

BEFORE YOU CALL IT ALIEN

ILLUSTRATION TEACHING MANUAL

CURATED EDITION — 33 VISUAL RESOURCES



SEE THE EVIDENCE. TEACH THE REASONING.

OBSERVE / MEASURE / COMPARE / CONCLUDE

F. S. LYONS

HOW TO USE THIS MANUAL

DISPLAY THE VISUAL. THEN TEACH THE REASONING.

The 21 core visuals retain their display-and-teaching pairs. The curated appendix adds two selected archive plates and ten recovered teaching plates, with all navigation updated for the shortened edition.

DISPLAY Project, print, or share the full figure.	DISCUSS Separate what is visible from what is inferred.	PRACTICE Use the short activity to apply the concept.	REFLECT End with the evidence-discipline reminder.
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Part I · Technical workbook diagrams

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Production note: Original files are preserved. The separate 2× teaching files improve display flexibility but do not create new scientific detail.

CURRENT STARSHIP-SCIENCE TEACHING ART

The twelve current book plates and the website-only companion scene are gathered here as full teaching resources. These images were absent from the first illustration manual.

ID	VISUAL LESSON	SOURCE	START
A01	<u>Inferred Shape</u>	Main book art	20
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Inventory rule: Logos, contact sheets, cover concepts, page proofs, screenshots, and superseded illustration drafts are excluded because they are not standalone current teaching illustrations.

FIGURE 2.1 · DISPLAY PAGE

HUMAN VISUAL PATHWAY

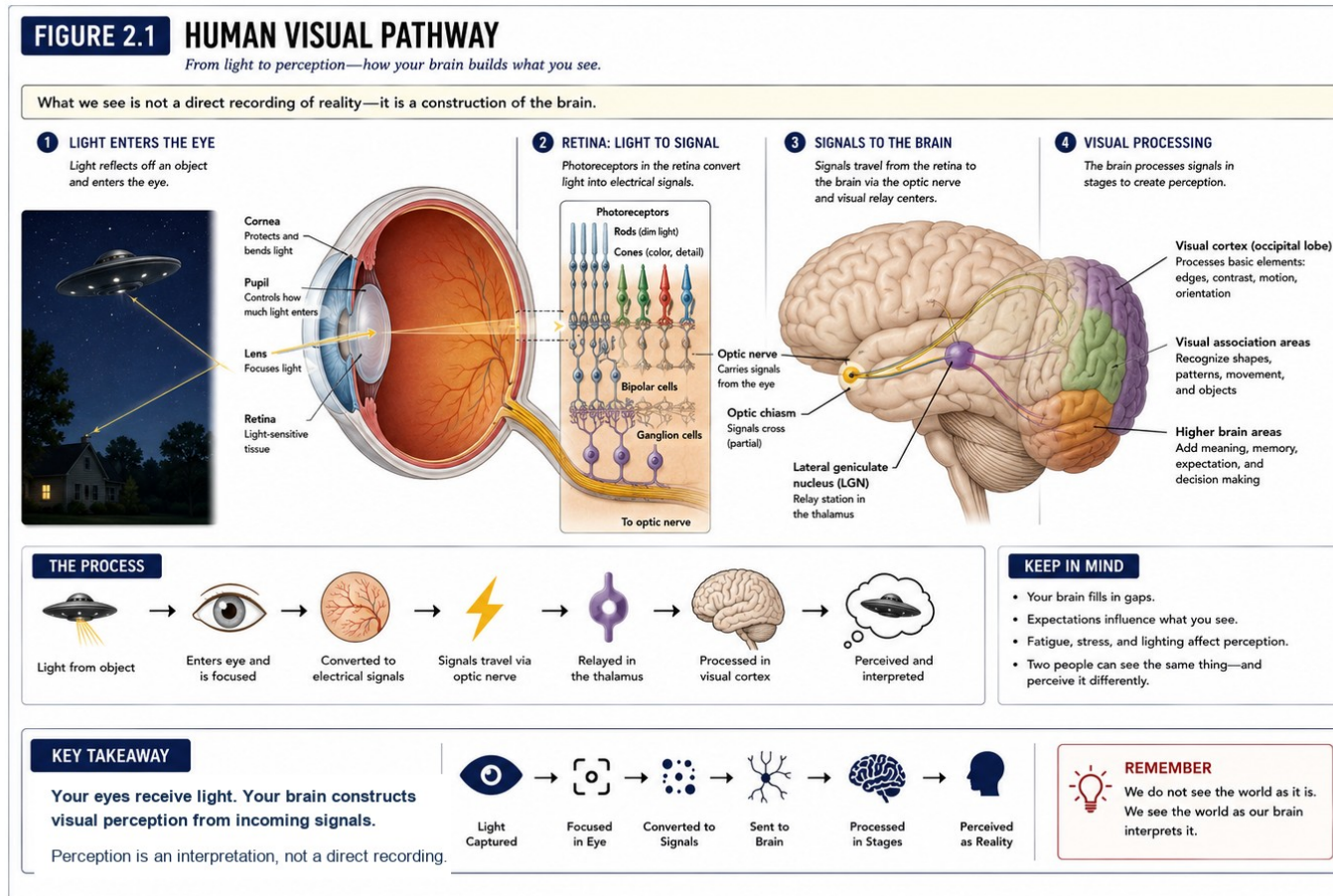


Figure 2.1 — Human Visual Pathway

Teaching lens: Seeing is an active biological construction, not a direct copy of the outside world.

FIGURE 2.1 · TEACHING PAGE

TEACHING NOTES: HUMAN VISUAL PATHWAY

CORE IDEA

Seeing is an active biological construction, not a direct copy of the outside world.

WHAT TO NOTICE

- The pathway begins with incoming light and continues through the eye, retina, optic nerve, and brain.
- Each stage can limit detail, color, contrast, timing, and confidence in a later report.

QUICK ACTIVITY

Show a complex scene for fifteen seconds. Ask readers to record only directly observed details, then compare those notes with their interpretations.

ASK READERS

- Which parts of a witness statement describe sensory input, and which parts interpret that input?
- What viewing conditions could change what the observer was able to resolve?

ACCESSIBLE DESCRIPTION

Diagram of the human visual pathway from incoming light through the eye, retina, optic nerve, and brain.

EVIDENCE DISCIPLINE The diagram simplifies a complex visual system. It supports discussion of perception limits; it is not a medical diagnostic model.

FIGURE 2.2 · DISPLAY PAGE

MOTION PARALLAX

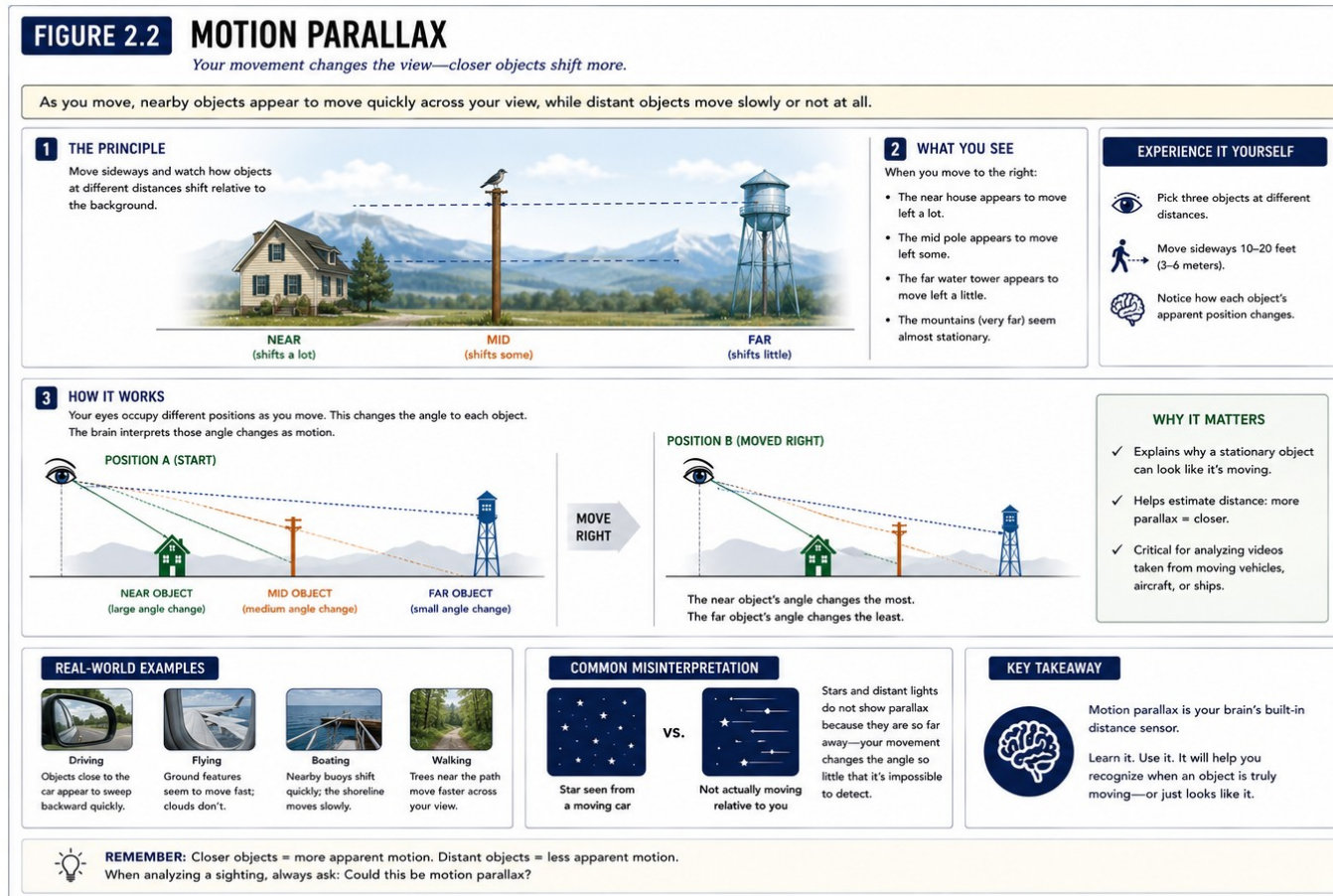


Figure 2.2 — Motion Parallax

Teaching lens: Observer motion can create very different apparent movement for near and distant objects.

FIGURE 2.2 · TEACHING PAGE

TEACHING NOTES: MOTION PARALLAX

CORE IDEA

Observer motion can create very different apparent movement for near and distant objects.

WHAT TO NOTICE

- Nearby objects shift farther across the field of view than distant objects during the same observer movement.
- Apparent movement is a relationship among observer, object, background, and time.

QUICK ACTIVITY

Hold a thumb at arm's length, alternate eyes, and compare its shift against a near wall and a distant background. List what changed and what did not.

ASK READERS

- Was the observer, vehicle, or camera moving when the apparent motion occurred?
- What range information would be needed before estimating physical speed?

ACCESSIBLE DESCRIPTION

Motion-parallax diagram showing that nearby objects shift more than distant objects as an observer moves.

EVIDENCE DISCIPLINE Apparent motion alone does not establish a target's true path, distance, or speed.

FIGURE 3.2 · DISPLAY PAGE

ELECTROMAGNETIC SPECTRUM

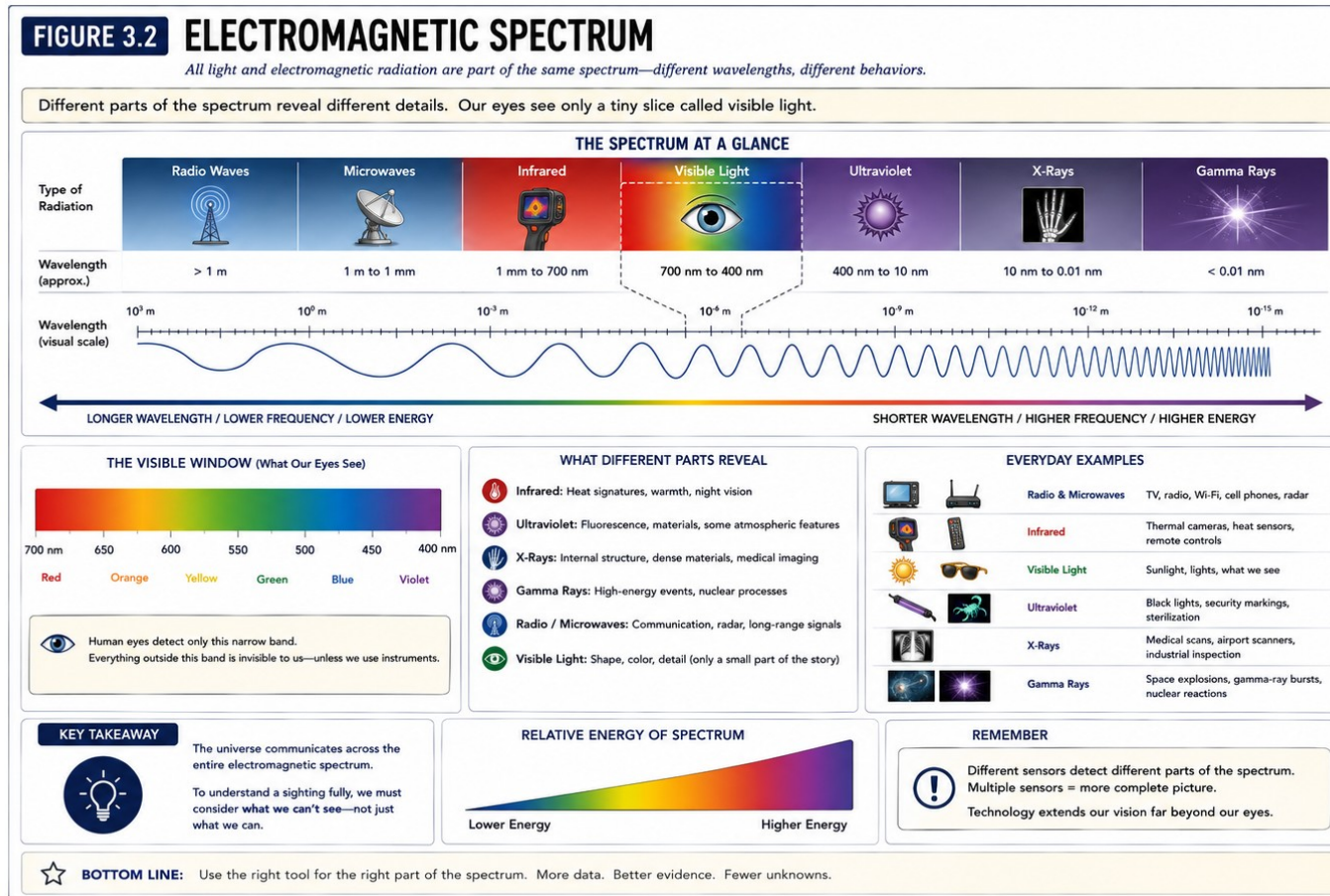


Figure 3.2 — Electromagnetic Spectrum

Teaching lens: Human sight samples only a narrow band of the electromagnetic spectrum.

FIGURE 3.2 · TEACHING PAGE

TEACHING NOTES: ELECTROMAGNETIC SPECTRUM

CORE IDEA

Human sight samples only a narrow band of the electromagnetic spectrum.

WHAT TO NOTICE

- Visible light occupies a small portion of the spectrum shown in the figure.
- Different instruments respond to different wavelength ranges and require different interpretation.

QUICK ACTIVITY

Give readers three hypothetical reports—visible, infrared, and radar—and ask them to list what each report can support and what remains unknown.

ASK READERS

- What band did each sensor actually measure?
- What calibration, processing, and environmental information is needed to compare those records?

ACCESSIBLE DESCRIPTION

Electromagnetic spectrum from radio waves through gamma rays, highlighting the narrow visible-light band.

EVIDENCE DISCIPLINE A signal in any band is a measurement, not an identity. Instrument limits and metadata remain part of the claim.

FIGURE 4.1 · DISPLAY PAGE

DIGITAL IMAGING CHAIN

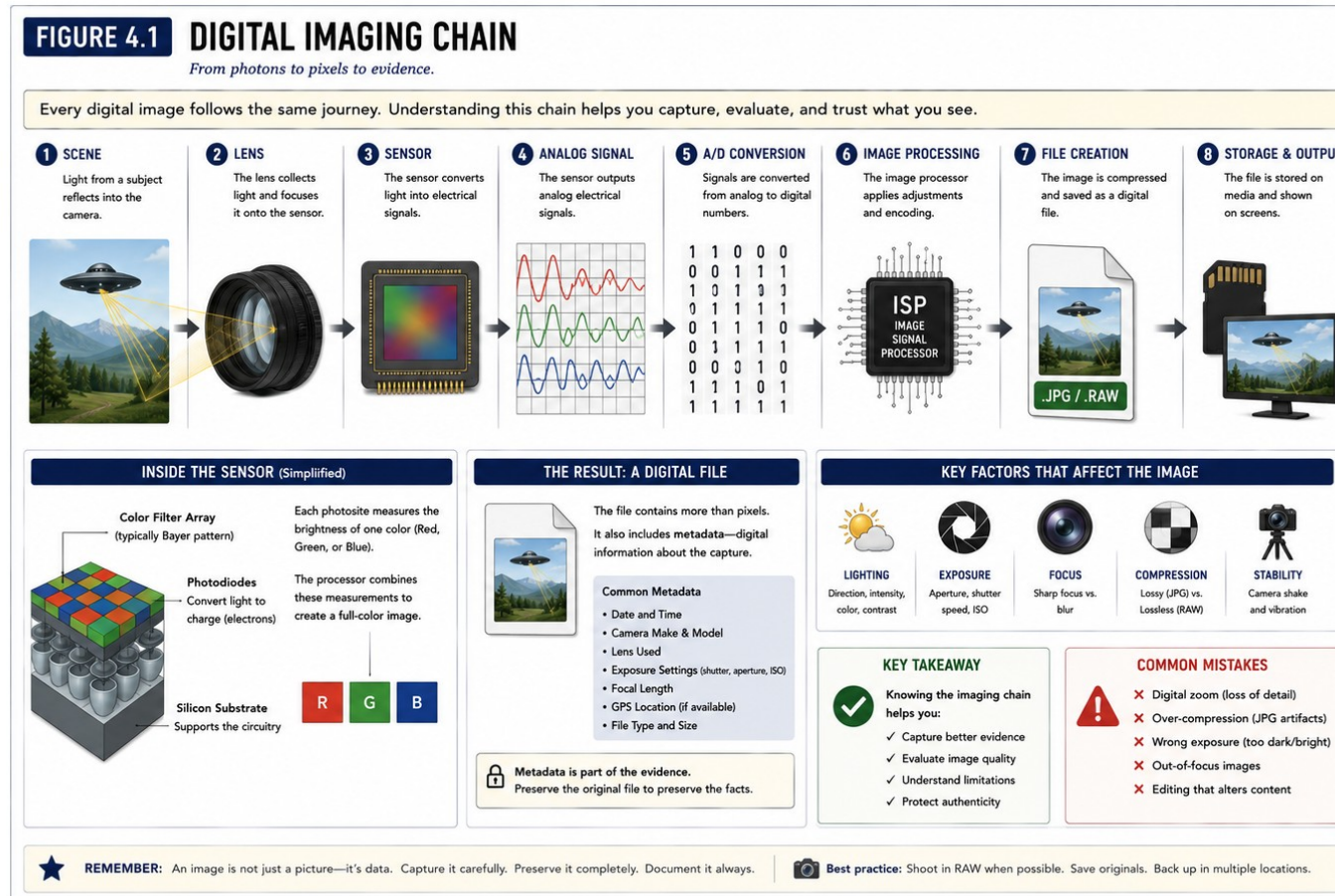


Figure 4.1 — Digital Imaging Chain

Teaching lens: A digital image is the result of a chain of capture and processing decisions.

FIGURE 4.1 · TEACHING PAGE

TEACHING NOTES: DIGITAL IMAGING CHAIN

CORE IDEA

A digital image is the result of a chain of capture and processing decisions.

WHAT TO NOTICE

- Light passes through optics and a sensor before electronics and software create a stored file.
- Each link can introduce clipping, compression, sharpening, denoising, scaling, or metadata loss.

QUICK ACTIVITY

Map the history of one phone image from capture through messaging, screenshotting, editing, and reposting. Mark every point where information may change.

ASK READERS

- Which file is closest to the original capture?
- What transformations occurred before the image reached the reviewer?

ACCESSIBLE DESCRIPTION

Digital imaging chain from scene and lens through sensor, processing, file creation, and storage.

EVIDENCE DISCIPLINE Enhancement can make existing patterns easier to see, but it cannot recover detail that the capture never recorded.

FIGURE 4.3 · DISPLAY PAGE

MULTISENSOR CONVERGENCE

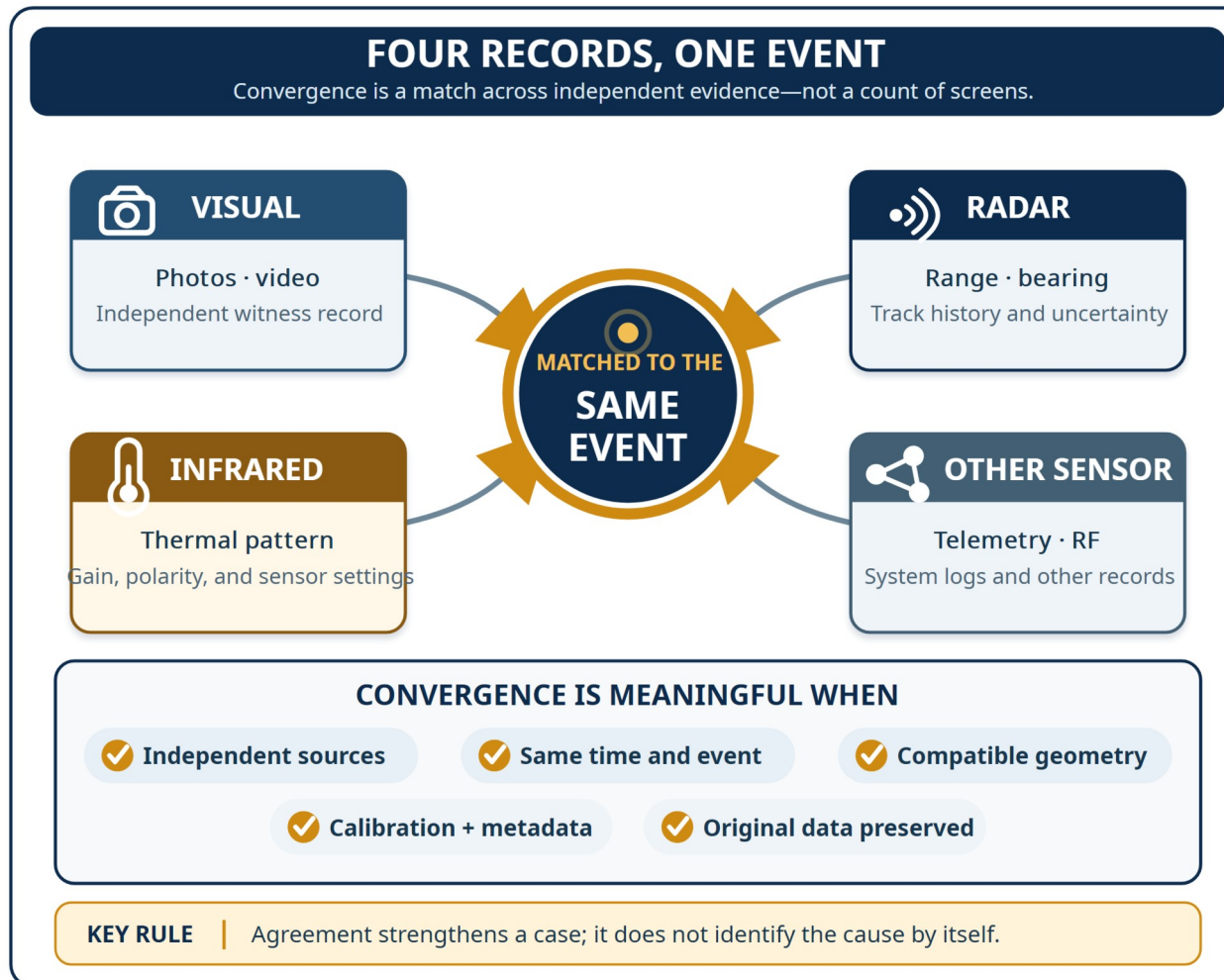


Figure 4.3 — Multisensor Convergence

Teaching lens: Multiple records become stronger together only when they truly describe the same event and add independent information.

FIGURE 4.3 · TEACHING PAGE

TEACHING NOTES: MULTISENSOR CONVERGENCE

CORE IDEA

Multiple records become stronger together only when they truly describe the same event and add independent information.

WHAT TO NOTICE

- Time, bearing, elevation, range, path, and uncertainty must be compared before records are combined.
- Shared processing or a shared source can make several displays look independent when they are not.

QUICK ACTIVITY

Build a sensor-correlation table with columns for source, clock, location, calibration, geometry, original data, and dependencies.

ASK READERS

- Which sources are genuinely independent?
- Do their timing and geometry agree within known uncertainty?

ACCESSIBLE DESCRIPTION

Diagram showing visual, radar, infrared, and other sensor records converging on one event, with requirements for independence, matching time and geometry, calibration, metadata, and preserved originals.

EVIDENCE DISCIPLINE A larger number of displays is not automatically stronger evidence. Independence and correlation must be demonstrated.

FIGURE 5.1 · DISPLAY PAGE

SAME ANGLE, DIFFERENT RANGE

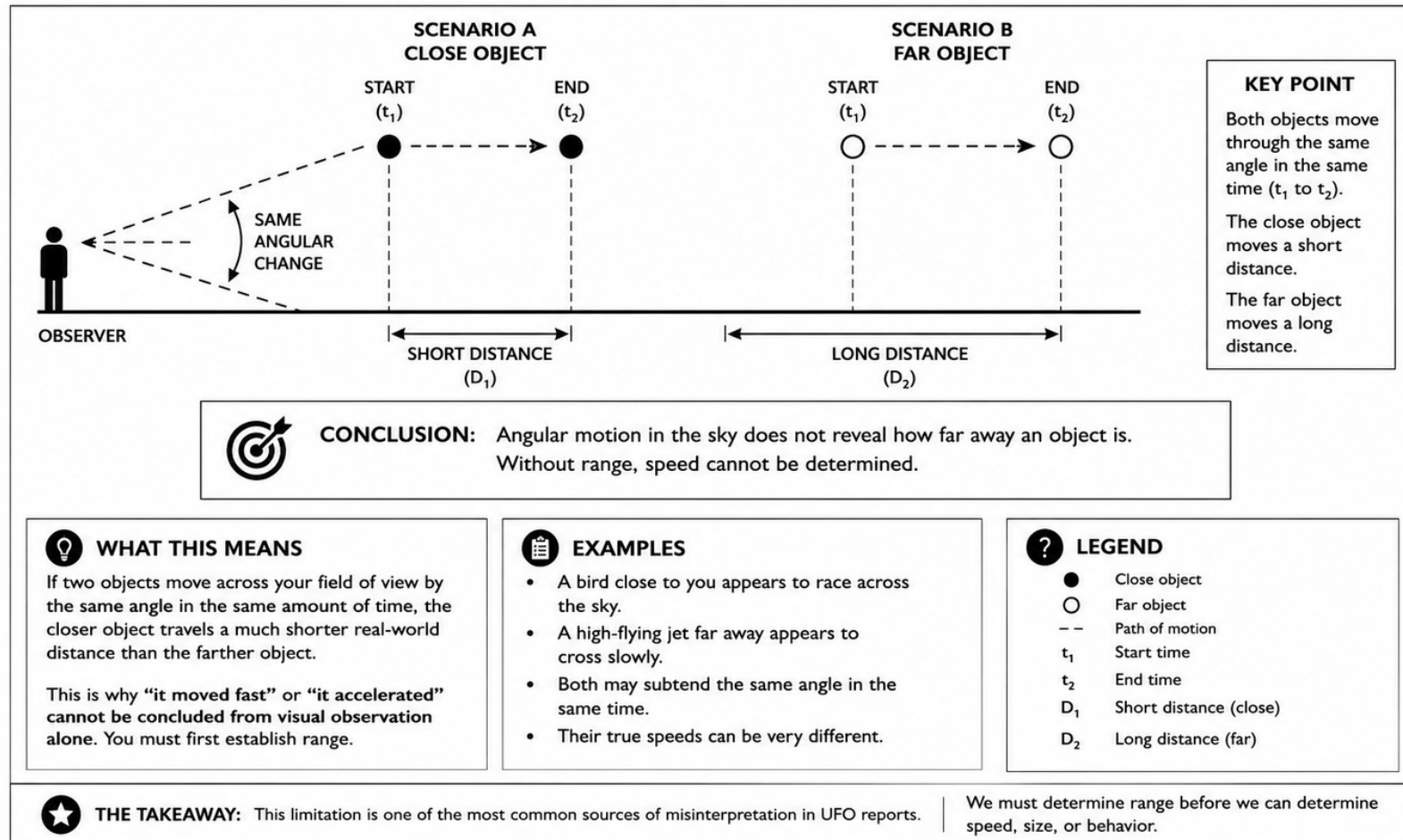


Figure 5.1 — Same Angle, Different Range

Teaching lens: The same angular change can correspond to very different physical travel at different ranges.

FIGURE 5.1 · TEACHING PAGE

TEACHING NOTES: SAME ANGLE, DIFFERENT RANGE

CORE IDEA

The same angular change can correspond to very different physical travel at different ranges.

WHAT TO NOTICE

- Angular motion can be measured even when physical distance and speed remain undetermined.
- Range assumptions control the conversion from an angle on the sky to a distance traveled.

QUICK ACTIVITY

Choose two plausible ranges for one angular movement. Compare the corresponding path lengths and identify which conclusion survives both assumptions.

ASK READERS

- Is range measured, estimated, bounded, or unknown?
- How does the speed estimate change when a different plausible range is used?

ACCESSIBLE DESCRIPTION

Geometry diagram showing how the same angular motion can represent different physical distances at different ranges.

EVIDENCE DISCIPLINE Do not convert angular movement into extraordinary physical speed without a supported distance estimate.

FIGURE 7.1 · DISPLAY PAGE

FROM SIGHTING TO EVIDENCE FILE

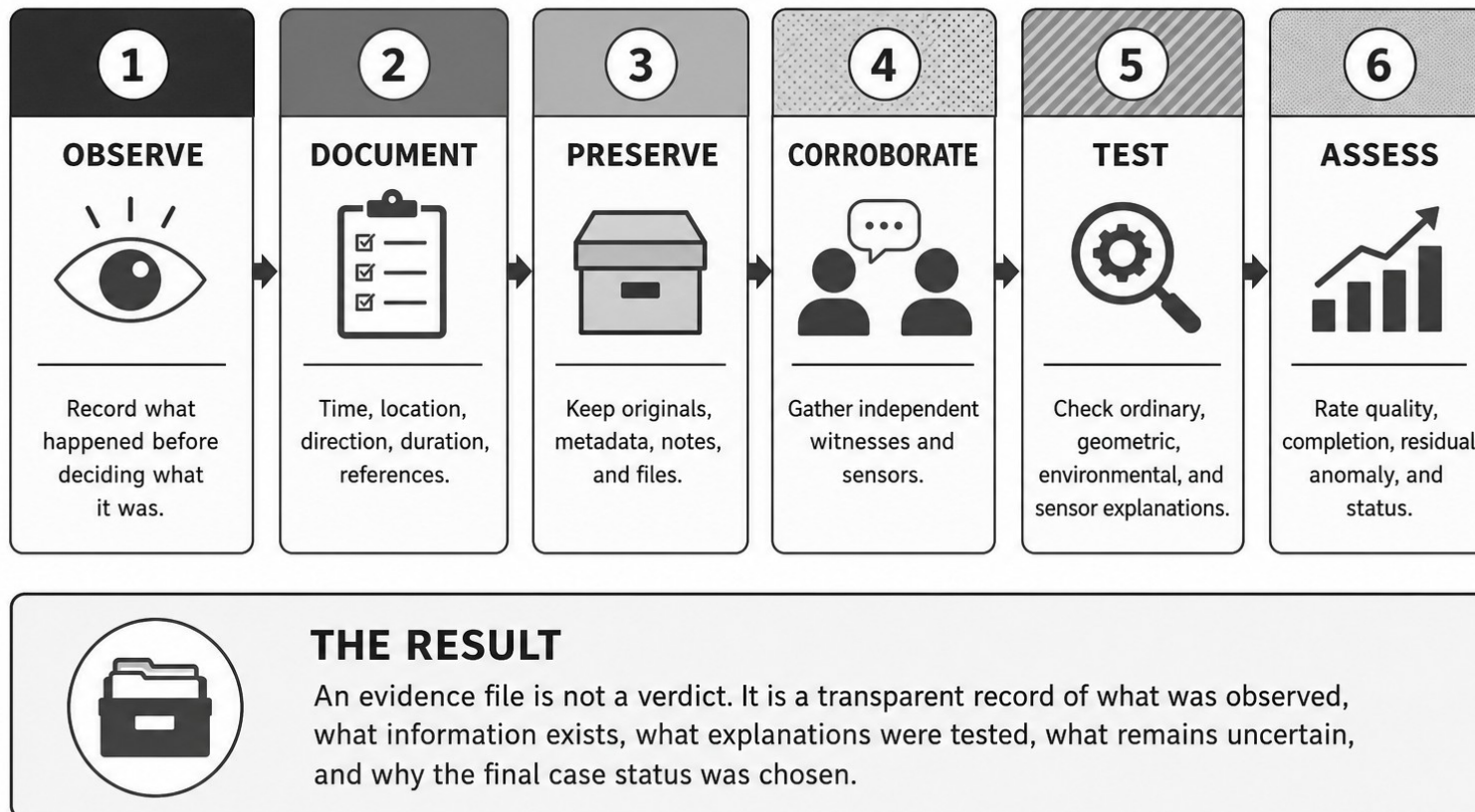


Figure 7.1 — From Sighting to Evidence File

Teaching lens: A disciplined workflow protects the observation before interpretation takes over.

FIGURE 7.1 · TEACHING PAGE

TEACHING NOTES: FROM SIGHTING TO EVIDENCE FILE

CORE IDEA

A disciplined workflow protects the observation before interpretation takes over.

WHAT TO NOTICE

- Documentation and preservation occur before corroboration, testing, and assessment.
- Each stage should leave a record another careful reviewer can inspect.

QUICK ACTIVITY

Give groups a short sighting scenario and six workflow cards. Ask them to order the cards and name the completion evidence for each step.

ASK READERS

- Which step was completed first, and which steps were skipped?
- What original records still exist, and who has handled them?

ACCESSIBLE DESCRIPTION

Evidence-file workflow moving through observe, document, preserve, corroborate, test, and assess.

EVIDENCE DISCIPLINE A conclusion remains provisional. A well-kept evidence file makes revision possible when better information appears.

FIGURE 7.2 · DISPLAY PAGE

EVIDENCE MAP

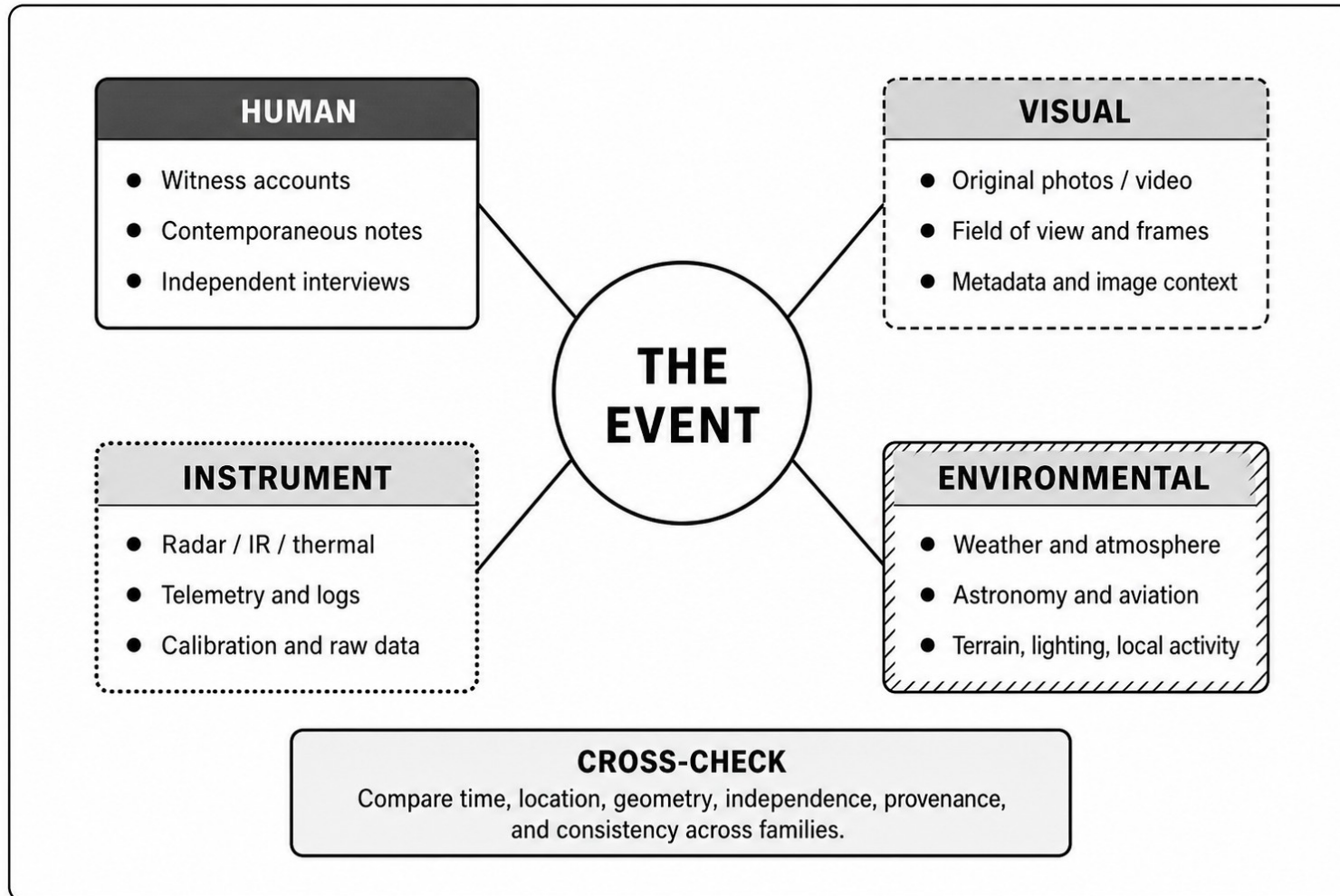


Figure 7.2 — Evidence Map

Teaching lens: Different evidence families constrain different parts of a case and carry different limitations.

FIGURE 7.2 · TEACHING PAGE

TEACHING NOTES: EVIDENCE MAP

CORE IDEA

Different evidence families constrain different parts of a case and carry different limitations.

WHAT TO NOTICE

- Human, visual, instrument, and environmental records answer different questions.
- Evidence quantity, quality, access, and independence should be tracked separately.

QUICK ACTIVITY

Sort a sample evidence list into the four families, then connect items that share a source or dependency. Identify the strongest independent combination.

ASK READERS

- Which family contains each available record?
- What missing family or missing metadata most limits the next conclusion?

ACCESSIBLE DESCRIPTION

Evidence map organized into Human, Visual, Instrument, and Environmental families.

EVIDENCE DISCIPLINE More evidence is not necessarily better evidence. Repetition, copying, or common processing can reduce independence.

INFERRED SHAPE



Figure A01 — Inferred Shape

Teaching lens: The mind can add a shape the light never supplied.

TEACHING NOTES: INFERRED SHAPE

CORE IDEA

The mind can add a shape the light never supplied.

WHAT TO NOTICE

- The three light points are observations; the boundary connecting them is an interpretation.
- A visually compelling pattern can appear before distance, structure, or common motion has been established.

QUICK ACTIVITY

Show three dots without a caption. Have readers list direct observations, then sketch several possible interpretations and label every added assumption.

ASK READERS

- What remains in the evidence if every connecting line is removed?
- What other arrangements could produce the same three light points?

ACCESSIBLE DESCRIPTION

Two adult science officers compare three isolated lights with a suggested connecting outline inside a starship astrometrics laboratory.

EVIDENCE DISCIPLINE Perceptual completion can suggest a hypothesis, but it does not establish a physical boundary or craft.

MAGNIFICATION AND INFORMATION

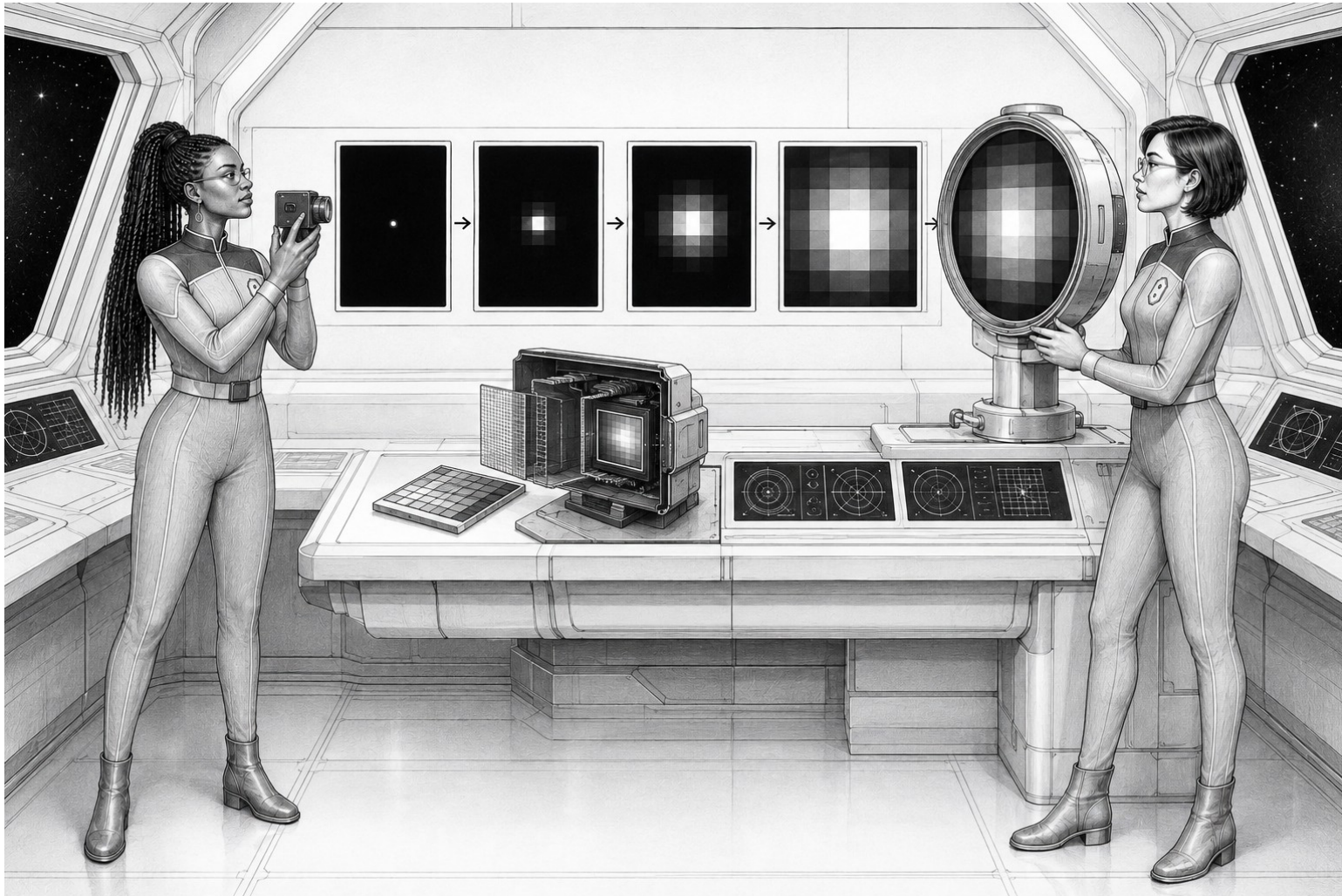


Figure A02 — Magnification and Information

Teaching lens: More magnification does not automatically mean more information.

TEACHING NOTES: MAGNIFICATION AND INFORMATION

CORE IDEA

More magnification does not automatically mean more information.

WHAT TO NOTICE

- The target grows on the display while its recorded sampling stays limited.
- Enlargement can expose pixels, blur, compression blocks, sharpening halos, or interpolation.

QUICK ACTIVITY

Enlarge a small crop in several steps. At each step, separate newly visible recorded structure from artifacts created by display or interpolation.

ASK READERS

- What was the native resolution of the original capture?
- Which visible features came from the sensor, and which came from later processing?

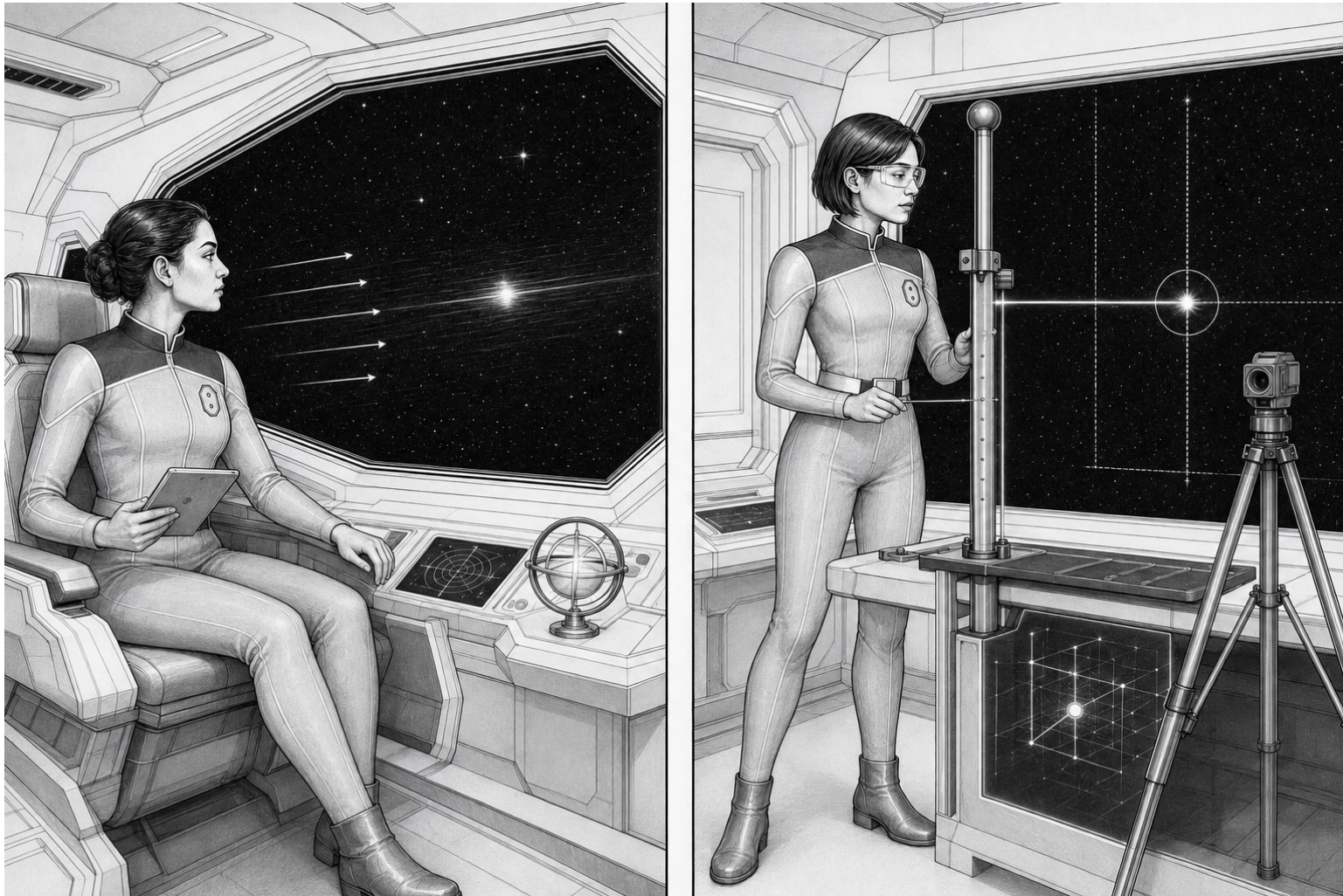
ACCESSIBLE DESCRIPTION

Two science officers inspect a sequence in which a small light becomes larger and increasingly pixelated under magnification.

EVIDENCE DISCIPLINE Upscaling can improve viewing and placement; it cannot restore detail that was never recorded.

FIGURE A03 · DISPLAY PAGE

STABLE REFERENCE

**Figure A03 — Stable Reference**

Teaching lens: A stable reference can separate target motion from observer motion.

TEACHING NOTES: STABLE REFERENCE

CORE IDEA

A stable reference can separate target motion from observer motion.

WHAT TO NOTICE

- The apparent path changes when the observer or viewing platform moves.
- A fixed instrument, known background, and synchronized timing provide comparison anchors.

QUICK ACTIVITY

Compare a handheld observation with a fixed-camera record of the same moving point. List which motion claims each record can support.

ASK READERS

- Which parts of the observing system moved during the event?
- What stable reference could test whether the target itself changed direction?

ACCESSIBLE DESCRIPTION

A split starship experiment contrasts an observer in motion with a fixed optical bench tracking the same point of light.

EVIDENCE DISCIPLINE Without a stable reference, apparent target motion can contain unmeasured observer or camera motion.

SOURCE TRAIL

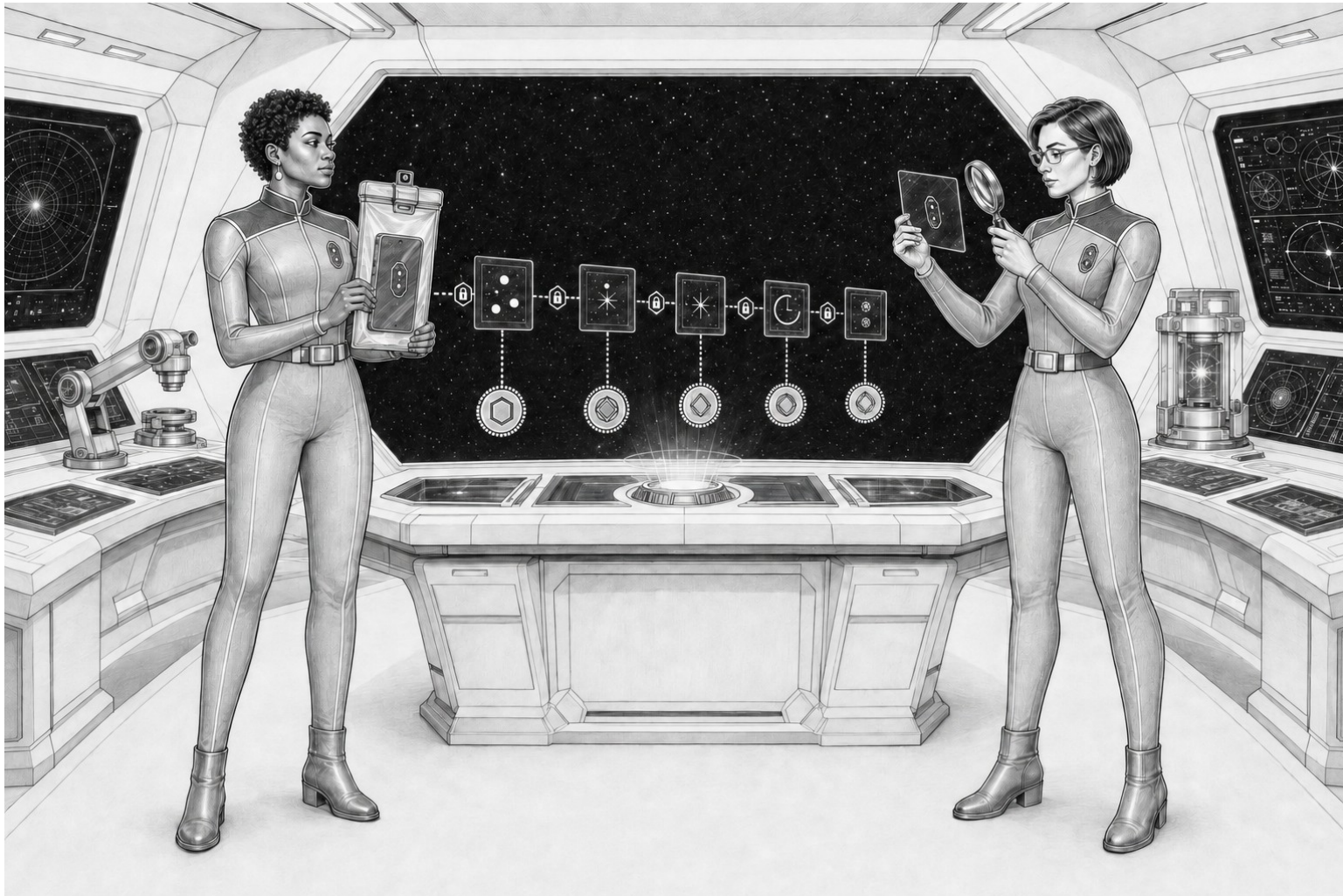


Figure A04 — Source Trail

Teaching lens: A claim is only as strong as the trail back to its source.

TEACHING NOTES: SOURCE TRAIL

CORE IDEA

A claim is only as strong as the trail back to its source.

WHAT TO NOTICE

- The evidence sequence records origin, handling, copying, analysis, and storage.
- A polished repost can look persuasive while concealing missing metadata and transformations.

QUICK ACTIVITY

Build a provenance chain for one shared image. Record the source, filename, date, checksum, each copy, each edit, and every custodian.

ASK READERS

- Can the reviewed file be traced to the original capture?
- Which handoffs or edits are documented, and which remain unknown?

ACCESSIBLE DESCRIPTION

Two forensic science officers verify a sequence of sealed evidence records and preserved source files in a starship laboratory.

EVIDENCE DISCIPLINE An unexplained gap in provenance limits claims about authenticity, timing, and image content.

FOUR ASSESSMENT OUTPUTS

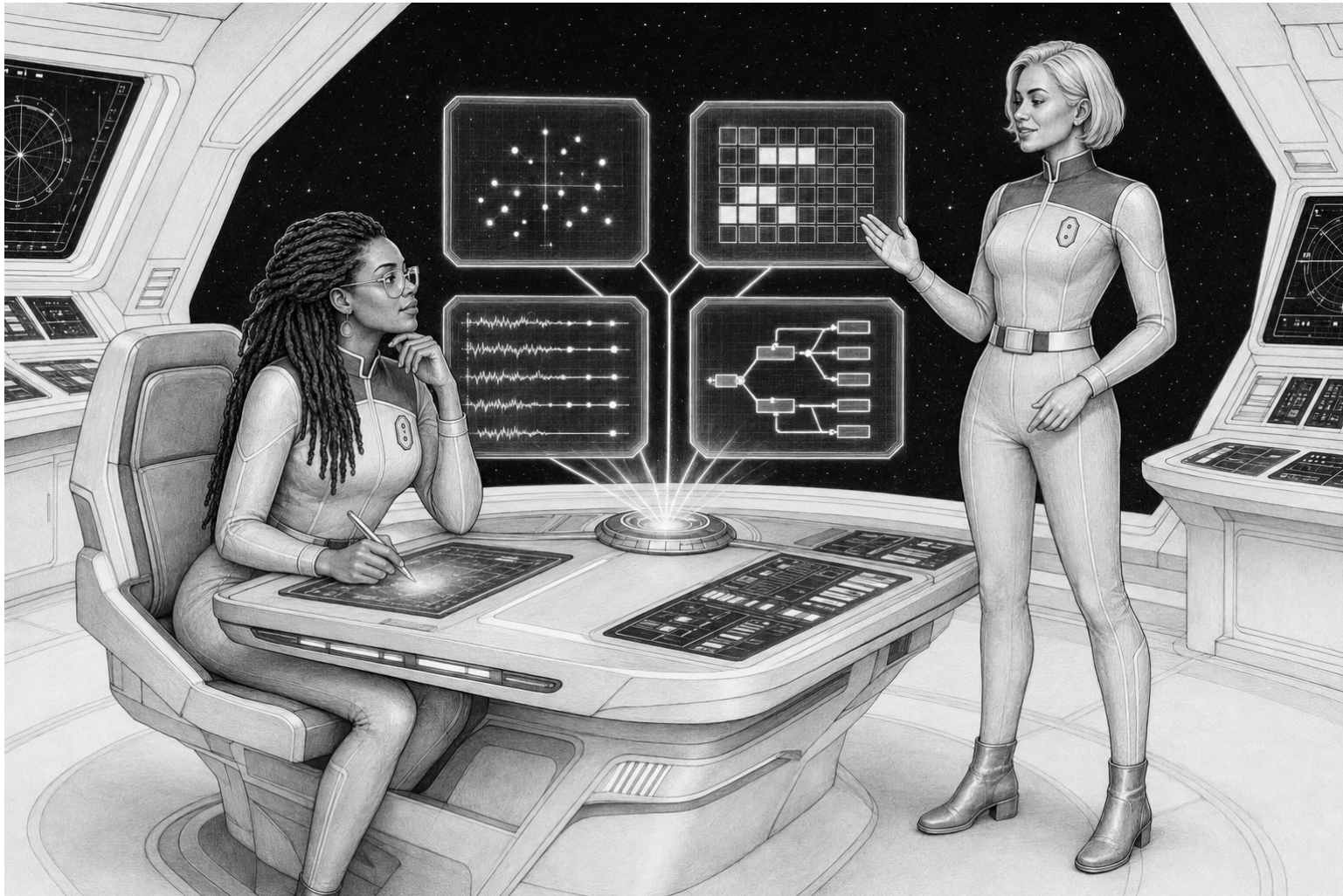


Figure A05 — Four Assessment Outputs

Teaching lens: The assessment reports four answers, not one mystery score.

TEACHING NOTES: FOUR ASSESSMENT OUTPUTS

CORE IDEA

The assessment reports four answers, not one mystery score.

WHAT TO NOTICE

- Separate outputs preserve different questions about source quality, evidence strength, explanation fit, and final status.
- Two cases can share a total while having very different strengths, weaknesses, and next steps.

QUICK ACTIVITY

Give groups two contrasting case profiles with the same total. Ask them to recommend different follow-up work using the separate outputs.

ASK READERS

- What distinct question does each output answer?
- Which weak output would be hidden by collapsing the profile into one number?

ACCESSIBLE DESCRIPTION

Two science officers review four separate evidence-assessment panels rather than one combined mystery score.

EVIDENCE DISCIPLINE A single score can conceal the reason a conclusion is limited; preserve the full profile.

EVIDENCE LADDER



Figure A06 — Evidence Ladder

Teaching lens: Climb only as high as the evidence supports.

TEACHING NOTES: EVIDENCE LADDER

CORE IDEA

Climb only as high as the evidence supports.

WHAT TO NOTICE

- Each higher claim requires the lower observations and checks to remain secure.
- The illustration makes the stopping point visible before the most dramatic conclusion.

QUICK ACTIVITY

Write a case's claims on ascending cards from observation to identity. Place an evidence card beneath every supported step and stop at the first gap.

ASK READERS

- What is the highest claim directly supported by the present record?
- What new evidence would be required for the next rung?

ACCESSIBLE DESCRIPTION

A science officer climbs a laboratory evidence ladder whose supported rungs are solid and whose unsupported upper rungs become translucent.

EVIDENCE DISCIPLINE Do not treat an unsupported upper rung as the natural completion of a lower observation.

UNKNOWN IS A STATUS



Figure A07 — Unknown Is a Status

Teaching lens: Unknown is a status, not an identity.

TEACHING NOTES: UNKNOWN IS A STATUS

CORE IDEA

Unknown is a status, not an identity.

WHAT TO NOTICE

- The unresolved status marks a limit in the current record rather than naming the object.
- Several ordinary and unusual candidates can remain open at the same time.

QUICK ACTIVITY

Sort statements into observation, status, hypothesis, and identity. Rewrite any statement that turns 'unknown' into a named cause.

ASK READERS

- Is the case unknown because evidence conflicts, is missing, or has not yet been tested?
- Which identity claims go beyond the status actually assigned?

ACCESSIBLE DESCRIPTION

A science officer uses a classification console that keeps an unresolved observation separate from several possible identities.

EVIDENCE DISCIPLINE Unresolved does not mean extraterrestrial, impossible, or permanently unexplainable.

FIGURE A08 · DISPLAY PAGE

OBSERVER RECEIVES LIGHT



Figure A08 — Observer Receives Light

Teaching lens: The observer receives light—not the whole object.

TEACHING NOTES: OBSERVER RECEIVES LIGHT

CORE IDEA

The observer receives light—not the whole object.

WHAT TO NOTICE

- Atmosphere, optics, focus, exposure, processing, and perception intervene between source and report.
- The received signal can constrain an object without reproducing every property of that object.

QUICK ACTIVITY

Draw the complete signal path for one observation. Add a possible limitation or distortion beside every link.

ASK READERS

- What transformations occurred between the emitting or reflecting source and the final record?
- Which observed property belongs to the signal rather than necessarily to the source?

ACCESSIBLE DESCRIPTION

Controlled rays travel through an atmospheric chamber and optical instruments toward an observer and sensor inside a starship laboratory.

EVIDENCE DISCIPLINE Treat an image as a measurement produced by a chain, not as the object itself.

FIGURE A09 · DISPLAY PAGE

EXPLAIN THE WHOLE EVENT



Figure A09 — Explain the Whole Event

Teaching lens: A good match must explain the whole event, not just one striking moment.

TEACHING NOTES: EXPLAIN THE WHOLE EVENT

CORE IDEA

A good match must explain the whole event, not just one striking moment.

WHAT TO NOTICE

- Every stage of the observation supplies constraints on timing, appearance, path, and change.
- A candidate that matches one frame may fail before or after that frame.

QUICK ACTIVITY

Create a matrix with event stages as columns and candidate explanations as rows. Mark matches, conflicts, missing data, and assumptions.

ASK READERS

- Which parts of the event does each candidate explain?
- What observation would rule out the strongest remaining candidate?

ACCESSIBLE DESCRIPTION

A science officer compares candidate explanations with a four-stage observation sequence on a large laboratory display.

EVIDENCE DISCIPLINE Do not promote a partial resemblance into a complete explanation of the event.

PROFILE SHOWS THE LIMIT

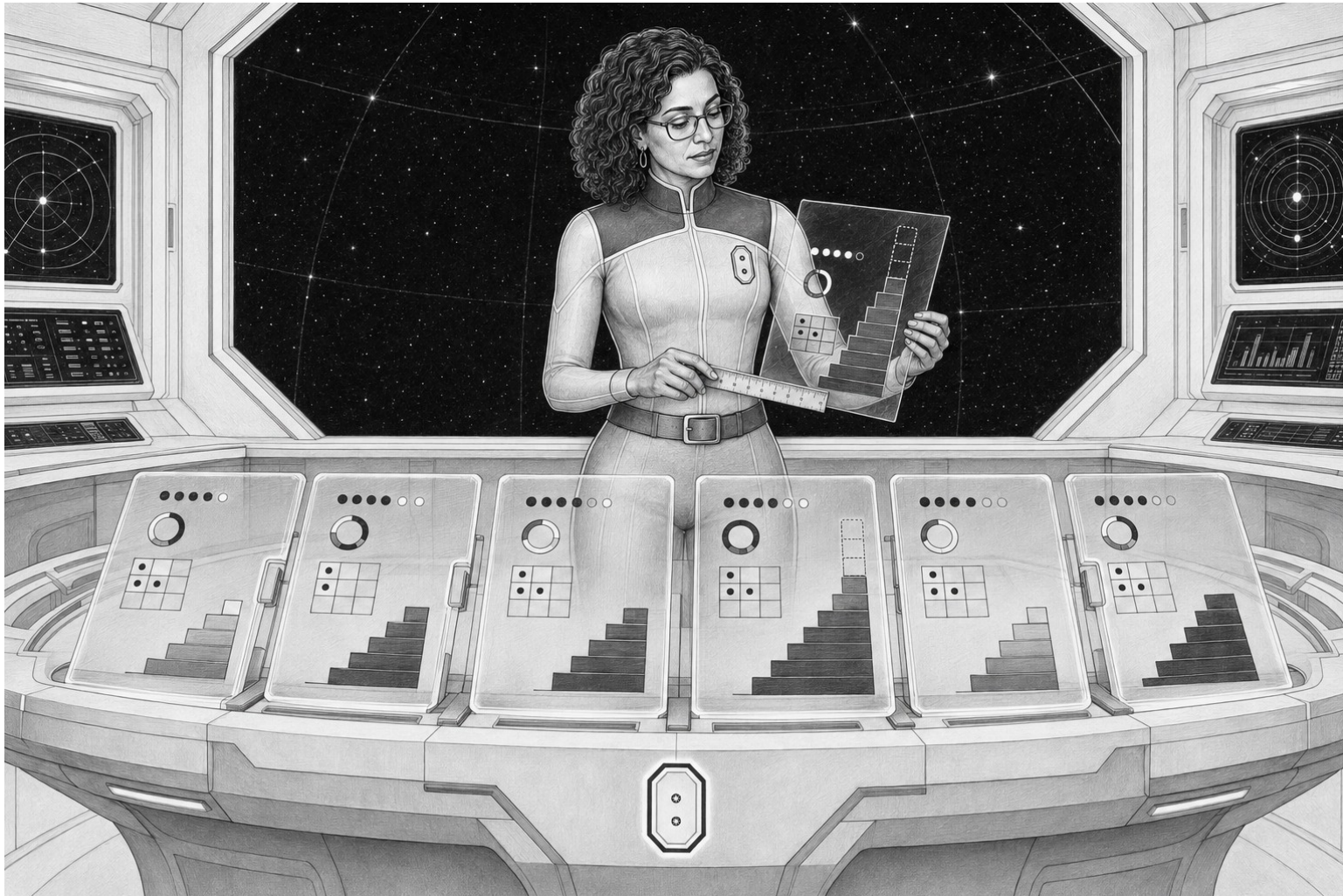


Figure A10 — Profile Shows the Limit

Teaching lens: A score profile shows where evidence is strong—and where it runs out.

TEACHING NOTES: PROFILE SHOWS THE LIMIT

CORE IDEA

A score profile shows where evidence is strong—and where it runs out.

WHAT TO NOTICE

- The shape of a profile reveals strengths and gaps that a total can hide.
- Missing, untested, and negative evidence are not interchangeable values.

QUICK ACTIVITY

Compare two profiles with similar totals. Write one cautious conclusion and one next-step recommendation for each profile.

ASK READERS

- Which dimension most limits the conclusion?
- Does a low value mean contrary evidence, poor quality, or no available record?

ACCESSIBLE DESCRIPTION

A science officer compares several evidence profiles whose strengths differ and one of which visibly stops where information is missing.

EVIDENCE DISCIPLINE Report the pattern and its missing data, not merely the most impressive number.

FIGURE A11 · DISPLAY PAGE

POSSIBILITY IS NOT PROOF

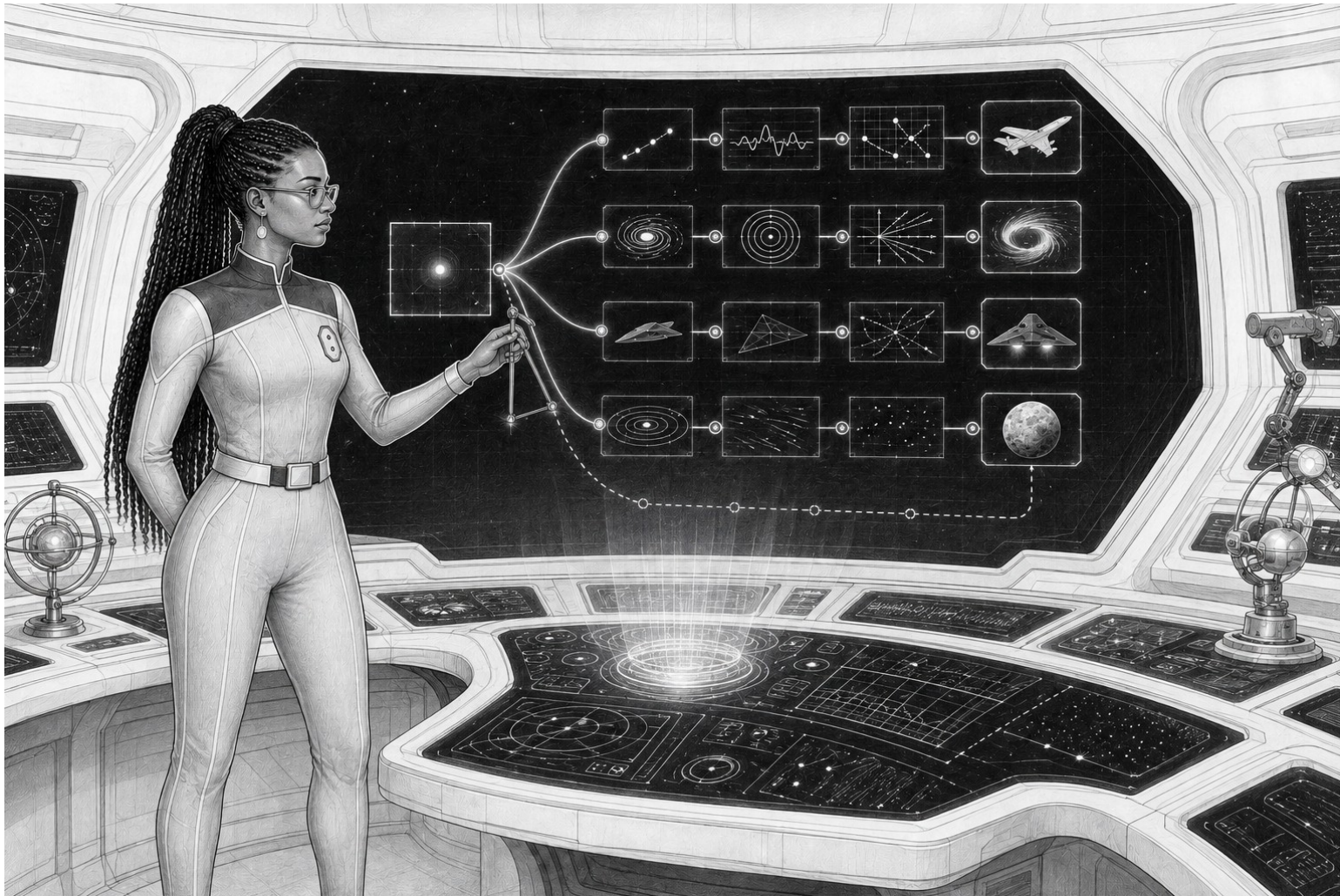


Figure A11 — Possibility Is Not Proof

Teaching lens: A possible origin is not a proven origin.

TEACHING NOTES: POSSIBILITY IS NOT PROOF

CORE IDEA

A possible origin is not a proven origin.

WHAT TO NOTICE

- Several hypotheses can remain logically possible with very different evidential support.
- A dramatic destination does not strengthen the missing links that would be needed to reach it.

QUICK ACTIVITY

For each proposed origin, list what the case supports, what it contradicts, and what evidence would discriminate it from alternatives.

ASK READERS

- What evidence supports this hypothesis beyond mere compatibility?
- Which competing hypotheses remain possible under the same observations?

ACCESSIBLE DESCRIPTION

A science officer examines several measured hypothesis paths while an unsupported shortcut toward a conclusion stops before connecting.

EVIDENCE DISCIPLINE Possibility establishes an option for testing; it does not establish identity, origin, or probability.

FIGURE A12 · DISPLAY PAGE

PROOF IS A CHAIN

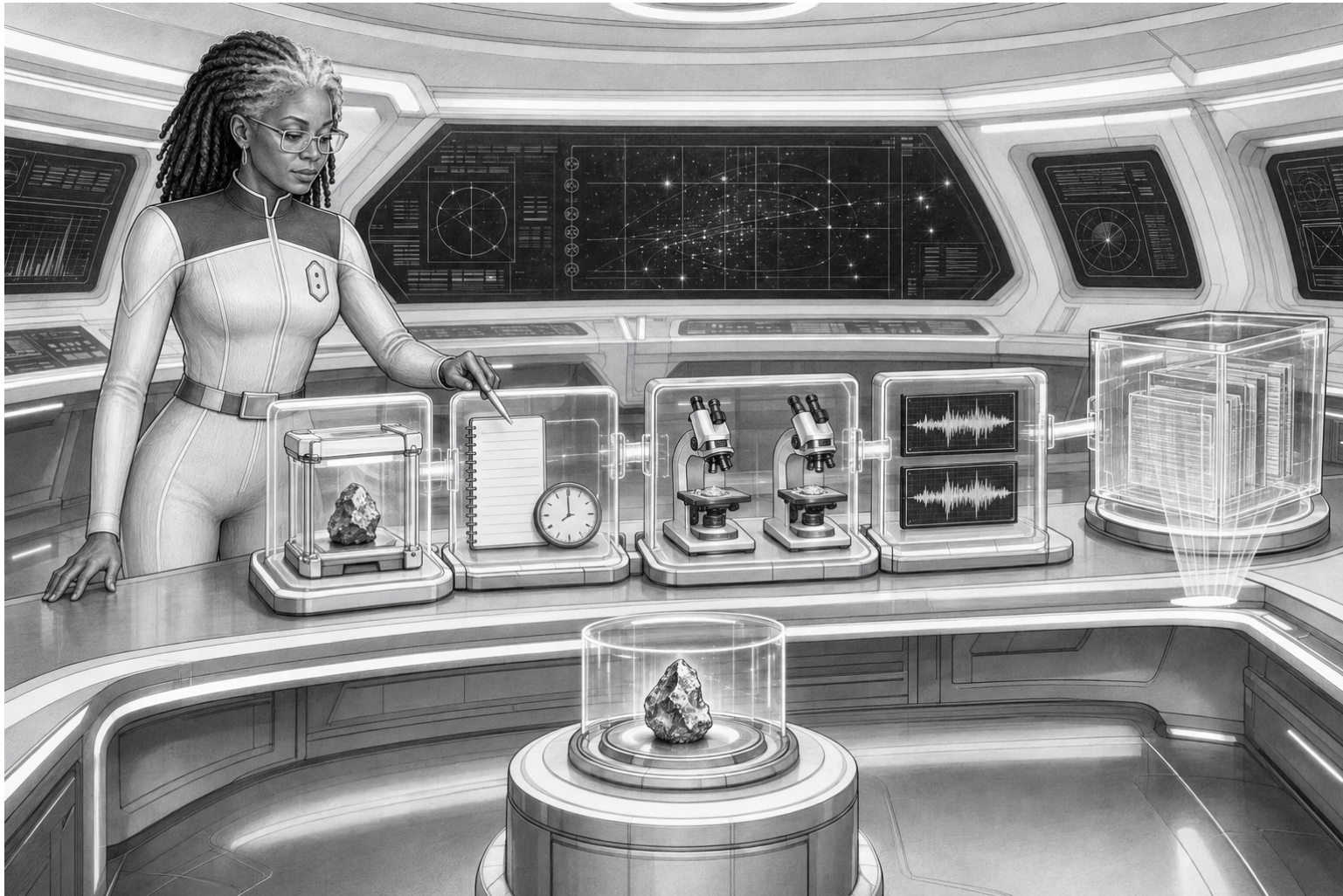


Figure A12 — Proof Is a Chain

Teaching lens: Proof is a chain of checks, not a single impressive object.

FIGURE A12 · TEACHING PAGE

TEACHING NOTES: PROOF IS A CHAIN

CORE IDEA

Proof is a chain of checks, not a single impressive object.

WHAT TO NOTICE

- Independent verification, preserved data, documented methods, and reproducibility connect the supported chain.
- An isolated artifact can be interesting while remaining unauthenticated or poorly contextualized.

QUICK ACTIVITY

Audit a strong claim as a chain. Give each team one link—source, custody, measurement, replication, or publication—and test its handoff to the next.

ASK READERS

- Which links can an independent reviewer reproduce?
- Where would the conclusion fail if one link were removed?

ACCESSIBLE DESCRIPTION

Connected verification modules lead to a public evidence package while one impressive but isolated object remains outside the chain.

EVIDENCE DISCIPLINE The strength of a conclusion depends on connected, inspectable checks rather than visual impact alone.

FIGURE C01 · DISPLAY PAGE

EVIDENCE ROOM SYNTHESIS

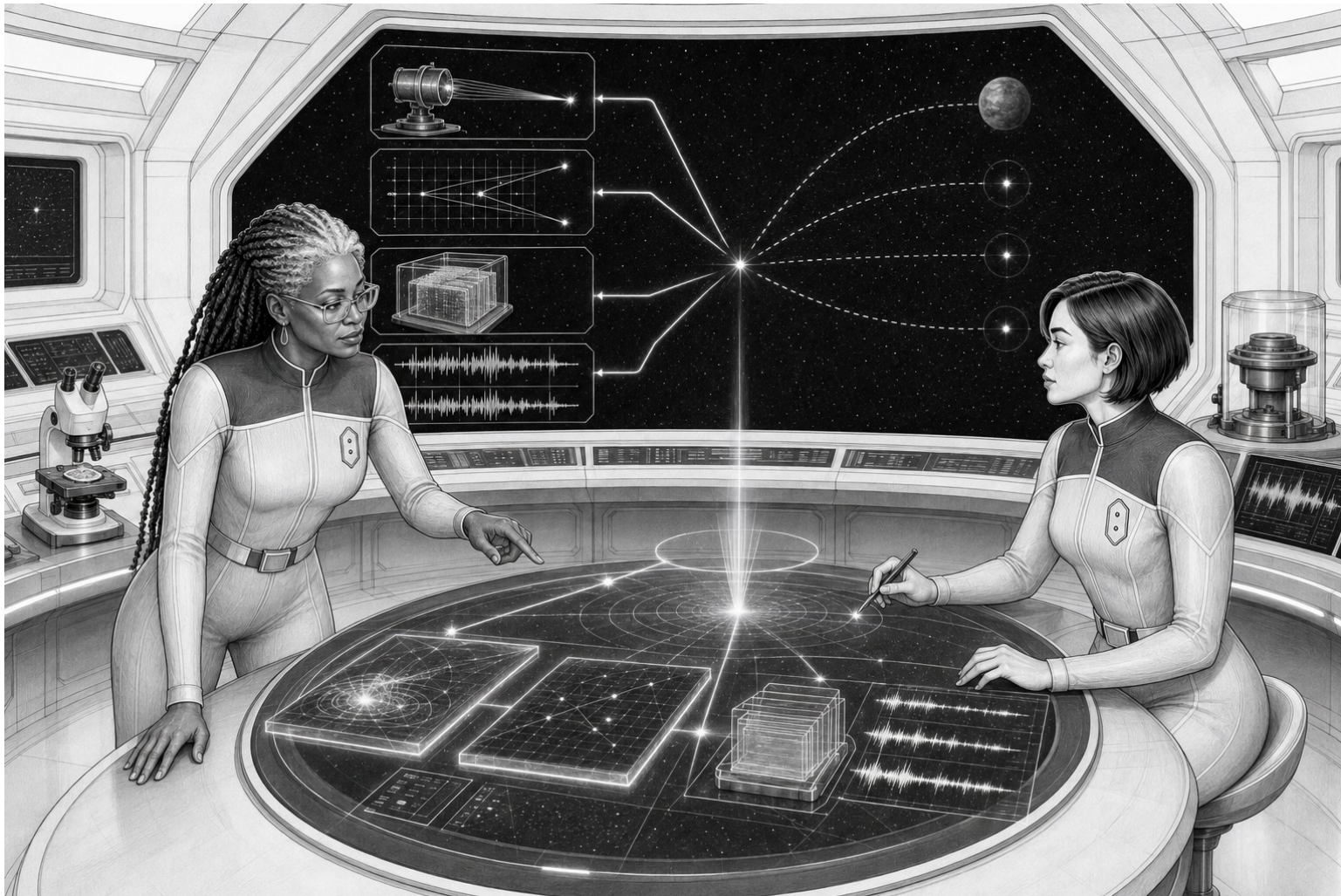


Figure C01 — Evidence Room Synthesis

Teaching lens: Different evidence channels can converge on an event while its identity remains unresolved.

FIGURE C01 · TEACHING PAGE

TEACHING NOTES: EVIDENCE ROOM SYNTHESIS

CORE IDEA Different evidence channels can converge on an event while its identity remains unresolved.	
WHAT TO NOTICE • Optical, geometric, provenance, and sensor records meet only after their timing and relationships are examined. • Hypothesis paths begin beyond the common observation; an unsupported path stops before reaching a distant origin.	ASK READERS • Which channels are independent, and which may share a source or processing chain? • What does their convergence establish about the event—and what does it still not identify?
QUICK ACTIVITY Assign four teams one evidence channel each. Reunite them only after every team states its measurements, uncertainty, dependencies, and preservation status.	ACCESSIBLE DESCRIPTION Two adult science officers work at a panoramic evidence table where optics, angular geometry, preserved source data, and independent sensor waveforms converge on one unresolved light.
EVIDENCE DISCIPLINE Convergence can strengthen confidence that an event was recorded without proving a particular object or origin.	

SELECTED ARCHIVE PLATES

Only the two archive plates explicitly retained during the page-selection review remain in this edition. Their page references below use the shortened manual.

ID	RETAINED ARCHIVE PLATE	COLLECTION	ORIGINAL	NEW
V03	Human Visual Pathway — Premium Rebuild	Figure rebuild variants	52	50
S01	Observation Aperture Insignia	Starship science support art	85	51

What remains after the core manual

Premium visual-pathway rebuild: A technical comparison image for perception, interpretation, and future diagram refinement.

Observation Aperture insignia: The project-owned mark for consistent identity across teaching and distribution materials.

Recovered teaching plates: Ten selected instructional plates indexed on pages 52–53 and displayed on pages 54–63.

PAGE-SELECTION DECISION LOG

This log records the requested treatment of original pages 50–101. Pages 1–45 remain the clean instructional core; index pages 46–49 are refreshed for the curated edition.

ORIGINAL PAGE	ACTION / NEW PAGE	CONTENT
50–51	Removed	Visual Pathway variants V01–V02
52	Retained → 50	Visual Pathway Premium Rebuild V03
53–84	Removed	Initial, glamour, comic, line-art, and editorial archive plates
85	Retained → 51	Observation Aperture insignia S01
86–87	Removed	Starship Science contact sheets S02–S03
88–89	Retained → 52–53	Recovered-image index pages, updated
90	Retained → 54	Motion Parallax R01
91	Removed	Multisensor Convergence R02
92	Retained → 55	Detection of UAPs R03
93	Removed	Triangulation R04
94–101	Retained → 56–63	Recovered plates R05–R12

RETAINED ARCHIVE TEACHING GUIDANCE

These two retained archive plates serve different purposes. The premium diagram supports instruction; the insignia supports identity and production control.

V03 · HUMAN VISUAL PATHWAY — PREMIUM REBUILD Teaching lens: Use the image to distinguish incoming sensory information from the brain's later interpretation. Discussion: Which details belong to the visual pathway, and where can uncertainty enter before a witness reports an object? Production use: High-value comparison candidate for a future technical-diagram rebuild. Location: New page 50 · retained from original page 52	S01 · OBSERVATION APERTURE INSIGNIA Teaching lens: Use the insignia to identify the project consistently across teaching materials and future illustration revisions. Discussion: Is the mark readable, proportionate, and consistently placed without competing with instructional content? Production use: Production reference — preserve transparency and rebuild as vector if enlarged extensively. Location: New page 51 · retained from original page 85
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Curatorial limit: The removed variants remain preserved in earlier project outputs but are not embedded in this curated manual or its retained-image package.

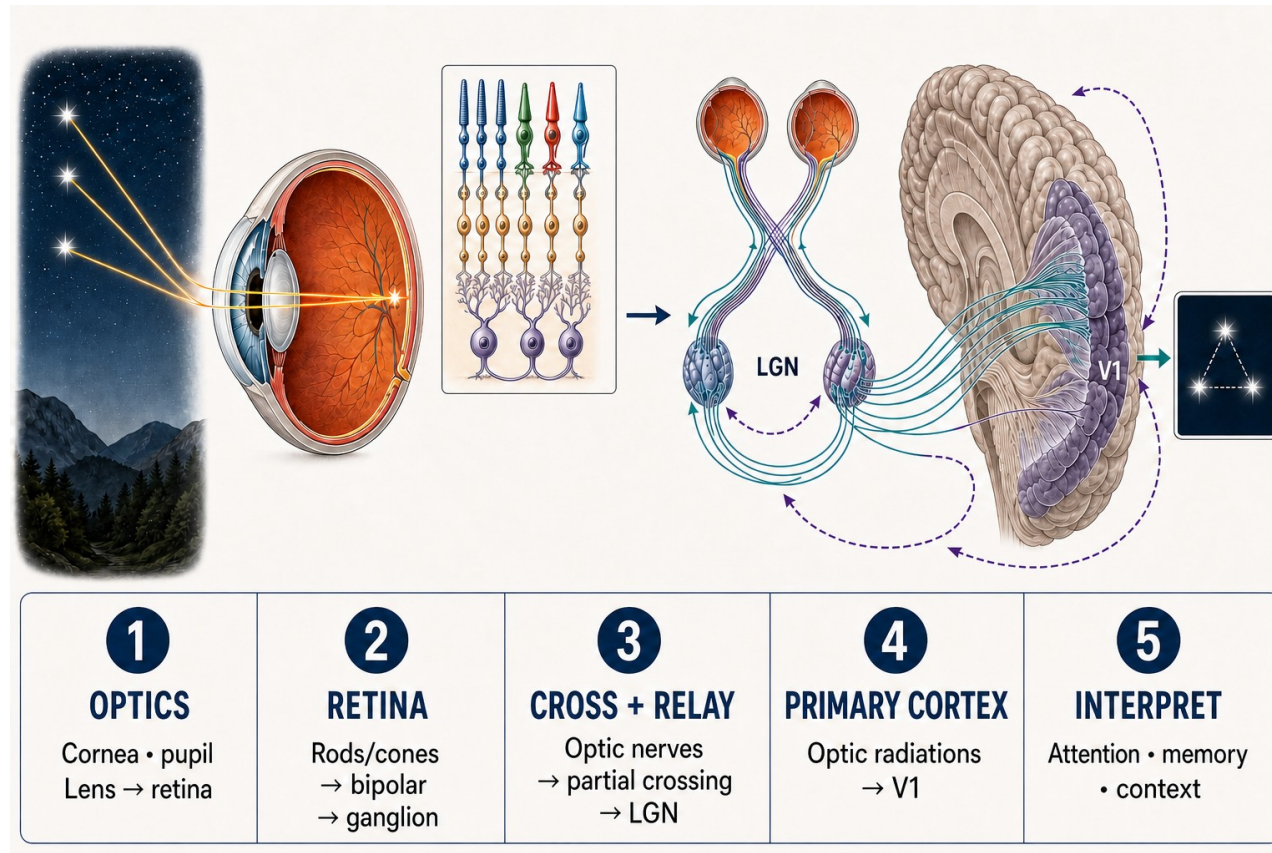
CURATED EDITION ACCOUNTING

The shortened edition contains only the instructional core and the plates retained by the page-selection instructions.

CATEGORY	COUNT	STATUS
Core workbook diagrams	8	Retained
Current Starship-science visuals	13	Retained
Selected archive plates	2	Retained
Selected recovered teaching plates	10	Retained
Total visual resources	33	Final curated count
Original manual pages removed	38	Per requested selection
Final manual pages	63	Renumbered and linked

Navigation status: All retained contents links and bookmarks are rebuilt for the new page sequence.

HUMAN VISUAL PATHWAY — PREMIUM REBUILD



V03 · Figure_2_1_Premium_Rebuild.png

TEACHING OPTION

Use the image to distinguish incoming sensory information from the brain's later interpretation.

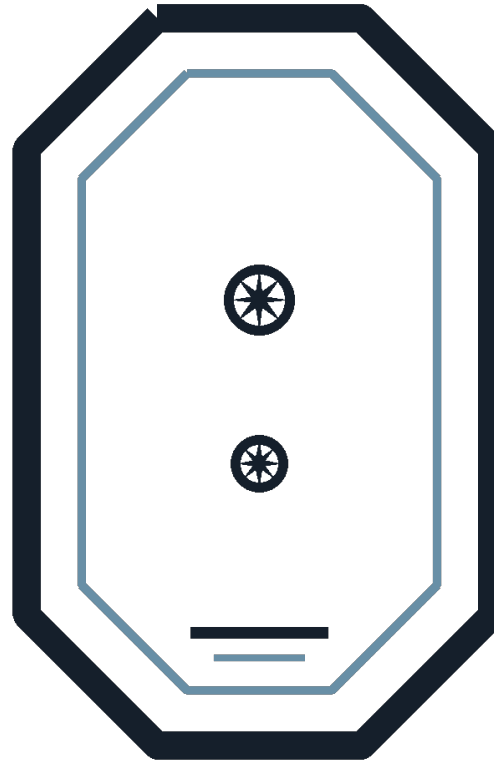
Discuss: Which details belong to the visual pathway, and where can uncertainty enter before a witness reports an object?

ARCHIVE AND UPSCALE USE

Alternate technical-figure rebuild retained for comparison and possible future revision.

High-value comparison candidate for a future technical-diagram rebuild.

OBSERVATION APERTURE INSIGNIA



S01 · starship_science_revision_v1/Before_You_Call_It_Alien_Observation_Aperture_Insignia.png

TEACHING OPTION

Use the insignia to identify the project consistently across teaching materials and future illustration revisions.

Discuss: Is the mark readable, proportionate, and consistently placed without competing with instructional content?

ARCHIVE AND UPSCALE USE

Project-owned brand artwork; not a book teaching scene.

Production reference — preserve transparency and rebuild as vector if enlarged extensively.

RECOVERED TEACHING PLATES

Ten recovered teaching plates remain after the requested page removals. Each source is preserved without changing its visible content and is displayed on pages 54–63.

ID	RECOVERED PLATE	TEACHING OPTION / REVIEW NOTE	PAGE
R01	<u>Figure 2.2 — Motion Parallax</u>	Demonstrate why nearby reference points shift more than distant ones when the observer moves. <i>Use for field practice on observer motion, apparent motion, and distance cues.</i>	54
R03	<u>Figure 5.2 — Detection of UAPs: Putting It All Together</u>	Explain the full detection chain from physical interaction through sensor capture, processing, and evaluation. <i>Useful as a systems overview before learners examine individual sensor limitations.</i>	55
R05	<u>Figure 7.1 — From Sighting to Evidence File</u>	Walk readers from immediate notes through preservation, corroboration, analysis, and responsible sharing. <i>Use as an investigation workflow and evidence-file checklist.</i>	56
R06	<u>Figure 7.3 — Capturing High-Quality UAP Evidence</u>	Teach preparation, exposure, reference points, metadata, night capture, video, and original-file preservation. <i>Best used as a practical field-reference plate or pre-observation briefing.</i>	57
R07	<u>Figure 7.4 — Witness Testimony: Getting the Best Account</u>	Practice open questions, event timelines, uncertainty statements, sketches, and careful interview closure. <i>Use for facilitator-led role play and witness-interview debriefs.</i>	58

Curated accounting: R02 and R04 were removed; R01, R03, and R05–R12 remain.

RECOVERED TEACHING PLATES · CONTINUED

Duplicate visible numbering among the retained Figure 8.1 and Figure 8.2 plates remains flagged for editorial reconciliation before publication.

ID	RECOVERED PLATE	TEACHING OPTION / REVIEW NOTE	PAGE
R08	Figure 8.1 — Analyzing a Sighting: From Facts to Evidence	Organize observations, test alternatives, check consistency, and match conclusions to evidence quality. <i>Catalog note: another recovered plate also carries Figure 8.1; reconcile numbering before publication.</i>	59
R09	Figure 8.1 — Estimating Distance and Altitude	Introduce angular size, trigonometric height, reference-object comparison, and parallax checks. <i>Catalog note: another recovered plate also carries Figure 8.1; reconcile numbering before publication.</i>	60
R10	Figure 8.2 — Bayesian Reasoning and Evidence Scoring	Model belief updating while keeping evidence strength, rarity, uncertainty, and score limits visible. <i>Catalog note: another recovered plate also carries Figure 8.2; reconcile numbering before publication.</i>	61
R11	Figure 8.2 — Sensor and Camera Basics	Compare sensor bands, camera exposure, artifacts, metadata, and the limits of recorded data. <i>Catalog note: another recovered plate also carries Figure 8.2; reconcile numbering before publication.</i>	62
R12	Figure 11.4 — Evidence Pyramid: Stronger Evidence, Higher Trust	Discuss how independent sources, sensor corroboration, consistency, and documentation build confidence. <i>Use as a synthesis and scoring-discussion plate, not as proof of any particular origin.</i>	63

Curated accounting: R02 and R04 were removed; R01, R03, and R05–R12 remain.

RECOVERED PLATE R01 · ORIGINAL SOURCE PRESERVED

FIGURE 2.2 — MOTION PARALLAX

FIGURE 2.2 MOTION PARALLAX

Your movement changes the view—closer objects shift more.

As you move, nearby objects appear to move quickly across your view, while distant objects move slowly or not at all.

1 THE PRINCIPLE

Move sideways and watch how objects at different distances shift relative to the background.



2 WHAT YOU SEE

When you move to the right:

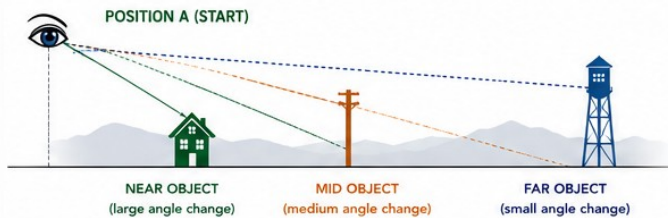
- The near house appears to move left a lot.
- The mid pole appears to move left some.
- The far water tower appears to move left a little.
- The mountains (very far) seem almost stationary.

EXPERIENCE IT YOURSELF

- Pick three objects at different distances.
- Move sideways 10–20 feet (3–6 meters).
- Notice how each object's apparent position changes.

3 HOW IT WORKS

Your eyes occupy different positions as you move. This changes the angle to each object. The brain interprets those angle changes as motion.



MOVE
RIGHT

POSITION B (MOVED RIGHT)



The near object's angle changes the most.
The far object's angle changes the least.

WHY IT MATTERS

- ✓ Explains why a stationary object can look like it's moving.
- ✓ Helps estimate distance: more parallax = closer.
- ✓ Critical for analyzing videos taken from moving vehicles, aircraft, or ships.

REAL-WORLD EXAMPLES



Driving

Objects close to the car appear to sweep backward quickly.



Flying

Ground features seem to move fast; clouds don't.



Boating

Nearby buoys shift quickly; the shoreline moves slowly.



Walking

Trees near the path move faster across your view.

COMMON MISINTERPRETATION



Star seen from a moving car

VS.



Not actually moving relative to you

Stars and distant lights do not show parallax because they are so far away—your movement changes the angle so little that it's impossible to detect.

KEY TAKEAWAY



Motion parallax is your brain's built-in distance sensor.

Learn it. Use it. It will help you recognize when an object is truly moving—or just looks like it.



REMEMBER: Closer objects = more apparent motion. Distant objects = less apparent motion. When analyzing a sighting, always ask: Could this be motion parallax?

R01 · ChatGPT Image Aug 10, 2026, 09_20_15 AM.png · 1536 × 1024 px

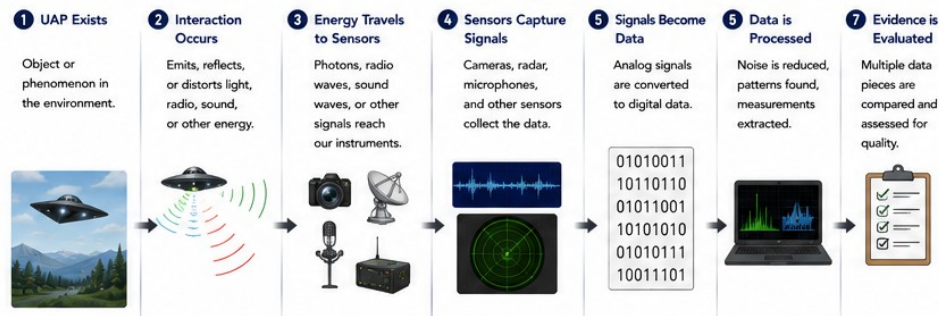
FIGURE 5.2 — DETECTION OF UAPS: PUTTING IT ALL TOGETHER

FIGURE 5.2 DETECTION OF UAPs: PUTTING IT ALL TOGETHER

UAP detection happens when light, energy, or other signatures interact with the world—and our sensors are ready.

A UAP may be seen, sensed, or measured in one or more ways. Multiple detections across different sensors build stronger evidence.

THE DETECTION PROCESS (SUMMARY FLOW)



MULTI-SENSOR OBSERVATION EXAMPLE

SENSOR	WHAT IT DETECTS	EXAMPLE DATA	VALUE
Visual Camera	Shape, lights, movement		★★★
IR / Thermal	Heat signature, temperature		★★★
Radar	Position, speed, trajectory		★★★
Acoustic	Sound, frequency, pressure changes		★★
Magnetic	Magnetic field changes		★★
EM / RF	Radio emissions, communication		★★

Evidence Strength (example): ★ Weak ★★ Moderate ★★★ Strong (More stars = more independent confirmations)

WHAT CAN BE DETECTED?

OPTICAL	INFRARED	RADAR / LIDAR	ACOUSTIC	ELECTROMAGNETIC	MAGNETIC	OTHER POSSIBLE
• Shape • Lights • Colors • Movement • Shadows	• Heat patterns • Temperature • Heat trails	• Range • Speed • Direction • Altitude • Acceleration	• Sound • Frequency • Pressure • Doppler shift	• Radio signals • EM emissions • Interference • RF anomalies	• Field strength • Field direction • Fluctuations • Disturbances	• Gravity effects • Air ionization • Chemical traces • Plasma / particle signatures

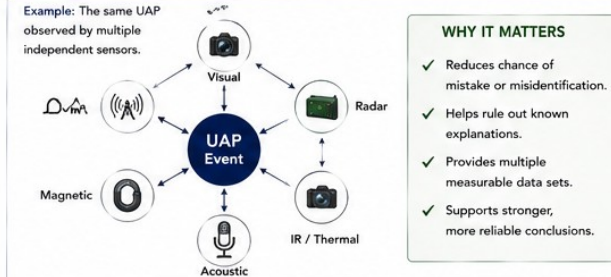
A UAP may be detected in any combination of these ways. The more independent detections, the stronger the evidence.

DATA QUALITY MATTERS



Goal: Collect the best possible data under the best possible conditions.

CORROBORATION BUILDS CONFIDENCE



One sensor can be fooled. Many sensors together are much harder to fool.

KEY TAKEAWAY

UAP detection is not magic. It's physics, instruments, careful observation, and critical thinking.

Good data. Good science. Better evidence.

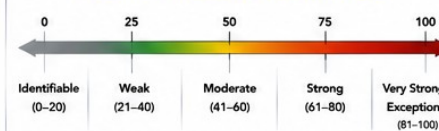
BEST PRACTICES

- ✓ Use multiple sensor types when possible.
- ✓ Calibrate and test equipment regularly.
- ✓ Record metadata: time, location, conditions, settings.
- ✓ Minimize assumptions—let the data speak.
- ✓ Preserve raw data and document everything.
- ✓ Compare with known sources before concluding unknown.

COMMON PITFALLS

- ✗ Relying on a single sensor.
- ✗ Poor calibration or wrong settings.
- ✗ Ignoring environmental effects.
- ✗ Jumping to conclusions too fast.
- ✗ Losing or altering original data.
- ✗ Not considering known explanations.

EVIDENCE STRENGTH SCALE (EXAMPLE)



REMEMBER

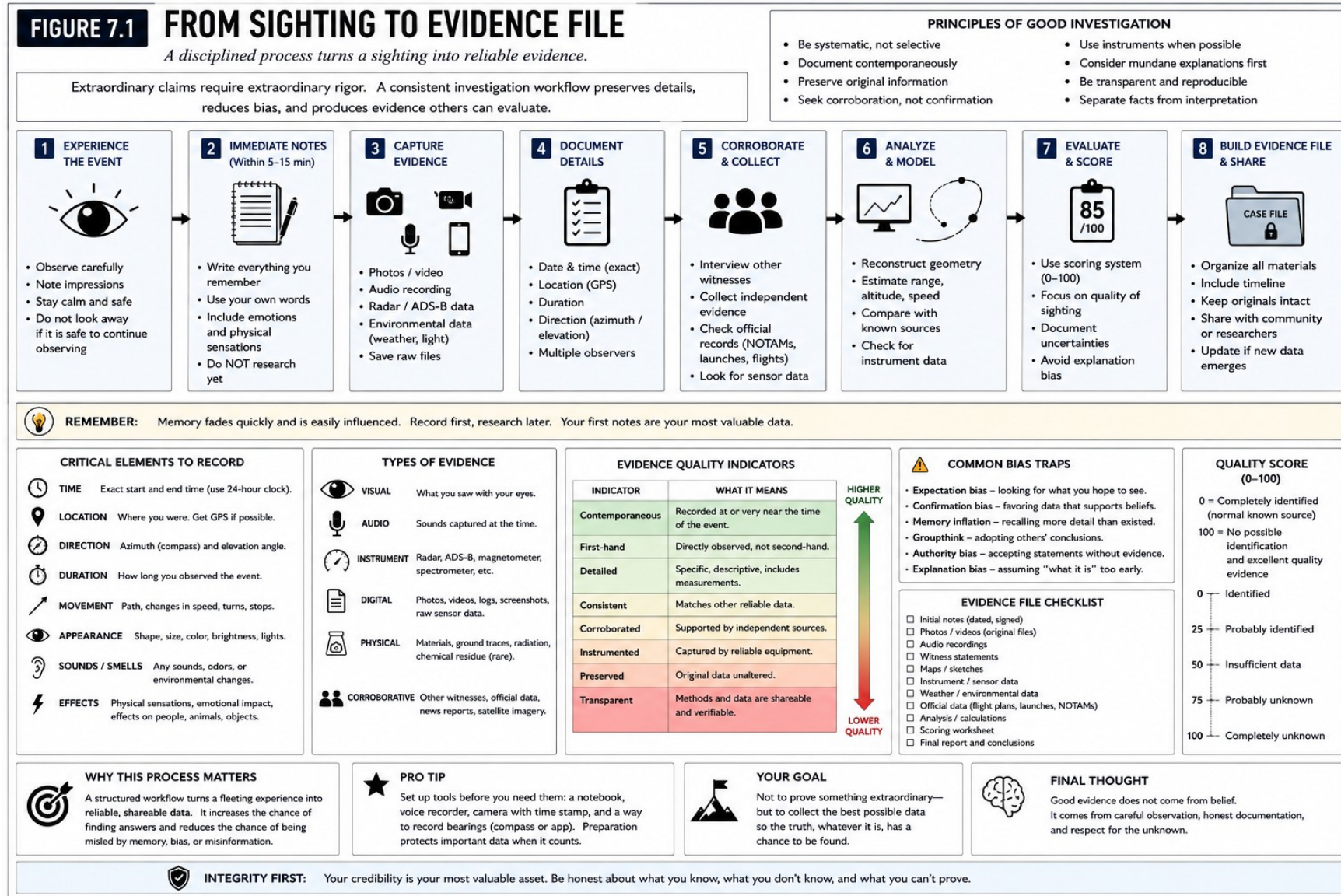
Extraordinary claims require extraordinary evidence supported by multiple, high-quality, independent observations.

☆ **THE BIG PICTURE:** UAP detection is a system, not a single moment. The best evidence comes from good tools, good data, good methods, and an open, skeptical mind.

BEST PRACTICE TIP: Capture everything. Verify everything. Preserve everything.

RECOVERED PLATE R05 · ORIGINAL SOURCE PRESERVED

FIGURE 7.1 — FROM SIGHTING TO EVIDENCE FILE



R05 · ChatGPT Image Aug 10, 2026, 08_23_20 AM.png · 1536 × 1024 px

FIGURE 7.3 — CAPTURING HIGH-QUALITY UAP EVIDENCE

FIGURE 7.3 CAPTURING HIGH-QUALITY UAP EVIDENCE

Good data in → good evidence out.

The goal is not just a picture—it's a complete, verifiable record of what, when, where, and how.

1 BEFORE YOU SHOOT

Preparation makes the difference.

- ✓ Know your equipment.
- ✓ Charge batteries, clear memory.
- ✓ Check date, time, and settings.
- ✓ Understand your location (safety, access, light).
- ✓ Dress for the conditions.
- ✓ Plan your shot list.
- ✓ Stay calm and observant.

★ PRO TIP

The best time to get ready is before you need to.

2 CAMERA SETTINGS THAT MATTER

Start here, then adjust for conditions.

Mode	Manual (M) preferred
Image Format	RAW or RAW+JPEG
Resolution	Highest available
Shutter Speed	1/60 to 1/1000 sec (faster for moving objects)
Aperture	f/4 to f/8 (balance light & sharpness)
ISO	As low as conditions allow (ISO 100–800 typical)
Focus	Manual or Continuous AF
WB White Balance	Daylight (5600K) or Auto
Stabilization	Use tripod or image stabilization
Time Stamp	ON (camera or app)

3 USE A TRIAD: CONTEXT, MID, CLOSE

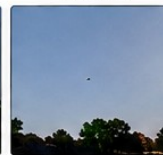
Tell the full story with overlapping views.

CONTEXT (WIDE)



Shows the environment and reference points.

MID RANGE



Shows the object larger for detail.

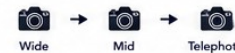
CLOSE-UP (TELEPHOTO)



Shows shape, features, structure (if possible).

RULE OF THUMB

Take multiple shots at each distance. You can't go back and reshoot.



4 STABLE, SHARP, AND CLEAR

Quality beats quantity.



USE STABILITY

Tripod, monopod, or solid rest. Avoid digital zoom—use optical zoom or get closer (safely).



FOCUS CAREFULLY

Tap to focus or use manual focus. Re-focus if distance changes.



EXPOSE FOR THE SKY

Slightly underexpose (–1/3 to –2/3 EV) to protect highlights.

AVOID COMMON MISTAKES

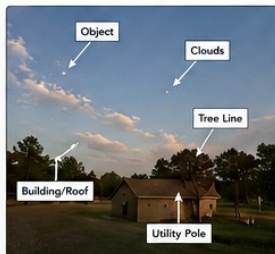
- ✗ Blurry images (motion or focus)
- ✗ Overexposure (washed-out sky)
- ✗ Digital zoom (poor quality)
- ✗ Obstructions (wires, branches)
- ✗ No reference (no scale or context)

DO THIS INSTEAD

- ✓ Use stability
- ✓ Check focus
- ✓ Expose conservatively
- ✓ Include references

5 INCLUDE REFERENCE POINTS

Reference = credibility.



Always include at least three reference points when possible:

- Natural (mountains, trees, clouds, stars)
- Man-made (buildings, poles, roads, towers)
- Direction (compass bearing or landmark)



Record your bearing.

6 RECORD ESSENTIAL DATA

Metadata tells future investigators what you knew.

Date / Time	Use 24-hour format with time zone
Location	Exact or nearest known point (GPS preferred)
Coordinates	Latitude / Longitude (WGS84)
Elevation	If known (ft or m)
Direction	Azimuth or bearing of view
Weather	Cloud cover, visibility, wind, temp.
Equipment	Camera / lens / settings used
Witness Notes	What you saw, heard, felt, or thought

EXAMPLE METADATA RECORD

<	Record	Edit
Date / Time	2025-06-01 21:37:42 CDT	
Location	The Woodlands, TX, USA	
Coordinates	30.1655° N, 95.4777° W	
Elevation	150 ft	
Direction (Azimuth)	263° (W)	
Weather	Clear, 72°F, Wind 5 mph E	
Equipment	iPhone 15 Pro Max Camera: 1x (24 mm) 4K 30 fps	
Notes	Silent, steady movement NW to SE, then stopped.	
		

7 NIGHT PHOTOGRAPHY & LOW LIGHT

More light = better data.



Use the widest aperture available (lowest f-number).



Increase ISO as needed (800–3200 typical).



Use slower shutter cautiously (1/30 to 1/2 sec on tripod).



Consider interval shooting or video.



Capture star field—excellent reference.

NIGHT EXAMPLE



Object with star reference and horizon line.

8 VIDEO: WHEN AND HOW

Video captures motion, changes, and duration.



- Use the highest resolution and frame rate available (4K 30/60 fps).
- Keep camera steady.
- Pan smoothly—don't chase.



Time → Continuous recording

VIDEO TIPS

- ✓ Don't use digital zoom.
- ✓ Record before, during, and after the event.
- ✓ Capture ambient sound.
- ✓ Note any changes in direction or speed.

9 PRESERVE YOUR ORIGINALS

Original files are the gold standard.



Do not edit, crop, or enhance originals.



Back up in at least two locations.



Keep originals intact for analysis and chain of custody.

FILE NAMING EXAMPLE

20250601_ 213742_ CDT_ NW263 _001.CR3				
↓	↓	↓	↓	↓
Date	Time 24-hr	Time Zone	Direction (Azimuth)	Sequence Number

Use consistent naming for easy tracking.

Use consistent naming for easy tracking.



REMEMBER

Extraordinary claims require extraordinary evidence.

Good data, properly captured and preserved, stands the test of time.



YOUR GOAL: Capture once. Capture well. Capture everything that supports what you saw. The more complete the record, the stronger the evidence.

R06 · ChatGPT Image Aug 10, 2026, 08_45_16 AM.png · 1536 × 1024 px

FIGURE 7.4 — WITNESS TESTIMONY: GETTING THE BEST ACCOUNT

FIGURE 7.4 WITNESS TESTIMONY: GETTING THE BEST ACCOUNT

A calm interview. Open questions. No leading. Let the witness tell the story.

The goal is a complete, accurate, first-hand account before memories fade or get influenced.

1 BEFORE THE INTERVIEW

- ✓ Create a quiet, private space.
- ✓ Minimize interruptions.
- ✓ Explain the purpose and how the information will be used.
- ✓ Assure the witness it's okay to say "I don't know."
- ✓ Have paper, pens, voice recorder (or app), map, and clock ready.

REMEMBER
You are not proving or disproving anything. You are documenting.

2 ASK OPEN-ENDED QUESTIONS

Start broad. Then go deeper.

A OPENING EXAMPLES

- Tell me everything you remember.
- What happened?
- What did you see?
- What did you hear?
- What did you feel?
- What did you do next?
- Is there anything else you haven't told me yet?

X AVOID LEADING QUESTIONS

- Was it a UAP?
- Did it have lights?
- Was it moving fast?
- Did it hover?
- Did it make any noise?
- Was it round?
- Didn't it look like a triangle?

TIP: Use "Tell me more about that" or "What do you mean?" to keep the witness talking in their own words.

3 BUILD THE NARRATIVE TIMELINE

Walk through the event step by step.

BEFORE
What were you doing? What was normal?

OBSERVATION
Describe what you saw, heard, or sensed.

DURATION
How long did it last? What happened over time?

AFTER
What did it do next? What did you do?

AFTERMATH
What happened afterward? Any effects?

USE ANCHORS

Clock time Sun position Moon/Stars Traffic/Trains Announcements Phone records

Anchors help make the timeline verifiable.

4 CAPTURE THE FIVE W'S + HOW

Get the essential details.

- WHO** Who was with you? Any other witnesses?
- WHAT** What did you observe? Be as detailed as possible.
- WHERE** Exact location. Indoors or outdoors? Use landmarks.
- WHEN** Date, time, duration. Use anchors.
- WHY** Why were you there? What was happening before the event?
- HOW** How did it move? How did it look? How did it end?

Get sketches during the interview if possible.
Even simple sketches are valuable.

5 DESCRIBE DETAILS THAT MATTER

Encourage specifics. Avoid generalities.

APPEARANCE

- Shape
- Size (estimate)
- Color
- Surface/Texture
- Lights
- Windows/Ports
- Markings

MOVEMENT

- Direction
- Speed
- Path (straight, curved, erratic)
- Changes in movement
- Hover, climb, descend, stop

SOUNDS

- None
- Hum, buzz, roar
- Pulsing, beeping
- Mechanical
- Changes over time

ENVIRONMENT

- Weather
- Visibility
- Light conditions
- Nearby objects
- Animals' reactions
- Other, activity

EFFECTS

- On people (emotion, physical)
- On electronics
- On vehicles
- On nature (plants, animals)
- On environment (air, water, ground)

6 CLARIFY UNCERTAINTY

It's okay not to know.

GOOD WITNESS STATEMENTS

- ✓ "I'm not sure of the exact time."
- ✓ "It looked silver or gray—I can't be certain."
- ✓ "I think it was about 30 seconds, maybe a little longer."
- ✓ "I'm not sure what caused it."

WHY IT MATTERS

- ✓ Honesty builds credibility.
- ✓ Vague is better than wrong.
- ✓ Uncertainty can be important evidence.

Record exact words when possible.
Avoid paraphrasing during the interview.

7 CLOSE THE INTERVIEW

Wrap up completely.

- ✓ Ask: "Is there anything else you remember now?"
- ✓ Review key points with the witness.
- ✓ Verify spelling of names and places.
- ✓ Ask permission to follow up.
- ✓ Thank the witness.

AFTER THE INTERVIEW

- ✓ Expand notes as soon as possible.
- ✓ Transcribe recordings.
- ✓ Store data securely.
- ✓ Avoid discussing the case outside the investigation.

8 MEMORY FACTS: WHAT TO KNOW

Human memory is powerful—but not perfect.

MEMORY STRENGTHS

- ✓ Strong for emotions
- ✓ Strong for main events
- ✓ Stronger when first recalled
- ✓ Improves with context

MEMORY LIMITS

- ✗ Fades with time
- ✗ Detail is often lost first
- ✗ Can be influenced by others
- ✗ Fill-in-the-blanks can be wrong

BEST PRACTICES

- ✓ Interview as soon as practical.
- ✓ Minimize outside influence.
- ✓ Use open-ended questions.
- ✓ Document exact words.
- ✓ Corroborate with evidence.

9 EXAMPLE: WITNESS SKETCH

Done during the interview.

Sketch Notes

Date: 2025-06-01
Time: ~21:15 CDT
Location: The Woodlands, TX
Weather: Clear, light wind
Witness: A.S.

Drawing by witness (Not to scale)

Witness initial: A.S.

10 SUMMARY CHECKLIST

Did you capture a strong account?

- ☐ Complete story: before, during, after
- ☐ Who, what, where, when, why, how
- ☐ Detailed description of object and behavior
- ☐ Duration and timeline with anchors
- ☐ Environmental conditions
- ☐ Any effects or unusual observations
- ☐ Sketches or diagrams (if possible)
- ☐ Witness contact info and permission
- ☐ Interview recorded or documented
- ☐ Notes expanded right after interview

REMEMBER: A strong testimony is detailed, honest, consistent, and documented.
Your job is to preserve the witness's experience—accurately and respectfully.

Good interviews create the foundation for strong evidence.

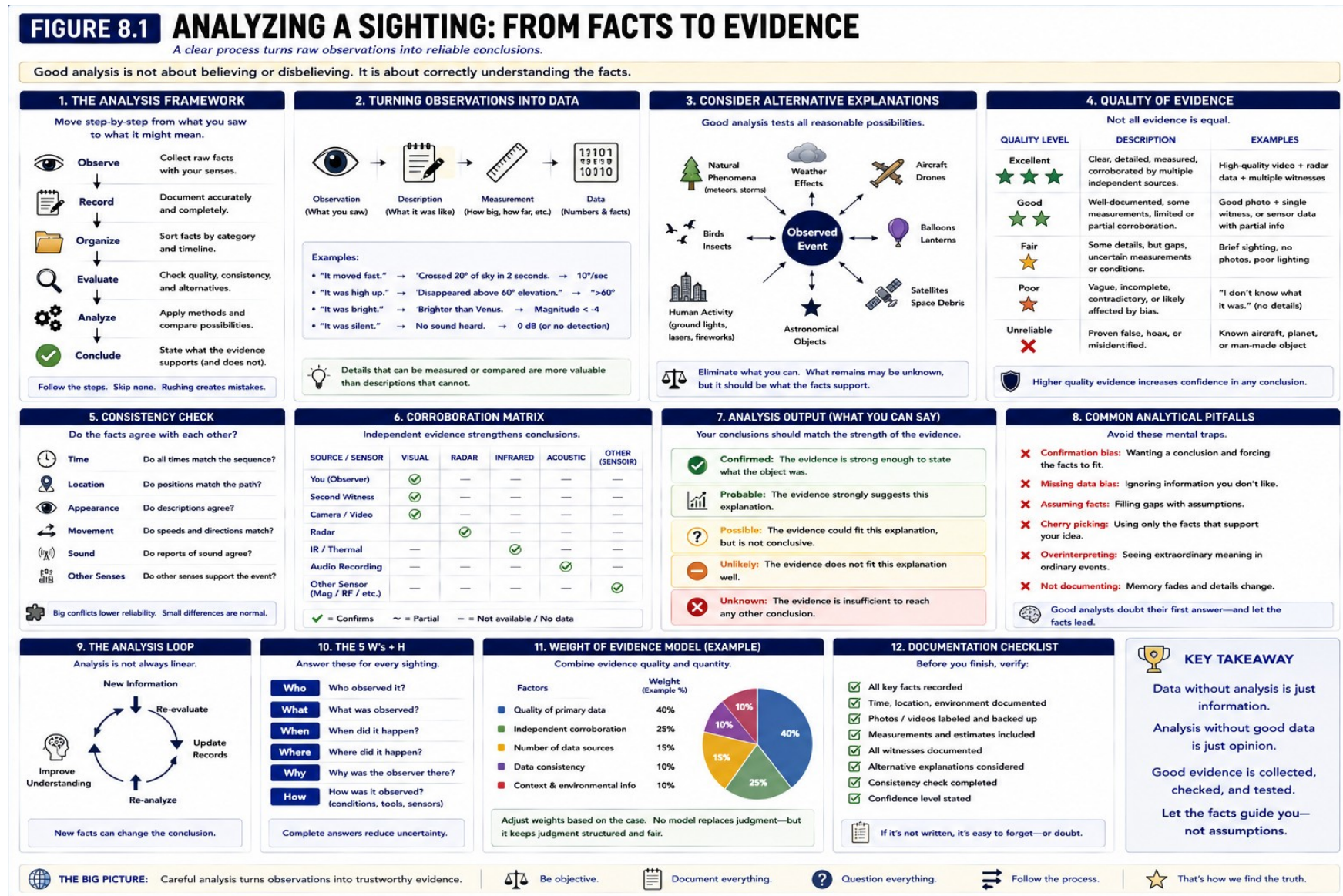
R07 · ChatGPT Image Aug 10, 2026, 08_51_38 AM (1).png · 1536 × 1024 px

F. S. Lyons · Teaching and distribution edition

PAGE 58

RECOVERED PLATE R08 · ORIGINAL SOURCE PRESERVED

FIGURE 8.1 — ANALYZING A SIGHTING: FROM FACTS TO EVIDENCE



R08 · ChatGPT Image Aug 10, 2026, 10_19_43 AM.png · 1536 × 1024 px

FIGURE 8.1 — ESTIMATING DISTANCE AND ALTITUDE

FIGURE 8.1

ESTIMATING DISTANCE AND ALTITUDE

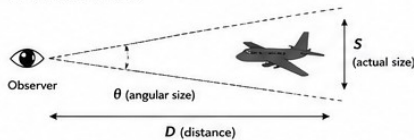
Practical methods for approximating range, height, and size before deeper analysis.

Perspective can deceive. Use geometry, reference objects, and known angles to make the invisible—visible.

1 ANGULAR SIZE METHOD

Use known size to estimate distance.

If you know the actual size (S) of an object and measure its angular size (θ), you can estimate distance (D).



FORMULA (Small Angle Approximation)

$$D \approx 57.3 \times \frac{S}{\theta}$$

D = distance to object (same units as S)
 S = actual size of object
 θ = angular size in degrees

EXAMPLE

A commercial airliner has a wingspan of about 120 ft. You measure its angular size as 0.50° .

$$D = 57.3 \times 120 / 0.50 = 13,752 \text{ ft (about 2.6 miles)}$$

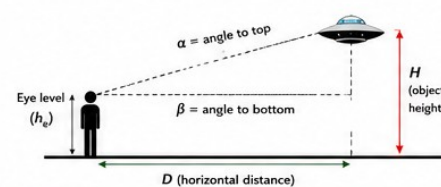
BEST USE

- Aircraft, towers, buildings, ships, known celestial objects
- Requires a reasonably accurate size estimate
- More accurate at larger distances (small angles)

2 TRIGONOMETRIC (ANGLE-HEIGHT) METHOD

Use elevation angle to estimate altitude.

Measure the angle from your eye level to the object's top (α) and bottom (β). Measure or estimate your eye height (h_e).



FORMULAS

$$D = h_e / (\tan \alpha - \tan \beta)$$

$$H = D \times (\tan \alpha - \tan \beta)$$

h_e = observer eye height
 α = angle to top (degrees)
 β = angle to bottom (degrees)
 D = horizontal distance
 H = object height

EXAMPLE

$$h_e = 5.5 \text{ ft}, \alpha = 11^\circ, \beta = -2^\circ \text{ (object appears below eye level)}$$

$$D = 5.5 / (\tan 11^\circ - \tan(-2^\circ)) = 27.6 \text{ ft}$$

$$H = 27.6 \times (\tan 11^\circ - \tan(-2^\circ)) = 6.0 \text{ ft}$$

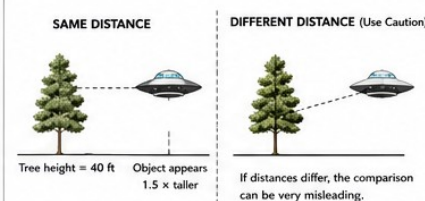
BEST USE

- Low altitude objects, e.g., rooftop, hovering, or near horizon
- Works best when you can measure both top and bottom angles
- More accurate with longer distances and stable sightline

3 REFERENCE OBJECT METHOD

Use familiar objects for scale.

Compare the unknown object to a nearby object of known size at the same distance and on (or near) the same plane.



$$\text{Estimated height} \approx 1.5 \times 40 \text{ ft} = 60 \text{ ft}$$

BEST USE

- Daylight sightings with visible ground objects
- Parking lots, buildings, trees, poles, hills, vehicles
- Use cautiously with differing distances or perspective

KEY PRINCIPLES



Geometry first.
Angles + reference = range.



Measure carefully.
Small angle errors create large distance errors.



Use multiple methods.
If different methods agree, your estimate is stronger.



Consider uncertainty.
Estimates are approximations, not exact measurements.



Context matters.
Lighting, terrain, atmosphere, and time all affect what you see and measure.



COMMON SOURCES OF ERROR

- Wrong assumption about object size
- Inaccurate angle measurement
- Uneven terrain (hills, valleys)
- Different distances to reference objects
- Atmospheric refraction (esp. low sun)
- Parallax from moving while observing
- Poor visibility or lighting
- Relying on memory instead of notes

4 PARALLAX CHECK

Movement reveals distance.

Close objects shift position against the background when you move your head. Far objects show little or no shift.



WHAT IT MEANS

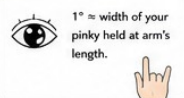
WHAT YOU SEE	WHAT IT MEANS
Object shifts a lot	Relatively close
Object shifts slightly	Moderate distance
No noticeable shift	Very far away



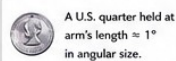
TIP:

Use objects at different distances to calibrate your sense of parallax (e.g., finger at arm's length vs. a mountain).

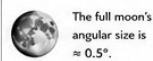
5 RULES OF THUMB (Quick Reference)



$1^\circ \approx$ width of your pinky held at arm's length.



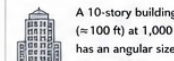
A U.S. quarter held at arm's length $\approx 1^\circ$ in angular size.



The full moon's angular size is $\approx 0.5^\circ$.



A typical airliner at 10 miles has an angular size of about 0.2° – 0.3° .



A 10-story building (≈ 100 ft) at 1,000 ft has an angular size of about 5.7° .



BOTTOM LINE

Estimating distance and altitude is an essential skill in UAP analysis. It turns a fleeting impression into a measurable, checkable fact. Use geometry, references, and good observation to see beyond what your eyes alone can tell you.



REMEMBER

Your brain is a guessing machine. Data beats guesswork every time.



PRACTICE MAKES PATTERN RECOGNITION. The more you practice these methods with ordinary objects, the more accurate you will be with extraordinary ones.

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FIGURE 8.2 — BAYESIAN REASONING AND EVIDENCE SCORING

FIGURE 8.2 BAYESIAN REASONING AND EVIDENCE SCORING

Updating belief in the unknown based on the quality and quantity of evidence.

We begin with a prior belief. Each piece of evidence moves the needle—up or down. Good evidence with low chance of normal explanation increases the unknown score. Weak or easily explained evidence decreases it.

THE BAYESIAN MINDSET

- ✓ Start with humility (uncertainty).
- ✓ Let evidence update your belief.
- ✓ Strong evidence moves the score more.
- ✓ Multiple independent evidences compound.
- ✓ New information can change everything.
- ✓ Remain willing to revise.

1 THE BAYESIAN LOOP

A continuous process of updating belief.



NOT ABOUT PROVING, BUT UPDATING.
Bayesian reasoning doesn't prove the unknown—it helps you respond rationally to new data.

2 HOW EVIDENCE CHANGES THE SCORE

Each item of evidence has two key values.

EVIDENCE STRENGTH (S)
How strongly the evidence supports the unknown.

Score: 0 to 5

- 0 = No support
- 1 = Very weak
- 2 = Weak
- 3 = Moderate
- 4 = Strong
- 5 = Very strong

Depends on:

- Clarity and quality
- Rarity (how unusual)
- Consistency with other evidence
- Independence

DISCRIMINATING POWER (D)
How unlikely this evidence is under normal explanations.

Score: 1 to 5

- 1 = Very common
- 2 = Common
- 3 = Uncommon
- 4 = Rare
- 5 = Extremely rare

Depends on:

- How often this occurs in ordinary life
- How many normal causes can explain it

EVIDENCE WEIGHT (W)

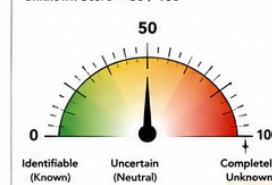
$W = S \times D$ (Range: 0 to 25)

This is the impact of this evidence item.

3 UPDATING THE UNKNOWN SCORE

Evidence Weight adjusts the running Unknown Score.

STARTING POINT (PRIOR)
We start at the midpoint.
Unknown Score = 50 / 100



UPDATE RULE

$\text{Unknown Score}_{\text{new}} = \text{Unknown Score}_{\text{old}} + W_{\text{adj}}$

Where W_{adj} is the Adjusted Evidence Weight (see table to the right).

ADJUSTED EVIDENCE WEIGHT (W_{adj})
Different types of evidence have different maximum impact.

EVIDENCE TYPE	MAX [W_{adj}]
Extraordinary Visual (clear shape, structure, markings)	± 20
Instrument / Sensor (radar, IR, RF, multispectral)	± 20
Physical Trace / Material (metallurgy, isotopes, residues)	± 20
Multi-Witness Corroborated (independent, consistent)	± 15
Secondary / Contextual (circumstantial, behavior, docs)	± 10
Low-Value / Weak (vague, common, easily explained)	± 5

4 COMBINING MULTIPLE EVIDENCES

Independent lines of strong evidence compound.

Example Scenario
Starting Score: 50

- Evidence 1: Triangular craft
S=4, D=4 → W=16 → +16
- Evidence 2: Instant right-angle turn
S=5, D=5 → W=25 → +20 (capped)
- Evidence 3: Radar track
S=4, D=4 → W=16 → +16
- Evidence 4: Multiple witnesses
S=3, D=3 → W=9 → +9
- Evidence 5: Debris with exotic alloy
S=5, D=5 → W=25 → +20 (capped)

Total Adjustment: +81

Final Unknown Score: 50 + 81 = 131*

CAPPED AT 100 (Maximum Unknown)

*Scores are capped between 0 and 100.

5 SCORING INTERPRETATION GUIDE

What your final score suggests.

UNKNOWN SCORE	INTERPRETATION	WHAT IT MEANS
0 – 20	Identifiable / Known	Consistent with common, known objects or phenomena.
21 – 40	Likely Conventional	Likely explained by ordinary causes or technology.
41 – 60	Uncertain	Not enough information or conflicting evidence.
61 – 80	Likely Unknown	Evidence leans toward something beyond current understanding.
81 – 100	Highly Unknown	Strong, compelling evidence for something truly extraordinary.

These ranges are guides, not rules. Use judgment. Context and new data can shift the interpretation.

6 EXAMPLE: HOW A SINGLE EVIDENCE ITEM IS SCORED

Observed: Silent, instantaneous acceleration from rest to very high speed.

1. RATE THE EVIDENCE

a) Strength (S): How strongly does this support the unknown?

0 1 2 3 4 5
Weak Strong

b) Discriminating Power (D): How unlikely is this under normal explanations?

1 2 3 4 5
Very Common Extremely Rare

2. CALCULATE WEIGHT

$W = S \times D = 5 \times 5 = 25$
Maximum impact evidence.

EVIDENCE TYPE	MAX IMPACT
Instrument / Sensor (Radar + IR)	± 20

Adjusted Weight (W_{adj}) = +20
(capped to the max for this type)

3. UPDATE THE SCORE

Starting Score = 50
+ 20
New Score = 70



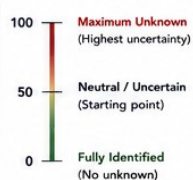
7 CAUTIONS AND LIMITS

- ⚠ Garbage in, garbage out. Bad data → bad updates.
- Cognitive bias can distort scoring (expectation, fear, pride).
- Correlation is not causation.
- Single data points rarely prove anything.
- Extraordinary claims require extraordinary evidence.
- The score is a tool, not the truth.

Stay curious. Stay skeptical. Stay honest.

SCORE BOUNDARIES

Scores are always limited to 0–100.



★ PRO TIP

Recalculate as new evidence arrives.
Old scores are not sacred.
The best investigators are the best updaters.

EXAMPLE SUMMARY TABLE

Evidence Item	S (0–5)	D (1–5)	W = SxD	Type	W_{adj} Applied	Running Score
Triangular craft	4	4	16	Visual	+16	66
Instant right-angle turn	5	5	25	Visual	+20 (cap)	86
Radar track	4	4	16	Instrument	+16	102 (cap 100)
Multiple witnesses	3	3	9	Corroborative	+9	100
Exotic alloy debris	5	5	25	Physical Trace	+20 (cap)	100



REMEMBER

The goal is not to reach 100.
is to follow the evidence where it leads.
Let the data speak. Your job is to listen carefully.



BOTTOM LINE

Bayesian reasoning helps you be rational in the face of the unknown. It turns mystery into measurable uncertainty. Good evidence raises the score. Better evidence raises it higher. Extraordinary, independent, high-quality evidence can reach the top. The universe may be stranger than we think—let's find out.



YOUR GUIDE

Use this framework. Document everything. Score honestly. Revise constantly. Truth is the goal.

FIGURE 8.2 — SENSOR AND CAMERA BASICS

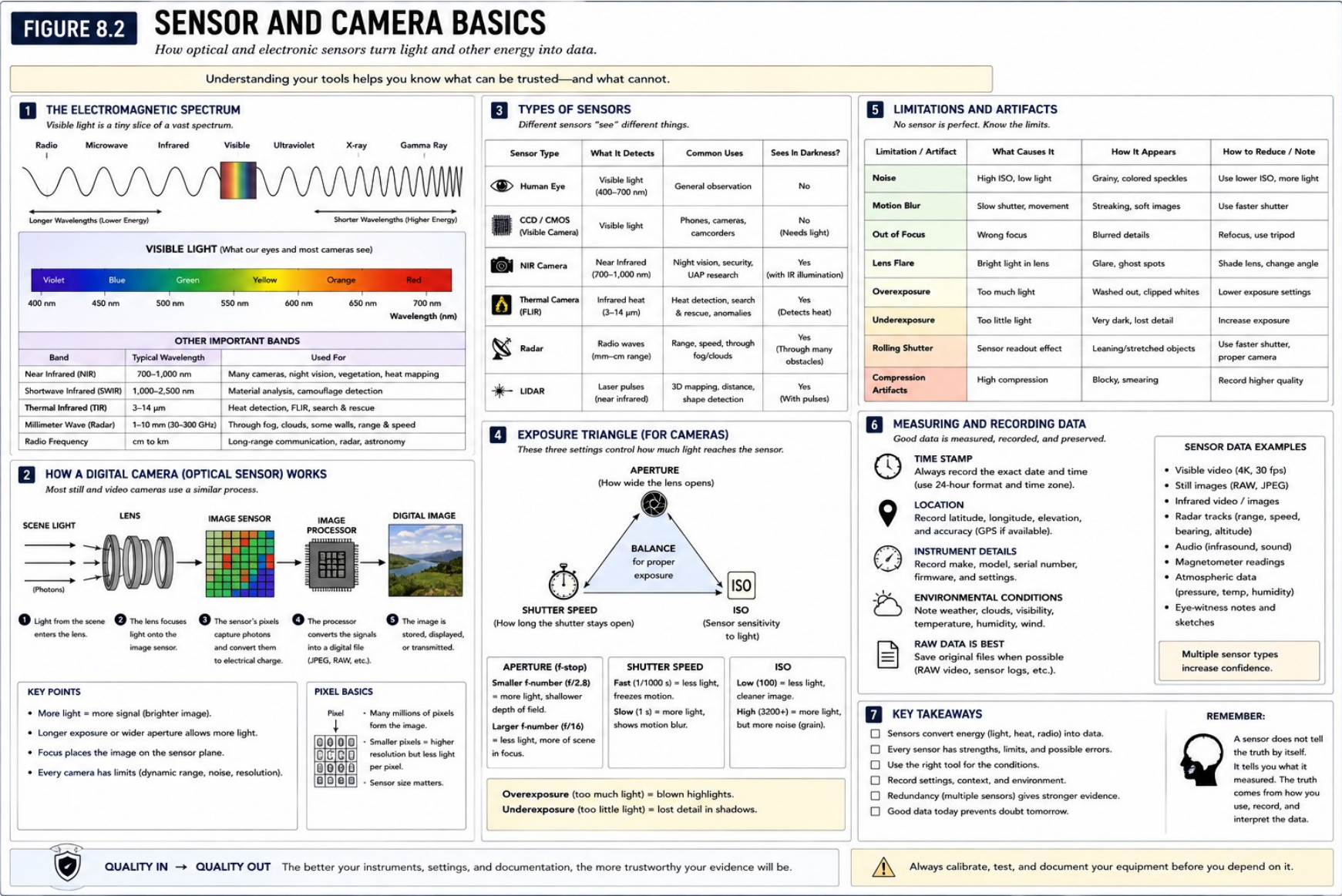
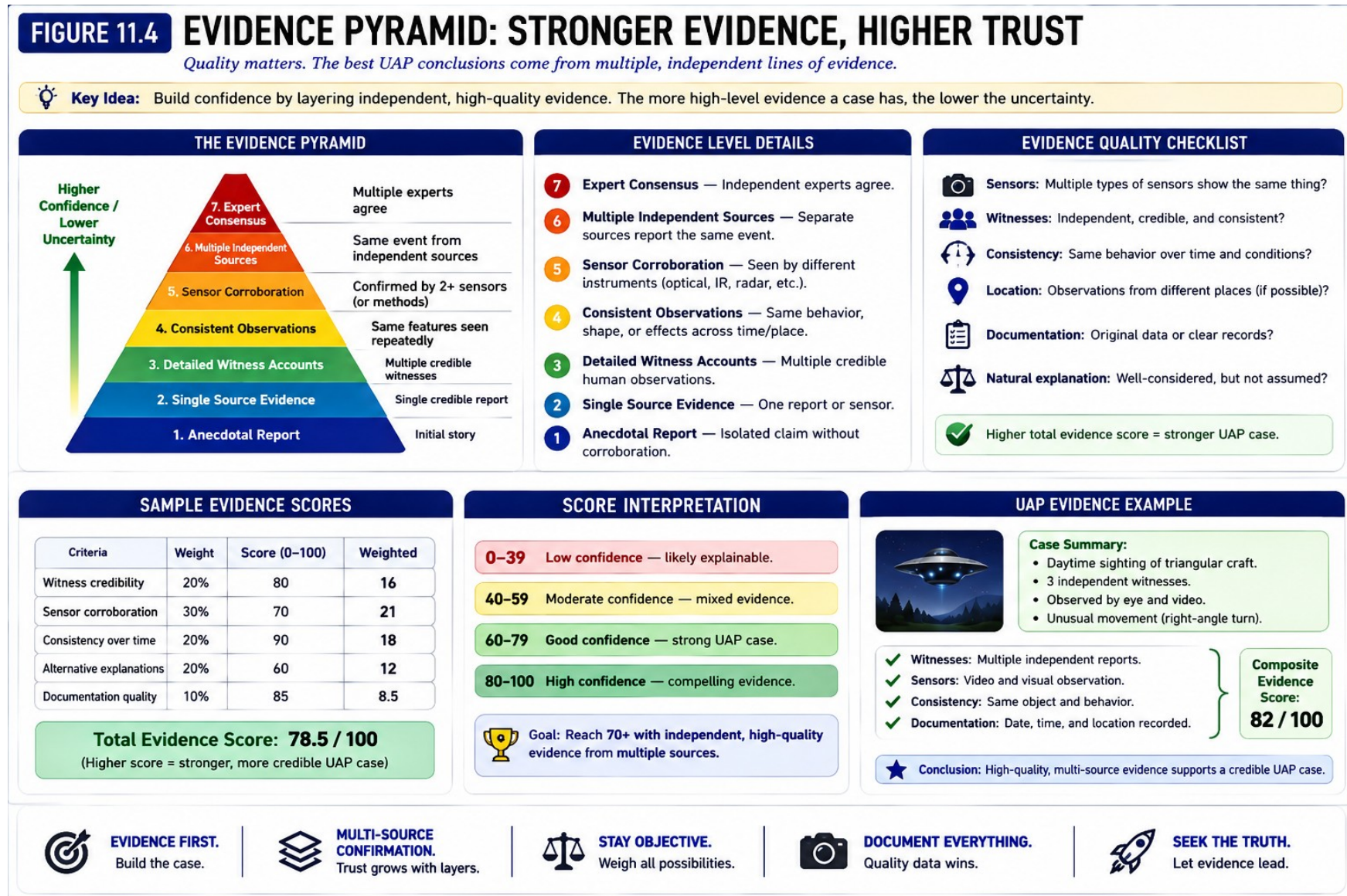


FIGURE 11.4 — EVIDENCE PYRAMID: STRONGER EVIDENCE, HIGHER TRUST



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