

Expeditione 🚀

Latin : To embark on a journey

Volume I: Ancient Egypt

The Educator's Field Guide.



A Letter from the Creator:

Welcome to Expeditione. I built this because I believe learning should be explored, not merely memorized. It's meant to be explored, touched, and felt. I optimized each scene of the 3D world into just ~1MB so that no matter what computers your school has, your students can step into the past instantly. There are no ads, no trackers, and no logins. This guide is your map. Let's embark.

– Aureon

What Students will explore :

- **Geography:** Visualizing the Nile inundation cycle, the Khamsin weather systems, and agricultural dependence.
- **Economics:** Understanding resource management, the copper monopoly, and temples as reserve banks.
- **Social Structure:** Contrasting the daily lives of state-employed artisans with monumental labor.
- **STEM / Math:** Calculating payload logistics, friction, and monumental mass.

Adaptable For :

- Upper Primary
- Middle School
- High School

Estimated Time :

- Single Scene: 10–15 mins
- Full Expedition: 60–120 mins
- With Activities: Multiple periods

Units Note : This guide uses **metric units** (international standard) with US customary units in [brackets].

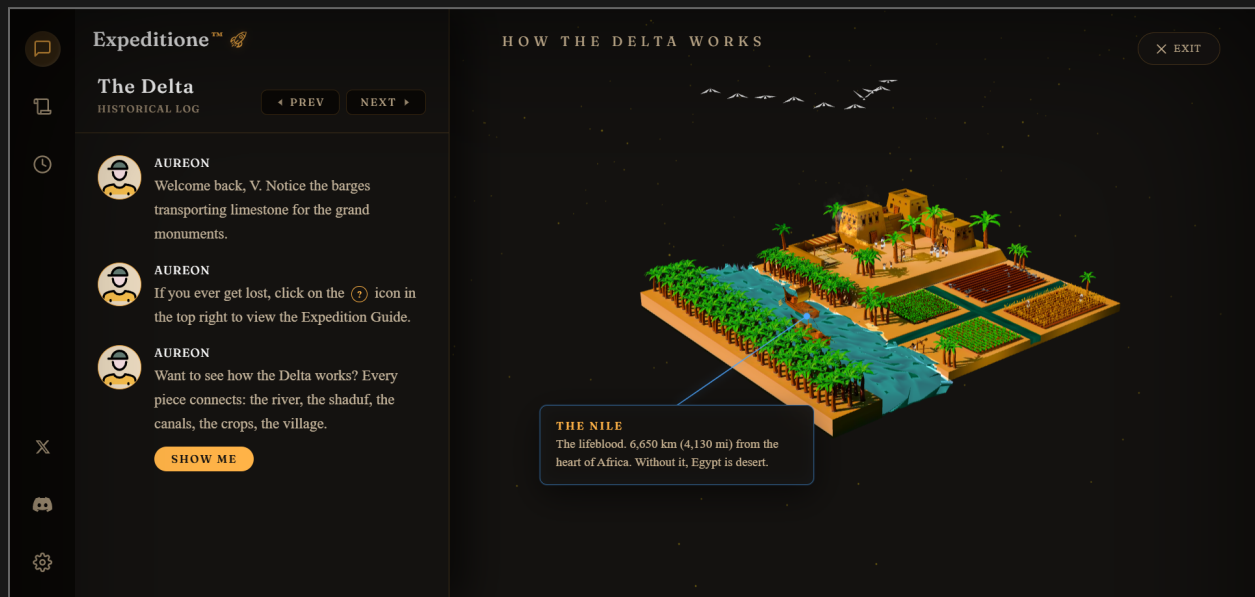
- Weight & mass: kilograms (kg) and metric tonnes (t) [pounds (lb) and short tons] [1 metric tonne = 1,000 kg $\approx$ 2,205 lb]
- Volume: liters [US gallons]. [1 US gallon $\approx$ 3.8 liters]
- Area: hectares where referenced [acres] [1 hectare $\approx$ 2.47 acres.]
- Temperature: °C [°F]

Launch the Expedition:

<https://expeditione.fun>

PART II: THE EXPEDITION

SCENE 01: THE DELTA (The River & The Harvest)



Core Concept: A garden hose in a sandbox. 95% of the population living on 5% of the land. If the river fails, the empire falls.

 **The Hook (Read this to the class before they open laptops):** Ask your students to imagine a desert so massive, hot, and dry that it could swallow the entire United States [roughly the size of India and China combined]. Now, imagine a single river running right down the middle of it.

Tell them: If you want to drink, if you want to eat, if you want to live... you have to stand right next to that river. If you wander away from it, you die.

Now head to the Delta (scene-1) in Expeditione. Tell them they are looking at one of the most important rivers in the history of human civilization: The Nile.

Guided Exploration (Questions to ask while they play):

Walk around the room.

The kids are exploring the canals, the crops, and the village.

Ask out loud:

- ☐ "Find the wooden crane by the river." (The Shaduf).
"Why don't they just carry buckets up the bank with their hands? Why build a machine?"

(Answer: Because lifting water against gravity for 10 hours a day will destroy a human's back. The Shaduf's counterweight does 80% of the lifting for them).

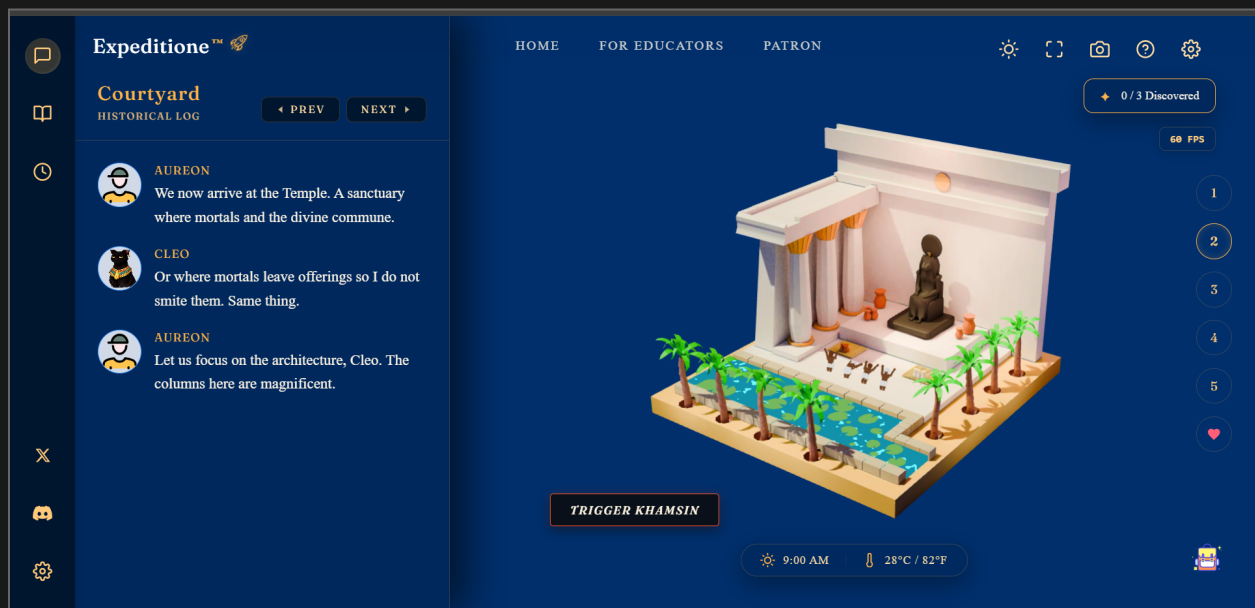
- ☐ "Look at where the green crops end." "Notice how the green grass doesn't slowly fade into the desert? It's a harsh, sudden line. Why?"

(Answer: Because the 'green zone' is exactly where the river's floodwaters stop. One inch past that line, the sand is dead).

The "Classroom Mind Blower" Activity (The "Strip of Life"):

1. The 6.6 Million Dump Trucks: The Nile dumped 40 million tons of black mud a year. If we used modern 18-wheeler trucks, it would take 2.7 million trucks to move that dirt. The river did it for free.
2. The Shaduf Backbreaker: To water one acre [0.4 hectares] of wheat, you need about 1.14 million liters [300,000 US gallons] of water. A shaduf bucket holds about 19 liters [5 US gallons]. You would have to pull that heavy wooden lever 60,000 times in 40°C [104°F] heat just to survive the year.
3. The Concrete Race: The mud bakes into rock-hard concrete in the sun. If a farmer gets sick for two weeks and misses the planting window, the shovel bounces off the dirt. No food for 12 months.

SCENE 02: THE SACRED SANCTUARY (Rituals & Storm)



Core Concept: Temples were banks, and the gods were the terrifying weather.

The Hook (The "End of the World" Forecast):

"Ask your students: "Imagine your country's weather department announces an extreme storm , what do we do?"

(Kids might say: check the weather app, board up windows, evacuate).

The Script: 'You can do that because you have satellites and meteorologists. The Ancient Egyptians didn't. Imagine you are standing outside, and suddenly, the sky turns blood red. The temperature jumps 20 degrees in ten minutes. A wall of sand a mile high swallows the sun, turning day into pitch-black night. If you didn't know what science was, what would you think is happening?'

(Kids might say: The world is ending. A monster is attacking).

Tell them: 'Exactly. You would think the gods are angry.

Now open the Courtyard scene and hit the Khamsin button.

Guided Exploration (Questions to ask while they play)

- ☐ Walk around the room as the kids hit the "Trigger Khamsin" button over and over. "Watch the temperature gauge."

(Answer: It spikes to 45°C / 113°F. It is a suffocating, dry heat that can literally suck the moisture out of your lungs).

- ☐ "Look at the giant columns." "Why do the tops of the columns look like giant flowers?"

(Answer: Because the temple is designed to look like the swampy Delta where life began! The tops are carved to look like Lotus and Papyrus plants. They brought nature indoors).

The "Classroom Mind Blower" (The 50-Day Suffocation):

Stop the kids to explain the terrifying reality of the Khamsin.

Tell them the word Khamsin comes from the Arabic word for Fifty.

The Script: "It is called the 'Fifty' because this wind can blow off and on for 50 days straight during the spring. The sand is so fine it gets into your eyes, your food, and your locked house. It can literally strip the paint off a modern car."

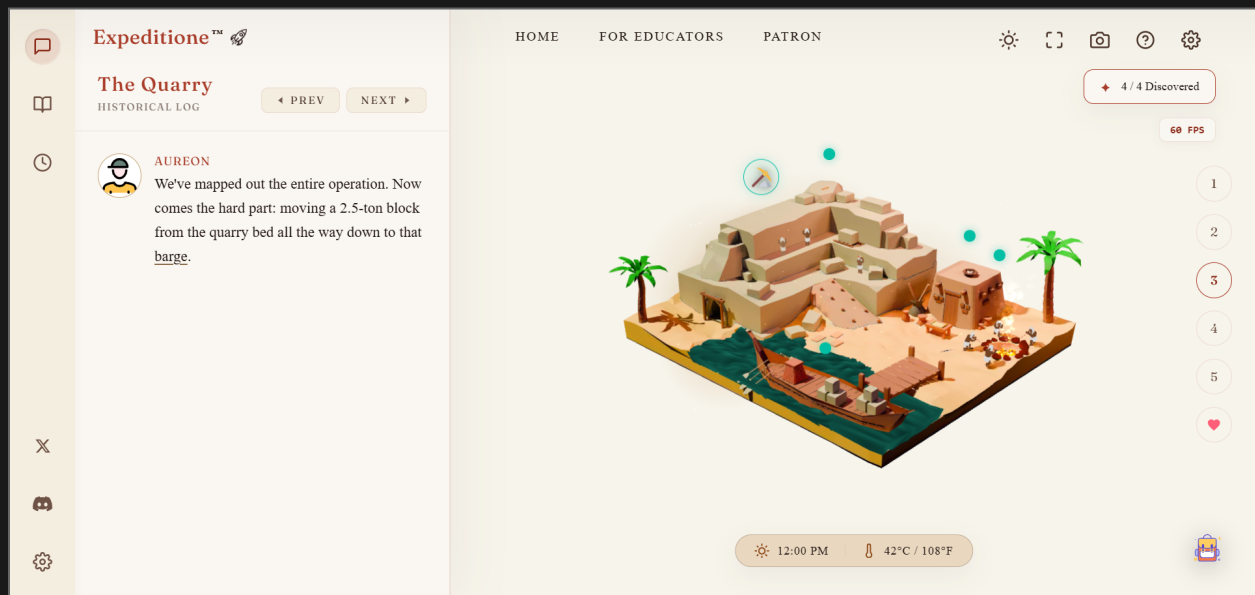
The Realization: "In Egyptian mythology, the sun god Ra sails his boat across the sky. But during the Khamsin, the sun vanishes behind the dust. The Egyptians believed a giant chaos snake named Apep was literally swallowing the sun god. So, when people ran to the temple with offerings, they weren't just praying—they believed they were funding a cosmic war to save the sun from being eaten."

Expedition insight:

Ask the students: 'If you leave a plate of bread and meat in front of a stone statue... the statue doesn't eat it, right? So what happened to all the food?'

The Secret: The Temple was actually the largest bank and warehouse in the city! After the food was formally presented to the statue, it was considered 'blessed.' The priests then took the food to the back of the temple and used it to pay the salaries of the quarry workers, the coppersmiths (like Nebamun), and the soldiers. Religion was the economic engine that kept the whole society fed!

SCENE 03: THE QUARRY (Labor & Extraction)



*The Core Concept: 2500 kgs (~5,500 lb) of stone.
No wheels. No iron. No cranes. Just muscle, sand, and sweat.*

The Hook (Read this to the class before they open laptops):

Ask your students to close their eyes and imagine a standard car, like a Honda Civic. It weighs about 1500kg (3,000 lb). Now, tell them to imagine dragging that car across a beach using nothing but ropes.

Tell them: The blocks in the Great Pyramid weigh about 2,500 kg [~5,500 lb]. And the Egyptians moved roughly 2.3 million of them!

Now open the Quarry (scene-3) in Expeditione and figure out how it was possible.

Guided Exploration (Questions to ask while they play)

Walk around the room while students explore the 3D scene. Ask them out loud:

- ☐ "Zoom in on the ramps." Why are they built at that specific angle?
(Answer: To reduce the sheer force required to lift dead weight.)
- ☐ "Look at the water." Why is the quarry located directly next to the Nile?
(Answer: Because moving 2.5 tons over land for long distances was impossible. The river was the superhighway of the ancient world.)

The "Human Calculator" Activity (The Fun Part!)

Stop the kids after 10 minutes of playing and do this quick classroom experiment: Tell the class that an average, healthy ancient worker could pull roughly 100 lbs (45 kg) of dead weight on a wooden sled across sand. The limestone block in the scene weighs about 2,500 kg [5,500 lb].

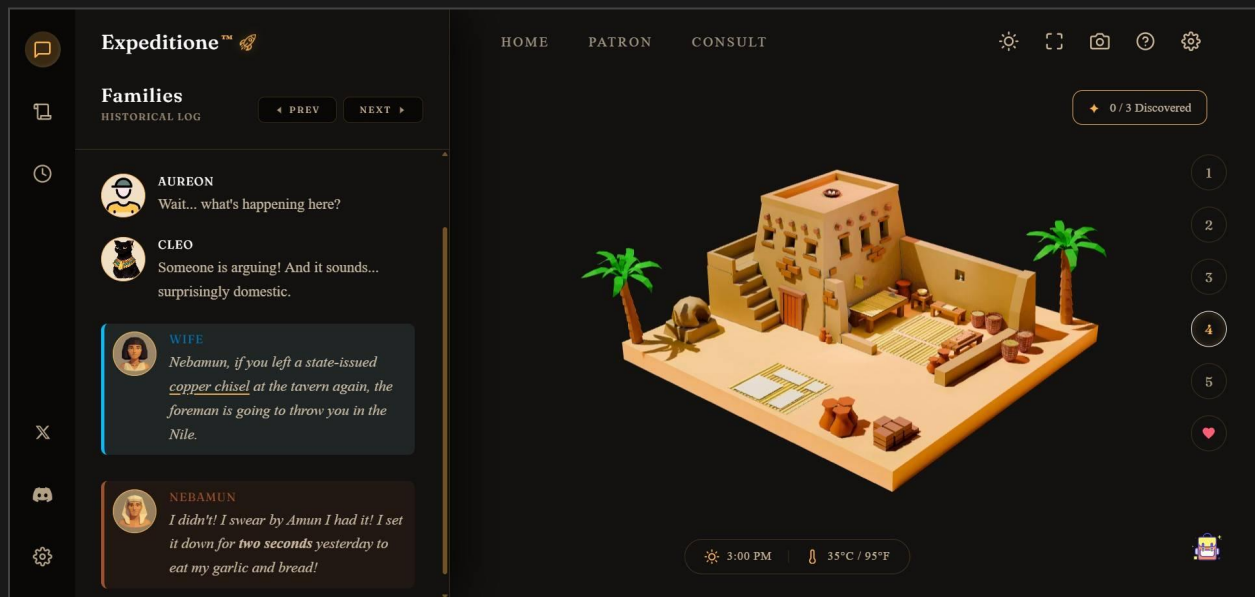
The Question: "How many people does it take to pull just one block?"
(Answer: 55 people).

The Mind-Blower: Have the students count how many kids are currently sitting in the classroom. (Usually 25-30). Have the teacher say: "Look around. If every single person in this room was attached to the rope, we still wouldn't have enough muscle to move ONE block. And they moved over two million of them!"

Expedition Insight (Whisper this to the kids):

"Tell your students that these barges (boats) weren't built with metal nails. Wood in the desert shrinks and swells. They literally sewed the massive wooden planks together using thick ropes that tightened when wet!"

SCENE 04: FAMILIES OF THE NILE (Domestic Banter)



Core Concept: There is no "private property." In a world where the Pharaoh owns the dirt, the water, and the metal, losing a tool is an act of treason.

The Pre-Launch Hook (The \$10,000 Laptop):

Ask your students: 'Imagine the government gave you something extremely valuable — a laptop worth \$10,000 USD. You accidentally leave it at a park and someone steals it. What happens?'

(The kids might say their parents have to pay for it).

The Script: Now, imagine that laptop is made of solid gold. Imagine it was personally handed to you by your country's leader. And imagine that losing it means you might be accused of funding a war against the government!!!'

Now open the Families scene and read the argument between Nebamun and his wife. He didn't just lose a tool. He lost the Ancient Egyptian equivalent of a nuclear code.

Guided Exploration (Questions to ask while they play):

☐ "Look at the house. Where is the kitchen?"

(Answer: It's outside in the courtyard! Look at the bread ovens. If you build a fire inside a tiny mud house in the Egyptian summer, you will roast yourself alive).

The Mind-Blower: (The Daily Weigh-In)

Stop the kids. We are going to teach them about ancient state surveillance. Tell the kids that ancient workers (like the famous artisans of Deir el-Medina who built the Valley of the Kings) didn't own their tools. Copper was so incredibly valuable it was used as currency.

The Script: "If you were Nebamun, every single morning at sunrise, the state foreman would hand you a chisel and put it on a scale to weigh it down to the exact ounce. You go chip stone all day. At sunset, you must hand the chisel back to the foreman. He puts it back on the scale. He calculates exactly how much copper rubbed off on the rock. If the chisel is missing even half an ounce more than it should... the guards arrest you!! They assume you are shaving off copper to melt down into money or weapons."

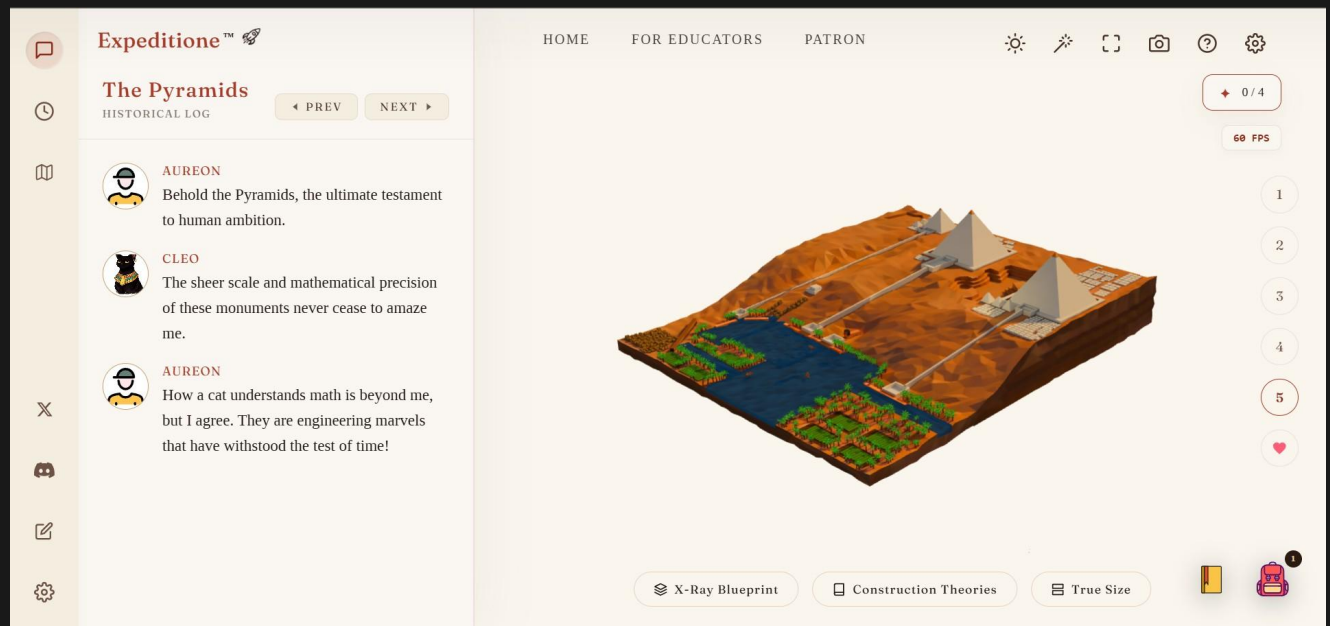
The Realization: Leaving it for "two seconds" isn't a funny mistake. It means a thief could have shaved off a piece of the Pharaoh's metal. The state tracked metal the way modern governments track uranium.

Expedition Insight:

"Ask the kids if they have ever heard the phrase, 'A strike.' Like when workers refuse to work because they aren't getting paid.

The Secret: The first recorded labor strike in the history of human civilization happened in Ancient Egypt under Pharaoh Ramses III! The state failed to deliver the monthly rations of grain, garlic, and beer to the tomb builders. The workers laid down their heavy copper tools, marched out of the Valley of the Kings, and sat down at the local temple, refusing to build the Pharaoh's tomb until they were fed. They actually won!

▲ SCENE 05: The Pyramids



Core Concept: What are human beings capable of when they work together?

The Pre-Launch Hook (The Biggest Team Project in History):

Ask your students: "Think about the biggest group project you've ever done. Maybe it was with four classmates. Maybe ten."

Now imagine a project so enormous that it required farmers, sailors, architects, surveyors, quarry workers, craftsmen, cooks, priests, and thousands of laborers... all working toward the same goal.

Open the Pyramid scene.

This is what human beings are capable of when an entire civilization works together.

Guided Exploration (Questions to ask while they play):

- ☐ "Open the X-Ray Blueprint. Why do you think the Egyptians built hidden chambers and narrow passageways inside the pyramid instead of making it completely solid?"

Answer: They carefully planned internal chambers, relieving spaces, and passages to protect the burial chamber and distribute the immense weight above.

- ☐ Look carefully at the water surrounding the plateau. Does it look like a natural riverbank? Why would engineers build canals and harbors right beside the pyramids?

Answer: They weren't relying only on the Nile. Ancient engineers created canals and harbor systems that allowed boats carrying multi-ton limestone blocks to unload almost at the construction site. The pyramid was connected to a transportation network, not built in isolation.

Classroom Mind-Blower — *The Missing Block*

Ask your students:

Imagine you're the chief architect.

One limestone block arrives with a crack running through it.

It's only one bad block.

Would you use it anyway?

Most students will probably say yes.

Now explain:

The Great Pyramid contains over **2 million** stone blocks.

If every worker decided, 'One mistake won't matter...' the pyramid would never have survived thousands of years.

Expedition Insight:

Most people see a pyramid and imagine one extraordinary king.
But look closer.
Every scene you've explored until now is standing in front of you.

The river that fed the workers.
The quarries that supplied the stone.
The barges that carried the blocks.
The families who raised the next generation.
The temples that organized the economy.

**The Great Pyramid isn't a story by itself.
It's the result of every story you've explored.**

The Final Realization:

The pyramids are impressive.
But they are not the real wonder.

The real wonder is that millions of individual decisions—from farmers growing food, to quarry workers cutting stone, to barges sailing the Nile, to priests organizing labor—came together to create something that has survived for over four millennia.

The pyramids are what civilization looks like when every piece works together.



PART III: MAKER EXTENSIONS

The best way to understand how something works is to build it yourself.

There isn't one correct answer.

Ancient Egypt was built by people solving problems. Now it's your turn.



Mission 1: Engineer the Nile

Using paper, cardboard, clay, sand, or any materials available in your classroom, design a village that can survive the Nile's annual flood.

Think carefully.

Where would you build:

- Homes?
- Farms?
- Granaries?
- Temples?
- Harbors?

Once you're finished, explain **why** you chose those locations.

Challenge: Compare your design with the real Ancient Egyptian settlements in Expeditione. What did they solve differently?



Mission 2: The Missing Artifact

Imagine archaeologists discovering a sealed chamber beneath the Great Pyramid.

Inside is one mysterious object no historian has ever seen before.

Your mission:

- Draw the artifact.
- Give it a name.
- Explain what it was used for.
- Explain why it was buried.

Remember:

Every artifact should solve a real problem Ancient Egyptians faced.



Mission 3: Design the Perfect Tomb

The Pharaoh has hired you as Chief Architect.

Design a tomb that protects its treasures for thousands of years.

Think about:

- Hidden chambers
- Secret passages
- Ventilation
- Storage rooms
- Structural stability

Then compare your design with the X-Ray Blueprint inside Expeditione.

Expeditione Explorer Gallery

Every classroom sees something different.
We'd love to see what your students create.

Teachers are invited to share :

- Student engineering inventions
- Nile village designs
- Archaeological reconstructions
- Creative journal entries
- Classroom builds
- Photos of Maker Challenges

At: gallery@expeditione.fun

Selected submissions may be featured in the **Expeditione Explorer Gallery**, inspiring classrooms around the world.

Note:

Please submit work only with appropriate permission and avoid including students' full names or identifiable personal information.

By submitting work, you confirm you have permission to share any photos or student work included. If students appear in photographs, please ensure your school or the students' parents have approved public sharing where required.

Any Questions? Reach out to Aureon at :

Email : educators@expeditione.fun

Twitter/X : [https://x.com/Aureon de Veyra](https://x.com/Aureon_deVeyra)

Discord : <https://discord.com/invite/AYGhkwwkZHB>

Website : <https://expeditione.fun/>

APPENDIX: ACADEMIC SOURCES & HISTORICAL CONTEXT

The historical data, physics calculations, and archaeological details within Expeditione are based on the following established research and peer-reviewed discoveries.

SCENE 01: THE DELTA (Geography & Agriculture)

The 95% Population Concentration

It is a well-documented geographical reality that the vast majority of Egypt's population — both in antiquity and today — lives in the Nile Valley and Delta. These fertile regions make up only about 4–5% of Egypt's total land area, yet support roughly 95% of the population.

Source: NASA Earth Observatory – “The Nile Delta’s Disappearing Farmland”

Link:

<https://science.nasa.gov/earth/earth-observatory/the-nile-deltas-disappearing-farmland-149183/>

40 Million Tons of Silt

Prior to the construction of the Aswan High Dam, the annual Nile inundation deposited approximately 40 million metric tonnes of nutrient-rich silt onto Egyptian farmland each year, naturally renewing soil fertility.

Source: Encyclopedia Britannica – Aswan High Dam

Link: <https://www.britannica.com/topic/Aswan-High-Dam>

The Nilometer and Taxation

Nilometers were stone staircases or gauges built into the Nile to measure the height of the annual flood. Because flood levels directly predicted the success of the harvest, the state used these measurements to assess agricultural productivity and set tax rates accordingly.

Source: Smithsonian Magazine – “Stressed About Taxes? Blame the Ancient Egyptians”

Link:

<https://www.smithsonianmag.com/history/stressed-about-taxes-blame-the-ancient-egyptians-180984059/>

SCENE 02: THE SACRED SANCTUARY (Religion & Meteorology)

The Khamsin Wind

Khamsin (from the Arabic word for “fifty”) is a hot, dry, dusty wind that blows into Egypt from the Sahara. It is named for the roughly 50-day period in late winter and early spring when it is most common, often raising temperatures dramatically and carrying large amounts of sand and dust.

Source: Encyclopedia Britannica – Khamsin

Link: <https://www.britannica.com/science/khamsin>

Temples, Offerings, and the Economy

In ancient Egypt, temples functioned as major economic institutions. They controlled vast estates and received enormous quantities of food offerings. After the ritual presentation to the gods (who were believed to consume only the spiritual essence), the physical offerings were redistributed to priests, temple staff, and other dependents through a system known as the “reversion of offerings.”

Source: Wikipedia – Egyptian temple (with references to primary sources and scholarly works)

Link: https://en.wikipedia.org/wiki/Egyptian_temple

SCENE 03: THE QUARRY (Physics & Logistics)

The Water and Friction Discovery

A 2014 physics study published in *Physical Review Letters* analyzed the famous tomb painting of Djehutihotep (showing workers pouring water in front of a sled) and experimentally confirmed that adding the right amount of water to sand creates capillary bridges. These stiffen the sand and can reduce the force required to pull heavy loads by approximately 50%.

Source: *Physical Review Letters* – “Sliding Friction on Wet and Dry Sand” (Fall, Weber, Bonn et al., 2014)

Link: <https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.112.175502>

Sewn Acacia Boats

Egyptian cargo and ceremonial vessels, including the famous Khufu ship (discovered buried at Giza in 1954), were built without iron nails. Thick wooden planks were sewn or lashed together using strong ropes made of Halfa grass. When wet, the ropes swelled and tightened, creating a strong, flexible hull.

Source: PBS NOVA – *Building Pharaoh’s Ship* (documentary and associated materials on the Khufu boat reconstruction)

Link: <https://www.pbs.org/wgbh/nova/pharaoh/>

SCENE 04: FAMILIES OF THE NILE (Economics & Society)

Copper Tools and Strict Accounting

At the artisan village of Deir el-Medina, copper tools were valuable state property (copper was measured in *deben* units and functioned partly as currency). Foremen maintained detailed inventories: tools were issued and had to be returned (often for resharpening) before new ones were provided, ensuring strict accountability.

Source: Encyclopedia.com – “Skilled Workers at Deir el-Medina”

Link:

<https://www.encyclopedia.com/history/news-wires-white-papers-and-books/skilled-workers-deir-el-medina>

The First Recorded Labor Strike

The earliest known organized labor strike occurred around 1159 BCE during the reign of Ramesses III. When monthly grain rations (the primary form of wages) were delayed for the tomb builders at Deir el-Medina, the workers laid down their tools, marched in protest, and staged sit-ins at local temples. The events are recorded in detail on surviving papyri.

Source: World History Encyclopedia – “The First Labor Strike in History”

Link: <https://www.worldhistory.org/article/1089/the-first-labor-strike-in-history>

▲ SCENE 05: The Pyramids

(AERA & Archaeological Research):

Canals & Harbors at Giza: AERA AERAGRAM

https://aeraweb.org/wp-content/uploads/2022/08/aeragram15_1-2.pdf

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