



**Mediterranean Association of International Schools**  
Professional Development & Community for Educators

**MAIS Science K-12 Professional Learning**

**Fresno Superintendent of Schools**

**General Outline of Proposed Schedule**

8:00 - 9:00 Whole Group Session  
9:00 - 12:00 Break-Out Session  
12:00 - 1:00 Lunch  
1:00 - 4:00 Break-Out Session  
*(Schedule can be modified to accommodate site needs)*

**SAMPLE SCHEDULE-**

***Recommended Schedule if Schools Have no Preference in the Topic Options***

Day One	
8:00 a.m. - 9:00 a.m. 9:00 a.m. - 12:00 p.m. 12:00 p.m. - 1:00 p.m. 1:00 p.m. - 4:00 p.m.	NGSS Shifts in Instruction (whole group) Building Units using Phenomena (break-out sessions for K-5, 6-12) Lunch Science Notebooking (break-out sessions for K-5, 6-12)
Day Two	
8:00 a.m. - 11:00 a.m. 11:00 a.m. - 12:00 p.m. 12:00 p.m. - 1:00 p.m. 1:00 p.m. - 4:00 p.m.	Science Practice: Modeling (break-out sessions for K-5, 6-12) NGSS Resources Share-Out (whole group) Lunch Science Practice: Argumentation & C.E.R. (break-out sessions K-5, 6-12)

**Choose from the options below to create a customized Professional Learning experience.**



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### WHOLE GROUP SESSIONS

- Topic engages all grade-levels
- length of session can be modified from 45 minutes to 75 minutes

#### Topic Options:

A. NGSS Shifts in Instruction:

Based on the Framework for K–12 Science Education, the NGSS are intended to reflect a new vision for American science education. There are 7 important shifts in instruction teachers need to be aware of when teaching with NGSS; such as integrating engineering and focusing on the practices of students being scientists in the classroom. Learn how to shift your instruction for NGSS.

B. Graphic Notes: Visual Notetaking in the Classroom:

Visual notetaking is such a powerful approach for students in understanding science. It exercises students' kinesthetic, auditory, linguistic, and verbal modalities. Visuals offer tangible, immediate insight that teachers can use to gauge and build upon comprehension. It's big-picture comprehension, deep thinking and imagining, and synthesizing information. Teachers will learn the basics of graphic notes and see examples from various grade spans.

C. NGSS Resources Share-Out:

Some of the best resources that can found to support NGSS are housed on a padlet for easy accessibility. Teachers will be walked through the resources- understanding how to use each resource.

### BREAK-OUT SESSIONS

- Topic is modified to address the needs of a specific grade-span depending on the audience (K-2, 3-5, 6-8, 9-12, K-5, 6-12)
- Two break-out sessions can take place during the same time block.  
(Example: from 9 a.m. - 12:00 p.m. a K-5 session of Science Notebooking can be happening at the same time as the 6-12 session of Science Notebooking)
- Length of session can be modified from 2.5 to 3 hours

#### Topic Options:

A. Building Units Using Phenomena:

Participants will dig deeper into what phenomena are and how to select appropriate phenomena. After exploring the difference between anchor and investigative phenomena, participants will learn how to use these phenomena to build units. They will apply their new knowledge to begin planning for a future grade-level unit.

B. Science Notebooking:

Notebooks are the perfect opportunity for students to collect evidence and successfully answer big ideas in science. Implementing interactive notebooks in a science class is a proven way to increase student engagement and



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comprehension. A highly successful system will be modeled with teachers creating their own notebook. Participants will discover how students are able to process information and take ownership of their learning by using notebooks as a scaffolding tool.

C. Anatomy of an NGSS Unit:

Powerful NGSS units begin with an anchoring phenomenon related to the core ideas connected to the performance expectations. Engaging students with an anchor phenomenon creates learning space for students to ask questions and give their pre-knowledge. Participants will apply the 5E lesson plan to the key components of an NGSS unit to develop a coherent storyline. Intentional design and incorporation of phenomena, big ideas, 3-4 learning sequences, formative tasks, and a summative task combine together to create a powerful NGSS unit.

D. 5E Model of Instruction:

When teaching with the NGSS, it is important to avoid front-loading and to instead allow students to develop an understanding through engagement and exploration. The 5E lesson plan is a proven tool to engage and involve students in the scientific process. The components in the 5E model for teaching are: Engagement; Exploration; Explanation; Elaboration; Evaluation. Participants will experience a 5E lesson sequence and apply their learning to a sequence in their curriculum.

E. Science Practice - Modeling:

Scientific modeling is an essential Science and Engineering Practice in NGSS. After experiencing an engaging science lesson, participants will understand what a two-week learning experience looks like for NGSS. Participants will learn how to use NGSS Evidence Statement to support the planning of three dimensional assessments and instruction with the use of a new planning tool. Participants will leave the session with a list of steps to duplicate a successful modeling lesson on their own.

F. Science Practice - Argumentation & C.E.R.:

Constructing an explanation is a science practice that should be happening frequently in an NGSS-aligned classroom. Participants will learn how to use the structure of Claim, Evidence, and Reasoning (CER) to improve students' explanation of scientific phenomena. The CER format also strengthens student writing and discourse in science. Participants will learn how to effectively scaffold and prepare students to make and defend arguments. It is during argumentation that students refine their claims based on evidence collected.

G) Science Literacy-Success in Science Through Dialogue, Reading and Writing:

In this session, participants will be led through an engaging science experience that will follow up with a purposeful reading assignment, a productive dialogue where they make a claim and defend their assertions with evidence, and finally a meaningful writing activity where they will learn to write an explanation to summarize their findings. Participants will be given the book "Success in



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Science Through Dialogue, Reading and Writing” that contains lessons that are ready to use right away. (Target audience is 6-12 grades for this session)

### **UNIT PLANNING**

- Any blocks can be used to plan out a unit of instruction

### **Weibert, Jennifer**

Jennifer Weibert is the Science/STEM (Science Technology Engineering and Mathematics) Coordinator for the Fresno County Office of Education. Jennifer has been a trainer for hundreds of educators in effective strategies for STEM. A former science teacher and STEM teacher coach, she trains teachers on the practice of Interactive Note Booking as a way to accelerate learning. She was trained in her pedagogy by the United States Department of Education, Western Educational Laboratory (West Ed) and has worked for West Ed throughout the state of California developing curriculum, teaching during summer workshops and presenting at teacher trainings. She has presented at the California Teachers Association Conference.