

Earth 101: The Prehistoric Travel Agency

Materials Needed

- A long piece of paper (like from a paper roll or several sheets taped together) and a marker for a timeline
- A 12-inch ruler or measuring tape
- Access to the internet for research (with supervision)
- A few sheets of plain or colored paper for the main project
- Colored pencils, markers, or crayons
- Optional: A computer with a simple design program (like Canva or Google Slides) if the student prefers a digital format
- Optional: Scissors and a glue stick

Lesson Plan

1. Learning Objectives

By the end of this lesson, the student will be able to:

- Describe the concept of "geologic time" and identify at least three major eras in Earth's history.
- Research and explain the key characteristics of one specific geologic era (e.g., dominant life forms, climate, and major geologic events).
- Creatively synthesize and apply this knowledge by designing a "travel brochure" for their chosen era.

2. Alignment with Standards

This lesson aligns with general middle school science standards focusing on Earth's history, such as the Next Generation Science Standards (NGSS) MS-ESS1-4, which requires students to construct an explanation based on evidence for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

3. Lesson Steps

Part 1: The Hook - A Walk Through Deep Time (15 minutes)

Goal: To help the student grasp the immense scale of Earth's history in a tangible way.

Activity: The 12-Inch Timeline

1. **Introduce the Mission:** "Welcome to the Prehistoric Travel Agency! Our job is to send brave explorers back in time. But before we can plan a trip, we need to understand the map of time itself. Earth is about 4.6 billion years old, which is a number too big to imagine. So, we're going to shrink it down to something we can see."
2. **Create the Timeline:** Take the 12-inch ruler. Explain that this ruler represents all of Earth's history. The "0-inch" mark is the formation of the Earth, and the "12-inch" mark is today.
3. **Mark Key Events:** Use a marker to place these events on the timeline, explaining each one as you go. This visual will be powerful.
 - **First Life (single-celled):** Appears at about the **3-inch mark**. (That means for the first three inches, Earth was lifeless!)
 - **First Multicellular Life:** Appears around the **10.5-inch mark**. (Almost the entire ruler!)

- **First Land Plants:** Appear at the **11-inch mark**.
 - **Age of Dinosaurs Begins:** Starts at about the **11.5-inch mark**.
 - **Dinosaurs Go Extinct:** Happens at the **11.8-inch mark**.
 - **First Human Ancestors Appear:** In the last tiny fraction of the final inch! You can't even draw it accurately. It's like the width of a single pencil line at the very end.
4. **Discuss:** Ask, "What surprises you most about this timeline?" This emphasizes that dinosaurs and humans are very recent arrivals in Earth's long story.

Part 2: The Briefing - A Quick Tour of the Eras (15 minutes)

Goal: To provide a basic overview of the "destinations" the student can choose from.

Activity: Era "Postcards"

Briefly describe the major eras as if they were travel destinations. Keep it simple and exciting.

- **Paleozoic Era ("The Explosion of Life"):** "This is our first big stop. The oceans are teeming with strange and wonderful creatures like trilobites. By the end of this era, life crawls onto land! Think giant insects and dense, swampy forests."
- **Mesozoic Era ("The Age of Reptiles"):** "This is our most popular destination, for obvious reasons! It's divided into three parts: the Triassic, the Jurassic, and the Cretaceous. You'll see the rise and fall of the dinosaurs, from the mighty T-Rex to the gentle Brachiosaurus."
- **Cenozoic Era ("The Age of Mammals"):** "After the dinosaurs disappear, mammals take over. This is the era of saber-toothed cats, woolly mammoths, and eventually, the very first humans. The world starts to look a lot more like the one we know today."

Part 3: The Mission - Create a Prehistoric Travel Brochure (60 minutes)

Goal: The main creative and application-focused part of the lesson.

Activity: Your Travel Agency Project

1. **Choose Your Destination:** "Your mission, should you choose to accept it, is to create a travel brochure for one specific time period. You can choose any of the eras we discussed, or even a specific period within an era, like the Jurassic Period or the Carboniferous Period (giant bugs!)."
2. **Research Your Trip:** Provide the student with the following guiding questions for their research. They will need to find the answers to build their brochure.
 - **Catchy Slogan:** What's a great tagline for a trip to your era? (e.g., "The Jurassic Period: See Them Before They're Fossils!")
 - **The Landscape & Climate:** What would a tourist see? Giant ferns? Active volcanoes? Vast oceans? Is it hot and humid or cold and icy?
 - **The Wildlife (Flora & Fauna):** What amazing plants and animals could they spot? List at least 3-4 "must-see" species.
 - **Activities & Attractions:** What can a time traveler *do* there? (e.g., "Go on a T-Rex safari," "Watch a volcano erupt from a safe distance," "Canoe through a Carboniferous swamp.")
 - **What to Pack & Safety Warnings:** What special gear is needed? (e.g., oxygen tanks, protective gear). What are the dangers? (e.g., "Warning: Velociraptors are faster than they appear in movies.")
3. **Create the Brochure:** The student should fold a piece of paper into thirds to create a classic brochure format. They will use their research to fill it with drawings, fun descriptions, and warnings. Encourage creativity! The goal is to make someone want to visit (or be too scared to!).

Part 4: Debriefing - Present Your Trip (10 minutes)

Goal: To share what was learned and connect it back to the big picture.

Activity: The Travel Agent Pitch

- The student presents their brochure, acting as a travel agent trying to sell you a vacation package to their chosen time period.
- After the pitch, ask a few follow-up questions: "What do you think would be the most amazing part of that trip? What would be the scariest? How is that world different from ours today?"

4. Differentiation and Extension

- **For Extra Support:** Provide a pre-made brochure template with sections already labeled ("Climate," "Animals," "What to Pack"). Offer a curated list of kid-friendly websites for research.
- **For an Extra Challenge:** Ask the student to create a full "vacation package," including a planned itinerary for a 3-day trip. Or, they could write and perform a 30-second "commercial" for their trip instead of a brochure. They could also research the specific plate tectonics of their era to describe what the continents looked like.

5. Assessment

Your assessment is built right into the lesson! You can evaluate success based on:

- **Formative (During the lesson):** The student's answers to your questions during the timeline activity and their ability to find relevant information during the research phase.
- **Summative (End of the lesson):** The final travel brochure. Does it accurately reflect the chosen time period? Is it creative and thoughtfully completed? Does the student's presentation show they understood the key features of their era?