AP Biology Online Institute
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- Participants in the AP Biology Summer Institute will increase their knowledge of the New AP Biology Course and Exam Description.
- We will take a "deep dive" into each of the eight units and the learning objectives.
- Strategies and pedagogical techniques for increasing student mastery of the learning objectives will be shared.
- Mary will show how to prepare and execute many of the labs and share lab tips she has learned during her 23 years teaching this course. Since many schools have limited budgets, we will learn effective and inexpensive labs and supplemental activities to maximize student learning, even on the lowest of budgets.
- We will also learn how to use the AP Classroom to develop each skill and practice in our students, and develop lesson plans that reinforce student learning.
- Participants will spend time becoming familiar with the format, sample questions and grading of the exam.
- Participants will learn how to use the Instructional Planning Report to continually refine classroom instruction.
- Time will also be provided for reflection and to work on your course syllabus and lesson planning.

Agenda (Synchronous sessions in bold)

Day 1	**Welcome! How to Navigate our online APSI materials**.
	
	The Course and Exam Description (CED)
	• **Science Practices (p13-15) and Big Ideas (p20)**
	• **Course at a Glance (p22)**
	• **Unit Guide "openers" (p26-28)**
	• **"Treasure Hunt" of the new CED**
	
	Asynchronous Activity: "Deep Dive" into Units 1 and 2
	• For Units 1 and 2, complete an assignment labeling the following
	  o Exam Weighting
	  o Recommended Pacing
	  o Big Ideas
	  o Essential Questions
	  o Science Practices
	  o Common Misconceptions and how to avoid them
	
	Strategies and Activities for Units 1 and 2
	• **Using Properties of Water to Introduce Statistics**
	• **Demo: Why are Cells so Small?**
	• **How to Prep and Start Diffusion and Osmosis Lab: Tips and Tricks**
	
	Asynchonous Activity:

	Choose one activity you would use to teach a topic in Unit 1 or Unit 2. o Identify the topic, big idea, science practice. (Look at sample instructional activities in the CED for some suggestions) o What is an instructional approach you could use to improve/supplement this activity? o How could you assess student learning? **Debrief, Question and Answer**
Day 2	**Welcome Back! Time for reflection and questions from yesterday's activities** **Introduction to the AP Classroom** • **How to enroll your students in AP Classroom** • **Using Personal Progress Checks to inform instruction** • **The Progress Dashboard, monitoring student learning** • **How to use the question back to design assessments** Asynchronous Activity: Use the question bank to design an assessment for one of the learning activities for Units 1 or 2 you identified yesterday. **Sharing best practices: Sharing activities you chose for Units 1 and 2 and how you would assess student learning after those activities** Asynchronous Activity: "Deep Dive" into Units 3 and 4 • For Units 3 and 4, complete an assignment labeling the following o Exam Weighting o Recommended Pacing o Big Ideas o Essential Questions o Science Practices o Common Misconceptions and how to avoid them **Strategies and Activities for Units 3 and 4** • **Toothpickase** • **Student designed Spinach Photosynthesis lab** • **Using Algae Balls to teach Photosynthesis and Cellular Respiration** • **Yeast Sphere Enzyme Lab** Asynchonous Activity: Choose one activity you would use to teach a topic in Unit 3 or Unit 4. o Identify the topic, big idea, science practice. (Look at sample instructional activities in the CED for some suggestions) o What is an instructional approach you could use to improve/supplement this activity? o How could you assess student learning?

	Synchronous: Debrief, Question and Answer

Day 3	**Welcome Back! Time for reflection and questions from yesterday's activities**
	
	Sharing best practices: Sharing activities you chose for Units 3 and 4 and how you would assess student learning after those activities
	
	Asynchronous Activity: "Deep Dive" into Units 5 and 6
	• For Units 5 and 6, complete an assignment labeling the following
	  o Exam Weighting
	  o Recommended Pacing
	  o Big Ideas
	  o Essential Questions
	  o Science Practices
	  o Common Misconceptions and how to avoid them
	
	Strategies and Activities for Units 5 and 6
	• **PTC Genetics and Gel Electrophoresis lab**
	• **Ways to teach Meiosis that students will remember**
	• **Bacterial Transformation lab tips and tricks**
	
	Asynchonous Activity:
	Choose one activity you would use to teach a topic in Unit 5 or Unit 6.
	o Identify the topic, big idea, science practice. (Look at sample instructional activities in the CED for some suggestions)
	o What is an instructional approach you could use to improve/supplement this activity?
	o How could you assess student learning?
	
	Synchronous: Debrief, Question and Answer

Day 4	**Welcome Back! Time for reflection and questions from yesterday's activities**
	
	Sharing best practices: Sharing activities you chose for Units 5 and 6 and how you would assess student learning after those activities
	
	Asynchronous Activity: "Deep Dive" into Units 7 and 8
	• For Units 7 and 8, complete an assignment labeling the following
	  o Exam Weighting
	  o Recommended Pacing
	  o Big Ideas
	  o Essential Questions
	  o Science Practices
	  o Common Misconceptions and how to avoid them

	Strategies and Activities for Units 7 and 8 • **The BLAST Lab** • **How to teach Hardy-Weinberg so "math phobic" students will understand** • **PopGen Simulation** • **Trophic Cascades** Asynchonous Activity: Choose one activity you would use to teach a topic in Unit 7 or Unit 8. o Identify the topic, big idea, science practice. (Look at sample instructional activities in the CED for some suggestions) o What is an instructional approach you could use to improve/supplement this activity? o How could you assess student learning? **Synchronous: Debrief, Question and Answer**
Day 5	**Welcome Back! Time for reflection and questions from yesterday's activities** **Synchronous: Resources for teaching online and virtual labs, how to prepare your students for success on the AP Biology exam** Asynchronous: Using AP Classroom, develop a formative and summative assessment for a topic in either Unit 7 or Unit 8 **Sharing best practices: Sharing activities you chose for Units 7 and 8 and how you would assess student learning after those activities**