Fog-Bell Signal

HOST ONLY - preparation and story

Includes answers. Keep these pages and all hint pages with the adult host.

Welcome to the paper lighthouse. The training cards give pairs of meanings in mixed order; shared signals reveal the missing legend. Your team has the original records on the table. First recover five pieces of information, then use the final plan to configure the fog-bell panel. Keep every result beside its badge so another teammate can check your reasoning.

1. Print the six player sheets and two record sheets for each team. Keep answers and hints with the host.

2. Lay out Unlabelled legend, Bell log, the remaining clue sheets and the final plan. All task records are printed inside the sheets; no extra prop is needed.

3. After each clue, pass roles one seat clockwise. With two players, combine Reader with Recorder and Checker with Builder. With five or six, add a second checker and a source finder; everyone explains one decision.

4 players; 1 team. Give each team 6 player sheets and 2 record sheets. Share one host guide and one set of three hint levels.

Paper and pencils are enough. Keep whole sheets at one table; nothing needs cutting, folding or hiding.

Optional: 4 invitations or certificates, only if selected.

Fog-Bell Signal

HOST ONLY - solution guide

1. Signal: REST-WAIT

A consistent one-to-one mapping satisfies every training example. Use the complete mapping to read the two-signal message in order. Result: REST-WAIT.

2. Record: RING

Check source status first, then join the matching tag and bay. The useful information comes from separate records, not their printed row order. Result: RING.

3. Path: S-A-C-F

Discard closed roads and paths missing A. Add the costs of every remaining edge; the lowest eligible total determines the whole route. Result: S-A-C-F.

4. Order: C

The before relationships connect all four events. Place linked cards, check any immediate handoff and then read the specified position. Result: C.

5. Habitat: HOOD

Compare all printed features with every positive and negative requirement. Reject each near match using the particular requirement it fails. Result: HOOD.

6. Final: A2-B0-C1-D2-E2

Select one pulse card for each of the five badge results. Add the turns by dial column to the printed starting states and wrap each total around 0, 1, 2. The checked configuration is A2-B0-C1-D2-E2; each pulse pair has equal size and total turns, so its shape does not identify the correct choice.

Fog-Bell Signal

HOST ONLY - timeline, story and ending

3 minutes: Read the opening. Show the evidence record and choose starting roles.

5 minutes: Solve Signal. Offer one hint at a time and rotate roles after checking.

5 minutes: Solve Record. Offer one hint at a time and rotate roles after checking.

5 minutes: Solve Path. Offer one hint at a time and rotate roles after checking.

5 minutes: Solve Order. Offer one hint at a time and rotate roles after checking.

5 minutes: Solve Habitat. Offer one hint at a time and rotate roles after checking.

7 minutes: Build the checked five-dial configuration using all five results.

3 minutes: Read the ending. Ask each teammate to explain one rejected alternative.

After Record: Several recovered pulses may affect the same dial. Keep the legend and the starting positions visible. Pass the record sheet to a new checker before opening the next clue.

After Order: Four results are recorded. Each teammate points to a source supporting one result. Complete the fifth check before building the checked five-dial configuration.

Check every result using the solution guide. Offer the next hint only when requested; save the answer reveal until the group is ready.

The panel is ready at A2-B0-C1-D2-E2; every recorded pulse has been applied. Thank each teammate for a different piece of reasoning.

Explain one tempting wrong choice and the evidence that ruled it out. Show how each of the five results affected the checked five-dial configuration. If a clue is missing, say what remains uncertain before reopening that sheet.

Duration and ages are estimates. Adjust the pace and offer help for your group.

Fog-Bell Signal

Player clue 1: Signal | Team 1

The training cards give pairs of meanings in mixed order; shared signals reveal the missing legend. We will use the records on the table to configure the fog-bell panel. Share the reading, explain each choice and keep the five results for the final plan.

Each signal means one different word. Use the training examples to recover the legend. Words marked "any order" may be swapped; compare shared signals across cards. Decode the received message from left to right. The desk uses this message when handling the fog-bell panel.

Unlabelled legend

Signals: DOT, BAR, ARC, RING. Words: WAIT, SEND, TURN, REST.

Each signal has one word; each word is used once.

Training messages

DOT+BAR means SEND+WAIT (any order)

BAR+ARC means TURN+SEND (any order)

ARC+RING means REST+TURN (any order)

Received message

RING > DOT

Report decoded words in order, with hyphens.

Signal result: _____

Fog-Bell Signal

Player clue 2: Record | Team 1

Use the bell log and beacon book to follow the completed record. Match printed keys, then report the requested field. A planned or cancelled entry cannot prove a move.

Bell log
item: Bell | tag: PINE | status: draft
item: Flag | tag: WAVE | status: checked
item: Lens | tag: STAR | status: cancelled
Beacon book
tag: STAR | bay: NORTH
tag: PINE | bay: EAST
tag: WAVE | bay: WEST
Keeper note
bay: WEST | seal: RING
bay: NORTH | seal: KITE
bay: EAST | seal: LEAF
Cross-check
Match A.tag to B.tag.
Match B.bay to C.bay.
A.status is checked.
Report C.seal.

Record result: _____

Fog-Bell Signal

Player clue 3: Path | Team 1

Trace a legal supply journey from S to F. The map's arrows are one-way roads. Visit every required stop, stay inside the travel budget and use the cheapest complete journey. Report all stop letters.

Travel map (one way)

S=Start; A=Bell; B=Flag; C=Lens; F=Delivery

S > A: 2 units

S > B: 1 units

A > C: 2 units

B > C: 2 units

C > F: 2 units

B > F: 2 units

A > F: 7 units

Journey rules

Start S; finish F; limit 7 units.

Visit A. Use the least total cost.

Write every stop in order, with hyphens.

Path result: _____

Fog-Bell Signal

Player clue 4: Order | Team 1

Arrange the four event cards using every witness note. "Immediately before" means there is no event between them. Report the requested position after the whole order has been checked.

Event cards

A: Read flag

B: Check tower

C: Test bell

D: Light beacon

Witness notes

A is before C.

D is before A.

B is before D.

Report the event ID in position 4.

Order result: _____

Fog-Bell Signal

Player clue 5: Habitat | Team 1

The keeper recorded three features of a replacement lens. Compare the cards and identify the complete match before setting the beacon panel.

Beacon lens cards

CLEAR: rim=round; shade=none; base=wide

HOOD: rim=round; shade=hood; base=wide

NARROW: rim=round; shade=hood; base=narrow

SQUARE: rim=square; shade=hood; base=wide

Required features

rim must be round.

shade must be hood.

base must not be narrow.

Report the one matching card ID.

Habitat result: _____

Fog-Bell Signal

Player clue 6: Final | Team 1

Use the five results to select five pulse cards. Start at the recorded dial states. Add all selected turns for each dial and follow its loop: 0, 1, 2, then 0 again. Report the final state of dials A through E.

Use your results from: Signal, Record, Path, Order, Habitat.

Control panel

Dial order: A, B, C, D, E. States: 0 > 1 > 2 (loop).

Start: A0 / B1 / C2 / D0 / E1.

Pulse cards (turns in dial order)

Signal: WAIT-SEND=(1,2,0,0,0); REST-WAIT=(2,1,0,0,0)

Record: RING=(0,1,0,2,0); KITE=(0,2,0,1,0)

Path: S-A-F=(0,0,1,2,0); S-A-C-F=(0,0,2,1,0)

Order: C=(1,0,0,2,0); A=(2,0,0,1,0)

Habitat: CLEAR=(1,0,0,0,2); HOOD=(2,0,0,0,1)

Setting rule

Add every chosen pulse. Move around each dial loop.

Report dial ID + state, in order, with hyphens.

Final result: _____

Ask your host to check your final result and read the ending.

Fog-Bell Signal

Hint level 1 - HOST ONLY

1. Signal

Look at the training cards that share one signal.

2. Record

Start with the status field in Bell log.

3. Path

Find S, F, the required-stop list and any CLOSED edge.

4. Order

Read the event letters and all three witness notes.

5. Habitat

Read the beacon lens cards and the requirements.

6. Final

Find the starting states, dial order and pulse-card key.

Fog-Bell Signal

Hint level 2 - HOST ONLY

1. Signal

In an unordered pair, a word cannot be assigned by its left/right position. Use the overlap with another pair.

2. Record

The tag links an item to a bay; rows in separate records need not line up.

3. Path

A cheap shortcut is not a complete journey if it skips a required stop.

4. Order

Join immediately-before pairs as a block; other before notes set the direction between blocks.

5. Habitat

Compare the same named feature across cards; check negative requirements as carefully as positive ones.

6. Final

Each selected vector lists turns for every dial. Several different cards can affect the same dial.

Fog-Bell Signal

Hint level 3 - HOST ONLY

1. Signal

Give each signal a different word, check every training example and only then decode the received message in its printed order.

2. Record

Keep only entries meeting every status test. Follow each printed join to the report field; do not guess from row position.

3. Path

List the legal complete paths, add their edge costs and compare only paths that meet every condition.

4. Order

Try the remaining positions, then check every note against your full order before reading the requested position.

5. Habitat

Keep a card only if it passes every requirement. Point to the failing feature before crossing out each alternative.

6. Final

Add one dial column at a time to its starting state, wrap around the three-state loop, then check that all five pulse cards were used.

Fog-Bell Signal

Team 1 result record

Write the complete result from each clue. Results can be words, routes, orders, settings or numbers.

Signal: _____

Record: _____

Path: _____

Order: _____

Habitat: _____

Keep this record beside the final clue. Copy results exactly, including any leading zero.

Reader / Recorder / Evidence checker / Route or model builder

After each clue, pass roles one seat clockwise. With two players, combine Reader with Recorder and Checker with Builder. With five or six, add a second checker and a source finder; everyone explains one decision.

Fog-Bell Signal

Team 1 final result and celebration

Our final challenge: Final

We combined our earlier clues to decide:

_____

_____

We know it works because:

_____

_____

Host: compare the result with your solution guide. Read the ending when it matches, then let the team explain one discovery.

No physical lock or prize is required. Draw a celebration star here if you like.

Fog-Bell Signal

You're invited to a mystery!

Join Birthday Explorer for Fog-Bell Signal.

The training cards give pairs of meanings in mixed order; shared signals reveal the missing legend. Work together to configure the fog-bell panel.

Date: _____

Time: _____

Place: _____

Bring your curiosity. Paper and pencils are provided. Share ideas and solve six clues together.

Designed for ages 8-10. Estimated 35-50 minutes.

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Fog-Bell Signal

Mystery Explorer

Presented to Birthday Explorer

Team member: _____

For completing Fog-Bell Signal with curiosity, teamwork and kindness.

The panel is ready at A2-B0-C1-D2-E2; every recorded pulse has been applied. Thank each teammate for a different piece of reasoning.

Date: _____

Host signature: _____

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