



Schmahl Science Workshops

# A Schmahl Science Workshop

*Schmahl Science Workshops, Inc.*

Like children everywhere, the children at A Schmahl Science Workshop love science. And like children everywhere, they learn most when they are motivated, challenged and having fun. We are a partnership of students, parents, teachers, scientists and engineers who have come together to help foster this interest in science. We believe children are motivated to learn when their ideas are cultivated through the fun of designing and developing an experiment. A Schmahl Science Workshop is pleased to be able to present the following workshops to James Franklin Smith Elementary School.

**DATES:** Fridays, starting January 8. Please sign up for the **Grade 1 - 3 Science Series by December 20**. Pre-registration is required.

January 8, 15, 22, 29; February 5, 12, 26; March 5, 12, 19, 26; April 16, 23, 30; May 7

**TIME:** 2:30 - 3:30 PM. Children must arrive and be picked up punctually. Students not picked up by 4:25 will be brought to daycare.

**PLACE:** Grades 1 - 3

**Fee:** \$225 per student for 15 week session

1. **Air Pressure:** Students learn that air takes up space and has weight. They learn about some basic principles about pressure and discover how pressure and temperature differences cause air to move.
2. **Air Moves:** Using our flow density demonstrator, solar wind bag and singing pipe, students will learn that hot air rises and cold air sinks and how this principle is put to use in a conduction oven. Students won't believe their eyes as they explore the powerful properties of air as you put marshmallows to the pressure test. Students are be challenged to use Bernoulli's Principle to blow up an 8-foot long bag. With a little practice they are be able to inflate the bag using only one breath!
3. **Water Cycle:** Students learn the process of the water cycle by becoming the different parts of the process while making it rain on their own garden.
4. **Edible Geology:** This great workshop introduces students to the three types of rocks: igneous, sedimentary, and metamorphic and has some great activities you can use with your class. The edible rocks are fun, delicious, and really get the concepts across.
5. **Rock ID:** Students learn how to identify and classify rocks using the MOH hardness scale, color, texture, buoyancy, and cleavage. Students learn that the properties of rocks and minerals reflect the processes that form them.
6. **Fossils:** How does a living thing become a fossil? The mysterious processes by which evidence of past life is preserved will be explored. By thinking about and participating in some simulated sedimentary processes, children are able to remove much of the mystery behind fossils and fossilization.
7. **Erosion - Rivers:** Students use stream tables to gain experience with models, maps, and the concepts of erosion and deposition.
8. **Plate Tectonics and Volcanoes:** Exploding Hair Gel, Alka Seltzer and Baking Soda Volcanoes, Fig Newton Convergent Zones and Milky Way Divergent Zones! Using these exciting and fun hands-on activities, students will learn about the types of volcanoes and how they relate to plate boundaries, what makes some volcanoes more dangerous than others, Volcanic rocks and landforms, and how volcanic eruptions affect Earth's climate and living things
9. **Earthquake Engineering:** How do engineers construct buildings that withstand earthquakes? The students apply the lessons learned in their Strength of Materials workshop in building their structures.



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10. **Strawberry DNA:** Have you ever wondered what a forensic scientist has to do to analyze DNA evidence? DNA (the building blocks of life) is present in the cells of all living organisms. In forensic science DNA is usually extracted from human cells to identify unknown parentage, crime scene suspects, missing victims and to investigate genetic diseases. Since 1985, "DNA fingerprinting" has been used in legal cases around the world to link suspects to the scene of a crime. Students extract DNA from fruit to see what it looks and feels like. This is similar to what a scientist has to do before they can then use the information contained in this DNA to solve crimes, although they don't use the same protocol.
11. **Fingerprinting:** Students explore the characteristics of fingerprints in these "fingers-on" activities, devising their own classification categories and applying their skills to solve a "crime".
12. **To Catch A Thief:** Students to use their investigative and problem solving skills to solve a crime. Using paper chromatography the students reveal the underlying composition of the four suspects' pens and, utilizing the same scientific process on the ransom note, they identify the criminal. At the end of the session a second crime is provided as a take-home activity.
13. **Bandanna Chromatography:** Chromatography is a technique used to separate mixtures. Many different science fields use chromatography. The technique is used in environmental studies to detect pollution in water and a chromatography also is used by crime laboratories to identify clues such as blood, ink, or other substances found at a crime scene. In this workshop students create their own colorful bandanna design while learning about chromatography. Students separate the ink from permanent colored markers to make a rainbow of colors on your bandanna!
14. **Blood Typing:** You are watching ER and, once again, the doctor yells out for some "O neg". A patient is bleeding on the gurney. You can actually see what happens if you mix the wrong types of blood together. Many life-threatening conditions can be treated by giving the patient blood, but scientists and doctors must understand the problems that can be caused. Besides the complications from getting the "wrong blood type", serious diseases can be spread through blood transfusions. Blood tests can indicate blood type, and also what diseases might be carried in the blood.
15. **Squid Dissection:** Students learn basic dissection techniques as they do a step-by-step exploration of the interior and exterior of the squid. They also learn about a squid's habitat, life cycle, and its place in the food chain.



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Child's Name \_\_\_\_\_ Grade 2009-10 \_\_\_\_\_

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Child's Name \_\_\_\_\_ Grade 2009-10 \_\_\_\_\_

Parent Name \_\_\_\_\_ Email \_\_\_\_\_  
(For registration confirmation)

Address \_\_\_\_\_

City \_\_\_\_\_ Zip \_\_\_\_\_

Home Phone \_\_\_\_\_ Emergency Phone \_\_\_\_\_

Any Medical issues for child(ren) \_\_\_\_\_

Workshop Series	Students' Names	# of Students	Amount Due
Geology/Forensics Series: \$225 per student			
<b>Total due</b>			

- **Mail registration to:** A Schmahl Science Workshop, 171 Branham Lane, Ste. 10, PMB 223, San Jose, CA 95136.
- **Payment is due with registration. No refunds. No substitutions.** Send check or money order made out to A Schmahl Science Workshop. Credit Card Payments: MasterCard, Visa, American Express (Circle One)  
Card Number \_\_\_\_\_ Exp. Date \_\_\_\_\_ CID \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

- Check here to be added to our mailing list of future workshops \_\_\_\_\_.
- Check here for information via email \_\_\_\_\_.
- SSW may take workshop photos for use in SSW's publicity. Names and locations will not be published. Check here if we have your permission to take photos of your children during our workshop(s) \_\_\_\_\_.