Evidence Under Pressure

Study how a scientific report earns trust through precise evidence and limits.

12.W.3.A "Revise writing for clarity of content, accuracy, and depth of information."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline every date or numerical measurement. In paragraph 3, circle the two sentences that explicitly say what DART does not prove or provide, so you can see how precise evidence and limits strengthen accuracy.

Testing an Asteroid Deflection Method

1. On September 26, 2022, NASA's DART spacecraft struck Dimorphos, a small moonlet that orbits the asteroid Didymos. Before the impact, Dimorphos completed one orbit in about 11 hours and 55 minutes. Observations from telescopes showed that its orbital period became about 11 hours and 23 minutes after the collision, a change of roughly 32 minutes. The mission did not destroy either object or remove a danger to Earth. Instead, it tested whether a spacecraft could deliberately alter an asteroid moonlet's motion under controlled conditions far from our planet.

2. The shortened orbit was not caused only by the spacecraft's direct push. The collision threw material away from Dimorphos, and that escaping debris added momentum to the change. Scientists estimated that DART transferred about 3.6 times as much momentum as the spacecraft alone would have delivered. Images from the Italian Space Agency's LICIACube, which flew past the system, helped researchers study the plume of ejecta. Together, those measurements connect the observed orbital change to both the collision and the material it expelled into space after impact.

3. DART was a demonstration, not a ready-made plan for every hazardous asteroid. Dimorphos is not on a path toward Earth, and its size, structure, and orbit were studied before the test. A future response would depend on how early an object was discovered, how it was built, and how much its orbit needed to change. Therefore, the result supports further testing of kinetic impactors, but it would not by itself prove that one mission could protect Earth from every impact threat. Clear reporting keeps that distinction visible.

2 ANSWER WITH EVIDENCE

Use the passage

1. A social media post says, “DART saved Earth from an asteroid.” Revise the claim in 20 to 30 words using evidence from paragraph 1.

2. A draft says that DART's direct push alone changed Dimorphos's orbit. Write a 25 to 35 word correction using two details from paragraph 2.

3. A draft lists “32 minutes” and “3.6 times” without labels. Write one sentence that identifies what each number measures.

4. Revise this claim in 20 to 30 words so it matches paragraph 3: “Because DART worked, one spacecraft can protect Earth from every asteroid.”

3 YOUR TURN

Your own words

Revise the draft below into exactly two sentences, 35 to 50 words. Include at least two precise facts and one limit on the conclusion. Draft: “The James Webb telescope found that ancient galaxies were everywhere, which changes everything.” Source notes: JWST data confirmed that light from galaxy JADES-GS-z14-0 was emitted about 290 million years after the Big Bang. One observation cannot show how common early galaxies were.

ANSWER KEY

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GRADE 12 · 12.W.3.A

PART 1 · READ AND MARK

Underline every date or numerical measurement. In paragraph 3, circle the two sentences that explicitly say what DART does not prove or provide, so you can see how precise evidence and limits strengthen accuracy. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	A social media post says, "DART saved Earth from an asteroid." Revise the claim in 20 to 30 words using evidence from paragraph 1.	**DART shortened Dimorphos's orbit by about 32 minutes, showing that a spacecraft can alter an asteroid moonlet's motion under controlled test conditions.**
2	A draft says that DART's direct push alone changed Dimorphos's orbit. Write a 25 to 35 word correction using two details from paragraph 2.	**The impact expelled material from Dimorphos, and the escaping debris added momentum. Scientists estimated total transferred momentum at about 3.6 times the amount the spacecraft alone would have delivered.**
3	A draft lists "32 minutes" and "3.6 times" without labels. Write one sentence that identifies what each number measures.	**The 32 minutes measures how much Dimorphos's orbital period shortened, while 3.6 times compares the total momentum transferred with the momentum from the spacecraft alone.**
4	Revise this claim in 20 to 30 words so it matches paragraph 3: "Because DART worked, one spacecraft can protect Earth from every asteroid."	**DART supports further testing of kinetic impactors, but one mission would not by itself prove that every asteroid impact threat can be prevented.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Using JWST data, researchers confirmed that light from galaxy JADES-GS-z14-0 was emitted about 290 million years after the Big Bang. This single observation gives evidence about early galaxies, but it does not show that such galaxies were common throughout the early universe.

Accept revisions that preserve the measured results, distinguish direct evidence from broader conclusions, and use qualifying language where the evidence is limited. For the open task, accept varied wording if it has exactly two sentences, contains 35 to 50 words, includes two accurate source-note facts, and states a clear limitation.