

Spot the *Hallucination*

24 task cards with answers an AI might give. Some are true, some are confident fabrications. Students sort them, name the type of error and practice checking claims, the skill every AI user needs.

GRADES 6-12

30-45 MIN OR STATIONS

WORKS WITH OR WITHOUT DEVICES

AI LITERACY · MEDIA LITERACY · SCIENCE

CARD 8

Yes. Albert Einstein failed math in school.

HALLUCINATION · MYTH

CARD 18

Botanically, bananas are berries, but strawberries are not.

TRUE · REALLY!

CARD 9

A 2019 Stanford University study found that students who study with AI score 47% higher on tests.

HALLUCINATION · FAKE SOURCE

WHAT'S INSIDE

- Teacher guide & 4 ways to play
- Hallucination-types reference poster
- Recording sheets
- Exit ticket
- 24 task cards
- SIFT fact-check reference page
- Full answer key with explanations
- Standards & sources

THE BIG IDEA

Sounding right $\neq$ *being right*

AI chatbots write by predicting likely words, so they can produce statements that sound perfectly confident and are completely false. These are called **hallucinations**. They often repeat popular myths, blend real facts, or invent sources. The goal isn't to make students distrust everything. It's to teach **calibrated trust**: check before you rely on it.

Four ways to play

1 • SCOOT / STATIONS

Tape cards around the room. Students rotate, record a verdict, a confidence (1–5) and how they'd check.

2 • PARTNER SORT

Pairs sort cards into three piles: True, Hallucination, Not sure yet. Then they argue about the "not sure" pile.

3 • FACT-CHECK RACE (DEVICES)

Teams verify 4 cards each using SIFT. A verdict only counts with **two independent, trustworthy sources**.

4 • NO DEVICES

Students rate confidence and write how they *would* check. Reveal the key and discuss which cards fooled the most people, and why.

The five types of hallucination

TYPE	WHAT IT IS	EXAMPLE
Myth repeated	A popular belief that's false. It shows up so often online that the model predicts it.	"Lightning never strikes twice."
Fake source	An invented study, book, quote or official rule, often with precise-sounding numbers.	"A 2019 Stanford study found..."
Mixed-up details	Two real facts blended into one wrong one.	Gold's symbol is Ag (that's silver).
Wrong fact	A plain error stated with total confidence.	Penguins at the North Pole.
Oversimplified	Part true, but missing the details that change the meaning.	"Edison alone invented the bulb."

"11 of these 24 cards are true, and some of the true ones are the weirdest. The point isn't to doubt everything. It's to know how to check."

DISPLAY OR GIVE ONE TO EACH STUDENT

Check it with *SIFT*

- S** Stop
Before you share or use it, pause. How sure am I? Does it sound too neat?
- I** Investigate the source
Who says this? An AI isn't a source. Where did the claim come from?
- F** Find better coverage
Look for two trustworthy, independent sources: an encyclopedia, a .gov or .edu site, a museum, a science agency.
- T** Trace it back
Find the original study, book or quote. If you can't find it, it might not exist.

SIFT was created by digital-literacy researcher Mike Caulfield.

AI *red flags*

- A very precise number with no source ("47% higher")
- A famous name attached to a claim ("A Stanford study...", "Einstein said...")
- Words like *always*, *never*, *every*, *exactly*
- A book, case or article you can't find anywhere else
- A "fact" you've heard a hundred times but never checked
- An answer that matches exactly what you hoped to hear

Green flag: the AI gives a link, you open it, and the page actually says the same thing. (Always open the link! AI tools sometimes cite real pages that don't support the claim.)

Cut along the dashed lines. Each card shows a question someone asked and the answer an AI gave.

× Card 1 TRUE OR HALLUCINATION? Q: How far away is the Moon? AI: The Moon is about 384,000 km (239,000 miles) from Earth on average.	× Card 2 TRUE OR HALLUCINATION? Q: What is the tallest mountain on Earth? AI: Mount Everest is the tallest mountain on Earth measured from its base to its peak.	× Card 3 TRUE OR HALLUCINATION? Q: Can lightning hit the same spot twice? AI: No. Lightning never strikes the same place twice.
× Card 4 TRUE OR HALLUCINATION? Q: How much of our brain do we use? AI: Humans only use about 10% of their brains.	× Card 5 TRUE OR HALLUCINATION? Q: How many hearts does an octopus have? AI: An octopus has three hearts.	× Card 6 TRUE OR HALLUCINATION? Q: Which planet is hottest? AI: Venus is the hottest planet in our solar system, even though Mercury is closer to the Sun.
× Card 7 TRUE OR HALLUCINATION? Q: Where did the transformer come from? AI: The transformer method behind ChatGPT was introduced in the 2017 research paper "Attention Is All You Need."	× Card 8 TRUE OR HALLUCINATION? Q: Was Einstein bad at math? AI: Yes. Albert Einstein failed math in school.	× Card 9 TRUE OR HALLUCINATION? Q: Does studying with AI help? AI: A 2019 Stanford University study found that students who study with AI score 47% higher on tests.
× Card 10 TRUE OR HALLUCINATION? Q: Are bats blind? AI: Yes, bats are blind and rely only on echolocation.	× Card 11 TRUE OR HALLUCINATION? Q: Is sound faster in water or air? AI: Sound travels faster in water than in air, about four times faster.	× Card 12 TRUE OR HALLUCINATION? Q: What's the chemical symbol for gold? AI: The chemical symbol for gold is Ag.

Cut along the dashed lines.

× Card 13 TRUE OR HALLUCINATION? Q: What are diamonds made of? AI: Diamonds are made of carbon atoms arranged in a very strong crystal.	× Card 14 TRUE OR HALLUCINATION? Q: How many bones are in an adult body? AI: An adult human skeleton has 206 bones.	× Card 15 TRUE OR HALLUCINATION? Q: Did Isaac Asimov win a Hugo Award? AI: Yes. Isaac Asimov's novel "The Clockmaker of Mars" won the Hugo Award for Best Novel in 1972.
× Card 16 TRUE OR HALLUCINATION? Q: Is Pluto a planet? AI: Pluto was reclassified as a dwarf planet in 2006.	× Card 17 TRUE OR HALLUCINATION? Q: Where do penguins live? AI: Penguins live at both the North Pole and the South Pole.	× Card 18 TRUE OR HALLUCINATION? Q: Is a banana a berry? AI: Botanically, bananas are berries, but strawberries are not.
× Card 19 TRUE OR HALLUCINATION? Q: How fast is light? AI: Light travels about 300,000 km (186,000 miles) per second.	× Card 20 TRUE OR HALLUCINATION? Q: Who invented the light bulb? AI: Thomas Edison invented the first light bulb in 1879. Nobody had made one before him.	× Card 21 TRUE OR HALLUCINATION? Q: How much water should I drink? AI: The CDC says every adult must drink exactly 8 glasses of water a day.
× Card 22 TRUE OR HALLUCINATION? Q: Can you see the Great Wall from the Moon? AI: Yes, the Great Wall of China is easy to see from the Moon with the naked eye.	× Card 23 TRUE OR HALLUCINATION? Q: Does water boil differently on a mountain? AI: Water boils at a lower temperature high on a mountain than at sea level.	× Card 24 TRUE OR HALLUCINATION? Q: Do goldfish have bad memories? AI: Goldfish only have a three-second memory.

Name: _____ Date: _____ Class: _____

T = true · **H** = hallucination · **?** = not sure yet. Confidence: 1 = guessing, 5 = certain.

#	MY VERDICT	CONFIDENCE	IF H: WHAT TYPE?	HOW I CHECKED / WOULD CHECK
1	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
2	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
3	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
4	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
5	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
6	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
7	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
8	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
9	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
10	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
11	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
12	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		

Name: _____

Date: _____

Class: _____

Types: Myth repeated · Fake source · Mixed-up details · Wrong fact · Oversimplified

#	MY VERDICT	CONFIDENCE	IF H: WHAT TYPE?	HOW I CHECKED / WOULD CHECK
13	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
14	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
15	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
16	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
17	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
18	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
19	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
20	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
21	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
22	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
23	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		
24	☐ T ☐ H ☐ ?	1 · 2 · 3 · 4 · 5		

Answer *key* · 1 of 2

#	VERDICT	WHY
1	TRUE	Correct average distance (NASA).
2	HALLUCINATION Mixed-up details	Everest has the highest summit above sea level. Measured base to peak, Mauna Kea in Hawaii is taller, since most of it is underwater.
3	HALLUCINATION Myth repeated	Tall objects are hit again and again. The Empire State Building is struck about 20+ times a year (U.S. National Weather Service).
4	HALLUCINATION Myth repeated	Brain scans show we use virtually all of the brain, just not every part at the same moment.
5	TRUE	Two pump blood through the gills and one pumps it to the rest of the body.
6	TRUE	Venus's thick carbon-dioxide atmosphere traps heat (around 465 °C, about 870 °F).
7	TRUE	Vaswani et al., 2017. The "T" in GPT stands for transformer.
8	HALLUCINATION Myth repeated	Einstein excelled at math and had mastered calculus by about age 15. The myth is very common online, so a model has seen it often.
9	HALLUCINATION Fake source	We could not find this study. A famous university plus a precise number is a classic invented citation. Unless you can find the actual paper, treat it as a hallucination.
10	HALLUCINATION Myth repeated	All bats can see. Many use echolocation too, and some fruit bats see very well.
11	TRUE	About 1,480 m/s in water vs. about 343 m/s in air.
12	HALLUCINATION Mixed-up details	Gold is Au (from Latin aurum). Ag is silver (argentum). The two often appear together in text.

Answer *key* · 2 of 2

#	VERDICT	WHY
13	TRUE	Diamond and graphite (pencil “lead”) are both pure carbon.
14	TRUE	Babies have more (around 270), and some fuse as they grow.
15	HALLUCINATION Fake source	No such book exists. The 1972 winner was Philip José Farmer’s “To Your Scattered Bodies Go.” Asimov won in 1973 for “The Gods Themselves.” Real name + invented title.
16	TRUE	The International Astronomical Union voted on the new definition in August 2006.
17	HALLUCINATION Wrong fact	Wild penguins live almost entirely in the Southern Hemisphere. None live in the Arctic.
18	TRUE	Surprising but true. In botany a berry develops from one flower’s single ovary. Strange-sounding doesn’t mean false!
19	TRUE	The exact value is 299,792 km/s in a vacuum.
20	HALLUCINATION Oversimplified	Others, including Joseph Swan, built working incandescent lamps earlier. Edison’s team made a practical, long-lasting bulb and a system to power it.
21	HALLUCINATION Fake source	The CDC says there is no recommendation for how much plain water adults should drink daily. Needs vary, and food and other drinks count too.
22	HALLUCINATION Myth repeated	It’s far too narrow to see from the Moon. Even from low orbit, astronauts say it’s very hard to spot.
23	TRUE	Lower air pressure means water boils at about 70 °C (158 °F) at the top of Everest.
24	HALLUCINATION Myth repeated	Experiments show goldfish can remember things for months and can be trained.

EXIT TICKET · SPOT THE HALLUCINATION

Name: _____

1. In your own words, what is an AI hallucination?

2. Why might an AI repeat a popular myth?

3. An AI tells you "According to a 2021 Harvard study, 9 out of 10 teens...". Name two things you would do before believing it.

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Standards *alignment*

FRAMEWORK	CONNECTION
AI4K12 Five Big Ideas	#4 Natural Interaction (limits of language models) and #5 Societal Impact (misinformation)
ISTE Students 1.3 Knowledge Constructor	Evaluate the accuracy, perspective, credibility and relevance of information and sources
CCSS ELA RI.6–12.8	Trace and evaluate claims, and judge whether the evidence is relevant and sufficient
NGSS Science & Engineering Practices	Obtaining, evaluating and communicating information

Sources used in the answer key

- NASA Science (Moon, Venus, Pluto and solar-system facts) · science.nasa.gov
- U.S. National Weather Service, lightning safety facts and myths · weather.gov
- U.S. Centers for Disease Control and Prevention (CDC), “About Water and Healthier Drinks” (no daily plain-water recommendation) · cdc.gov
- Vaswani, A. et al. (2017). “Attention Is All You Need.” *NeurIPS*.
- World Science Fiction Society, Hugo Award history (1972 and 1973 Best Novel) · thehugoawards.org
- Caulfield, M. SIFT (The Four Moves) · hapgood.us
- Interactive companion: arxiv.si/teachers/labs and the free lesson arxiv.si/teachers/fact-check-the-bot

Thank you for teaching with ARQIV

This resource was made to help students think first and then learn to use AI well. We hope it sparks great conversations in your classroom.

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- Print and copy this resource for the students in your own classes.
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