, and one thing to build at the table.

● THE HOUSE HUNT

You need: a flashlight

- 1 Start at a light switch and ask your child to guess where the wire goes inside the wall.
- 2 With the flashlight, peek under the kitchen and bathroom sinks for the water pipes and the little shutoff handles.
- 3 Find the furnace and the water heater together, and follow the pipes and ducts going in and out.
- 4 Open the breaker box door and read a few of the labels.

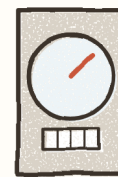
Kids walk past these things every day. Seeing where each pipe and wire goes helps them understand the house as one connected whole, and it builds the habit of asking how things work.

● BUILD A SHOEBOX HOUSE

You need: a shoebox, straws, yarn, tape, and crayons

- 1 Stand the shoebox on its side and draw a line across the middle for an upstairs.
- 2 Draw a bathroom, a kitchen, a furnace, and a light in the rooms.
- 3 Tape straws from the sink and toilet down to the bottom. Those are the water pipes and the drain.
- 4 Tape yarn from outside the box to each light. That's the wire bringing in the power.

Building it shows that a house is full of hidden paths. Cutting and taping is also great practice for small hand muscles.



Spend some time outside observing nature

Walk around the outside of your house with a grown-up. Check each one you find, then draw it.

✓	I FOUND	DRAW IT
☐	The electric meter	
☐	The power wire or green box	
☐	An outside faucet	
☐	The furnace vent or chimney	
☐	A pipe sticking up from the roof	
☐	A storm drain in the street	

● SOMETHING GROWING OR LIVING NEAR OUR HOUSE

Water comes in pipes



Pick one line. Trace the gray letters, then write it on the line below. Practice makes progress.

● BEGINNING WRITER: ONE WORD

pipe

● GROWING WRITER: ONE LINE

Water comes in pipes.

● OLDER CHILD: FROM THE POEM

Jack and Jill went up the hill

● DRAW WHAT YOU NOTICED



Count the house

Walk through the kitchen and one more room with a grown-up.
Make a tally mark each time you find one.

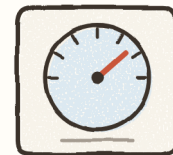
WHAT I FOUND	TALLY MARKS	HOW MANY?
 Lights		
 Faucets		
 Outlets		
 Heat vents		

 COLOR ONE BOX FOR EACH ONE YOU FOUND

12				
11				
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				
	LIGHTS	FAUCETS	OUTLETS	HEAT VENTS

Which did you find the most of? _____

Which did you find the fewest of? _____

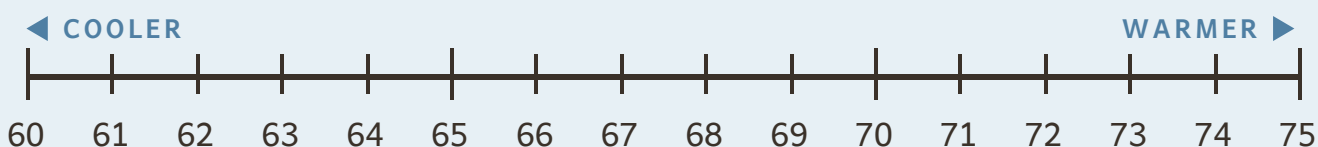


Warmer or cooler?

The thermostat number tells the furnace how warm to keep the house. A bigger number means warmer.

● THE NUMBER LINE

Our thermostat says _____ °F. Circle it on the number line.



● WHICH IS WARMER?

68	or	72
70	or	65
71	or	74

● UP AND DOWN

1. It's 68. Turn it up 2. Now it's _____
2. It's 70. Turn it down 3. Now it's _____
3. Which is warmer, 66 or 69? _____

● DRAW YOUR THERMOSTAT

Inside our house

Color the house. Can you find the light, the faucet, the furnace, and the toilet? Trace the pipes with blue.



Date _____ I noticed _____

From the river to the faucet

Follow the water from the mountain to the house. Color the river, the water tower, and the pipe.



Date _____ I noticed _____



A devotion for the week

Read one verse a day at breakfast. The quotes are from the New King James Version, so use your own family Bible if you like.

● TO LEARN BY HEART · JOSHUA 24:15

“But as for me and my house, we will serve the LORD.”

● ONE VERSE A DAY

Day One

John 8:12

“I am the light of the world.”

Jesus is like a light that shows us the way.

Thank you God for light,

Day Two

John 4:14

“Whoever drinks of the water that I shall give him will never thirst.”

Jesus gives us what we need, like fresh water every day.

Thank you God for clean water,

Day Three

Ecclesiastes
4:11

“If two lie down together, they will keep warm.”

God gave us families to keep each other warm and cared for.

Thank you God for a warm home,

Day Four

Psalms 51:10

“Create in me a clean heart, O God.”

When we say sorry, God makes our hearts clean.

Thank you God for forgiving us,

Day Five

Matthew 7:24

“A wise man who built his house on the rock.”

A house needs a strong rock to stand on, and so do we.

Thank you God for our house,

● OUR OWN THANK-YOU

Thank you God for _____,

Boiled eggs



Water from the faucet and heat from the stove, two things we learned about this week, together in one pot.

● YOU NEED

- 4 eggs
- cold water from the faucet
- a pot with a lid
- a bowl of ice water
- a pinch of salt

● HOW

- 1 Set the eggs in the pot and cover them with cold water, about an inch over the tops.
- 2 Bring the water to a boil on the stove.
- 3 Turn off the heat and put on the lid. Wait about 10 minutes for firm yolks, or 6 for soft ones.
- 4 Spoon the eggs into the ice water and let them cool for a few minutes.
- 5 Tap, peel, and sprinkle with a little salt.

● THE CHILD'S JOB

Setting the eggs in the pot, running the cold water, watching the timer, and peeling.

● THE GROWN-UP'S JOB

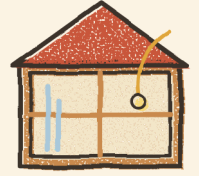
Everything at the stove. Boiling water and steam can burn, so the grown-up carries the pot and moves the hot eggs.

● THE SCIENCE IN THE BOWL

Heat changes the egg. The clear, runny white turns solid because heat makes tiny strands inside it tangle together, and they can't untangle again. The ice water stops the cooking and makes the shells easier to peel.

If they want more

Ideas for kids who want to keep going after Friday.



● MORE TO TRY

Read the meter for a week. Write down the electric meter numbers each morning. Which day did your family use the most?

Where does the rain go?. After a rain, watch the water run along the curb to a storm drain. Storm drains usually carry water straight to a creek or river, which is why we keep trash out of them.

Then and now. Look at pictures of an outhouse, a well with a pail, and an oil lamp, and talk about how families did each job before pipes and wires.

Go see it. Some towns offer family tours of the water treatment plant or a dam. It's worth a phone call to ask.

One job to save. Pick one job for the week, like turning off lights in empty rooms or the faucet while brushing teeth.

● FUN FACT

Since 1994, new toilets in the United States use no more than 1.6 gallons for each flush. Older ones often used 3 gallons or more.

● WORDS FOR THE WEEK

electricity, outlet, meter, faucet, pipe, furnace, thermostat, vent, sewer, treatment plant

● BEFORE YOU START

Find the thermostat, the water meter, and the breaker box before Monday, so you know where they are when your child asks.

● FOR YOUR FAMILY

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