Remote Lesson Plan Overview

The Remote Learning Lesson Plans are based on the following assumptions:

1. **Teachers will have access to a print and/or digital (IDE) version of the Teacher Edition (TE).** The lesson plans for remote learning provide ideas for how to *alter* what is in the TE for remote learning contexts. However, it is the TE that provides background information for the unit and lessons, preparation for demos or other activities, and the lesson flow including prompts to elicit prior knowledge, probe student thinking, and press student thinking to deeper levels. The TE also describes how coherence is built from one lesson to the next throughout the unit, beginning with the launch of the unit's anchoring phenomenon. The TE also names the Performance Expectations that each activity builds toward, including the Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCCs) addressed. The TE is the essential starting point for teaching IQWST whether in a classroom or remotely.

2. **Teachers will have access to a digital pdf of the Storyline document (via the Teacher Portal).** The Storyline document functions as a comprehensive outline of an entire unit. It highlights the specific SEPs and CCCs that are focal to each lesson, and names the scientific principles (typically components of DCIs) at which students should arrive after a series of lessons. The Storyline document also provides an at-a-glance view of ways to assess learning, of science vocabulary, and of how to bridge learning--and build coherence-- by connecting one lesson to the next. Teachers find this to be their most important companion tool for preparing lesson plans and teaching units.

3. **Teachers will have access to a print and/or digital version of the [IQWST Overview](#) booklet.** This resource contains a wealth of information to orient teachers new to IQWST to the design and layout, to support ideas for diverse learners (including ELLs, students who face reading challenges, and students with a range of learning disabilities), and to detailed guidance for how to set up and use the Driving Question Board, approach claim-evidence-reasoning (CER) explanations, and assess learning. Teachers find this to be an important tool for getting started, and for reference for deeper supports, as needed.

COLOR	INDICATES
Underlined blue text	Hyperlink to another online resource, video, or website
Purple text	Key idea of the activity
Yellow highlighted section	Formative assessment Checkpoint
Red text	Resources or links to be added soon

In order to use the Remote Learning Lesson Plans effectively:

1. **Become familiar with the lesson in the TE and with the Storyline document.**
   a. Decide on the method by which students will experience the lesson.
   b. If a teacher is able to engage in discussion with students, choose prompts that will most encourage their thinking and their participation.
   c. If a teacher is unable to engage in discussion with students, choose prompts that will support and scaffold their thinking as they work independently.
   d. Consider providing sample answers, after students have had time to think on their own, as a way for students to check their understanding.
   e. Be prepared to cue students to any changes needed in their SEs given the plans for remote learning of individual lessons.
   f. Given a scenario in which students will not have access to technology, consider a handout to accompany their print SEs that provides clear instructions for how they should proceed.
   g. Communicate clearly how written work, feedback, and grading will be addressed in the unique remote-learning environment.
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2. **View the Teaching Slides for each lesson.**
   a. There is one slide deck for each lesson, designed to support in-class teaching under normal circumstances.
   b. Projected Images (PIs) identified in the lessons are built into the slide decks. PIs may also be accessed via the Portal.
   c. The teacher will need to adapt the slides to address current remote learning plans (i.e., Will students gather as a virtual class and watch their teacher perform live demos, or will the teacher provide links for students to watch videos asynchronously? Will students have science daily or less often?).
   Note: Save the revised remote-learning slide deck for each lesson as a new, renamed slide deck so that the slides for "regular" in-class use are not affected.

3. **Watch the videos named in the Lesson Plans**
   a. Ideally, read the "What will we do?" section of the SE to students as they follow along in their SEs, make predictions when called for, and introduce the video as if students were going to do the investigation in class.
   b. Show (most) videos twice. First, so that students can watch what happens and make observations--as they would if they were doing the investigation in groups. Second, show videos again, but stop, pause, or voice over action as it happens on the screen. Depending on the video, it may make more sense for teachers to voiceover on first viewing.
   c. Third viewings are often helpful after discussion to solidify understanding. This can be done as a group, or an already-watched video may be viewed asynchronously by providing students with the link. Watching videos may also be an activity that teachers recommend to parents.

4. **3D learning will look much different using the remote-learning plans.**
   a. Given that research and standards make clear that 3D learning is the only way that *all students* are provided with the opportunity to learn science, it is imperative that teachers keep 3D learning at the forefront of remote teaching. Avoid the tendency to revert to a focus on students "getting the content" at the expense of interweaving crosscutting concepts and science and engineering practices.
   b. Crosscutting Concepts should be interwoven in the remote learning experiences, so look for opportunities to be explicit in discussions by purposefully using the language (and having students use the language) of cause and effect, size and scale, etc.
   c. Students can still engage in the Science and Engineering Practices, although their experiences will be significantly altered in the absence of hands-on investigation and engaging in daily collaborative discourse. All of the practices are do-able even in a remote-learning context.

5. **Look for understanding of Key Ideas.**
   a. In IQWST, Scientific Principles---core ideas that are foundational to DCIs---are developed with students after working through investigations, activities, modeling, discussion, and group collaboration.
   b. In a remote setting, if teachers are unable to facilitate such discussion, be sure that the "Key" ideas stated in the Lesson Plans for Remote Learning and the "Scientific Principles" stated in the TE and in the Storyline are stated explicitly. *If at all possible,* generate these ideas with students, so they do not become simply a list of facts to be memorized.

For Students:

1. **Consider creating an at-home guide for students (and parents)**. This is particularly important if students are unable to have access and are being given an SE without ongoing virtual instruction.
   a. Note that wording in the SE will often not align with adaptations made to activities, so advise students how to adapt in any instance where confusion might occur.
   b. Readings will indicate, "In class you did X," which students will not, of course, have done. Instead, they will have seen a video. SE questions will refer to activities as though students are doing them. Some students will struggle with the shift without explicit instruction that they are to "answer about what you saw in the video."
   c. Some questions will need to be omitted because they do not fit the remote experience. Be explicit about which questions students are (or are not) supposed to answer.
   d. Phone discussion with a partner may be an option to support learning.

2. The **audio readings** may be especially important for remote learning to help students process the content. See the *IQWST Overview* for ideas for using the readings, including having the teacher read an entire reading (or a section) aloud *to* students, which research has shown to be a highly effective method for supporting students in sensemaking as well as becoming better readers themselves.

3. Without the support of a **Word Wall** and pervasive use of the language of science, many students will be challenged to become fluent with science vocabulary. If possible, maintain a Word Wall and be cognizant of using words as frequently and consistently as possible in any virtual-learning contact with students. Students could also keep word walls or lists at home.

4. The **Driving Question** needs to be kept at the forefront of learning. Ideally, teachers can maintain some version of a virtual **Driving Question Board** using tools such as padlet or jamboard. Otherwise, having a poster or wall space on which the Driving Question is posted for reference during virtual sessions will be helpful.
    a. Artifacts: Any artifacts that can be kept and shown when referenced in later lessons will be helpful for coherence, continuity, and visual memory.
    b. Student questions: At the very least, students should write questions as they arise, either posting them in the front of their print SEs (using sticky notes) or posting them in the My Questions section of the IDE.

5. **Encouraging and supporting discourse**
Student questions, discussion prompts, and conversation via posts are manageable in most of the platforms used for remote teaching and learning: schoology, google classroom, microsoft teams, google meets, blackboard, canvas. Therefore, discourse can still take place remotely, allowing the teacher and students to respond to each other directly. Either can post new questions or ideas. Students are also able to respond to any item that can be posted, such as a Projected Image (PI), the Driving Question Board, images, and videos. Most platforms have a video feature as well, enabling teacher and students to share video such as the Activity Videos linked in the Remote Learning Lesson Plans, a video of an activity that the teacher demonstrates, or a video students take as they perform an at-home investigation.

In General:

1. **Be kind to yourself.** You are in uncharted territory and are teaching science--the content that is the most difficult to address in a remote-learning context. You are managing absent students, diverse learners, and a host of other challenges. Be kind to yourself.
2. **Slow down.** Focus on depth of understanding. You have an entire curriculum in front of you. The remote learning lesson plans suggest cuts that will lighten the load for you and will lighten the cognitive load for students. Depth--real understanding, retention, application--is far more important than superficial coverage of information that will likely not be remembered thus likely not be applied to new contexts.
3. **Be aware of students' remote-learning challenges**. Learning with only visual experiences (simulations, video, slides, reading) will be more challenging for many students than when those are coupled with hands-on investigations of phenomena and the rich discourse that characterizes an IQWST classroom. Remote learning makes #2 especially important.
4. **Establish norms early.** Classroom norms are vital to your instruction. Now, your routines are also affected by everyone's at-home routines, which are also in flux. How will students communicate with you? Collaborate? Submit work? How often will they do science at home? How often will you check-in? No advice will be ideal for you and your students. Adapt as you go.