

Five days of everyday-machine thinking

A ready-to-run program for ages 9-13. About 15 minutes per day, led by a teacher, librarian, homeschool educator or family adult. No book purchase, coding, child account or special equipment required.

Preparation

Read each day's reference and timing before the session. Bring paper and pencils. Print page 7 for each learner or pair and page 8 for families. Page 9 is a reusable announcement poster: write in only your event details. Slides are available at howyourhousethinks.com/week.

Safety boundary

Use paper, diagrams and external observation only. Do not open, modify, obstruct or test appliances or safety equipment. Do not change settings, interrupt power or networks, or touch hot, sharp, powered or pressurized parts. Imagine every failure on paper.

Five connected sessions

- Day 1: the refrigerator and its useful job.
- Day 2: the lamp and a fixed rule.
- Day 3: the fan and a possible prediction.
- Day 4: the information a design needs.
- Day 5: a reasoned decision and human control.

Participation and reuse

Offer a scribe or spoken explanation when helpful. Work in pairs or alone. An adult may read the questions aloud. Print and share this unchanged pack for noncommercial education with attribution and safety guidance intact. You may fill in the poster's event details. No endorsement, book reproduction or author appearance is implied.

Original companion material to *How Your House Thinks* by James T. Intended practice goals, not classroom-tested research or a standards certification. Source for refrigeration: U.S. Department of Energy, Heat Pump Systems.

Day 1: Notice the useful job

Read together

A refrigerator keeps food cool by moving heat from its cabinet to the room. Electricity powers that process. Insulation helps slow heat entering again.

15-minute plan

0-3 min: State the safety boundaries. Read the explanation aloud. Ask what job the machine does for a person.

3-10 min: Learners draw the cabinet and room as labeled boxes, then describe heat moving out. Mark one fact from the explanation and one question.

10-15 min: Compare drawings. Ask which words explain a process rather than simply saying "smart."

Facilitator reference

Expected starting point: energy enters the cooling system and heat leaves the cabinet. Accept questions about hidden parts. Use the explanation above as a source, never as an invitation to inspect machinery.

Closing question

What is one thing you can explain and one thing you still need to check?

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Optional supporting resources: howyourhousethinks.com/learn. All activities work without a screen.

Day 2: Trace a reading lamp

Read together

A lamp converts electrical energy into light and heat. A switch controls whether it is on. A timer can follow a chosen schedule without needing AI.

15-minute plan

0-3 min: Recall yesterday's useful-job question.

3-10 min: Draw a lamp on paper. Label electricity as an input and light as a useful output. Compare a person using the switch with a timer.

10-15 min: Imagine a changed reading schedule. Discuss which option is easier to change and why.

Facilitator reference

A manual switch needs a person to act. A timer follows its setting even when the routine changes. Neither description needs names, conversations or a household recording. Keep the task on paper.

Closing question

When could a timer be inconvenient? How could a person choose differently?

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Day 3: Explain a fan decision

Read together

A fan uses a motor to turn blades and move air. People can disagree about a comfortable speed. Temperature alone cannot decide everyone's preference.

15-minute plan

0-3 min: Read the fan explanation. Do not use a working fan.

3-10 min: Compare a person selecting speed, a fixed temperature threshold selecting a preset speed, and a prediction based on earlier choices.

10-15 min: Imagine two people sharing the room. Choose a design to investigate and identify its uncertainty.

Facilitator reference

An AI prediction could help with repeated preferences but still be wrong. A fixed rule can also be inconvenient. Learners should explain a possible benefit and a clear override rather than assume one approach always wins.

Closing question

What would your design do when the two people disagree?

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Day 4: Imagine with less data

Read together

Return to the refrigerator door-reminder idea. A switch and timer can use door state and elapsed time. Personal recordings do not help that narrow rule.

15-minute plan

0-3 min: State the reminder's one useful job.

3-10 min: Make paper cards labeled door state, elapsed time, name, address, kitchen recording and school timetable. Do not write any real personal information. Sort into needed, not needed and uncertain.

10-15 min: Explain each needed card. Ask whether a reading needs to be kept as a history.

Facilitator reference

For the simple rule, door state and elapsed time describe its trigger. Other designs must justify their own inputs. Never collect the information during this activity. A proposal is not a claim about a real product.

Closing question

Which piece of information did you leave out, and why?

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Day 5: Question and choose

Read together

A design decision includes a useful job, an understandable approach, necessary information and a plan for mistakes. A simpler tool can be a good choice.

15-minute plan

0-3 min: Select one of the three machines.

3-10 min: Complete the decision sheet on page 7. Imagine one wrong reading. Compare alternatives and choose a person-controlled design, a fixed rule or an AI proposal.

10-15 min: Explain the decision to a partner. Take home page 8. Optional: an adult can open the five-minute web challenge, but the paper session is complete without it.

Facilitator reference

Listen for reasons rather than a preferred answer. Ask learners to explain uncertainty, a possible failure and an effective human control. This activity is not a validated assessment or proof of learning gains.

Closing question

My design uses ____ because _____. If it is wrong, a person can _____.

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My machine design decision

Choose a refrigerator reminder, reading lamp or fan-speed idea. Use fictional information only.

Machine and useful job	
What enters, changes and leaves?	
Person-controlled option	
Fixed-rule option	
Possible AI benefit and uncertainty	
Minimum information needed	
An imagined failure and human control	

My choice: _____

My reason: _____

One question still to investigate: _____

Design on paper only. Do not modify or experiment with appliances.

What does your house do before it becomes “smart”?

This week we used familiar machines to discuss how systems work and how people can decide whether a new feature is useful. You can continue the conversation in ten minutes with paper and a pencil.

One family conversation

Choose a familiar machine or use the refrigerator example. Ask what useful job it does. Draw what goes in, what changes and what comes out. Separate facts from questions. Compare a person-controlled improvement, a fixed rule and a possible AI feature.

Questions worth keeping

What is the smallest understandable tool that solves the problem?

What information can we leave out?

How could the idea be wrong?

Who can refuse, correct or stop it?

Safe, private and optional

Use paper, diagrams and external observation only. Do not open, modify, obstruct or test appliances or safety equipment. Do not change settings, interrupt power or networks, or touch hot, sharp, powered or pressurized parts. Imagine every failure on paper.

No AI account is needed. If an adult chooses to use an appropriate AI service, use fictional examples only and check explanations against reliable sources. Never upload real faces, voices, addresses, schedules, school details, passwords or household recordings.

Free resources and the book

Interactive challenge: howyourhousethinks.com/challenge

Recursos gratuitos en español: howyourhousethinks.com/es

Book information: howyourhousethinks.com

How Your House Thinks by James T. explores 25 everyday machines for ages 9-13. The book is in English. The free activities do not require a purchase.

House Thinks Week

**One everyday machine.
One useful question.
Five short sessions.**

Paper and pencils are enough. An adult leads the activities. No coding, account or book purchase needed.

Hosted by: _____

Dates / times: _____

Place / joining details: _____

Program and free resources

howyourhousethinks.com/week

Based on How Your House Thinks by James T. Local hosts organize their own sessions. No author appearance or endorsement is implied. Keep activities on paper; do not alter appliances.