# Lesson 4: Unearthing the Past with the National Geographic Mega Fossil & Gem Dig Kit

## Subject: Earth Science & Geology

Excavate authentic fossils and gemstones, identify specimens, and build observational and classification skills—perfect for hands-on geology at home.

## Learning Objectives

1. Practice safe excavation techniques and careful observation.
2. Identify common fossils and gemstones using visual and text clues.
3. Classify specimens by properties (hardness, luster, color, texture).
4. Connect fossils and minerals to Earth's history and rock cycle.

## Materials Needed

1. National Geographic Mega Fossil & Gemstone Dig Kit
2. Shallow tray or newspaper for debris control
3. Small bowl of water & paper towels
4. Magnifying glass (optional) and notebook
5. Pencil and ruler (for size/scale notes)

## Preparation & Setup (5–10 min)

1. Skim the identification guide; pre-teach vocabulary (fossil, sediment, abrasion, luster, hardness).
2. Set the dig block on a tray; place tools, water, and towels within reach.
3. Model gentle scraping vs. chipping to avoid damaging a specimen.

## Lesson Steps (35–60 min)

1. Question Hook: Ask, 'How do scientists figure out what life looked like long ago?' Brainstorm possible evidence.
2. Excavation Round 1: Moisten the surface and gently scrape in thin layers until a specimen appears.
3. Clean & Observe: Wipe dust and note color, texture, size, and patterns.
4. Identify & Classify: Match to the guide and record key details in a notebook.
5. Excavation Round 2: Continue carefully, switching roles (excavator, recorder, photographer).
6. Share-Out: Present specimens 'museum-style' and explain identification evidence.

## Observation & Data Table

Create a table with the following columns:
Specimen # | Name | Type (Fossil/Gem) | Color | Texture/Luster | Size (mm) | Notes

## Discussion & Reflection

1. Which features helped you tell fossils from minerals?
2. What does your fossil collection suggest about ancient environments?
3. How is a gem formed differently from a fossil?
4. What questions would you ask a geologist about your finds?

## Extensions & Cross-Subject Links

1. Map It: Research where your fossil types are found and mark them on a world map.
2. Rock Cycle: Place gems/minerals within the rock cycle (igneous/sedimentary/metamorphic).
3. ELA: Write a museum placard for your favorite specimen (name, age, origin, interesting fact).
4. Art: Sketch macro details using a magnifying glass (striations, crystal faces, inclusions).

## Parent & Teacher Tips

1. Lightly dampening the block reduces dust and speeds excavation.
2. Rotate roles to build collaboration (excavator, brush/cleaner, recorder, identifier).
3. Store finished finds in labeled bags and maintain a specimen index.
4. Use accurate scientific language to build vocabulary (specimen, matrix, sediment).

## Wrap-Up

By excavating, identifying, and classifying real specimens, learners practice the habits of earth scientists—observing carefully, gathering evidence, and telling the story of our planet’s history.