Teacher's Key

3I/ATLAS and Online Speculation: Science and Rumor (Level C1)

Vocabulary Matching

1 interstellar = **N**
2 unprecedented = **A**
3 relic = **H**
4 anomalies = **L**
5 extraterrestrial = **G**
6 propulsion = **M**
7 hypothesis = **I**
8 speculation = **E**
9 amplify = **D**
10 drowned out = **O**
11 consistent = **J**
12 technosignatures = **K**
13 acknowledge = **B**
14 gullible = **C**
15 skeptical = **F**

Fill in the Blank

1 interstellar
2 unprecedented
3 relic
4 anomalies
5 extraterrestrial
6 propulsion
7 hypothesis
8 speculation
9 amplify
10 consistent
11 technosignatures
12 acknowledged
13 gullible
14 skeptical

True or False

1 **True.** The reading gives the date and the location.
2 **False.** It came no closer than 270 million kilometers.
3 **True.** Earlier estimates were about 3 to 11 billion years.
4 **False.** The reading says the figure remains an estimate.
5 **True.** He described the excess this way while also raising the engine idea.
6 **False.** NASA says they were small and compatible with outgassing.
7 **True.** Bayar studied about 700,000 English-language posts on X.
8 **False.** It announced a routine campaign to practice measuring comet positions.
9 **True.** No signal was worth follow-up.
10 **False.** Sagan popularized it, and Marcello Truzzi used a similar phrase before him.

Language Focus: Relative Clauses and Apposition

Example answer: Bayar, **who works at the University of Washington**, studied about 700,000 posts.

Comprehension Questions: Model Answers

1 The ATLAS survey telescope in Chile reported a faint, fast-moving object whose path showed it came from interstellar space, making it the third confirmed interstellar visitor. It was found early and became bright, so dozens of telescopes, including Hubble and Webb, could study it.

2 Speed-based estimates gave about 3 to 11 billion years, and a June 2026 Nature report pointed to the older end, up to about 12 billion years. The reading calls it an estimate because different methods give different ranges.

3 Loeb said the acceleration might be produced by an engine, and also said the excess was not significant. Escaping gas from a comet can push it like a weak propulsion system, and NASA reports that the changes seen were small and compatible with that process.

4 He rated it 4 on his own 0-to-10 scale and at times said it was most likely natural. A hypothesis that cannot yet be ruled out has not been supported by evidence, so its possibility is not a reason to accept it.

5 Bayar studied about 700,000 English-language posts on X between July 1 and November 21, 2025, and about 40 percent invoked aliens or extraterrestrial technology. The study covers one platform, one language, and one analyst, so it shows a pattern but does not prove a cause.

6 The International Asteroid Warning Network announced a routine campaign to practice measuring comet positions. Many posts misread it as NASA preparing planetary defense against the comet.

7 The SETI Institute and Breakthrough Listen used the Allen Telescope Array for 7.25 hours in July 2025 and found only interference. The Green Bank Telescope on December 18, 2025 found no transmitter above about 0.1 watts.

8 A search finds only signals that are strong enough and at the frequencies observed, so it cannot prove that no transmitter could exist. Scientists still say the comet is almost certainly natural because NASA finds its color, speed, and direction consistent with a comet.

9 Open answer. A strong answer says a reader should ask who made a claim and what evidence would change the mind, and separate an open question from a working hypothesis and an extraordinary claim. The phrase was popularized by Sagan but used earlier by Truzzi, which shows even famous slogans need a source check.

10 False. The reading says the searches found no signals but that they have limits and cannot prove that no transmitter could exist.

11 No. The writer says the comet is almost certainly natural and treats the alien idea as a hypothesis without evidence, while also saying the questions about its origin are real.

12 Best answer: to show the limits of the evidence. The sentence names what the study covers and states that it describes a pattern, not a cause. It does not reject the study, because the reading uses its findings.

Notes on the Evidence

- Facts about the comet. Discovery on 1 July 2025 by the ATLAS survey telescope at Rio Hurtado, Chile (NASA Science, Facts and FAQs, updated 28 May 2026, fetched). Third confirmed interstellar object after 1I/'Oumuamua (2017) and 2I/Borisov (2019). NASA gives the nucleus size as between 440 meters and 5.6 kilometers (Hubble, 20 August 2025), speed about 221,000 kilometers per hour at discovery, and closest approach to Earth on 19 December 2025 at about 1.8 astronomical units (270 million kilometers). NASA says the comet's color, speed, and direction are consistent with a comet and that the small perturbations are compatible with outgassing.
- Age. Taylor and Seligman (2025) estimated a kinematic age of about 3 to 11 billion years (median about 6.9); Hopkins and colleagues gave more than 7.6 billion years. Cordiner and colleagues, Isotopic evidence for a cold and distant origin of 3I/ATLAS, Nature (22 June 2026, DOI 10.1038/s41586-026-10771-6): James Webb measurements of carbon isotopes and deuterium suggest up to about 12 billion years. The Nature paper was not opened; details come from Space.com, Smithsonian Magazine, and phys.org reports. The deuterium figure (about 30 times the level in solar-system comets) is from the Smithsonian report.
- Social media. Bayar (University of Washington Center for an Informed Public, 3 December 2025, fetched): about 700,000 English-language posts on X matching a keyword set, 1 July to 21 November 2025, collected with Brandwatch; almost 280,000 (about 40 percent) invoked aliens; about 130,000 mentioned Loeb, of which over 60 percent paired his name with the alien hypothesis. Peak around 28 to 30 October 2025. The International Asteroid Warning Network campaign was a non-emergency comet astrometry exercise. Limits: one platform, one language, one analyst; a Brandwatch capture; correlation with Loeb's appearances is not proof of cause.
- Loeb. Loeb rated 3I/ATLAS 4 on his own 0-to-10 scale at discovery (his Medium post, March 2026). The Bayar analysis records that he said the non-gravitational excess was not significant and at times that the comet was most likely natural, but that he entertained the alien frame in each of his major talking points. Loeb's own posts were not evaluated in detail. His nickel-without-iron and size arguments are contested by other astronomers; they are not assessed here.
- Radio searches. SETI Institute and Breakthrough Listen, Allen Telescope Array, 1 to 9 GHz, 7.25 hours in early July 2025; about 74 million narrowband hits, about 2 million after interference blanking, and 211 visually inspected; none worth follow-up. Published in The Astronomical Journal in June 2026 (Sheikh and colleagues, read through the arXiv PDF and press reports). Green Bank Telescope, 18 December 2025, 1 to 12 GHz, nondetection down to about 0.1 watts (Jacobson-Bell and colleagues, arXiv:2512.19763); the authors compare a mobile phone to about 1 watt.
- Corrections to the earlier EWJ version. The earlier text said SETI researchers scanned the comet for more than seven hours in June 2026; the observations were made in July 2025 and the paper appeared in June 2026. It said Loeb suggested the comet showed propulsion that no natural comet should have; the reading instead reports that he said the acceleration might be produced by an engine, also said the excess was not significant, and that NASA finds the perturbations compatible with outgassing. It said TikTok videos claiming a government cover-up got millions of views; no source read supports that, and the University of Washington study covers X only, so the claim was removed. It attributed the phrase about extraordinary claims to Sagan alone; Sagan popularized it (Broca's Brain, 1979; Cosmos, 1980), and Marcello Truzzi used a similar phrase earlier. The vocabulary was revised: mobilization, methodology, composition, and thought-provoking were dropped and anomalies, amplify, and hypothesis were added. Reporting is current to September 2026 and may be updated by later studies.