

Congratulations! You're going to the California Academy of Science! Use these project ideas to enrich your educational experience. Read through them before you go to make sure you understand the terms and concepts, and to help you determine if you want to expand upon any of them. **You'll find fun facts and printable worksheets at the end of this packet.**

a- elementary level activity b- middle school level activity c- high school level activity

Language Arts

There is so much to see at the Academy of Science! Choose one of the exhibits that you'd like to explore deeper. Then complete one of the activities below:

- a. Imagine you are only 1 inch tall! Explore your favorite exhibit and talk about how it might look or feel if you were very small. Use your exploration to create a story and tell your story to others. You can even draw a picture for your story and write it down if you want!
- b. Imagine you were going to teach about your favorite exhibit to a class of students just like you! How would you get your students excited about it? What would you teach them? Write a short lesson plan and then find someone to give your lesson to. Don't forget to include questions to get your student(s) thinking!
- c. Imagine you lived 1000 years ago. If you saw your exhibit for the first time, what would you think? What would you try to do with it? Could you find a useful purpose for it? How could you use it to improve your life or the lives of others? Write a short essay about your ideas.

Materials required: Notebook, pen/pencil

Submission: A copy of your writings/drawing, and any pictures/videos

Teaching or learning notes:

Applied Math

How much money does the Academy of Science make from visitors? They average \$30 per ticket sold. How many people come to the Academy every day? There are several ways to estimate this: ask someone who works there, find out the area of the building and divide it into representative areas that you can count and multiply, or find the information on the internet. How much does the Academy make in a day? In a month? In a year?

- a. Talk about the math and make verbal estimates with your teacher. Write down your math.
- b. Do the calculations on your own and write everything down. Talk about expenses and how those affect the Academy's profit.
- c. Do the calculations, write it down, and ask more questions to determine the Academy's estimated costs (don't forget staff, the building lease, utilities, etc.). Estimate gross and net incomes per day, month, and year. Run a hypothetical model to see how the numbers change if attendance or costs decline or increase.

Materials required: Notebook, pen/pencil, calculator or smartphone (optional)

Submission: Your calculations, estimations, and conclusions, and any pictures/videos

Teaching or learning notes:

Science

There is more science in the Academy of Science to see and do than you could possibly do in one day! Take some time with one of your favorite exhibits to document the science. What questions were the scientists asking that inspired them to think of this exhibit? How did they go about testing their ideas? What did they need to build their exhibit/experiment? What questions were answered from their experimenting?

- a. Talk about what goes into doing an experiment. What methods did the scientists use to create the exhibit? Draw or write about your ideas.
- b. Practice using the Scientific Method to analyze the exhibit. What was the scientist's initial question? What was their hypothesis? How did they test it and what did they conclude? Write down your analysis.
- c. Design your own experiment. After analyzing an exhibit and how it's creators used the Scientific Method, use the same method to ask and answer your own question. Design your own exhibit to show others your work or explain how you can use the same exhibit to answer your own question. Draw a picture or explain it in a short essay. If you want, take it a step further and actually perform your experiment and write down your conclusions!

Materials required: Notebook, pen/pencil

Submission: A copy of your drawings, diagrams, maps, or designs, and any pictures/videos

Teaching or learning notes:

Social Studies

San Francisco is a popular tourist location. Throughout your trip pay attention to the people around you. Can you tell if any of them are foreign travellers? Do some come from other states? How can you tell? What other languages can you hear? How far did they travel? Do they look like they're enjoying their vacation? How large are their groups that they are travelling in? How well do you feel the Academy of Science is representing America, California, or San Francisco?

- a. Pay attention to the people around you. Find at least one group of tourists and see if you can find out where they are from. Be discreet and polite while you look and listen for clues. Write down the clues you found. If you are brave, ask them where they are from and tell them you hope they are having fun on their trip!
- b. See how many languages or accents you can identify. Where are those languages or accents spoken? What can you guess about the travellers based on their language or accent? How far did they have to travel to come to the Academy? Why do you think they picked the Academy, or San Francisco? Is there anything like this in their home country? Write about your ideas.
- c. What makes San Francisco so popular for tourists? The Academy gives you lots of clues about the city's rich history. Do a little research about the area, including the use of Golden Gate Park and how it became what it is now. Write a short essay about San Francisco and why it is such an interesting city.

Materials required: Notebook, pen/pencil, smartphone (optional)

Submission: A copy of your writings/drawings, and any pictures/videos

Teaching or learning notes:

FUN FACTS

- Designed by award winning architect Renzo Piano, the California Academy of Sciences sets a new standard for sustainable architecture as the world's first "Double Platinum" museum. Supported by recycled steel, insulated with recycled blue jeans, powered in part by solar panels, and topped with a living roof, the building is the epitome of energy-efficient design.
- Founded in 1853, the Academy is an international center for scientific education and research and is at the forefront of efforts to understand and protect the diversity of Earth's living things. The Academy has a staff of over 50 professional educators and PhD-level scientists, supported by more than 100 Research and Field Associates and over 300 Fellows. It houses 26 million biological, geological, and cultural specimens from around the world and conducts research in 12 scientific fields: anthropology, aquatic biology, botany, comparative genomics, entomology, geology, herpetology, ichthyology, invertebrate zoology, mammalogy, microbiology, and ornithology.
- The Naturalist Center on Level 3 is a great place to seek refuge for a few minutes of down time. Lounge in the beanbag chairs while gazing at the awe-inspiring collection of specimens, including an orca skull, a taxidermy bobcat, and a replica of a gorilla hand! Browse through the library, and enjoy the collection of science-y games/puzzles.
- Where molten rock cools and salt water evaporates, minerals form. These dynamic processes create incredible minerals diverse in color and texture. From silver and copper to amethyst and azurite, they're as essential to our daily lives as they are brilliant and beautiful. Check them out in the Gems and Mineral exhibit!
- The Osher Rainforest Dome is a magnificent neotropical rainforest that stretches 90 feet above. Following the spiral path up through the sphere, you'll encounter three levels of rainforest from three distinct ecosystems: a Bornean forest floor, a Madagascan mid-story, and the canopy of a Costa Rican forest.
- Steinhart Aquarium is one of the most biologically diverse and interactive aquariums in the world. Home to nearly 40,000 animals, representing more than 900 separate species, it offers guests an unprecedented view of underwater life and provides insights into the critical role that aquatic environments play in life on Earth. The original Steinhart Aquarium opened in Golden Gate Park in 1923.

Academy of Science

1. Draw a picture of your favorite animal at the Academy.




2. What is one thing you learned about earthquakes?

3. What is one thing you learned about rainforests?

4. Describe or draw your favorite part of the Academy.



5. Fill the box with as many animal names or pictures of creatures you saw as you can.



6. What is one thing you learned about Africa?

BONUS:

The Academy of Science has many exhibits which promote conservation. Choose three to write about. What were they about and what did you learn from them?



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