THE STANDARD

Time Scale of Earth

Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

ANCHORING PHENOMENON

The Grand Canyon's Stack of Time

A side-view photo of the Grand Canyon, with layer after layer of different-colored rock running down its walls. The deepest rock at the bottom is about 1.8 billion years old. The top is around 270 million. Two billion years of Earth's history are visible in one view. Students will keep circling back to this all week.

> **DRIVING QUESTION**
>
> *"How can two billion years of Earth's history sit in plain sight, and what does each layer tell us?"*

INVESTIGATIVE 1

The K-Pg Iridium Layer

A thin, dark band in rock formations on every continent. Inside, it's loaded with iridium, an element rare in Earth's crust but common in asteroids. The same band sits at the exact rock layer that marks the end of the dinosaurs, 66 million years ago. Use this one to sharpen the evidence lens the anchor is pushing on: a single thin layer can tell a global story.

> **DRIVING QUESTION**
>
> *"How can one thin layer of rock, found all over the world, point to a single event 66 million years in the past?"*

INVESTIGATIVE 2

Burgess Shale Fossils

A set of fossils from a rock layer in Canada, 508 million years old. The fossils show soft-bodied creatures that don't exist today, including animals with five eyes, claws on stalks, and bodies built unlike anything in the modern oceans. They lived during the Cambrian explosion, when most major animal groups first appear in the fossil record. Use this to sharpen the timeline lens: life wasn't always like this, and the rocks prove it.

> **DRIVING QUESTION**
>
> *"If creatures this strange once lived on Earth, what does the rock record tell us about how life has changed?"*