RESPeCT Study-Group Sessions
Study-Group Session 1

Focus Question
- What can we learn about the STeLLA strategies, science content, and student thinking by analyzing our own classroom videos?

Overarching Learning Goals for All RESPeCT Study-Group Sessions
- Deepen teachers' science-content knowledge and knowledge of effective science teaching.
- Develop teachers' analytical skills to improve lesson-plan development and the teaching of science.
- Support teachers in the practical use of new knowledge and analytical skills in their own classrooms.
- Improve students' science learning.
- Achieve sustainability by eventually reaching all K–6 teachers.

Preparation

Ahead of Time
- Review the PDLG and PowerPoints (PPTs) to plan the session. Modify text highlighted in light-blue font on slides and/or in PDLG to make it specific for your group.
- Select classroom video clips and identify specific teacher learning goals for this session related to the STeLLA strategies and science content. Be sure to address any science-content confusion you notice while reviewing the lesson videos.
- Create a lesson analysis protocol (LAP) for each video to be analyzed. (Add identification and analysis questions to each LAP template.)
- Identify a good use-and-apply question, scenario, data set, or phenomenon that will challenge participants to use and apply content area 1 science ideas to explain a new situation. Consult with Cal Poly Pomona (CPP) faculty if you need suggestions.
- Prepare charts (agenda, focus question, lesson sequence overview, norms) and make copies of handouts.

On Meeting Day
- Check audiovisual equipment and have video clips ready to go.
- Arrange furniture and food.
- Put up posters and charts.

Materials

Posters and Charts
- STeLLA Framework and Strategies poster
- Agenda (chart)
- Focus Question (chart)
- Lesson Sequence Overview Chart
- Norms for Working Together (chart)
- Parking Lot poster

Handouts
- Transcript for each video clip
- Lesson analysis protocol (LAP) for each video clip
- Reflection sheet

Supplies
- Science-lesson materials kit (content area 1)
- Chart paper and markers
- Food

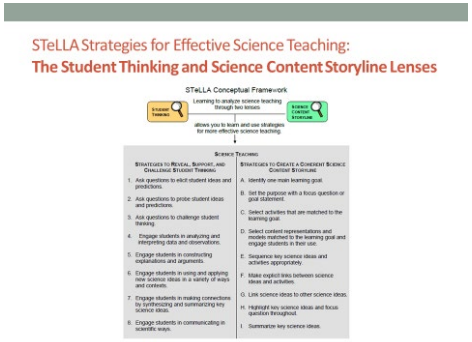
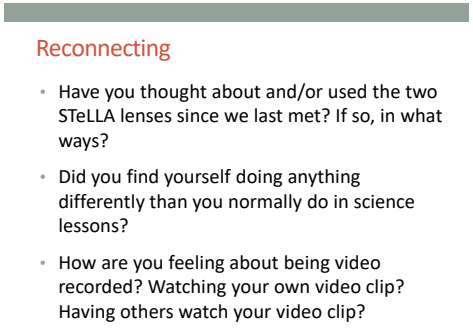
Resources
- STeLLA strategies booklet
- RESPeCT PD program binder
- RESPeCT lesson plans binder
- Content background document (content area 1)

Videos

- Video clips of classroom teaching selected for analysis

Structure of the Lesson Sequence Overview Chart

Unit central question(s):		
Lesson Number	Focus Question	Main Activity (Brief Phrase)
1a		
1b		
2a		
2b		
3a		
3b		
Etc.		

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
15 min **Setting the Stage for the Study-Group Session** Slides 1–9	**Purpose** • To help participants situate themselves within the study-group setting • To remind participants of the STeLLA strategies, the main goals of the RESPeCT PD program, and the norms • To reconnect participants to the work they completed during the Summer Institute and strategies they may or may not have used early in the school year **Content** • The RESPeCT PD program is organized around the STeLLA conceptual framework, which focuses teachers' attention on the Student Thinking Lens and the Science Content Storyline Lens and a set of teaching strategies that support each lens. • The RESPeCT PD program goals and norms for working together help keep the analysis focused on improving students' science learning. **What Participants Do** • Reconnect by discussing how the work they completed during the Summer Institute has affected their thinking and teaching this fall. • Review today's agenda and		**Display Slide 1.** RESPeCT Study-Group Session 1 (Less than 1 min) a. Insert the correct date on the slide. b. Greet participants as they enter the room.
			**Display Slide 2.** The STeLLA Conceptual Framework (1 min) a. Review this slide to reconnect participants to the work they did during the Summer Institute. b. "This is the conceptual framework we used in the summer and will continue to use during our study-group sessions." c. **Ask:** "What does the STeLLA framework communicate?" (Participants should highlight the two lenses and the list of specific teaching strategies that support each lens.)
			**Display Slide 3.** Reconnecting (7 min) a. **Individuals (2 min):** Give participants some time to think about the questions. b. **Pairs (2 min):** Have participants engage in a quick Turn and Talk with an elbow partner. c. **Whole group (3 min):** Then have participants share as a group. d. To reassure nervous participants, emphasize the following: • "We're all learners sharing our efforts to implement new

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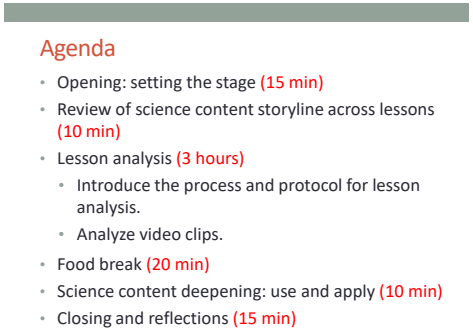
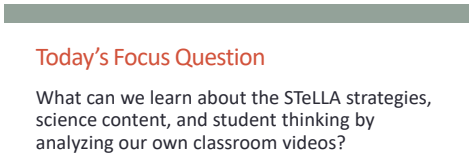
	focus question, the goals of the RESPeCT PD program, and norms for working together.		lessons in our classrooms using new strategies. By keeping this in mind, we honor each other's courage in making our teaching practice visible to support everyone's learning." • The purpose of these lesson analyses is to learn about the STeLLA strategies, the science content, and student thinking, not to evaluate teachers! These video clips are too short to make evaluative judgments about a teacher's overall teaching practice.
			**Display Slide 4.** Agenda (1 min) a. Share the agenda with the group. b. Let participants know that the majority of this study-group session will be devoted to lesson analysis. c. Invite participants to ask questions concerning the agenda.
			**Display Slide 5.** Today's Focus Question (Less than 1 min) a. Share today's focus question.

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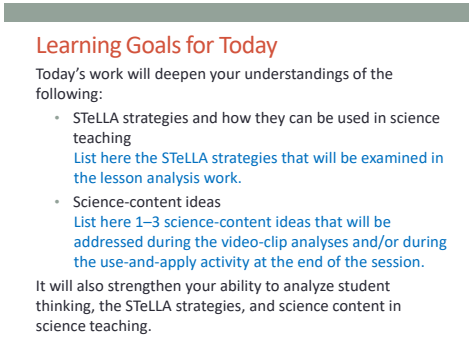
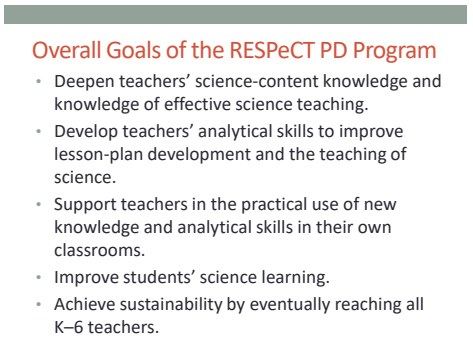
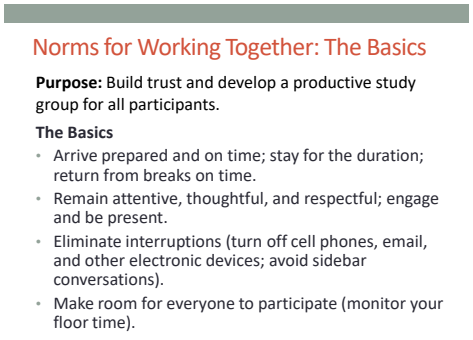
			**Display Slide 6.** Learning Goals for Today (1 min) a. Modify the slide to reflect the specific STeLLA strategies and science-content ideas you've identified for today's work. b. Read the learning goals on the slide.
			**Display Slide 7.** Overall Goals of the RESPeCT PD Program (1 min) a. Remind participants of the RESPeCT PD program goals. b. Emphasize the goal of improving students' science-content learning.
			**Display Slide 8.** Norms for Working Together: The Basics (1 min) a. Read through the list of basic norms. b. **Ask:** "Are there any questions or concerns?"

<table>
<tr><th>PD Model:
Time/Phase</th><th>Purpose, Content, and
What Participants Do</th><th>Slides</th><th>Process</th></tr>
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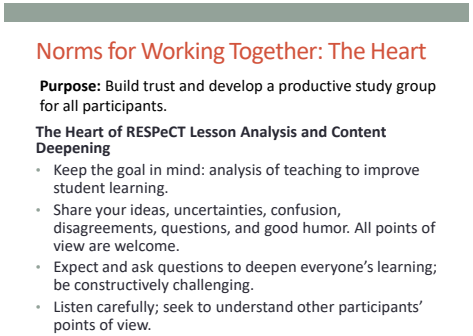
<td> 
</td>
<td>Display Slide 9. Norms for Working Together: The Heart (2 min)

a. Read through the norms that reflect the heart of the RESPeCT PD program.
b. Ask: “Are there any questions or concerns?”
c. Ask: “Are there any other norms that need to be adhered to for our study group to work together most effectively? Once a consensus is reached, write down these additional norms.”</td>
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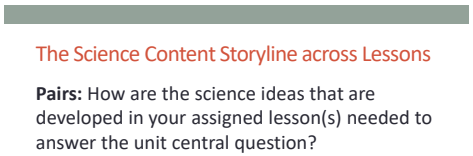
<tr>
<td>10 min

Review of Science Content Storyline across Lessons

Slide 10</td>
<td>Purpose
• To remind participants of the overall science content storyline of the lesson sequence
• To identify any science-content confusion that needs to be addressed during this or future study-group sessions

Content
• There is a coherent science content storyline across the STeLLA content area 1 science lessons.
• Looking closely at the STeLLA content area 1 lesson plans might reveal participant confusion regarding the science content.

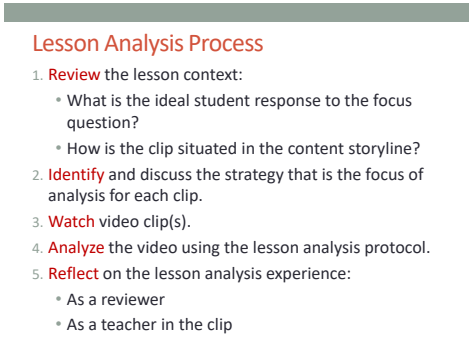
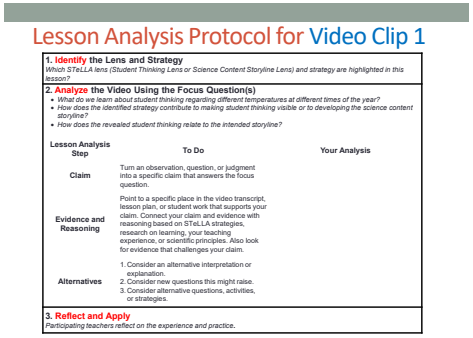
What Participants Do
• Pair up and look at an overview chart of the focus questions and main activities of each lesson in the sequence. Each pair is assigned two or three 2-</td>
<td> 
</td>
<td>Display Slide 10. The Science Content Storyline across Lessons (10 min)

Note: Be sure to limit this segment to 10 minutes. It could easily take up much more time, but it’s intended to briefly get everyone’s heads back into the science ideas in the lessons.

Structure of the Lesson Sequence Overview Chart:
<table>
<tr><td colspan="3">Unit central question(s):</td></tr>
<tr><td>Lesson Number</td><td>Focus Question</td><td>Main Activity (Brief Phrase)</td></tr>
<tr><td>1a</td><td rowspan="2"></td><td></td></tr>
<tr><td>1b</td><td></td></tr>
<tr><td>2a</td><td rowspan="2"></td><td></td></tr>
<tr><td>2b</td><td></td></tr>
<tr><td>3a</td><td rowspan="2"></td><td></td></tr>
<tr><td>3b</td><td></td></tr>
<tr><td>Etc.</td><td rowspan="2"></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>

a. Have science-lesson materials available from the lesson kit.
b. Remind participants of (1) the science content and (2) the</td>
</tr>
</table>

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
	part lesson plans. The pairs then discuss (and later share with the group) how the science ideas in their assigned lessons should help students answer the unit central question(s).		lesson activities that provide evidence supporting the ideas. c. Clarify any confusion about the lessons. d. Show participants the Lesson Sequence Overview Chart (1 min). (See model on previous page.) Tell them, "To get our heads back into the science content of these lessons, let's think about the science content storyline we're helping students develop across the sequence of lessons. Today the video clips come from lessons X, Y, and Z. But it's important that we have the whole sequence in mind as we're analyzing these lessons." e. Assign two or three 2-part lessons to each pair of participants, as needed, to address all of the lessons. **Note:** A single lesson has two parts (e.g., lesson 1a and 1b). f. **Pairs (4 min):** Have participants look at the lesson-sequence chart and discuss this question in pairs: *How can the science ideas developed in your assigned lesson(s) help students answer the unit central question?* (Participants can use their lesson plans binders as a resource.) **Note:** Listen to participants during the pairs work and the whole-group discussion to identify and note any science-content confusion that will need to be addressed at some point. g. **Whole group (6 min):** Have pairs report **briefly** on how the science ideas in their assigned lesson(s) help students answer the unit central question(s).

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
3 hours, 20 min (Includes 20-min food break) **Lesson Analysis** Slides 11–33	**Purpose** • To deepen participants' understandings of the selected STeLLA strategies • To deepen participants' science-content understandings • To deepen the ability of participants to analyze students' science thinking **Content** • The STeLLA video-based lesson analysis process includes identifying the selected teaching strategies (or missed opportunities) in the video clip and then analyzing the video clip by making a claim, providing evidence and reasoning to support the claim, and proposing an alternative claim or teaching approach. • Analyzing video clips provides opportunities to deepen participants' understandings of the selected STeLLA strategies. • Analyzing video clips provides opportunities to deepen participants' understandings of science-content ideas featured in the selected clips. **What Participants Do** • Use the STeLLA lesson analysis process with the accompanying lesson analysis protocol (LAP) to support their analysis of classroom science		**Display Slide 11.** The Lesson Analysis Process (3 min) a. "Now we're going to dig into the lesson analysis work! The slide shows the process we'll use." b. Give participants time to read through the five lesson analysis process steps. c. Let them know that your goal as a group is to be both supportive and challenging in your analyses. d. Emphasize that the focus of each analysis is on student thinking and a specific STeLLA strategy. e. Remind participants that they're looking at only 5–7 minutes of teaching, and that students in the video clips are wrestling with difficult science ideas. The goal is to understand how the appropriate use of the STeLLA strategies will support students in learning challenging science ideas and scientific ways of thinking.
			**Display Slide 12.** Lesson Analysis Protocol for Video Clip 1 (5 min) a. Replace the LAP image on the slide with an image of the first LAP you'll be using for this session. b. Have participants locate and read through the first LAP they will be using for this video clip and think about what they'll be asked to do. c. Emphasize that in step 1 they'll identify a particular STeLLA lens and strategy in use in the video clip. Then they'll analyze the video in step 2. d. Describe step 2 in detail, letting participants know that they'll be generating a claim based on evidence from the video transcript. Their reasoning should tell how the evidence supports their claim by making reference to knowledge about the STeLLA strategies, science concepts, research findings, and/or their teaching experience. Make sure they understand

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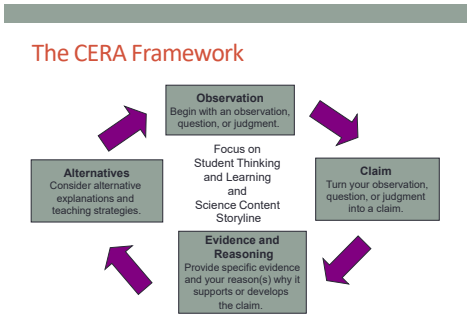
	teaching and learning in three video clips (from three different lessons). **Videos/Transcripts** • Three video clips to be analyzed during this session • A transcript and LAP for each video clip		the three alternatives. **Note:** The strategies and student thinking in focus depend on the video clips you select for analysis. These clips should offer participants opportunities to refine their knowledge and understandings of both the science content and the use of the STeLLA strategies.
			**Display Slide 13.** The CERA Framework (3 min) a. Use this slide to visually represent the CERA framework (claim, evidence, reasoning, alternatives) that will guide the lesson analysis work. b. Emphasize that participants need to write a claim supported by evidence and reasoning prior to identifying alternatives (i.e., alternative claims, teaching strategies/approaches, or questions). c. Reasoning should address why the claim and evidence are significant—for example, what does it reveal about the importance of the strategy or about student difficulties with the content? In their first efforts to make claim, evidence, and reasoning statements, participants might use these sentence starters: • "My claim is …" • "My evidence is … because …" • "This is important because …" d. Emphasize that in addition to using the CERA framework to analyze their own science teaching in these study-group sessions, they will use it in the classroom as a tool for teaching students how to develop scientific explanations and arguments (STeLLA strategy 5).

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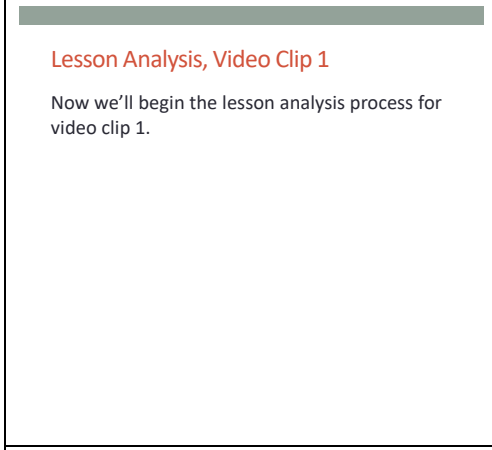
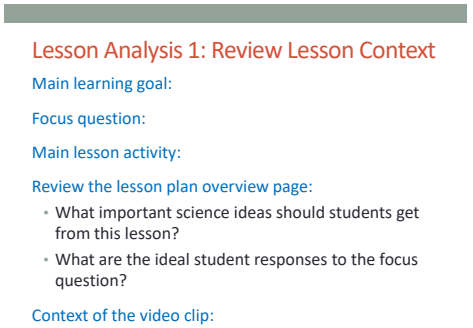
			**Display Slide 14.** Lesson Analysis, Video Clip 1 (Less than 1 min) a. "Now we'll begin the lesson analysis process for video clip 1." **Timing note:** We've allotted about 60 minutes for the first lesson analysis, and 55 minutes for the second and third analyses. But don't feel rushed! If you find you are running out of time, you can do the Identify phase of the third video clip and postpone the Analyze phase until Study Group 2. Alternatively, you could postpone lesson analysis 3 entirely until Study Group 2. We've allowed some catch-up time in Study Group 3 to accommodate this possibility.
			**Display Slide 15.** Lesson Analysis 1: Review Lesson Context (5 min) a. Modify the slide for this video clip. All of the information may not fit on one slide. b. Review the context for the first video clip that will be analyzed. Some participants may need help getting their heads back into these lesson plans if they haven't taught the lessons yet. c. Remind participants of the main learning goal, the focus question, and the main activity in this lesson. d. **Optional:** Direct participants to the overview page of the lesson plan to identify important science ideas and an ideal student response to the focus question. e. Orient participants to where video clip 1 appears in the lesson. f. Ask the teacher whose clip you'll be analyzing to add other contextual factors that may be pertinent to the upcoming analysis.

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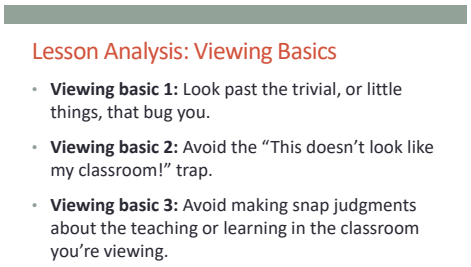
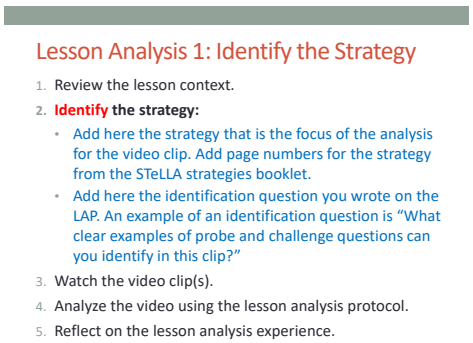
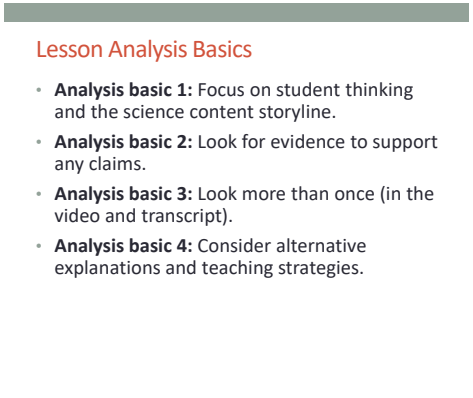
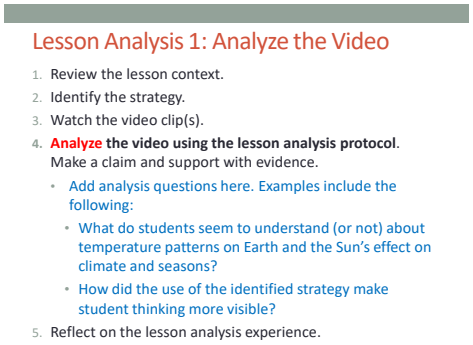
			**Display Slide 16.** Lesson Analysis: Viewing Basics (Less than 1 min) a. To prepare for the first lesson analysis, remind participants of the viewing basics that will guide their work.
			**Display Slide 17.** Lesson Analysis 1: Identify the Strategy (20 min) **Note:** This slide shows all five steps of the lesson analysis process, but participants will work only on the Identify step (highlighted in a bold red font on the slide). a. Modify the slide to match your lesson analysis plan for video clip 1. b. If participants haven't done so, have them locate the LAP for video clip 1. c. Highlight step 1 (Identify the strategy) on the LAP and emphasize the strategy participants will be focusing on during this first analysis. **Note:** To prevent confusion, point out that step 1 on the LAP is step 2 of the lesson analysis process shown on the slide. d. Review the purpose(s) and key features of the selected strategy. Have participants skim the relevant content in the STeLLA strategies booklet and/or refer to their Z-fold summary charts to refresh their memories. Then have participants share the purpose(s) and key features of the selected strategy. e. Show the video clip. f. **Individuals:** Have participants study the video transcript to

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			identify clear examples of the selected strategy. g. **Whole group:** "What examples of the strategy did you find in the video clip?" Ask challenge questions to make sure participants understand the strategy: • "What makes this an example of strategy X?" • "Can you point to text in the strategies booklet that clarifies why this is an example of strategy X?" **Note 1:** Encourage the teacher who is featured in the video to listen to and observe this discussion, not to participate. **Note 2:** In assessing participants' understandings of the strategy, pay attention to their reasoning: Are they clear about the purpose(s) of the strategy and how it is different from other strategies?
			**Display Slide 18.** Lesson Analysis Basics (2 min) a. "Now we're moving on to step 2 of the LAP: Analyze the video. Remember that each of the lesson analysis basics on this slide is important in this process." b. Be sure to mention that any evidence for a claim must have an accompanying time stamp from the transcript.
			**Display Slide 19.** Lesson Analysis 1: Analyze the Video (25 min) **Note:** This slide shows all five steps of the lesson analysis process, but participants will focus only on the Analyze step. a. Add analysis questions to the slide. b. Direct participants to step 2 of their LAPs (Analyze the video). **Note:** You may want to point out that step 2 on the LAP is step 4 of the lesson analysis process shown on the slide.

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			c. **If relevant:** Notice that there are two analysis questions on the slide. You may choose one you want to address. **Note:** Since the goal is content deepening, the focus is on asking more open-ended, content-related questions that guide the lesson analysis. If the goal were to teach lesson analysis or get through the video clip fast, the questions would focus on more specific subject matter. d. You may want to review the process involved in step 2 of the LAP, noting that participants will be making a claim that answers the focus question; supporting the claim with evidence from the transcript (including the time stamp); connecting the claim and evidence with reasoning based on the STeLLA strategies, science content, and research findings on learning; and then suggesting alternative interpretations, questions, or strategies. e. If time allows, have participants watch the video clip a second time. f. **Individuals.** Give participants time to study the video transcript; generate their claim, evidence, and reasoning; and come up with alternatives (CERA) after watching the video. g. **Whole group.** Have participants share their CERAs with the group, noting similarities and differences that ensure a rich and fruitful dialogue regarding student thinking, the use of the STeLLA strategies, and science content. **Note 1:** Most PD leaders structure this first lesson analysis in a round-robin style, having participants share their CERA analyses one by one with no cross talk until everyone has finished. This is a safe way to start the process, but the ultimate goal is for teachers to listen and respond to one another throughout. **Note 2:** Encourage the teacher who was featured in the video clip to listen to and observe this analysis discussion, not to participate**.** Follow this pattern throughout all lesson analyses. **Note 3:** Be sure to listen to participants as they share their understandings of the STeLLA strategies and science content. Ask probe questions that will encourage them to share their ideas more clearly and precisely. If confusion or lack of

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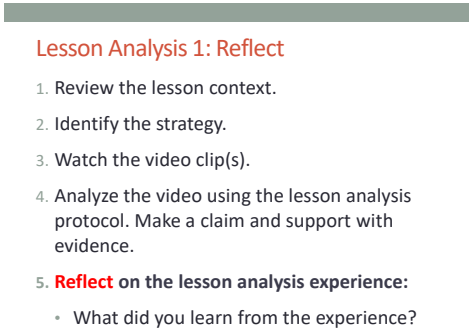
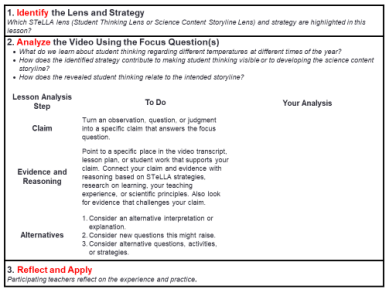
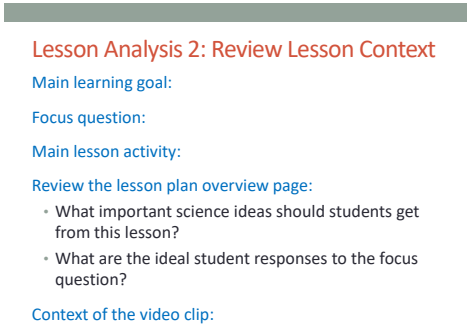
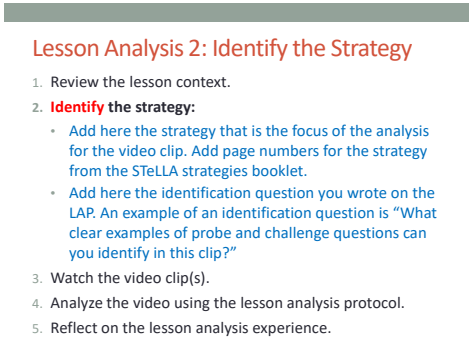
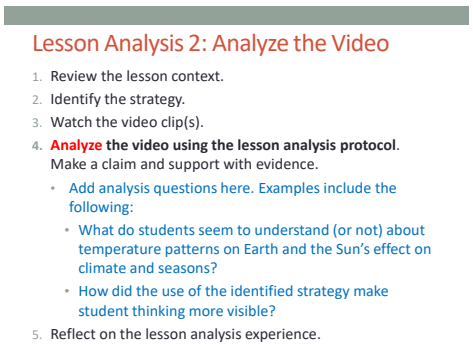
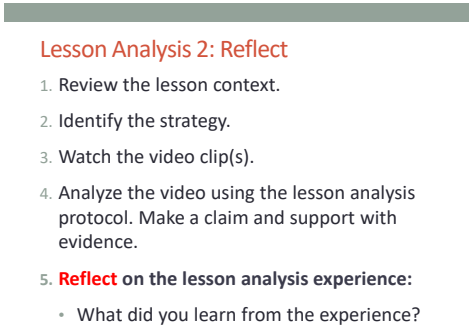
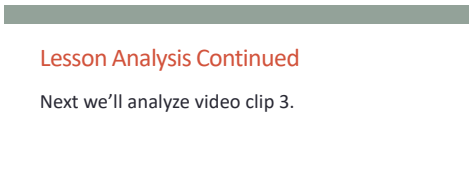
			understanding becomes evident, point them back to the STeLLA resources (e.g., the video transcript, the content background document, the STeLLA strategies booklet, and the lesson plans binder).
			**Display Slide 20.** Lesson Analysis 1: Reflect (5 min) **Note:** This slide shows all five steps of the lesson analysis process, but participants will focus only on the Reflect step. a. **Individuals:** Give participants time to reflect on and write about (if time allows) what they've learned through this analysis process. b. **Whole group:** Ask participants to share what they've learned, starting with the teacher whose video was analyzed. Keep them focused on what they learned about the target strategy, the science content, or the students' challenges in understanding the content. Video-recorded teachers tend to focus initially on what they did wrong, but this type of reflection is less helpful for the group than focusing on what they learned. **Note:** If time is running short, ask only the teacher whose video was analyzed to share her or his reflection.

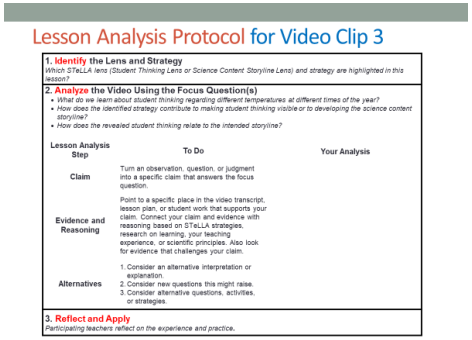
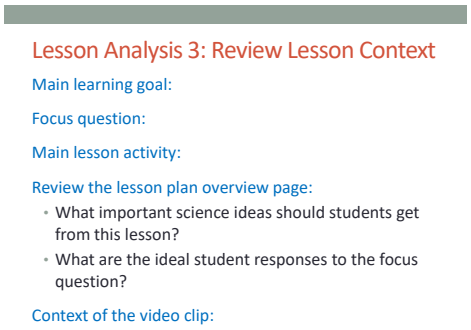
PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
		Food Break Before we move on to lesson analysis 2, we'll take a 20-minute food break.	**Display Slide 21.** Food Break (20 min) a. Dismiss the group for a 20-minute food break.
		Lesson Analysis Continued Next we'll analyze video clip 2 using the same process.	**Display Slide 22.** Lesson Analysis Continued (Less than 1 min) a. **Transition:** Continue the same lesson analysis process for video clip 2.
		Lesson Analysis Protocol for Video Clip 2  1. Identify the Lens and Strategy *Which STeLLA lens (Student Thinking Lens or Science Content Storyline Lens) and strategy are highlighted in this lesson?* 2. Analyze the Video Using the Focus Question(s) • *What do we learn about student thinking regarding different temperatures at different times of the year?* • *How does the identified strategy contribute to making student thinking visible or to developing the science content storyline?* • *How does the revealed student thinking relate to the intended storyline?* Lesson Analysis Step / To Do / Your Analysis Claim — Turn an observation, question, or judgment into a specific claim that answers the focus question. Evidence and Reasoning — Point to a specific place in the video transcript, lesson plan, or student work that supports your claim. Connect your claim and evidence with reasoning based on STeLLA strategies, research on learning, your teaching experience, or scientific principles. Also look for evidence that challenges your claim. Alternatives — 1. Consider an alternative interpretation or explanation. 2. Consider new questions this might raise. 3. Consider alternative questions, activities, or strategies. 3. Reflect and Apply *Participating teachers reflect on the experience and practice.*	**Display Slide 23.** Lesson Analysis Protocol for Video Clip 2 (Less than 1 min) a. Replace the LAP image on the slide with an image of the LAP participants will be using for this video clip. b. Have participants locate the LAP.

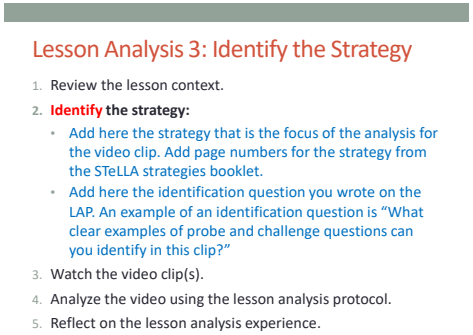
PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			**Display Slide 24.** Lesson Analysis 2: Review Lesson Context (5 min) a. Modify the slide for this video clip. Remember, you may need more than one slide for all this information. b. Review the lesson context for video clip 2, the main learning goal, the focus question, and the main lesson activity. c. **Optional:** Direct participants to the overview page of the lesson plan to identify important science ideas and an ideal student response to the focus question. d. Orient participants to where video clip 2 appears in the lesson. e. Ask the teacher whose clip you will be analyzing to add other contextual factors that may be pertinent to the upcoming analysis.
			**Display Slide 25.** Lesson Analysis 2: Identify the Strategy (20 min) **Note:** This slide focuses only on the Identify step. a. Modify the slide to match your lesson analysis plan for video clip 2. b. Make sure participants have the LAP for video clip 2. c. Highlight step 1 on the LAP (Identify the strategy) and emphasize the strategy participants will be focusing on while analyzing the video clip. **Note:** Remind participants that step 1 on the LAP is step 2 of the lesson analysis process on the slide. d. If the selected strategy for video clip 2 is different from the focal strategy in video clip 1, review the purpose(s) and key features of the newly selected strategy. Have participants skim the relevant content in the STeLLA strategies booklet and/or refer to their Z-fold summary charts to refresh their memories. Then have them share the purpose(s) and key

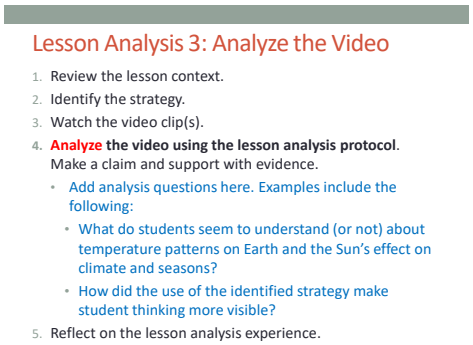
PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			features of the selected strategy. e. Show the video clip. f. **Individuals:** Have participants study the video transcript to identify clear examples of the selected strategy. g. **Whole group:** "What examples of the strategy did you find in the video clip?" Ask challenge questions to make sure participants understand the strategy: • "What makes this an example of strategy X?" • "Can you point to text in the strategies booklet that clarifies why this is an example of strategy X?" **Note 1:** Encourage the teacher who is featured in the video to listen to and observe this discussion, not to participate. **Note 2:** In assessing participants' understandings of the strategy, pay attention to their reasoning: Are they clear about the purpose(s) of the strategy and how it is different from other strategies?
			**Display Slide 26.** Lesson Analysis 2: Analyze the Video (25 min) **Note:** This slide focuses only on the Analyze step. a. Add analysis questions to the slide. b. Direct participants to step 2 of the LAP (Analyze the video). **Note:** Remind participants that step 2 on the LAP is step 4 of the lesson analysis process on the slide. c. **If relevant:** Notice that there are two analysis questions on the slide. You may choose one you want to address. **Note:** Since the goal is content deepening, the focus is on asking more open-ended, content-related questions that guide the lesson analysis. If the goal were to teach lesson analysis or get through the video clip fast, the questions would focus on more specific subject matter. d. You may want to review the process involved in step 2 of the LAP. Encourage participants to ask clarification questions

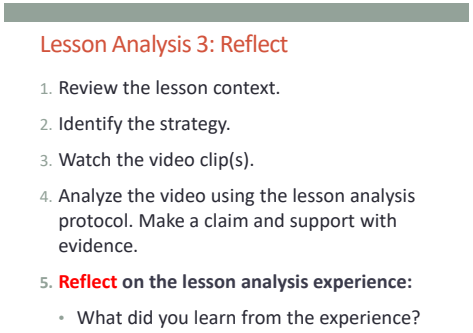
PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			about what is involved in generating a claim, identifying evidence, providing reasoning, and suggesting alternatives (CERA). e. If time allows, have participants watch the video clip a second time. f. **Individuals:** Give participants time to study the video transcript; generate their claim, evidence, and reasoning; and come up with alternatives (CERA) after watching the video. g. **Whole group:** Have participants share their CERAs with the group, noting similarities and differences that ensure a rich and fruitful dialogue regarding student thinking, the use of the STeLLA strategies, and science content. **Don't forget to take time for some science-content-deepening work!** **Note 1:** If you started the CERA sharing in round-robin style for video clip 1, try a more interactive approach this time. The ultimate goal is for participants to listen and respond to each other throughout the discussion. **Note 2:** Again, encourage the teacher who was featured in the video to listen to and observe this analysis discussion, not to participate**.** **Note 3:** Listen to participants as they share their ideas and reveal strengths and weaknesses in their understandings of the STeLLA strategies and the science content. Ask questions to probe and challenge participants to elaborate and articulate their ideas more clearly and precisely. If confusion emerges, point participants back to the STeLLA resources (e.g., the video transcript, the content background document, the STeLLA strategies booklet, and the lesson plan binder).

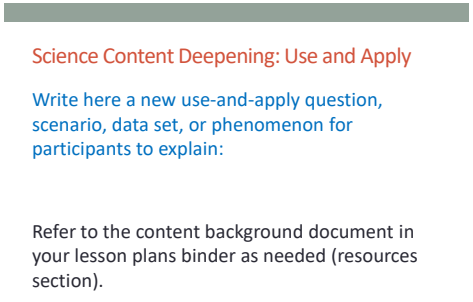
PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			**Display Slide 27.** Lesson Analysis 2: Reflect (5 min) **Note:** This slide focuses only on the Reflect step. a. **Individuals:** Give participants time to reflect on and write about (if time allows) what they've learned through the analysis process. b. **Whole group:** Ask participants to share what they've learned, starting with the teacher whose video was analyzed. Keep them focused on what they learned about the target strategy, the science content, or the students' challenges in understanding the content, not on what they did wrong. **Note:** If time is running short, ask only the teacher whose video was analyzed to share her or his reflection.
			**Display Slide 28.** Lesson Analysis Continued (Less than 1 min) a. **Transition:** Continue the same lesson analysis process for video clip 3. **Timing note:** If you find you're running out of time, you can do the Identify phase of video clip 3 and postpone the Analyze phase until Study Group 2. Alternatively, you could postpone lesson analysis 3 entirely until Study Group 2. We've allowed some catch-up time in Study Group 3 to accommodate this possibility.

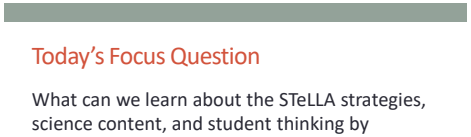
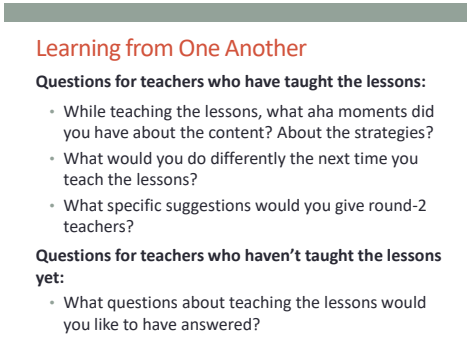
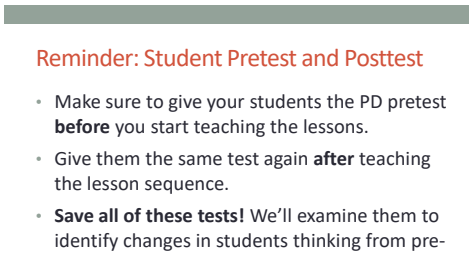
PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			**Display Slide 29.** Lesson Analysis Protocol for Video Clip 3 (Less than 1 min) a. Replace the LAP image on the slide with an image of the LAP participants will be using for this video clip. b. Have participants locate the LAP.
			**Display Slide 30.** Lesson Analysis 3: Review Lesson Context (5 min) a. Modify the slide for this video clip. Remember, you may need more than one slide for all this information. b. Review the lesson context for video clip 3, the main learning goal, the focus question, and the main lesson activity. c. **Optional:** Direct participants to the overview page of the lesson plan to identify important science ideas and an ideal student response to the focus question. d. Orient participants to where video clip 3 appears in the lesson. e. Ask the teacher whose clip you will be analyzing to add other contextual factors that may be pertinent to the upcoming analysis.

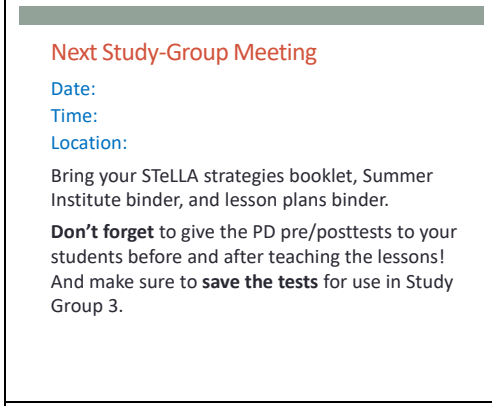
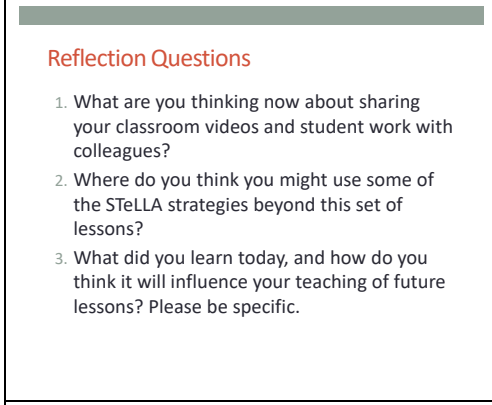
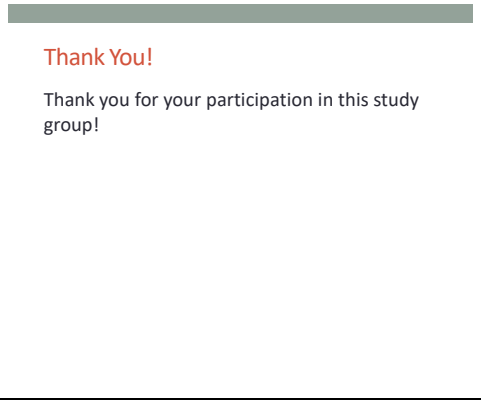
PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			**Display Slide 31.** Lesson Analysis 3: Identify the Strategy (20 min) **Note:** This slide focuses only on the Identify step. a. Modify the slide to match your lesson analysis plan for video clip 3. b. Have participants locate the LAP for video clip 3. c. Highlight step 1 on the LAP (Identify the strategy) and emphasize the strategy participants will be focusing on while analyzing the video clip. **Note:** Remind participants that step 1 on the LAP is step 2 of the lesson analysis process on the slide. d. If the selected strategy for video clip 3 is different from the ones analyzed in previous clips, review the purpose(s) and key features of the strategy. Direct participants to skim the relevant content in the STeLLA strategies booklet and/or refer to their Z-fold summary charts to refresh their memories. Then have participants share the purpose(s) and key features of the new strategy. e. Show the video clip. f. **Individuals:** Have participants study the video transcript to identify clear examples of the selected strategy. g. **Whole group:** "What examples of the strategy did you find in the video clip?" Ask challenge questions to make sure participants understand the strategy: • "What makes this an example of strategy X?" • "Can you point to text in the strategies booklet that clarifies why this is an example of strategy X?" **Note 1:** Encourage the teacher who is featured in the video to listen to and observe this discussion, not to participate. **Note 2:** In assessing participants' understandings of the strategy, pay attention to their reasoning: Are they clear about the purpose(s) of the strategy and how it is different from other

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			strategies?
			**Display Slide 32.** Lesson Analysis 3: Analyze the Video (25 min) **Note:** This slide focuses only on the Analyze step. a. Add analysis questions to the slide. b. Direct participants to step 2 of the LAP (Analyze the video). **Note:** Remind participants that step 2 on the LAP is step 4 of the lesson analysis process on the slide. c. **If relevant:** Notice that there are two analysis questions on the slide. You may choose one you want to address. **Note:** Since the goal is content deepening, the focus is on asking more open-ended, content-related questions that guide the lesson analysis. If the goal were to teach lesson analysis or get through the video clip fast, the questions would focus on more specific subject matter. d. You may want to review the process involved in step 2 of the LAP. Encourage participants to ask clarifying questions about the CERA framework for generating a claim, identifying evidence, providing reasoning, and suggesting alternatives. e. If time allows, have participants watch the video clip a second time. f. **Individuals:** Give participants time to study the video transcript; generate their claim, evidence, and reasoning; and come up with alternatives (CERA) after watching the video. g. **Whole group:** Have participants share their CERAs with the group, noting similarities and differences that ensure a rich and fruitful dialogue regarding student thinking, the use of the STeLLA strategies, and science content. **Note 1:** Have participants share their CERAs interactively rather than in round-robin style. The ultimate goal is for teachers to listen and respond to each other throughout the discussion.

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			Note 2: Encourage the teacher who was featured in the video clip to listen to and observe this analysis discussion, not to participate**.** **Note 3:** Continue listening to participants as they share their understandings of the STeLLA strategies and science content. Ask questions to both probe and challenge participants' ideas. When confusion arises, point them back to the STeLLA resources (e.g., the video transcript, content background document, STeLLA strategies booklet, and the lesson plans binder).
			**Display Slide 33.** Lesson Analysis 3: Reflect (5 min) **Note:** This slide focuses only on the Reflect step. a. **Individuals:** Give participants time to reflect on and write about (if time allows) what they've learned through the analysis process. b. **Whole group:** Ask participants to share what they've learned, starting with the teacher whose video was analyzed. Keep them focused on what they learned about the target strategy, the science content, or the students' challenges in understanding this content, not on what they did wrong. **Note:** If time is running short, ask only the teacher whose video was analyzed to share her or his reflection.

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
10 min **Science Content Deepening: Use and Apply** Slide 34	**Purpose** • To deepen participants' science-content understandings **Content** • List the specific science ideas needed to answer the use-and-apply question or explain the scenario, data, or phenomenon described on the slide. **What Participants Do** • Work individually and then as a group on a use-and-apply question, scenario, data set, or phenomenon: Write the question or scenario here and on the PPT slide.		**Display Slide 34.** Science Content Deepening: Use and Apply (10 min) **Note:** Make sure science-lesson materials are available from the lesson kit. a. Insert on the slide a new use-and-apply question, scenario, data set, or phenomenon for participants to explain. Ensure you have any materials you need if you want participants to observe a phenomenon. b. Present the question, scenario, data set, or phenomenon described on the slide. c. **Individuals:** Have participants work quietly on using science ideas to answer the question or explain the scenario, data, or phenomenon. **Note:** For support, they can use available resources, such as the content background document in the resources section of the lesson plans binder. d. **Whole group:** Challenge participants to reach an agreement on how to answer the question or explain the scenario, data, or phenomenon without any intervention from you until they've either solved the problem accurately or hit a dead end and can't agree. e. **Synthesize/summarize:** If participants come up with a strong response for the use-and-apply question or scenario, have one of them provide a summary. If they haven't formulated a strong response, give them a complete explanation as a model. **Note:** Remind participants not only of the science content but the lesson activities that provide supporting evidence for the ideas. Address any confusion that emerges about the lesson content.

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
15 min **Closing and Reflections** Slides 35–40	**Purpose** • To close the session with a discussion of today's focus question, practical details, and reflections on today's learning **Content** • Lesson video analysis supports participants' learning about the STeLLA framework and strategies, the science content, and student thinking and learning. **What Participants Do** • Think about and discuss the focus question, lessons learned from teaching practice, and reflections on their lesson analysis experience.		**Display Slide 35.** Today's Focus Question (3 min) a. **Individuals (1 min):** Ask participants to silently think about the focus question. b. **Whole group:** Invite participants to share their thoughts with the group.
			**Display Slide 36.** Learning from One Another (5 min) a. **Pairs:** Have participants pair up and discuss what they've learned from teaching the lessons. (Ideally, pair a round-1 teacher who has already taught the lessons with a round-2 teacher who hasn't taught the lessons yet.) b. **Whole group:** Have participants share with the group any key ideas that emerged during their pairs work.
			**Display Slide 37.** Reminder: Student Pretest and Posttest (Less than 1 min) a. Remind participants that they need to give their students the PD pre- and posttests **before and after** teaching the lesson sequence. **Note: It's very important that participants keep these tests**, because they'll be analyzing changes in student understanding from pre- to posttest during Study Group 3.

PD Model: Time/Phase	Purpose, Content, and What Participants Do	Slides	Process
			**Display Slide 38.** Next Study-Group Meeting (1 min) a. Modify the details on the slide. b. Inform participants of the date, time, and location of the next meeting. **Note:** Remind participants to give their students the pretests/posttests before and after teaching the lessons, and to save them for use in Study Group 3.
			**Display Slide 39.** Reflection Questions (5 min) a. **Individuals:** Direct participants to the reflection sheet and ask them to think about the questions. b. **Pairs:** Then have participants share their responses to questions 1 and 2 with an elbow partner. c. **Individuals:** Ask participants to write a response to question 3 on their handouts.
			**Display Slide 40.** Thank You! (Less than 1 min) a. Before dismissing participants, thank them for their participation in the study group.