CLASSROOM WORKSHEET

Voyager 1 Crosses One Light-Day From Earth After 49 Years

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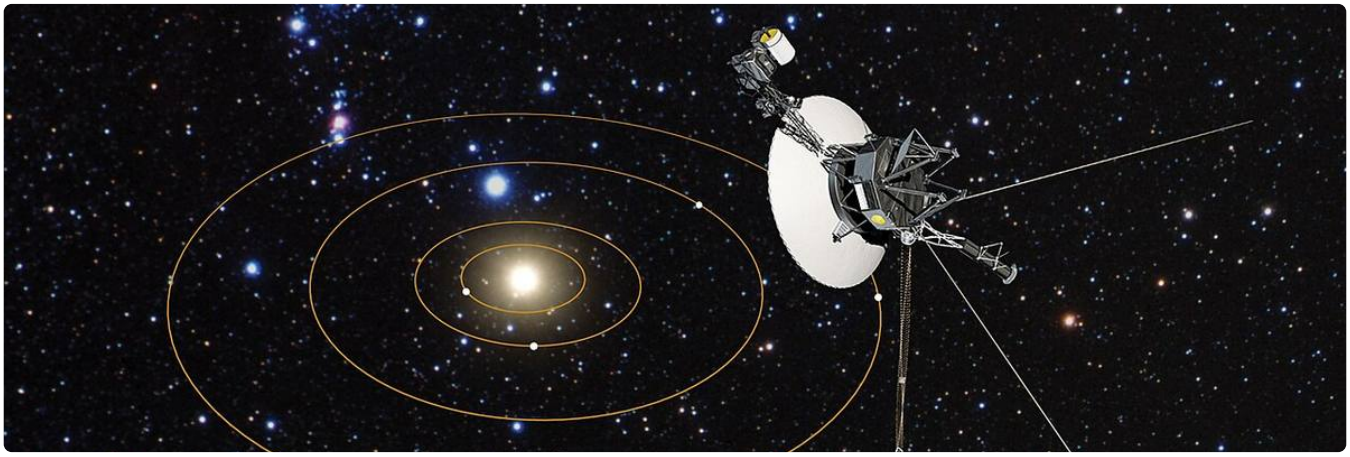

NASA, ESA, and G. Bacon (STScI) / Wikimedia Commons (CC BY 4.0)

1 Read

The number beside each paragraph helps you talk about it.

1 Voyager 1 has crossed a distance of approximately 26 billion kilometres from Earth, a span that light itself covers in just 24 hours. The probe took about 49 years to reach this milestone, travelling at roughly 61,000 kilometres per hour. It is understood that NASA's Deep Space Network monitors the spacecraft from facilities in Canberra, California, and Madrid.

2 The mission began in 1977, when both Voyager probes were launched to study Jupiter and Saturn. Voyager 2 later flew past Uranus and Neptune as well. The launch exploited a rare alignment of all four outer planets, a configuration that occurs once every 176 years. Gravitational slingshot manoeuvres around Jupiter and Saturn accelerated the craft to its present speed.

3 Voyager 1 entered interstellar space in 2012, with Voyager 2 following in 2018. Each probe carries a golden record containing greetings in over 100 languages, a selection of music, and instructions on locating Earth. NASA is reported to predict that this record could outlast human civilisation itself, given its construction from inert material.

4 Voyager 2 is not expected to reach the one light-day mark until 2035. The milestone came shortly after NASA lost communication with Voyager 1 for approximately 48 hours the previous month.

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2 Key words

exploited /ɪkˈsplɔɪtɪd/ *verb*

To make use of a situation or opportunity in order to gain an advantage from it

The company exploited the gap in the market by launching a cheaper alternative product.

milestone /ˈmaɪlstəʊn/ *noun*

A significant event or stage in a process that marks an important point of progress

Completing her first marathon was a personal milestone that she had worked towards for years.

configuration /kənˌfɪgəˈreɪʃən/ *noun*

The way in which the parts of something are arranged or set out, especially in relation to one another

The software allows users to change the configuration of their network settings easily.

outlast /ˌaʊtˈlɑːst/ *verb*

To continue to exist or remain effective for a longer period than something else

Several of the original buildings from the industrial era have outlasted the companies that built them.

inert /ɪˈnɜːt/ *adjective*

Not reacting chemically; not likely to decay or change over time

Gold is valued for its use in jewellery partly because it is inert and will not tarnish.

manoeuvre /məˈnuːvə/ *noun*

A planned movement or action carried out with great care, skill, or strategy

The general executed a daring manoeuvre to flank the enemy and cut off their supply line.

3 Grammar focus

The passive

is / are / was / were + past participle (+ by …)

The passive puts the receiver of the action in subject position (the probe was launched). Writers choose it when the doer is unknown, obvious or less important than the result.

1. The mission began in 1977, when both Voyager probes were launched to study Jupiter and Saturn.
2. NASA is reported to predict that this record could outlast human civilisation itself, given its construction from inert material.

Who or what does the action in each sentence? Is the doer named?

4 Reading comprehension

EXERCISE 1 Reading for Implication and Attribution

3 points

Read the passage and choose the best answer for each question. Answers are based ONLY on the information in the text.

1 What does the text imply about the purpose of the golden record?

(a) It was designed to serve as a backup navigation system for the probes.
(b) It was created to communicate information about Earth to potential extraterrestrial finders.
(c) It was intended to preserve the original mission control data for future NASA engineers.
(d) It was placed on the probes purely as a decorative tribute to human culture.

2 Why is the word 'exploited' used in relation to the planetary alignment?

(a) Because the alignment caused damage to the spacecraft during launch.
(b) Because the alignment was artificially created by NASA engineers.
(c) Because NASA took strategic advantage of a naturally occurring rare event for the mission's benefit.
(d) Because the alignment had no practical effect and was merely coincidental.

3 What is the significance of the phrase 'is reported to predict' in the third paragraph?

(a) It confirms with certainty that NASA has officially published this prediction.
(b) It indicates the information may have been communicated indirectly and is not a direct NASA statement.
(c) It shows that NASA denies making any such prediction.
(d) It means the prediction was made by journalists rather than by NASA.

EXERCISE 2 Answering from the Text

Answer each question in a complete sentence. Your answers must be based solely on the lesson text.

1 Why was the planetary alignment in 1977 described as rare, and how often does it occur?

2 According to the text, why might the golden record be able to outlast human civilisation?

3 What event preceded Voyager 1's one-light-day milestone by a short time?

5 Vocabulary and grammar practice

EXERCISE 3 Grammar in Context

4 points

Complete each sentence with the correct form of the word given in brackets. Pay attention to tense, voice, and aspect appropriate for a news report.

1. Both Voyager probes _____ (launch) in 1977 to study Jupiter and Saturn.
2. NASA _____ (report) to predict that the record could outlast human civilisation.
3. It _____ (understand) that NASA's Deep Space Network monitors the spacecraft from facilities in Canberra, California, and Madrid.
4. Voyager 2 _____ (expect) to reach the one light-day mark until 2035.

EXERCISE 4 Match Vocabulary to Definitions

6 points

Match each term to its correct definition.

1. exploited _____
2. milestone _____
3. configuration _____
4. outlast _____
5. inert _____
6. manoeuvre _____

A Made use of a situation or opportunity to gain an advantage.

B The way in which parts of something are arranged in relation to one another.

C Not reacting chemically; not likely to decay over time.

D To continue to exist longer than something else.

E A significant event marking an important point of progress.

F A planned movement or action carried out with skill and strategy.

6 Guided writing

EXERCISE 5 Balanced News Summary

Write a balanced summary of the article (120–180 words). Include the key facts about Voyager 1's recent milestone, the original mission, and the golden record. Use at least three of the following words from the text: milestone, exploited, configuration, outlast, inert, manoeuvre. Write 120 to 180 words.

7 Discussion

Talk with a partner, then share one idea.

EXERCISE 6 Speaking

1. The article states that NASA's golden record 'could outlast human civilisation itself.' In your view, what does it mean for an object designed by humans to potentially survive us? Does this change how you think about the purpose of such a record?
2. NASA is described as having 'lost communication with Voyager 1 for approximately 48 hours' just before the milestone. How might this detail affect the way the achievement is perceived by the public?
3. The launch 'exploited a rare alignment of all four outer planets, a configuration that occurs once every 176 years.' Do you think missions that depend on such rare natural events are a wise use of resources, or is the opportunity too valuable to ignore? Justify your position.

Answer key

For the teacher

Keep this page for yourself and copy only the pages before it. Short-answer and writing tasks list one possible answer.

Exercise 1 Reading for Implication and Attribution

1. B. It was created to communicate information about Earth to potential extraterrestrial finders. The text states the record contains 'greetings in over 100 languages, a selection of music, and instructions on locating Earth,' which implies it was designed to convey information about Earth to whoever might find it.
2. C. Because NASA took strategic advantage of a naturally occurring rare event for the mission's benefit. 'Exploited' means to make use of an opportunity. The text says the alignment 'occurs once every 176 years,' indicating it was a rare natural event that NASA strategically took advantage of.
3. B. It indicates the information may have been communicated indirectly and is not a direct NASA statement. 'Is reported to predict' is a hedging construction that distances the writer from the claim, suggesting it is something attributed to NASA but not directly confirmed as an official statement.

Exercise 2 Answering from the Text

1. The alignment was described as rare because it involves all four outer planets—Jupiter, Saturn, Uranus, and Neptune—and this configuration occurs only once every 176 years. The text explicitly states the alignment 'occurs once every 176 years' and involves 'all four outer planets.'
2. The golden record could outlast human civilisation because it is constructed from inert material, which means it is unlikely to decay or break down over time. The text directly links the record's potential longevity to its 'construction from inert material.'
3. The milestone came shortly after NASA lost communication with Voyager 1 for approximately 48 hours the previous month. The final sentence of the text directly states this temporal sequence.

Exercise 3 Grammar in Context

1. were launched The passive voice in past simple is used because the agents (NASA) are not stated, and the action is completed in the past.
2. is reported 'Is reported to' is a present simple passive construction used in news English to attribute information indirectly, creating distance from the claim.
3. is understood 'It is understood that' is an impersonal passive structure common in formal news writing to present information without specifying the source.
4. is not expected The present simple passive 'is not expected' is used to express a future prediction in a hedged, impersonal way typical of news reporting.

Exercise 4 Match Vocabulary to Definitions

1. A. Made use of a situation or opportunity to gain an advantage.
2. E. A significant event marking an important point of progress.
3. B. The way in which parts of something are arranged in relation to one another.
4. D. To continue to exist longer than something else.
5. C. Not reacting chemically; not likely to decay over time.
6. F. A planned movement or action carried out with skill and strategy.

Exercise 5 Balanced News Summary

Voyager 1 has recently reached a major milestone: crossing a distance of approximately 26 billion kilometres from Earth, equivalent to one light-day. This achievement came after about 49 years of travel at roughly 61,000 kilometres per hour. The mission began in 1977, when NASA exploited a rare planetary configuration involving all four outer planets—an alignment that occurs only once every 176 years. Gravitational slingshot manoeuvres accelerated the probes to their present speeds. Voyager 1 entered interstellar space in 2012. Each spacecraft carries a golden record with greetings in over 100 languages, music, and instructions for locating Earth. NASA is reported to predict the record could outlast human civilisation due to its inert material construction. Voyager 2 is not expected to reach the same milestone until 2035. One possible answer. Yours will be different and can still be good: check it against the list.