Record-breaking fast radio burst found

LEVEL B1


Photo: Tim van der Kuip / Unsplash

I. WARM-UP

1. What comes to mind when you hear "radio waves"?
2. Have you ever used a telescope or visited a planetarium?
3. How old do you think the universe is, and why?

II. KEY VOCABULARY

astronomer
a scientist who studies space, stars and galaxies

detect
to find or notice something using special equipment

burst
a short and very strong release of energy or activity

galaxy
a very large group of stars, gas and dust in space

telescope
a device used to make distant objects in space look closer

distant
very far away in space or time

magnetar
a kind of neutron star with an extremely strong magnetic field

matter
anything that has mass, including unseen material in space

III. READING

Astronomers have detected the most distant fast radio burst (FRB) seen so far. The flash, called FRB 20240304B, travelled for more than 10bn years before it reached Earth. It began when the universe was about 3bn years old, so it crossed approximately 80% of cosmic history.

Scientists found the burst with the MeerKAT radio telescope in South Africa and then located its host galaxy using Nasa's James Webb Space Telescope. The host is a young, very small galaxy forming stars quickly, with few metals. The distance is more than double the previous record.

Experts say FRBs may come from magnetars, but the true cause is still unknown. Since 2007, more than 10,000 FRBs have been seen. Some repeat, while others appear once and never return.

Because FRBs are changed by the matter and particles they pass through, studying very distant bursts might help map unseen material in the universe and show that FRBs were common early on.

Reading text adapted from reporting by **The Guardian***: "Astronomers detect mysterious burst of...". Original article linked at theenglishwire.com.*

IV. COMPREHENSION QUESTIONS

1. How long did the FRB travel before reaching Earth?
2. Which instruments were used to find the burst and its host galaxy?
3. What is special about the host galaxy where the burst began?
4. What do some scientists think may cause FRBs?
5. How could studying distant FRBs help scientists?

V. DISCUSSION

1. Why is finding a very distant object exciting for science?
2. Do you think FRBs are more likely to repeat or to happen only once? Why?
3. Which tool seems more important here: the radio telescope or the space telescope?
4. Should space agencies invest more in studying FRBs? Why or why not?

VI. GRAMMAR FOCUS

May / might (probability)

Use may/might + base verb to express possibility; might often sounds less certain. Negative: may/might not + verb. May/might + have + past participle shows a past possibility.

> *"Experts say FRBs* **may come** *from magnetars."*
>
> *"Studying very distant bursts* **might help** *map unseen material."*

VII. GRAMMAR EXERCISE

Complete each gap with may or might + the verb.

1. Future telescopes (find) ___ even more distant bursts. _____
2. This record burst (not/repeat) ___ at all. _____
3. Dust along the path (change) ___ its radio waves. _____
4. Mapping many bursts (reveal) ___ early activity. _____
5. Analysts (misread) ___ one signal earlier. _____

Teacher's Notes

TEACHERS ONLY

These notes are designed to help you get the most out of this lesson. Please do not share this page with students.


Photo: Tim van der Kuip / Unsplash

I. LESSON GUIDE

- Timing: 8–10 minutes warm-up, 10 minutes vocabulary, 12–15 minutes reading and comprehension, 8–10 minutes grammar, 10 minutes discussion.
- Pre-teach or check: radio waves, burst, galaxy, telescope, distant, magnetar. Use images of telescopes and a simple space timeline to anchor numbers like 10bn years.
- Reading and discussion: do a first skim for the key number (10bn+ years), then a second read to locate place (South Africa) and tools (MeerKAT, JWST). In discussion, start in pairs before whole-class to support quieter students.
- Differentiation: stronger students write a 40–50 word summary; others match tools to roles (find burst vs find host galaxy) with sentence stems.

II. DISCUSSION FACILITATION TIPS

1. Elicit two reasons (new data, testing theories). Ask for one risk or limit of distant data.
2. Take a quick poll, then pair students from different camps to explain their reasons.
3. Run a mini-debate: groups prepare 1 minute for their chosen tool, then swap sides.
4. Set a budget cap and ask students to prioritise with one concrete benefit per pound.

III. EXTENSION ACTIVITIES

Writing: In pairs, write a 70-word news brief announcing FRB 20240304B for a school website (8 minutes).

Presentation: Small groups create a 90-second slide explaining how MeerKAT and JWST worked together (10 minutes).

IV. ANSWER KEY OVERVIEW

Comprehension questions: short factual answers from the text.

Grammar exercise: May / might (probability)

Discussion: open-ended. Accept any reasonable ideas supported by examples and reasoning.

Answer Key

TEACHERS ONLY

These answers are for teachers only. Please do not share this page with students.


Photo: Tim van der Kuip / Unsplash

IV. COMPREHENSION QUESTIONS

1. How long did the FRB travel before reaching Earth?
   More than 10 billion years.
2. Which instruments were used to find the burst and its host galaxy?
   MeerKAT for the burst, and the James Webb Space Telescope for the host galaxy.
3. What is special about the host galaxy where the burst began?
   It is young, very small, forms stars quickly, and has few metals.
4. What do some scientists think may cause FRBs?
   They may be caused by magnetars.
5. How could studying distant FRBs help scientists?
   They might help map unseen material in the universe and show that FRBs were common early on.

V. DISCUSSION

Open answers. Accept any reasonable ideas supported by examples and reasoning.

VII. GRAMMAR EXERCISE

Complete each gap with may or might + the verb.

1. Future telescopes ___ even more distant bursts. **may/might find**
2. This record burst ___ at all. **may/might not repeat**
3. Dust along the path ___ its radio waves. **may/might change**
4. Mapping many bursts ___ early activity. **may/might reveal**
5. Analysts ___ one signal earlier. **may/might have misread**

VI. GRAMMAR FOCUS

Key point: Use may/might + base verb to express possibility; might often sounds less certain. Negative: may/might not + verb. May/might + have + past participle shows a past possibility.

> *"Experts say FRBs* **may come** *from magnetars."*
>
> *"Studying very distant bursts* **might help** *map unseen material."*