AMAZEMENT IN THE BASEMENT:
KNOW BEFORE YOU GO - EDUCATOR PRE-VISIT INFORMATION

GRADE LEVEL: K-5

INTRODUCTION

Standards Alignment
Each lesson is aligned to the Next Generation Science Standards and lists what Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs) the lesson connects to.

In-Museum Visit Activity Lessons

- The curriculum for each lesson is designed to provide you with the background information to prepare your students for the activity in the exhibit. We recognize that not every activity or piece of content will be appropriate for every grade level or learner, so we encourage you to adapt the materials to best meet the needs of your class.
- To support differentiation in learning, all student worksheets are offered in two versions:
    - With sentence frames – helpful for younger students, English language learners, or any students who benefit from additional scaffolding.
    - With open response lines – designed for students who are ready to write their own answers.

Exhibit Overview

- *Amazement in the Basement* offers a rare "backstage" glimpse into the Museum's collections and research work. It invites people to marvel at the diversity of nature, think like a scientist, and peek into the brand-new Paleontology Center.
- The exhibit is divided into three main sections. If you are visiting the exhibit with a group of 15 or more students, we recommend splitting into three groups to rotate through each section.

LOWER LEVEL MAP

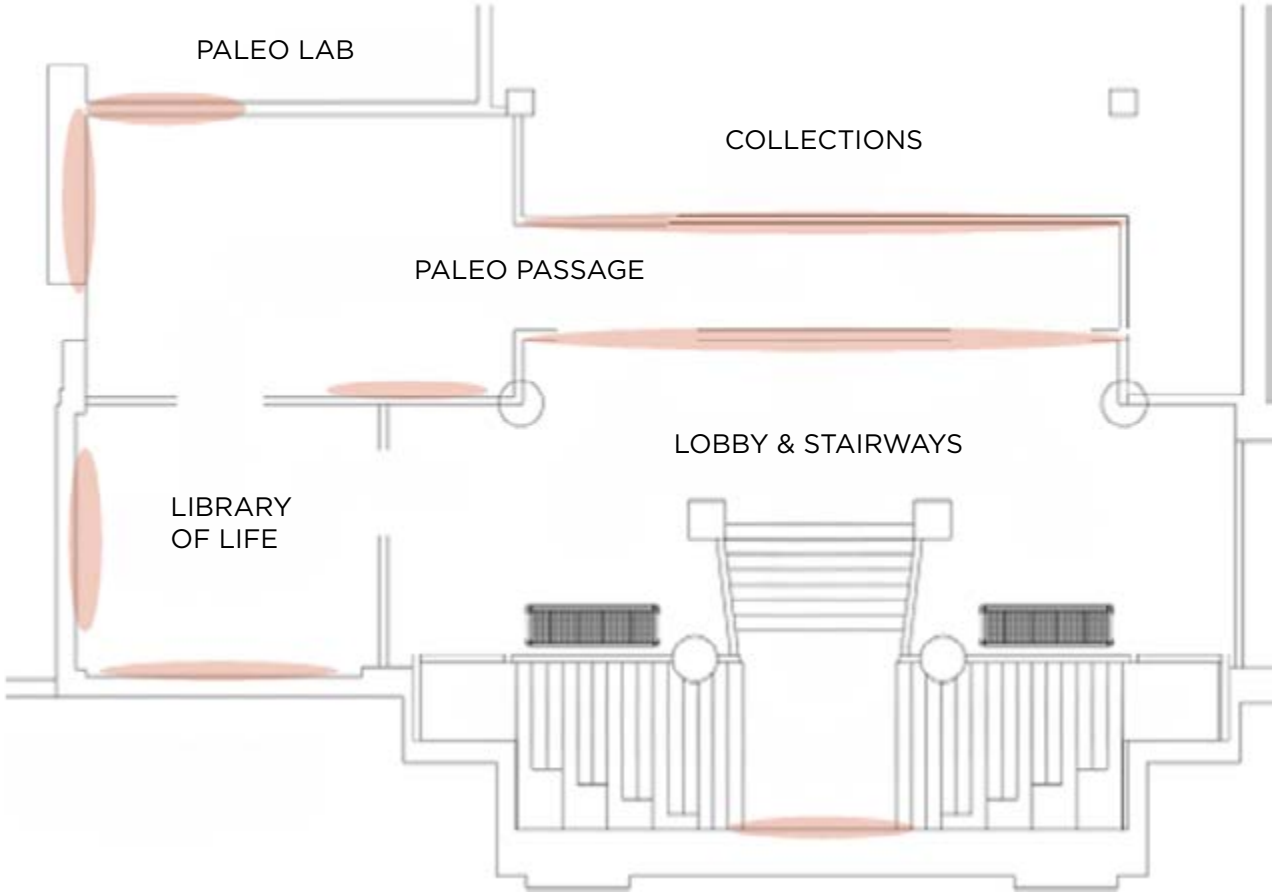

EXHIBIT HIGHLIGHTS

Lobby & Stairways

The entry is dominated by a suspended whale skeleton and towering shelves packed with plants, animals, minerals, and fossils that represent just a taste of the 9 million specimens stored behind gallery walls.

Paleo Passage

- San Diego is one of the most fossil-rich areas in the United States, and our collection is the region's most important repository for many of them, there might be new specimens here the next time you visit!
- We use compactors to maximize the storage in the paleontology collection. Without them, this room would need to be nearly twice this size to fit everything.
- The oversized fossil specimens behind the glass within the large collections room are organized by geologic time. The specimens in the left 3 vertical sections are Pliocene (24 million years old) and to the right are Cretaceous (75 million years old).

Library of Life

- Explore the cabinets and take in the wonder, breadth, and significance of The Nat's collections. Each display focuses on a different research department and demonstrates how the collections answer questions about life around us.
- All of the herbarium sheets in the backlit grid feature specimens with some medicinal value. For native species, Kumeyaay and other Native People knew of the medicinal properties of these plants long before they were utilized by western science.
    - Southwestern pipevine: used to treat snakebites, malaria, and infections.
    - Purple coneflower: used to boost the immune system and fight off infections.
    - Foxglove: used to treat heart conditions.
    - German chamomile: used for its calming and anti-inflammatory properties.
    - Yarrow: used to stop bleeding, reduce inflammation and treat wounds.
    - English lavender: used for its calming and relaxing properties.
    - Pacific yew: bark contains paclitaxel (also known as Taxol), used to treat various cancers including ovarian, breast, and lung cancer.
    - Hidden lily ginger: used to treat nausea, inflammation, and improve digestion.

Our Research Collections and Careers

Learn more about our research departments and their collections.

Museum Research Careers

- **Curator** - Directs research and collections at The Nat within their department's specific discipline. Curators play a leadership role in using an evidence-based, scientific approach to inspire and steer biological research at The Nat. They serve as The Nat's face for science. In this capacity, Curators act as a strong representative of The Nat within the local, regional, and global scientific community.
- **Collection Manager** - Oversees the organization, improvement, and use of the research collection in their department's specific discipline. They also handle incoming and outgoing specimen loans, lead interpretive tours of collection spaces for visitors, assist visiting scholars and students in using the collection, and supervise and train employees and volunteers in the department.
- **Technician** - Assists with field and laboratory investigations of regional biodiversity. They are responsible for field collection of biological specimens or data, and are familiar with taxonomic keys or field guides to identify target organisms to genus and species.
- **Postdoctoral Researcher** – Highly trained Ph.D.-level scientists that fulfill specific research and program objectives at The Nat, under the direction of their departmental Curator. Postdoctoral Researchers perform technical work related to the publication of peer-reviewed scientific research on regional biodiversity.

PRE-VISIT ACTIVITES

Before bringing your class to see *Amazement in the Basement*, here are some ways to engage your students with content that connects to the exhibit.

ACTIVITY: CLASSROOM CLASSIFICATION

Objective

Students will classify living and non-living things by creating groups based on common features.

Materials

Select enough of each item for the number of groups you will have. This is not a comprehensive list, just a recommendation of common classroom objects that could be used for this activity:

- Rubber bands
- Post-its
- Paper clips
- Pipe Cleaners
- Craft feathers
- Pom Poms
- Manipulatives
- Markers or Crayons
- Beads
- Buttons

INSTRUCTIONS

Introduction (5 minutes)

- Begin by asking students, have you ever placed items into groups based on similar characteristics or features? If so, you have practiced classification. Ask students to share ways they have sorted items (ex. by color, shape, material, size, flavor, feel, type).
- Classification is when you organize things into groups based on similar characteristics. Scientists do this a lot with organisms like plants and animals, but today we are going to practice this skill using items from our classroom.

Exploration (10 - 15 minutes)

- Place all materials in a basket, providing each group with their own set of classroom objects.
- Ask students to work together to sort the objects into groups based on characteristics they notice. Tell them there is no single “right” way to classify, as their group can decide what features matter most.
- Encourage groups to label their categories on sticky notes or slips of paper.
- Circulate around the room, asking prompting questions to deepen their thinking:
    - What made you decide on these groups?
    - Could any of the objects belong to more than one group?
    - What might be another way to sort them?
- If there is time: After students finish their first round of sorting, challenge them to think of a different way to group the same set of objects. For example, if they started with color, can they try material type?

Discussion and Wrap-Up (10 minutes)

- Give groups a chance to walk around the room and see how other groups sorted their items. Did they do it similarly or different?
- Ask each group a follow up question regarding how they sorted their items.
    - What do these things have in common?
    - How is this similar to this? How is that the same as this?
    - Does this look like anything else here?
    - Why did you put these things together?

ACTIVITY: COLLECTION SHOW & TELL

Ask students to think if they collect anything at home. Provide an opportunity for them to bring in their “collection” (or a photo of their collection) and share it with the class.

- How is the home collection organized?
- Have they sorted or “classified” their collection?

OTHER PRE-VISIT ACTIVITIES

Take a look at our Career Spotlight videos. Pick one or two to share with your students before your field trip.

Check out specimens from the Nature to You Loan Program, including our Experience Boxes that focus on collections.