Rooftop Shuttle Route

HOST ONLY - preparation and story

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

Welcome to the rooftop shuttle station. The shuttle route must visit a charger before it reaches the roof where the boxes are needed. Your team has the original records on the table. First recover five pieces of information, then use the final plan to plan the rooftop supply route. 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 Travel map (one way), Event cards, 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.

Rooftop Shuttle Route

HOST ONLY - solution guide

1. Path: S-L-C-B-F

Visit C and L without using a closed edge. Eligible journeys within 9 units: S-L-C-B-F costs 4; S-C-B-L-F costs 7. The least-cost result is S-L-C-B-F.

2. Window: T

Add job time and travel time to each printed start. Compare the sum with both that window's end and the deadline, then reject early starts. Result: T.

3. Signal: WAIT-TURN

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

4. Record: NORTH

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

5. Food: LIFT

Start with listed stock. Follow the printed dependencies until no new component becomes available; a circular dependency cannot create its first input. Result: LIFT.

6. Final: B-C-F-G-K

Recover all five loads. The cheaper road works for a small load; a large load needs the higher-capacity road. The resulting five-leg route records every necessary decision. Checked result: B-C-F-G-K.

Rooftop Shuttle Route

HOST ONLY - timeline, story and ending

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

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

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

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 Food. Offer one hint at a time and rotate roles after checking.

7 minutes: Build the five-leg delivery route using all five results.

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

After Window: A cheap road can still fail a load limit or miss a required stop. Keep cost and capacity as separate checks. Pass the record sheet to a new checker before opening the next clue.

After Record: Four results are recorded. Each teammate points to a source supporting one result. Complete the fifth check before building the five-leg delivery route.

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

The delivery follows route B-C-F-G-K; every road can carry its assigned load. 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 five-leg delivery route. 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.

Rooftop Shuttle Route

Player clue 1: Path | Team 1

The shuttle route must visit a charger before it reaches the roof where the boxes are needed. We will use the records on the table to plan the rooftop supply route. Share the reading, explain each choice and keep the five results for the final plan.

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=Loading roof; C=Charger; L=Cargo lift; B=Balcony; F=Receiving roof
S > C: 2 units
S > L: 1 units
C > B: 1 units
B > L: 2 units
C > L: 6 units
L > F: 2 units
B > F: 1 units
L > C: 1 units
Journey rules
Start S; finish F; limit 9 units.
Visit C, L. Use the least total cost.
Write every stop in order, with hyphens.

Path result: _____

Rooftop Shuttle Route

Player clue 2: Window | Team 1

The shuttle log mixes two immediate handoffs with longer before notes. Reconstruct all five jobs and report the requested position only after checking each note.

Event cards

C: Charge shuttle

L: Load box

H: Close hatch

T: Test lift

F: Fly to roof

Witness notes

C is before L.

L is immediately before H.

H is before T.

T is immediately before F.

Report the event ID in position 4.

Window result: _____

Rooftop Shuttle Route

Player clue 3: Signal | Team 1

Recover the complete desk-signal legend from the training cards. Compare which signals and words appear together across the cards; word order on a card is not a clue. Decode the received message in order. The desk uses this message when handling the rooftop supply boxes.

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 means SEND (any order)

BAR+ARC means TURN+REST (any order)

ARC+RING means REST+WAIT (any order)

Received message

RING > BAR

Report decoded words in order, with hyphens.

Signal result: _____

Rooftop Shuttle Route

Player clue 4: Record | Team 1

Use the roof requests and lift ledger to follow the completed record. Match printed keys, then report the requested field. A planned or cancelled entry cannot prove a move.

Roof requests

item: Lift | tag: PINE | status: cancelled

item: Roof | tag: WAVE | status: draft

item: Pad | tag: STAR | status: checked

Lift ledger

tag: STAR | bay: NORTH

tag: PINE | bay: EAST

tag: WAVE | bay: WEST

Cross-check

Match A.tag to B.tag.

A.status is checked.

Report B.bay.

Record result: _____

Rooftop Shuttle Route

Player clue 5: Food | Team 1

Use the stock and dependency cards to find which transfer system can run now. Follow each chain from an available part. A pair of systems waiting for each other is still unavailable.

Shuttle readiness dependencies

POWER needs CELL

HATCH needs KEY

LIFT needs POWER AND HATCH

WINCH needs POWER AND ROPE

ROPE needs WINCH

Starting conditions

Available now: CELL, KEY.

A result becomes available when its needs are met.

Which of LIFT, WINCH, ROPE becomes available?

Food result: _____

Rooftop Shuttle Route

Player clue 6: Final | Team 1

Use each result to recover the load for its leg. At each leg choose the cheapest road that can carry that load. A road with too little capacity is closed to this cargo. Report the five road IDs in journey order.

Use your results from: Path, Window, Signal, Record, Food.

Cargo key, one leg at a time
Leg 1 (Path): S-C-B-L-F=2; S-L-C-B-F=4
Leg 2 (Window): T=2; C=4
Leg 3 (Signal): WAIT-SEND=2; WAIT-TURN=4
Leg 4 (Record): NORTH=2; EAST=4
Leg 5 (Food): WINCH=2; LIFT=4
Roads: load capacity / travel cost
1: B 6/4 | A 3/2
2: C 3/2 | D 6/4
3: F 6/4 | E 3/2
4: G 3/2 | H 6/4
5: K 6/4 | J 3/2
Route rule
Choose the cheapest road carrying each load.
Report the five road IDs in leg order, with hyphens.

Final result: _____

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

Rooftop Shuttle Route

Hint level 1 - HOST ONLY

1. Path

Find S, F, required stops C, L and any CLOSED edge.

2. Window

Look at earliest start, each window end and the arrival deadline.

3. Signal

Look at the training cards that share one signal.

4. Record

Start with the status field in Roof requests.

5. Food

Find the stock line and the readiness cards.

6. Final

Keep the five named results beside the final plan and find the key for each badge.

Rooftop Shuttle Route

Hint level 2 - HOST ONLY

1. Path

First remove paths using closed roads or missing a required stop. More than one complete journey may remain.

2. Window

The journey uses time as well as the job; add both to the start of each window.

3. Signal

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

4. Record

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

5. Food

AND needs every input; OR needs one. A future delivery is not current stock.

6. Final

Each badge controls a different fact, road leg, order note, pulse or habitat layer. Use the matching key exactly once.

Rooftop Shuttle Route

Hint level 3 - HOST ONLY

1. Path

Add the cost of every edge in each remaining journey. Compare the totals with the budget, then choose the cheapest eligible journey.

2. Window

Check all three conditions for each window. A slot can be long enough yet start too early or arrive too late.

3. Signal

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

4. Record

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

5. Food

Mark supported components in rounds. Stop when no further component can be marked and compare the proposed results.

6. Final

Check the completed product against all five recovered facts. If two answers remain, locate the fact that distinguishes them rather than guessing.

Rooftop Shuttle Route

Team 1 result record

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

Path: _____

Window: _____

Signal: _____

Record: _____

Food: _____

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.

Rooftop Shuttle Route

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.

Rooftop Shuttle Route

You're invited to a mystery!

Join Birthday Explorer for Rooftop Shuttle Route.

The shuttle route must visit a charger before it reaches the roof where the boxes are needed. Work together to plan the rooftop supply route.

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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Rooftop Shuttle Route

Mystery Explorer

Presented to Birthday Explorer

Team member: _____

For completing Rooftop Shuttle Route with curiosity, teamwork and kindness.

The delivery follows route B-C-F-G-K; every road can carry its assigned load. Thank each teammate for a different piece of reasoning.

Date: _____

Host signature: _____

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