DESIGNING YOUR REMOTE LEARNING WITH FOSS GRADES 6-8

INTRODUCTION

The FOSS team is ready to support you for a wide range of potential circumstances in school year 2020-21. These may include:

- Remote learning only,
- In-person learning with reduced or no hands-on materials use, or
- Blended learning (in-person + remote).

Districts and schools may need to make shifts from one instructional model to another during the school year to accommodate changing situations as local COVID case counts rise or fall.

Note that each district or school will have **highly individualized circumstances and needs** during this time, and therefore, each district or school team will need to determine the best instructional tools to support their FOSS implementation, reach students, and support pedagogy. This document highlights **new FOSS course supports** and helps you consider the decisions around other instructional tools during changing circumstances this school year.

The FOSS team is preparing instructional supports that ensure you can keep teaching FOSS Middle School every day using the technologies your school or district has selected, even if you are remote learning.

1. **New FOSS course supports will be found on FOSSweb on your teacher page in Teacher Resources.**
   a. Videos of hands-on experiences for every middle school course, to temporarily replace the parts of investigations that will be difficult to have students do at home during COVID school closures. These videos match specific steps for you to easily incorporate into your instruction.
   b. Google Docs Notebook Sheets for every middle school course.
   c. Suggestions for in-class investigations to support CDC recommendations for schools and classrooms.
   d. Suggestions for at-home investigations using easily found materials are suggested when possible. Consider district safety policies, parent supervision, and equity in accessing materials at home before assigning these to students.
   e. Home/School Connections in English and Spanish for each middle school course, for when you want additional extension opportunities for students to engage with course content at home.

   Release schedule:
   - Aug/Sept 2020 – Weather and Water, Chemical Interactions, Heredity and Adaptation, and Electromagnetic Force
   - Sept/Oct 2020 – Diversity of Life
   - Nov/Dec 2020 – Earth History, Gravity and Kinetic Energy, and Waves
   - January/February 2021 – Human Systems Interactions, Populations and Ecosystems, Planetary Science, and Variables and Design
2. **Teachers can continue to use *online instructional tools* (Zoom, Google Classroom, Nearpod, etc.) to support remote learning.** You should continue to use the tool that works best for you, or that your district or school has selected. Suggestions and advice about choosing a tool are in the next sections of this document.
3. **Teachers can use FOSS recommendations and tools to modify each step of the Investigations Guide to best fit their chosen *online instructional tools* and whether they are teaching synchronously (live) or asynchronously.** These tools should ideally support students in working together and engaging in sense-making discussions. Support for these instructional decisions are detailed in the next sections of this document.

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Where to start

When you begin thinking of how you will deliver FOSS lessons in School Year 2020-21, think about these questions.

- How regularly will your students have access to technology/devices at home?
- How will you be interacting with students (live or asynchronous)?
- How will you distribute assignments and collect student work?
- Will you have access to your classroom and FOSS materials?

The answers to these questions will help shape your best instructional plan.

EXAMPLE 1 – Mostly Asynchronous

Here is **one common model** that districts may use:

- Students have some internet access at home and may have district-provided devices.
- Instructional time is limited to 1-2 live instructional sessions (using live video) per week, with other work happening on a weekly assignment basis (students complete anytime).
- Teacher uses Google Classroom to distribute instructional materials, which include:
    - Teaching slides from FOSSweb that the teacher customized to match the new lesson format;
    - Notebook sheets (using the new Google Docs version of these sheets);
    - Teacher-created Google Docs where students work together and contribute to sense-making discussions;
    - Links to FOSSweb to access online activities and the eBook;
    - Links to brief FOSSweb videos of hands-on experiences to prompt sense-making;
    - At-home experimentation.
- Teacher uses live video sessions to answer questions about assignments and connect with students.

EXAMPLE 2 – Mostly Synchronous

Here is **another common model** that districts may use:

- Students have reliable internet access and devices.
- Students attend 2-5 synchronous instructional sessions (using live video) per week, with daily at-home assignments.

- Teacher uses live video lessons to deliver content, which include:
  - Teaching slides from FOSSweb that the teacher customized to match the new lesson format;
  - Brief FOSSweb videos of hands-on experiences to prompt sense-making;
  - Sense-making discussions where students work together in conference breakout rooms.
- Teacher uses Google Classroom to distribute daily assignments which include:
  - Notebook sheets (using the new Google Docs version of these sheets);
  - Links to FOSSweb to access online activities and the eBook;
  - At-home experimentation.

Modifying Your Instruction

Once you know what your district's or school's model of remote learning will be, you can plan your instruction accordingly. The examples above may give you general ideas about how to organize and distribute content to students. Now you can implement the new FOSS course supports and modify your lesson plans to fit with your district's model.

1. Use the **FOSS Remote Learning Investigations Guide Support** (sample below) for each course you are using. This document walks you through each part of each investigation and identifies options for teaching through new video resources and other ways to substitute activities for remote learning. You will modify each step of the Investigations Guide to best fit the *online instructional tool* you are using, whether it is live or asynchronous.

Example from **Chemical Interactions**.

Access the **Remote Learning Investigations Guide Support** for each course on FOSSweb.

FOSS CHEMICAL INTERACTIONS
Remote Learning Investigations Guide Support

Session		Remote Learning resources
6	Inv 1.2 Substances/Mixing Substances Steps 21-34	Step 22. Observe evaporation results - video Step 26. Demonstrate large-scale reactions - video Step 27. *(skip Step 27)* **At-Home Experimentation** After learning what is in the mystery mixture, students can test baking soda + citric acid + water at home. They can check their kitchen for products with citric acid listed as an ingredient (liquids such as juice or soda work best). Do any of these react with baking soda? Students can compare any products they find using a standard measurement (i.e. 1/4 teaspoon baking soda + 1 teaspoon citric acid product such as juice, soda, or sour candy dissolved in water) and record observations.
7	Inv 2.1 Elements/Periodic Table Steps 1-5	Step 1. Focus question - You can use the eBook instead of the poster.
8	Inv 2.1 Elements/Periodic Table Steps 6-16	Step 6. Explore the periodic table online - Students can access the online resource Periodic Table of the Elements from their own devices, and explore the information to answer the questions from Step 6.
9	Inv 2.2 Elements/Elements in the World Steps 1-9	NOTE: You can skip Inv 2.2, Steps 1-18, if you have reduced instructional time.

2. Facilitating sense-making discussions is even more essential when students are tasked with so much at-home learning. After using any video of hands-on learning, replace in-class sense-making discussions with alternate sensemaking strategies. These could be a live video meeting, a collaborative Google Doc, a notebook writing assignment, or another tool. Sense-making discussions work best in live lessons or on a collaborative Google Doc where students can build on others' response (or another chatboard app or site you already use with students). See more information in Tips for engaging in sense-making discussions below.
3. "Teacher talk" and Teacher Masters can be added to slides (download the teaching slides in English or Spanish from FOSSweb and modify accordingly) or used in prerecorded or live lessons that you teach.
4. Student responses to focus questions and other prompts, including observations, can be submitted to you in *your designated method* (such as Google Classroom, email, or whatever method you use). You can use these as formative assessments to monitor student progress. Consider how you will give meaningful feedback to students that encourages them to move their learning forward. See more information in Tips for meaningful formative assessment below.
5. Students can complete readings with the *FOSS Science Resources* Interactive eBook. Access is possible, even if your school didn't have this content before. Read more about gaining access on FOSSweb.

Tools for distributing assignments to students

Google Classroom is free for teachers, and FOSS has created Google Doc versions of all the notebook sheets that work well in Google Classroom. For additional information about using Google Classroom, visit our support document on FOSSweb. Some FOSS teachers have recommended using Nearpod or PearDeck with Google Slides to add interactive tools to their lessons.

Tips for engaging in sense-making discussions

In FOSS, the richest student learning takes place as students wrestle with new ideas and make sense of data. Here are a few ways you can consider holding class discussions online.

- Schedule a voice or video chat at a specified time. Practice using the mute and screen-share features of your selected technology, so that you'll be able to manage the discussion and make sure students have a chance to be heard.
- Post a question on a collaborative document (such as a Google Doc) where students can respond to and build upon each others' ideas. Set a time frame for the discussion and ask students to read and add on to each others' comments.
- Some FOSS teachers have recommended using Jamboard with student breakout groups so that students can meet and create a collaborative "poster" of their discussion notes.

Tips for instructing video lessons

Conducting your own video lessons will provide the closest approximation of a hands-on experience for students. Teaching a hands-on lesson by video requires some creativity! You can conduct the hands-on component as a demonstration that students can observe from afar, or you can show students the FOSS-developed videos of hands-on experiences. Either way, students should make predictions before they see what happens, and engage in sense-making afterwards.

Plan how you will keep students engaged, including:

- Talking through what you are doing and observing;
- Asking questions to provoke student thinking as you go;
- Using real-time chat features to ask a question and see students respond.

Tips for meaningful formative assessment

During distance learning, you will face more challenges in assessing student understanding. Integrating effective formative assessment within your instruction will benefit you and your students.

- Choose one or two digital platforms that best meet your needs and allow students to focus on sense-making and self-reflection.
- Any evidence you can gather about student thinking will help you make instructional decisions, as well as help provide insight to students about their learning. Make sure to gather evidence of student thinking often, and create opportunities for students to reflect and adjust their thinking.
- Make space for checking in on students' social and emotional learning (SEL) as well as academic learning. Consider asking students for feedback about the learning platforms. What is working? What isn't working? The more students feel genuinely included in the process of their learning, the more likely they are to remain engaged.

FOSSweb support

Make sure your students have access to FOSSweb. If they do not, set up a class page following the instructions on the Walkthrough Videos on FOSSweb. If you need to share instructions with your students on how to login, you can copy and paste this link (https://youtu.be/Fcfjbt7Li2k) for the instructional video on student login. You can send the link through your school's usual communication tool.

Supporting students in stressful times

Your students might be scared or confused about the coronavirus pandemic. You can be a familiar friend in a stressful time. Don't worry about being an online learning expert; just try your best to keep science in your students' lives. Encourage them to talk about their science ideas with each other and with you. Make yourself available to answer questions, related to science or non-science events, just as you would in the classroom. Staying connected is more important now than ever, and your students will be very happy to see and hear from you.

