3I/ATLAS and Online Speculation: Science and Rumor

Name Date Class

Reading

1 On July 1, 2025, the ATLAS survey telescope in Rio Hurtado, Chile, reported a faint, fast-moving speck. Its path showed that it had arrived from **interstellar** space, the space between star systems, which made it only the third such visitor ever confirmed, after ʻOumuamua in 2017 and Borisov in 2019. Because it was discovered early and became bright, astronomers had an **unprecedented** chance to study an interstellar comet with dozens of telescopes, including Hubble and Webb. NASA classifies it as a comet because it has an icy nucleus and a cloud of gas and dust. On December 19, 2025, it came no closer to Earth than 270 million kilometers.

2 The science alone is remarkable. Estimates based on the comet's speed suggested an age of roughly 3 to 11 billion years. In June 2026, a team led by Martin Cordiner of NASA reported in *Nature* that measurements with the James Webb telescope pointed to the older end of that range. The comet's water contains roughly 30 times more deuterium than water in comets of our own solar system, which suggests that it formed in extreme cold. An age of up to 12 billion years is nearly three times the age of the solar system, so 3I/ATLAS may be a **relic** of a planetary system that formed long before ours. The figure remains an estimate, and different methods give different ranges.

3 Online, a different story spread. Avi Loeb, a Harvard astrophysicist who had earlier suggested that ʻOumuamua might be artificial, published lists of "**anomalies**" in 3I/ATLAS, including its chemistry and path and a small non-gravitational acceleration that, he said, "might be produced by an engine." Loeb also said the excess was not significant, and at times he said that the comet was most likely natural. He rated it 4 on his own scale from 0 (a natural comet) to 10 (alien technology), which kept an **extraterrestrial** origin open. Comets can show non-gravitational acceleration because escaping gas acts like a weak **propulsion** system, and NASA reports that the perturbations seen here were small and compatible with that process. A **hypothesis** that cannot yet be ruled out is not the same as evidence for it.

4 What happened next was **speculation** on a large scale. Mert Can Bayar of the University of Washington's Center for an Informed Public studied about 700,000 English-language posts on X between July 1 and November 21, 2025. Roughly 40 percent invoked aliens or extraterrestrial technology, and the volume peaked around October 28 to 30, when the comet passed the Sun and Loeb appeared on a popular podcast. Some posts claimed that NASA and other agencies were preparing planetary defense. In fact, the International Asteroid Warning Network had announced a routine campaign to practice measuring comet positions. Bayar argues that lists of anomalies can **amplify** rumor, while nuanced explanations are **drowned out**. His study covers one platform, one language, and one analyst, so it describes a pattern rather than proving a cause.

5 When examined carefully, the evidence looks much less exciting. At a press conference on November 19, 2025, NASA officials said that the object is a comet. NASA's summary says that its color, speed, and direction are all **consistent** with a comet. Searches for **technosignatures**, signs of technology such as artificial radio signals, found nothing. The SETI Institute and Breakthrough Listen used the Allen Telescope Array for 7.25 hours in July 2025 and found only interference and no signal worth follow-up. On December 18, 2025, the Green Bank Telescope found no transmitter above about 0.1 watts, roughly a tenth of the power of a mobile phone.

6 Those results have limits. A search finds only signals that are strong enough and at the frequencies observed, so it can rule out certain kinds of transmitter but cannot prove that none could exist. Scientists **acknowledge** that 3I/ATLAS raised real questions about where it formed and what its unusual chemistry means. The comet is almost certainly natural, yet natural explanations can still be surprising.

7 The line "extraordinary claims require extraordinary evidence" is often attributed to Carl Sagan, who popularized it in the late 1970s. The sociologist Marcello Truzzi used a similar phrase before him. It does not say what to do when a claim is attractive and hard to test. Bayar's advice is to keep curiosity high and to separate an open question from a working hypothesis and from an extraordinary claim. A reader who is too **gullible** believes whatever spreads fastest, while one who is too **skeptical** stops asking questions. Asking who made a claim, and what evidence would change their mind, is a middle path. NASA reports that the comet's speed on leaving matched its speed on arrival, as gravity alone would predict.

Vocabulary Matching

Match each word from the reading with its meaning. Write the letter on the line.

1	**interstellar**	_____	**A**	never having happened before
2	**unprecedented**	_____	**B**	admit that something is true
3	**relic**	_____	**C**	too ready to believe without evidence
4	**anomalies**	_____	**D**	make more widely heard or seen
5	**extraterrestrial**	_____	**E**	guessing without firm evidence
6	**propulsion**	_____	**F**	doubting claims without good evidence
7	**hypothesis**	_____	**G**	coming from beyond Earth
8	**speculation**	_____	**H**	a survivor from an earlier time
9	**amplify**	_____	**I**	a proposed explanation still to be tested
10	**drowned out**	_____	**J**	in agreement with something else
11	**consistent**	_____	**K**	signs of technology that can be detected
12	**technosignatures**	_____	**L**	things that differ from the norm
13	**acknowledge**	_____	**M**	force that moves something ahead
14	**gullible**	_____	**N**	existing between the stars
15	**skeptical**	_____	**O**	made unnoticeable by something louder

Fill in the Blank

Choose a word from the box to complete each sentence. Use each word once. The words are already in the correct form.

acknowledged	**amplify**	**anomalies**	**consistent**	**extraterrestrial**	**gullible**	**hypothesis**	**interstellar**
propulsion	**relic**	**skeptical**	**speculation**	**technosignatures**	**unprecedented**		

1 The probe was built to study _____ space, far beyond the planets.

2 The speed of the change was _____, with no earlier example in history.

3 The old tower is a _____ of the town's medieval defenses.

4 The auditors found several _____ in the accounts.

5 The film is about an _____ visitor who lands in a desert.

6 A comet's escaping gas acts like a weak _____ system.

7 The team designed an experiment to test their _____.

8 There was much _____ about the results before the announcement.

9 Shares from large accounts can _____ a rumor within hours.

10 The symptoms are _____ with a common cold.

11 Astronomers look for _____, such as artificial radio signals.

12 The manager _____ that the schedule had been unrealistic.

13 He is so _____ that he believed an obvious hoax.

14 Scientists were _____ of the claim and asked for more data.

Comprehension Questions

Answer in your notebook or discuss with a partner. Questions 10 to 12 are IELTS-style.

1 According to the first paragraph, what was discovered on July 1, 2025, and why did astronomers have such a good chance to study it?

2 What does the reading say about the age of 3I/ATLAS, and why does it call the figure an estimate?

3 What did Avi Loeb say about the comet's acceleration, and how does the reading explain why a natural comet can show non-gravitational acceleration?

4 How did Loeb rate an extraterrestrial origin, and why is a hypothesis that cannot be ruled out not the same as evidence?

5 What did Bayar's study of posts on X find, and how far can its findings be trusted?

6 How did a routine campaign by the International Asteroid Warning Network become a rumor about planetary defense?

7 Describe the two radio searches for technosignatures in the reading, and explain what each one found.

8 What limits do the radio results have, and why is the comet still called almost certainly natural?

9 What "middle path" between being gullible and being skeptical does the last paragraph suggest, and how does the history of the phrase about extraordinary claims fit it?

IELTS-Style Questions

10 **True, False, or Not Given:** *"The radio searches proved that no extraterrestrial technology could exist anywhere."* Explain your answer using evidence from the reading.

11 **Yes, No, or Not Given:** *"The writer believes that 3I/ATLAS is an alien spacecraft."* Explain your answer using evidence from the reading.

12 **Author's purpose:** Why does the writer include the sentence "His study covers one platform, one language, and one analyst"? Is its purpose to reject the study, to show the limits of its evidence, or something else?

True or False

Circle T (true) or F (false) according to the reading. Write a correction for each false statement on the dotted line.

1 **T / F** The ATLAS survey telescope in Chile reported the object on July 1, 2025.

2 **T / F** 3I/ATLAS passed within a few million kilometers of Earth.

3 **T / F** The 2026 Nature report pointed to the older end of an earlier age range.

4 **T / F** The reading says that an age of 12 billion years is a settled fact.

5 **T / F** Loeb also said that the acceleration excess was not significant.

6 **T / F** NASA says the small changes in the comet's path cannot be explained by normal comet activity.

7 **T / F** About 40 percent of the posts studied invoked aliens or extraterrestrial technology.

8 **T / F** The International Asteroid Warning Network began a secret planetary-defense operation.

9 **T / F** The Allen Telescope Array search found only interference.

10 **T / F** The reading says that Carl Sagan was the first person ever to use the phrase.

Discussion Questions

Talk with a partner or in a small group. The questions move from personal to more abstract.

1. Before reading this, had you seen anything about 3I/ATLAS on social media? What did you think it was?
2. Why do you think posts claiming a cover-up get more attention than posts explaining the science?
3. When you see a story about aliens, ancient civilizations, or claims that science does not accept, do you usually watch or keep scrolling? Why?
4. The comet may be up to 12 billion years old. How does trying to imagine a period of time like that make you feel?
5. Do you believe that intelligent life exists elsewhere in the universe? What would count as convincing evidence for you?
6. Loeb rated the comet 4 on his own scale, even though he also said it was most likely natural. How should a scientist communicate a possibility that is unlikely but not impossible?
7. Bayar says that a scientist's speculation can become someone else's conspiracy theory. Who is responsible when this happens: the scientist, the media, the platforms, or the audience?
8. The radio searches found nothing. Does a result like that feel like a disappointment, a relief, or something else?
9. The reading says a null result cannot prove that no signal could exist. Can you think of another situation where a lack of evidence does not prove absence?
10. Bayar's study covers one platform, one language, and one analyst. What other information would you want before trusting its conclusions?
11. Can you think of another story, from science, politics, or anywhere else, where social media turned a complicated truth into a simple, exciting rumor?
12. What method do you use to decide whether to believe something you see on social media? Has the method ever failed you?
13. If scientists did detect a real signal from an interstellar object, how do you think people in your country would react?
14. The phrase “extraordinary claims require extraordinary evidence” is sometimes criticized because “extraordinary” is hard to define. Do you think the rule is useful anyway?

Language Focus: Relative Clauses and Apposition

A relative clause (who, which, that) adds information about a noun. A non-defining clause is set off by commas and adds extra detail. Apposition places a noun phrase next to another noun to rename or explain it.

In the reading:

- “Avi Loeb, **a Harvard astrophysicist who had earlier suggested that ‘Oumuamua might be artificial**, published lists of ‘anomalies’…”
- “…a small non-gravitational acceleration **that, he said, ‘might be produced by an engine.’**”
- “Searches for technosignatures, **signs of technology such as artificial radio signals**, found nothing.”

Practice: Combine the two sentences into one, using a non-defining relative clause: *“Bayar studied about 700,000 posts. Bayar works at the University of Washington.”*

Activities and speed challenge
englishbridges.com/lessons/3i-atlas-speculation

Notes