Build a Paper Thermostat

Paper Model Board + Request Cards

New companion activity: use fictional readings and paper cards. The thermostat compares a reading with a target and selects a request. It does not make heat or cold air.

Fictional Thermostat Paper Model

TEACHING MODEL — NOT A REAL SETTING

TARGET

72°F

A fictional target chosen for teaching.

READING CARD GOES HERE

REQUEST CARD GOES HERE

PLACE ONE CARD

Use the model: 1. Put down one READING card. 2. Compare it with TARGET 72°F. 3. Place the REQUEST card that matches the paper rule.

CUT CARD

H HEAT REQUEST

In this model: the reading is **below 72°F**.

CUT CARD

C COOL REQUEST

In this model: the reading is **above 72°F**.

CUT CARD

II NO HEAT OR COOL REQUEST

In this model: the reading is **exactly 72°F**.

Paper Model Rules

- The READING is information to compare; it does not change the TARGET.
- Below 72°F → HEAT REQUEST. Exactly 72°F → NO HEAT OR COOL REQUEST. Above 72°F → COOL REQUEST.
- A request is a paper-model decision, not a temperature recommendation or real-device instruction.
- A thermostat compares temperatures and requests heating or cooling; it does not create heat or cold air.
- °F means degrees Fahrenheit, a temperature unit.





Read → Compare → Choose. Keep the target in place. Change only the paper reading and request cards.

Materials: printed pages, pencil; adult scissors optional

PAPER COMFORT ACTIVITY

Reusable Reading Cards + Decision Flow

Use with the Paper Model Board on learner page 1.

Cutting is optional: an adult may cut on the dashed lines, or a pair can point to and use the whole page. These are fictional classroom readings, not a recommendation for any room.

CUT CARD · READING
68°F
Compare with 72°F target

CUT CARD · READING
70°F
Compare with 72°F target

CUT CARD · READING
71°F
Compare with 72°F target

CUT CARD · READING
72°F
Compare with 72°F target

CUT CARD · READING
73°F
Compare with 72°F target

CUT CARD · READING
76°F
Compare with 72°F target

Read → Compare → Request

1. READ
Choose one card. Its number is the **READING**.

→

2. COMPARE
Look at the reading beside the fixed fictional **TARGET 72°F**.

→

3. REQUEST
Choose a paper request card: HEAT, COOL, or NO HEAT OR COOL REQUEST.

BELOW 72°F	EXACTLY 72°F	ABOVE 72°F
H HEAT REQUEST	II NO HEAT OR COOL REQUEST	C COOL REQUEST

PAPER MODEL ONLY: You may move cards on paper. Do not adjust a real thermostat, touch equipment, or use real wiring.

PAPER COMFORT ACTIVITY

Explorer · Ages 7–9: Compare the Pictures

No subtraction needed. Look, compare, then circle a request card.

OUR FICTIONAL TARGET

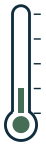
72°F

Keep this TARGET the same for all three picture pairs.

Circle one icon card each time:

H · HEAT | **C · COOL** | **⏸ · PAUSE / NO REQUEST**

1. Compare the pictures. Choose a request.

READING  **68°F** ↔ TARGET  **72°F**

Compare: ◯COOLER ◯WARMER ◯SAME Request: ◯**H HEAT** ◯**C COOL** ◯**⏸ PAUSE / NO REQUEST**

2. Try the next reading. Choose a request.

READING  **76°F** ↔ TARGET  **72°F**

Compare: ◯COOLER ◯WARMER ◯SAME Request: ◯**H HEAT** ◯**C COOL** ◯**⏸ PAUSE / NO REQUEST**

3. Do the pictures match? Choose a request.

READING  **72°F** ↔ TARGET  **72°F**

Compare: ◯COOLER ◯WARMER ◯SAME Request: ◯**H HEAT** ◯**C COOL** ◯**⏸ PAUSE / NO REQUEST**

Use the printed cards only. This activity is not a direction to change a real thermostat.

PAPER COMFORT ACTIVITY

Builder · Ages 10–12: Predict & Compare

Use the fictional TARGET 72°F paper rule. A prediction is not real-device advice.

1. First reading

TARGET 72°F. The fictional READING is 76°F. Which request matches the paper rule?

- ◯ **H · HEAT REQUEST**
- ◯ **C · COOL REQUEST**
- ◯ **Ⅱ · NO HEAT OR COOL REQUEST**

2. New reading

Now the READING changes to 72°F. Keep the TARGET at 72°F. Which request matches now?

- ◯ **H · HEAT REQUEST**
- ◯ **C · COOL REQUEST**
- ◯ **Ⅱ · NO HEAT OR COOL REQUEST**

Important: A new READING does not change the TARGET. In this paper model, the target card stays at 72°F.

3. Sort these reading cards using the printed rule.

READING	Compare with TARGET 72°F	REQUEST (H, C, or Ⅱ)
70°F	below / above / exact: _____	_____
72°F	below / above / exact: _____	_____
76°F	below / above / exact: _____	_____

4. Explain in your own words: A thermostat request in this paper model does not create heat or cooling. It only _____.

_____

Printed rule: Below 72°F → HEAT request. Exactly 72°F → NO HEAT OR COOL request. Above 72°F → COOL request. This is a classroom paper model only.

PAPER COMFORT ACTIVITY

Technician · Ages 13–14: Follow the Evidence

Use the rule to compare readings and spot one mismatched request.

PAPER REQUEST RULE — target is 72°F

HEAT	NO REQUEST	COOL
if READING is ≤ 71°F	if READING is exactly 72°F	if READING is ≥ 73°F

Scope: sort only the five cards below. This rule is for paper cards only. It does not model real equipment controls or timers.

1. Apply the paper rule.

READING	REQUEST	Distance from 72°F (optional)
70°F	_____	_____°
71°F	_____	_____°
72°F	_____	_____°
73°F	_____	_____°
76°F	_____	_____°

Optional math

You may skip this column. To try it, count how many degrees the READING is from 72.

Example: 71 is 1 degree away from 72.

Use no real thermostat. Paper cards and pencil only.

2. Spot a mismatch — model only

READING 72°F | REQUEST COOL

Does the COOL card match the paper rule? ◯YES ◯NO

Choose the matching paper request: ◯H HEAT ◯C COOL ◯Ⅱ NO REQUEST

Why? Write the rule reason: _____

This mismatch is a paper-model sorting check only—not a fault diagnosis, maintenance instruction, or engineering advice.