

Lunar Cargo Manifest

HOST ONLY - preparation and story

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

Welcome to the lunar cargo bay. The cargo notes say what must happen first, but the release timetable has been erased. Your team has the original records on the table. First recover five pieces of information, then use the final plan to reconstruct the cargo release schedule. 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 Event cards, Crate list, 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.

Lunar Cargo Manifest

HOST ONLY - solution guide

1. Order: C

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

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. Unload: 6

The only order is Scan cargo > Weigh crate > Open dock > Unload box. Position 3 carries 6. Result: 6.

4. Mass: 5

Remove 4 from 19; share 15 among 3 parcels to get 5. Check $2 \times 5 + 3 = 13$. Result: 5.

5. Slot: 8

C3, D1, A3, B1 reads DOCK. The conversion table gives 8. Result: 8.

6. Final: B-D-A-F-C-E

The five recovered order notes link all six events. Arrange them into one continuous order. Removing any link leaves two neighboring sections without a known order. Checked result: B-D-A-F-C-E.

Lunar Cargo Manifest

HOST ONLY - timeline, story and ending

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

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

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

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

7 minutes: Build the six-event run sheet using all five results.

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

After Record: One time window can fit the work but fail the journey. Keep each order note beside its source. Pass the record sheet to a new checker before opening the next clue.

After Mass: Four results are recorded. Each teammate points to a source supporting one result. Complete the fifth check before building the six-event run sheet.

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

**The crew uses run sheet B-D-A-F-C-E; every recovered order note is respected.
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 six-event run sheet. 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.

Lunar Cargo Manifest

Player clue 1: Order | Team 1

The cargo notes say what must happen first, but the release timetable has been erased. We will use the records on the table to reconstruct the cargo release schedule. Share the reading, explain each choice and keep the five results for the final plan.

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: Weigh crate

B: Seal hatch

C: Scan label

D: Check cargo

Witness notes

A is immediately before C.

D is before A.

B is immediately before D.

Report the event ID in position 4.

Order result: _____

Lunar Cargo Manifest

Player clue 2: Record | Team 1

Use the crate list and dock register to follow the completed record. Match printed keys, then report the requested field. A planned or cancelled entry cannot prove a move.

Crate list

item: Dock | tag: PINE | status: draft

item: Lift | tag: WAVE | status: checked

item: Bay | tag: STAR | status: cancelled

Dock register

tag: STAR | bay: NORTH

tag: PINE | bay: EAST

tag: WAVE | bay: WEST

Cargo 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: _____

Lunar Cargo Manifest

Player clue 3: Unload | Team 1

Unload desk: Combine every BEFORE rule to order the four actions. Write positions on the whole-sheet cards. Read position 3.

Scan cargo [2]

Open dock [6]

Weigh crate [4]

Unload box [8]

Scan cargo BEFORE Open dock

Weigh crate BEFORE Unload box

Open dock BEFORE Unload box

Scan cargo BEFORE Weigh crate

Weigh crate BEFORE Open dock

Read position 3 (positions start at 1).

Unload result: _____

Lunar Cargo Manifest

Player clue 4: Mass | Team 1

Mass desk: Every parcel has the same whole-number weight. Remove loose units, find ONE parcel and check the second rule.

$$3 \text{ parcels} + 4 \text{ loose units} = 19 \text{ units}$$



$$2 \text{ parcels} + 3 \text{ loose units} = 13 \text{ units}$$

One parcel = ? units. Whole numbers 1-9.

All parcels have equal weight.

Mass result: _____

Lunar Cargo Manifest

Player clue 5: Slot | Team 1

Slot desk: Read the letter at each coordinate, in order. Letter = column; number = row. Convert the complete word using the printed table.

Columns: A, B, C, D. Rows: 1, 2, 3.

1	Y	K	E	O
2	D	G	K	N
3	C	M	D	T

DOCK = 8

BEAM = 1

STAR = 4

READ COORDINATES IN ORDER:

C3 > D1 > A3 > B1

Slot result: _____

Lunar Cargo Manifest

Player clue 6: Final | Team 1

Each recorded result recovers one order note. Use all five notes to put the six named events in order. $A > B$ means A happens before B. Write all six event IDs from first to last; check that every note is satisfied.

Use your results from: Order, Record, Unload, Mass, Slot.

Run sheet

A: Weigh crate

B: Seal hatch

C: Open store

D: Check cargo

E: Sign release

F: Scan label

Recovered order notes

Order: $C = B > D$; $A = D > B$

Record: $KITE = A > D$; $RING = D > A$

Unload: $6 = A > F$; $2 = F > A$

Mass: $1 = C > F$; $5 = F > C$

Slot: $8 = C > E$; $1 = E > C$

Order rule

$A > B$ means A happens before B. Use all five notes.

Report all six event IDs in order, with hyphens.

Final result: _____

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

Lunar Cargo Manifest

Hint level 1 - HOST ONLY

1. Order

Read the event letters and all three witness notes.

2. Record

Start with the status field in Crate list.

3. Unload

Find all the event cards and the before notes.

4. Mass

Find the equal parcels and the separate loose units.

5. Slot

Find the column letters and row numbers on the grid.

6. Final

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

Lunar Cargo Manifest

Hint level 2 - HOST ONLY

1. Order

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

2. Record

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

3. Unload

Connect cards linked by the notes; a card position is counted from the beginning of the completed order.

4. Mass

Remove the loose units before sharing the remaining weight among equal parcels.

5. Slot

A coordinate gives column first and row second; keep the printed coordinate order.

6. Final

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

Lunar Cargo Manifest

Hint level 3 - HOST ONLY

1. Order

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

2. Record

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

3. Unload

Check every before relationship, then read only the requested position. The printed card arrangement is not the answer order.

4. Mass

Find one parcel from the first equation, then substitute that weight into the second equation before recording it.

5. Slot

Read the full word before using the conversion table. If the word is missing, recheck each row and column rather than choosing a similar word.

6. Final

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

Lunar Cargo Manifest

Team 1 result record

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

Order: _____

Record: _____

Unload: _____

Mass: _____

Slot: _____

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.

Lunar Cargo Manifest

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.

Lunar Cargo Manifest

You're invited to a mystery!

Join Birthday Explorer for Lunar Cargo Manifest.

The cargo notes say what must happen first, but the release timetable has been erased. Work together to reconstruct the cargo release schedule.

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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Mystery Explorer

Presented to Birthday Explorer

Team member: _____

For completing Lunar Cargo Manifest with curiosity,
teamwork and kindness.

The crew uses run sheet B-D-A-F-C-E; every recovered order note is
respected. Thank each teammate for a different piece of reasoning.

Date: _____

Host signature: _____

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