NASA SPACE APPS CHALLENGE 2026 · ATHLONE

Ten Days on the Moon

Flare Alert

Ten days in command of a Moon outpost, under a Sun that does exactly what the real Sun did.



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Challenge: Build a Junior Astronaut Mission Trainer

A browser game for children aged 7 to 12. No download, no account.

WHAT THE GAME TEACHES

Three real problems of living on the Moon

The challenge asks that a young player walks away “understanding a real constraint of deep space survival, not just having played a fun game.”

7 of 10

Not enough power

The solar panels make about 7 units a day. Running all six modules takes 10. Air, food, radio, telescope, lab, rover: something stays dark.

½ day lost

Staying safe costs work

Calling the crew indoors costs work. A Moon-soil shield costs power and working days. There is no free safe option.

10 alerts, **3** storms

An alert is not a storm

In the ten days of May 2024 that the game replays, there is a flare alert every single day. A particle storm began on three of them.

Quote: challenge statement, “Build a Junior Astronaut Mission Trainer”, NASA Space Apps Challenge 2026.

HOW IT PLAYS

One turn is one day.

BEFORE THE GAME

Choose your crew

Six astronauts, not enough seats.

EVERY MORNING

1. **Share out the power**
   Flick the switch on each module.
2. **Give everyone a job**
   Grow food, build, repair, drive, research, rest.
3. **Press Start and watch**
   If the Sun fires a flare, you decide.

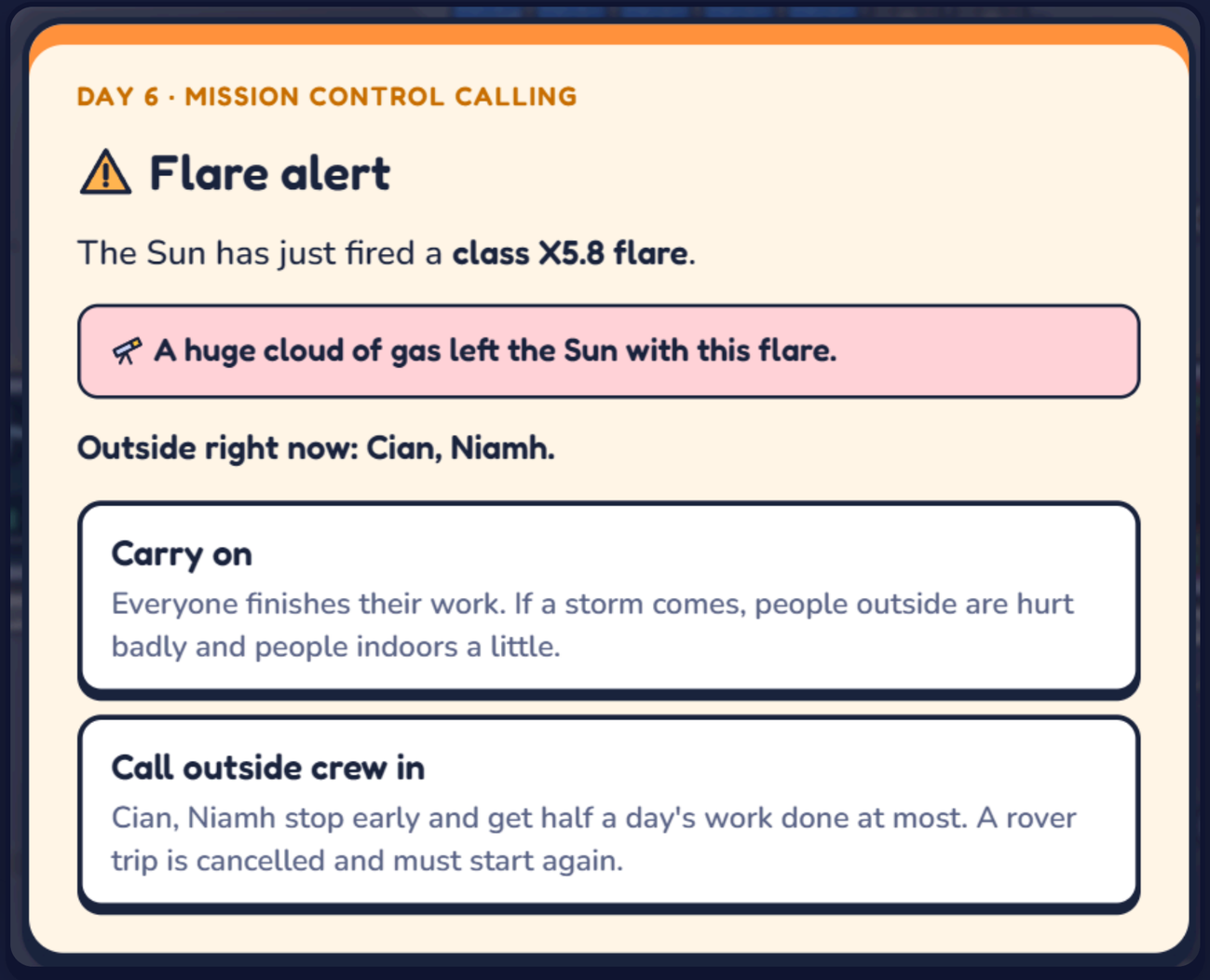
THE GOAL

Finish three missions

Water ice, a radio telescope, watching the Sun.



The planning screen on the morning of day 6, and the crew picker.



THE DECISION

Then the Sun fires a flare.

Two of your crew are working outside. A storm may follow, or it may not.

- **Carry on:** all the work gets done. If a storm follows, the people outside are badly hurt.
- **Call them in:** safer, and half a day's work or more is gone.

Nobody can tell the child which answer is right. That is the point.

You only get the alert if the Radio Dish had power this morning.

The alert is a real flare, class X5.8, from NASA's records: DONKI, FLR, 2024-05-11 01:23 UTC.

WHAT REALLY HAPPENED

The storm comes when the real one did.



What the real Sun did

The strongest solar storm to reach Earth in twenty years. People across Ireland saw the northern lights.

Sources: NASA: the storm of May 2024 · RTÉ News: northern lights over Ireland

3 real particle storms began while you were in command.

Day	Real date	Biggest flare alert	Particle storm	Your call
1	6 May 2024	X4.5 at 06:35, with a cloud	None began	Called crew inside
2	7 May 2024	M8.2 at 16:30, no cloud listed	None began	Carried on
3	8 May 2024	X1.0 at 05:09, with a cloud	None began	Called crew inside
4	9 May 2024	X2.2 at 09:13, with a cloud	None began	Called crew inside
5	10 May 2024	X3.9 at 06:54, with a cloud	Storm at 12:59	Called crew inside
6	11 May 2024	X5.8 at 01:23, with a cloud	Severe storm at 02:10	Called crew inside
7	12 May 2024	X1.0 at 16:26, no cloud listed	None began	Carried on
8	13 May 2024	M6.6 at 09:44, with a cloud	Storm at 14:00	Called crew inside
9	14 May 2024	X8.7 at 16:51, with a cloud	None began	Called crew inside
10	15 May 2024	X3.4 at 08:37, with a cloud	None began	Called crew inside

Times are in UTC. Every flare and storm links to its record in NASA's DONKI database. A storm is shown on the day it began; real particle storms can go on for days.

After ten days the game shows every day you played beside what the real Sun did. Each line opens NASA’s own record.

Nobody dies. If things go badly the crew flies home early, and you try again.

Particle storm record: NASA DONKI, SEP, first measured 2024-05-11 02:10 UTC.

NASA DATA

The Sun in the game is the real Sun.

Every flare and particle storm is replayed from NASA's DONKI space weather database. You can play three real stretches of ten days:

Calm

1–10 December 2019

No flares listed at all.

Stormy

3–12 September 2017

35 flares, up to class X9.3. Particle storms began on 3 days.

Very stormy

6–15 May 2024

118 flares, up to class X8.7. Particle storms began on 3 days.

- **Saved records, not live data**, and the game says so on screen.
- **"What is real in this game?"** A page that lists what is real, simplified and made up.
- **19 real-life facts** in the Field guide, each linked to its NASA page.

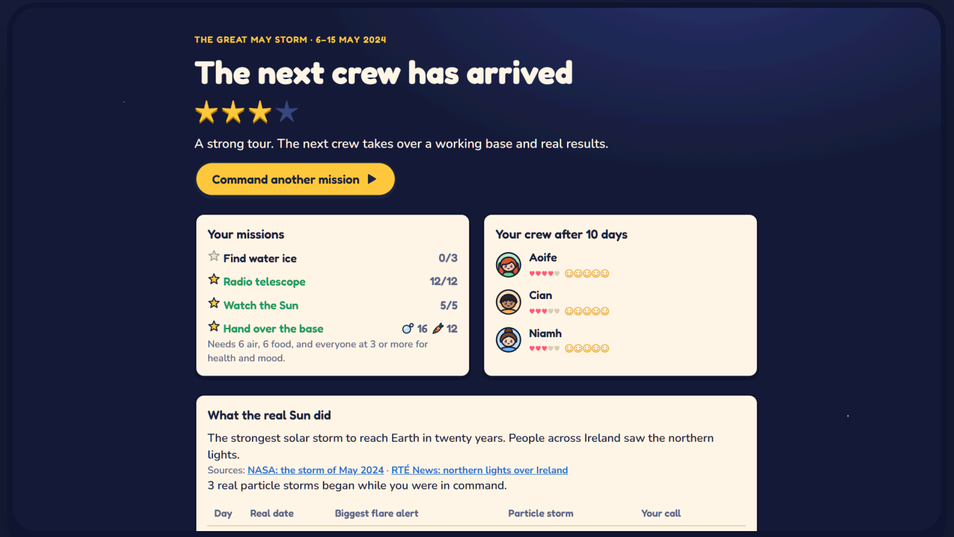


NASA DONKI, CCMC, NASA Goddard: ccmc.gsfc.nasa.gov/tools/DONKI. The download script is in the repository.

WHY IT MATTERS

Kids have to make the choice themselves.

- A child chooses between finishing the telescope and bringing two crewmates indoors, **without knowing if the storm will come**.
- **Failing is safe:** nobody dies, and every game starts differently, so it is worth playing again.
- **Any browser.** No download, no account.
- **Honest about itself:** the game lists what is real, what is simplified and what is made up.



Play it
heartfirej.github.io/HackAthlone_Build-a-Junior-Astronaut-Mission-Trainer

Source code
github.com/HearTFireJ/HackAthlone_Build-a-Junior-Astronaut-Mission-Trainer

Built in one weekend by one person. The code and these ślides were written with an AI assistant; the idea, the decisions and the play-testing are the author's. No AI-generated images: the pictures are drawn by code.