

LETTER FOR FOSS MIDDLE SCHOOL COURSES

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Hello Students, Teachers, and Families,

To facilitate science teaching and learning during school closures, the FOSS team has provided additional Home/School Connections on the FOSS website <https://www.fossweb.com>. Students and families gain access to resources on FOSSweb through the class pages set up by the teacher. The teachers can leave notes on the class pages for students. Students can read those notes with assignment instructions from the teacher when they sign in to FOSSweb. Note that teachers may, instead, send FOSSweb assignments to students through other established parent communication apps or emails.

The new Home/School Connections for each course are active investigations that can be conducted at home (inside or outdoors), online readings, or online multimedia experiences including research. Most of these activities are part of the existing course that the students are learning, now formatted for students to access at home.

The teacher will decide which of the suggested activities are appropriate for students based on the classroom science experiences students have had through the year. Please refer to the teacher's communications home for specific expectations for assignments. The teacher may assign *FOSS Science Resources* readings, videos, and multimedia from investigations in the module or course.

For Students and Families: To sign in to FOSSweb, use the student user name and password provided by your teacher. Here's a short video to get you started on FOSSweb.

For Student Sign in Video: <https://youtu.be/Fcfjbt7Li2k>

For FOSSweb help: <https://www.fossweb.com/student-parent-help>

Preview the **Course Summary** from the Student Page. The **Module Overview** is available to download as a PDF. The first few pages of the Overview will help to set the context for the Home/School Connections.

For Teachers: For help in setting up and using Class Pages, use the Walk-through Videos on FOSSweb: <https://www.fossweb.com/fossweb-walkthrough-videos>

Visit the Home/School Connection for each module or course you teach, select the specific assignments that will be most relevant to your students at this point in instruction. Communicate with families about which content you are assigning through the Class Pages Notes on FOSSweb or through any other established parent communication channel your school has in place.

Tech support on FOSSweb: <https://www.fossweb.com/contact-us#jotform>

Together we will continue to make progress in science teaching and learning during school closures. Now, more than ever, we appreciate the role that science plays in our lives, and how important it is for citizens of all ages to understand and act based on scientific evidence

Sincerely, The FOSS Team at the Lawrence Hall of Science

FOSS Heredity and Adaptation, Home/School Connections, Families version COVID-19 School Closure Instructional Opportunities—March 19, 2020

- **NOTE:** For all online research projects, we suggest that students use our [Internet Disclaimer](#) to help guide their independent evaluation of digital sources.

Research Archaeopteryx

Find out more about Archaeopteryx and the ancient history of birds. Research how scientists have been able to understand what color fossil feathers were.

Research local fossils

Research the kinds of fossils that might have been found in your state. What ancient organisms lived there?

Learn more about the sixth extinction

Read more about the sixth extinction and think about ways you can help Earth avoid it. What are actions you can take in your own community or around the world to support efforts to save species from extinction?

Research Rosalind Franklin

Rosalind Franklin (1920–1958) was a pioneer molecular biologist. Her research was instrumental to the understanding of the structure of DNA. Find out about her short life and her contributions to the field of genetics.

Research genetic disease

Research a disease you are aware of that has a genetic component. Find out how the disease is inherited.

Research dog breeding

Research the pedigree of a breed of dog.

Learn more about evolutionary trees

Find out more about cladograms using the [Understanding Evolution website](#). It is a non-commercial, education website, teaching the science and history of evolutionary biology. This site is designed to help students understand what evolution is, how it works, how it factors into your life, how research in evolutionary biology is performed, and how ideas in this area have changed over time.

Visit the National Human Genome Research Institute

The [National Human Genome Research Institute](#) is one of the research institutes that make up the United States National Institutes of Health. Its original purpose was to map the human genome, but its role has expanded to apply genome technologies to the study of specific diseases. It is also responsible for studying the genetic components of complex disorders. THE NHGRI website is a wealth of historical and current resources on genetic technologies, both for the teacher and for students.

Learn more about ethical concerns

Many students may be aware of ethical concerns surrounding the use of genetic technology. Allow time for them to research some of these concerns and compare the concerns with the positive implications.

Learn more about CRISPR

Jennifer Doudna is a professor at the University of California, Berkeley. She is one of the principal researchers who devised a simplified method of gene modification. Have students listen to her [describe the CRISPR-Cas9 technique](#). This information is accessible to middle school students. You might also encourage them to listen to Doudna's TED talk on the ethical considerations necessary to make the CRISPR technique safe. Consider directing students to start 10 minutes into the talk.

Research gene drives

The gene drive is a genetic technology that greatly increases the probability of a desirable genetic trait being passed onto offspring. This can allow new traits to spread quickly to all members of a population. Gene drives are being used to affect populations of mosquitoes and other organisms, influencing ecosystems. With the advent of new genetic tools such as CRISPR, the possibility exists to spread almost any genetic modification through a wild population. Have students find out more about this technology and how organisms are evolving resistance. They should consider ethical concerns associated with using gene drives to modify entire populations over the course of just a few generations.

Research Careers

Have students research science and engineering careers related to the content in this course using the [Science and Engineering Careers Database](#). The database includes information about various careers and features diverse scientists.