# California Science Center Project Kit

Congratulations! You're going to the California Science Center! 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 Science Center! 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? What would it teach you? 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**

Advances in science are fueled by imagination, but if it weren't for math, nothing would work right! Observe the math all around you and discover just how important it is.

a. Go on a shape hunt! Find all the shapes you can, and create a short report with pictures/drawings of the shapes you found, their use, and importance.
b. Explore the math needed in one of your favorite exhibits. What kinds of math does the creator/designer need to know in order to make it function properly? Of the math used, what do you already know, and what would you need to learn? Write a short report on the math involved in your favorite exhibit.
c. Identify math in one of the exhibits. Using estimates or measurements, run through a few of the equations needed to create that exhibit. Draw a diagram of the exhibit and label where your math is applicable and the equations you used.

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 Science Center 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**

The history of space travel has played a unique part in shaping the history of the world. Explore all of the space travel exhibits and see how ideas and technology change over time and shape the future.

a. Find an early spacecraft or satellite and draw a picture of it. Then, draw a picture of one of the more recent spacecraft or satellites. Label the parts that are similar and the parts that are different. Discuss why there are similarities and differences.
b. Build a timeline of space travel. Go back to before the first objects were sent into space and continue through today. Include important dates, people, and technology.
c. How did space travel affect the culture of the time? Does it influence our everyday lives, and how? Write a brief essay describing how space travel has been important to our history. Include important dates, people, and technological advances.

Materials required: Notebook, pen/pencil, smartphone (optional)
Submission: A copy of your writings/drawings, and any pictures/videos

Teaching or learning notes:

# Fun Facts

- The California Science center is the West Coast's largest hands-on science center and hosts the California State Science Fair every year.

- The two-story, 45,000-square-foot Ecosystems exhibit features display zones with live animals and aquariums about wildlife and adaptation in different ecosystems, including a river, desert, polar region, deep sea, ocean, island and urban areas, as well as the entire planet Earth.

- The Science center Averages 1.7 million visitors annually, including 350,000 school children.

- The California Science Center dates to the first State Exposition Building, which opened in 1912 and displayed simple, agriculturally-based natural resources and industrial products from across the state.

- Before the Expo Building was built, the land was home to a racetrack and fairgrounds dating back to 1889.

- *Endeavour* successfully completed 25 missions into space, including the first service mission to the Hubble Space Telescope, as well as the first mission to add a U.S. component to the International Space Station.

- Guests who come to see Endeavour often notice that the flag on the starboard side of the orbiter appears to be "backwards." But tradition (and an interpretation of the U.S. Flag Code) suggests that the blue field on the flag should always be pointed forward, into the wind, as if the flag were flying on a flagpole in the breeze. The flag is painted the same way on many aircraft, such as Air Force One.

# California Science Center

1. Draw a picture of your favorite exhibit.

2. Describe your favorite exhibit and why you love it..

3. What is one thing you learned about space travel?

4. Draw or describe one example of engineering you saw.

5. Describe or draw one exhibit you saw about animals.

6. Explain the science behind one of your favorite exhibits.

BONUS:

Choose one of the exhibits to do more research on. Include something you learned and a real-world application. What sciences are involved? Why is it important? How does it affect your life?