



Elementary Science Implementation Guide

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This guide details the implementation of OUSD's Elementary Science Program, including FOSS (Full Option Science System) and SIRA (Science Instructional Reflection and Assessment) for teachers and principals. Please take a few minutes to carefully read this document so that you become familiar with the details of the program. Additional information, current dates, and resources can be found at the Science in Oakland website at <http://science.ousd.org>.

Background

Adopted in April 2007, FOSS (Full Option Science System) is the core science curriculum for grades K-5 in the Oakland Unified School District. It is a hands-on and inquiry-based curriculum developed by the Lawrence Hall of Science over the past 25 years and distributed by Delta Education. Instead of solely reading about science, students learn science through investigations. Teachers and students do science together and engage in enduring experiences that lead to deeper understanding of the natural world.

Each grade level's curriculum consists of three kits covering the strands of Life, Physical, and Earth Sciences. Each kit consists of teacher guides, student textbooks and 1-4 large boxes, which contain permanent and consumable materials for the activities. Live organisms are used in the K-4 life science kits.

Instructional Minutes

In May 2010, the School Board passed an Elementary Science Policy requiring weekly science instruction. The expectation is 60 minutes of hands-on science for grades K-2 and 90 minutes for grades 3-5. The science department will continue to help schools transition and improve science instruction by providing increased support, especially through Lead Science Teachers, teacher training, and opportunities with partner organizations.

Next Generation Science Standards

California adopted the Next Generation Science Standards (NGSS) in 2013, which focus more deeply on science and engineering practices and crosscutting concepts than previous science standards. OUSD Science is supporting teachers to shift toward NGSS through PD and curriculum (see SIRA below). We anticipate the adoption of an NGSS-aligned science curriculum in the 2018-19 school year. For more information about NGSS, visit www.nextgenscience.org.

Science Instructional Assessment and Reflection (SIRA)

The Science Instructional Reflection and Assessment (SIRA) is an instructional guide that goes hand-in-hand with our current FOSS modules (grades 3-5) to prepare OUSD elementary teachers and students for the upcoming shifts of the newly adopted Next Generation Science Standards (NGSS). The SIRA also increases opportunities for students to develop CCSS-aligned language and literacy skills as they make sense of the science they are experiencing. The SIRA defines clear learning goals, encourages frequent formative assessment, and leads to a concise summative assessment for FOSS science modules.

All 3rd, 4th, and 5th grade teachers in OUSD are asked to use the SIRA in the 2016-17 school year. Over the summer of 2016, teams of teachers developed the K-2 SIRA Elements, which we intend to pilot during 2016-17. SIRA materials have been distributed to teachers and are available in a [Google drive folder](#) through our website. Contact us if you are missing materials.

FOSS Kit Rotation

FOSS kits are provided to school sites on a districtwide rotational system. During any given trimester, an entire school, grades K-5, will be on the same strand: Earth, Life, or Physical Science. At the start of the year, fully stocked kits are delivered to each school. At the end of each trimester, the kits are collected and exchanged with ones at another school site. This allows for a districtwide “sharing” of kits that decreases the cost of the overall program. At the end of the year, all kits are collected from school sites and fully refurbished over the summer.

During your school’s pick-up date, it is extremely important that ALL kits are ready and placed in a central location because kits are picked up and delivered to another site the same day. Therefore, it is also very important that all FOSS materials are cleaned, dried, and returned to the appropriate box ahead of the rotation date. Your full cooperation in this area is greatly appreciated. Schools with missing permanent materials and boxes may be billed for replacement costs. For the current year’s rotation schedule, please visit the [Science in Oakland website](#).

Fixed FOSS Rotation

In order to best accommodate the planning that many schools are doing to incorporate science with other subject areas, we have created a fixed rotation schedule for the FOSS modules. In the past, schools have started with a different science strand (Earth, Life, or Physical) each year. Starting in 2015-16, each school started with the same strand, and this will continue ever year. We have received overwhelming positive feedback from schools about the new fixed rotation. We hope that this new plan will better support content-driven unit and lesson planning at schools.

FOSS Kit Management

Each box of every kit has an individual barcode with a six character code. The code indicates the strand, grade level, and box letter. Boxes from the same kit are not linked together, which means it is important that materials get returned to the correct box. A database is used to track individual boxes using the barcodes. During each delivery or pick up, the boxes are scanned on site. An inventory of the kits is printed for the site when the delivery is complete.

Teachers are to use the Kit Use Log on each box to record their names when they receive the box. Please do not mark or damage the boxes as they will be used for the life of the adoption.

Transitional Kindergarten (TK)

We are pleased to announce that you can now request a FOSS kit for your TK class. The TK Fabric kit will arrive on your usual FOSS Rotation date and should be maintained in the same way as the other FOSS kits, with one exception: all Teacher Guides for the Fabric kit must be returned to the Fabric box. Do not keep Fabric Teacher Guides at your school.

Teacher Guides

Each classroom teacher K-5 should have three *Teacher Guides*, one for each of the three FOSS kit modules for their grade level. K-5 Teacher Guides belong to the school site and should be labeled with the school name. They are NOT returned with the kits. Only TK Teacher Guides should be returned to the FOSS kit. Lost or misplaced guides are to be purchased by the school and cost of \$150 each. If your school is missing Teacher Guides, electronic versions are available on www.fossweb.com.

Student Textbooks

For grades 3-5, one hardcover *Science Resources* textbook (hardcover) per student is provided by the District Textbook Department. These hardcover books are to be treated as textbooks **permanently assigned** to the school site. Students in grades K-2 do not receive a textbook. Instead, thirty-two soft cover *Science Resources* booklets are provided in each of the K-2 FOSS kits. These booklets remain in the kit and do not belong to the school site.

Spanish textbooks do exist, but school sites need to order them directly from Delta Education using site funds. Bilingual or dual language immersion classes can request them from the District Textbook Department.

Principals can contact the District's textbook clerk, Sean Kimble at sean.kimble@ousd.org for all textbook requests.

Videos

In August 2011, a permanent set of DVD videos used with the FOSS kits was provided to each school site; videos are no longer included in the kits. If your school is missing videos, please contact us.

Permanent Materials

The items in the kits are either permanent or consumable as indicated on the inventory form. Permanent items are reused by teachers each trimester and need to be returned to kit in clean condition. The replacement of missing permanent items will be billed to the school site.

Consumable Materials

Consumable materials are items that are not reusable. Each kit is supplied with enough consumable materials for 2-3 uses or rotations. All unused items should be left in the kits for the next teacher.

Maintaining the Kits – Teacher and School Responsibility

Teachers are responsible for maintaining their kit. Teachers should inventory their kits as soon as they receive them. New inventory lists are available from your Lead Science Teacher and on the [science website](#). There is also a list of materials on the front of each box. If a kit has missing/broken permanent equipment or is in need of additional consumable materials, please submit your completed inventory form to your Lead Science Teacher. They will submit it to the SMART Center and the items will be sent to you by school mail or dropped off at your site. This request must be made within two weeks of receiving the kit at your site.

At the completion of each unit, it is absolutely critical that teachers prepare the kit for reuse by ensuring that everything is cleaned, dried, and returned to kits in the right box, with the exception of the consumable items that were used. If the kit has multiple boxes, materials must be placed in their designated box. Boxes for the same kit do not stay together. Please help fellow teachers by maintaining the kits prior to pick up. Schools are financially responsible for missing permanent items and damaged or lost kits.

Live Organisms

FOSS life science kits use live organisms and seeds. To reduce costs and avoid delays, most live materials for the Life Science FOSS Kits are centrally supplied by the Science Department. Some organisms are raised at the SMART Center while others are purchased in bulk. These organisms will be repackaged and delivered to your site. Lead Science Teachers order the organisms at the start of your school's life science rotation. The organisms will be delivered in two shipments, around the third and

sixth week of instruction, and never just before a vacation. For more details and resources, visit the organism page of the Science in Oakland website.

Live organisms are an enriching addition to any classroom. After the life science unit is complete, teachers can keep the live organisms in the classroom or give them to a student to take home. They can also be returned to help us conserve our costs. Teachers can bring organisms directly to the SMART Center at 900 High Street or they can also be placed in containers and picked up along with the kits at the end of each rotation. Please DO NOT release any live organisms into the environment.

Lead Science Teacher

Each site is required to have a Lead Science Teacher who serves as the point of contact for the District Science Department. This person coordinates the delivery of the FOSS kits, orders missing supplies and live organisms, and has the opportunity to provide professional learning for staff. They also attend monthly teacher leader meetings during the school year. Lead Science Teachers are assigned by the Principal and receive a stipend and membership to [Community Resources for Science](#). They also receive a priority invitation to the end of the year [Dinner with a Scientist](#) event and free field trips. A more detailed job description is on the [Science in Oakland website](#).

Professional Development

FOSS/SIRA professional development will be offered to teachers centrally each summer. During the school year, site-based workshops are provided to an entire site based on principal requests. Materials for many of our workshops are available to Lead Science Teachers for in-house facilitation. If you are interested in PD or in conducting Cycle of Inquiry on Science, please contact us. Additional instructional videos for using each FOSS kit can be found on www.fossweb.com.

Science Fair

OUSD hosts an annual Districtwide K-12 Science Fair at the Chabot Space and Science Center each May. A workshop for teachers and science fair coordinators takes place in the winter trimester. Participation details and more information is on the [Science in Oakland](#) website.

Additional Resources and Support

FOSS maintains a website that provides many additional resources including videos with model lessons and tips for all kits, assessments, and Spanish and other language materials. Visit www.fossweb.com for more details.

Science gives students a compelling reason to discuss, write, read, and do math. Carefully plan your lessons, focus on student understanding of key concepts and practices, and use science as a way to motivate your students in other content areas. With the information in this document, schools are ready to prepare for the start of the year. The Science in Oakland website at <http://science.ousd.org> has a number of additional resources.

Contact your Lead Science Teacher for individual questions or needs. If you need additional support, contact Elementary Science Coordinator, Brenda Tuohy at Brenda.Tuohy@ousd.org.