## SSUP: Cohort 2 Study Groups - PD Leader Guide

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| Grade Level | 5 | SG | #8 | STeLLA Strategies Focus | STL 1,2,3,4, 5, 6, SCSL F | Subject Matter Focus | Matter |
| Teacher Learning Goals | * The goals of the STeLLA PL program are to deepen knowledge of teaching and learning, increase ability to analyze and reflect on teaching and learning, increase ability to use content knowledge and knowledge of teaching and learning to transform classroom practice, deepen teacher content knowledge, and increase student learning in science. * The understanding and application of research on teacher and student learning has shown that the STeLLA Student Thinking and Science Content Storyline Lenses are important to improve science teaching and students’ learning. * We can detect energy when an object is moving. We can detect changes in energy when the motion of an object changes. * Based on Communicating in Scientific Ways, teachers can distinguish observation and inference; data and evidence; claim, evidence, and reasoning; reasoning with data/evidence, ideas, and models; and eventually, explanation and argumentation. | | | | | | |
| Focus Questions | * Where and how do Strategies XXX influence teacher practice and student learning? * To what extent have students taken on the STeLLA-related habits of mind? * What are you taking with you from this professional learning experience? | | | | | | |
| Ideal Teacher Response | Where and how do Strategies XXX influence teacher practice and student learning?  Insert ideal teacher responses  To what extent have students taken on the STeLLA-related habits of mind?  Insert ideal teacher responses  What are you taking with you from this professional learning experience? | | | | | | |

**Advance Preparation**

| Preparation | Materials | Videos and Transcripts |
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| **Planning/Preparation Tasks:**   * Study PDLG, PPTs, video clips, and handouts. Make changes to PPTs, if needed. * Link clips   **Daily Set Up Tasks:**   * Check that video clips are correctly linked to PPT * Set up PowerPoint and speakers * Check video & sound   **Set Up Task:**   * Email participants 1 week prior to the session asking them to do the following in preparation for the session   + Access the study group folder   + Print each Video Transcript and Lesson Analysis Protocol   + View each classroom video clip in the folder   + Complete the Identify phase ONLY of the Lesson Analysis Protocol (LAP) for each video by annotating the transcript(s) for use of E, P, C and Communicating in Scientific Ways.   **Daily Follow-up Tasks:**   * Archive final PPT | **Handouts in the Study Group Session Google Folder:**   * Study Group Session Guide * Transcript(s) * XX * Lesson Analysis Protocol(s) * XX   **Resources:**   * STeLLA Strategies booklet * BSCS Journal (norms pasted into the journal) * Content Deepening Notebook * PD Binder * Lesson Binder | * Teacher Clip 1: XX * Teacher Clip 2: XX |

**SG#8 SESSION OUTLINE: 2 hours**

| **Time** | **Purpose** | **Content** | **Activities** |
| --- | --- | --- | --- |
| 5:00 – 5:10  10 min  Slides 1-7  **Study Group Teams** | **Purpose:** Continue to build community and set the stage for learning throughout the session and into the academic year. | **Content:** Share focus questions for the day:   * Where and how do Strategies XXX influence teacher practice and student learning? * To what extent have students taken on the STeLLA-related habits of mind? | **Opening (10 min)**   * Welcome & introductions * Goals, Agenda, and Norms * Focus Questions |
| 5:10 - 6:20  70 min  (65 min + 5 min break)  Slides 8-12  **Study Group Teams** | **Purpose:** The purpose of this session is to develop a shared understanding of STeLLA STL Strategy XX (Strategies will vary depending upon video clip selection and strategies focused on in past sessions.) | **Content:** Developing and using models and content representations help students make their thinking visible and represent how their thinking changes over time as they explain phenomena or solve problems. Lesson analysis can make students’ progress visible. Teachers support students in making their thinking visible and reconsidering their ideas through the intentional use of elicit, probe, and challenge questions linked with developing and using content representations and models. Engaging students in communicating in scientific ways as they develop and use models supports a classroom culture of making thinking visible. This type of engagement supports students as they make their thinking visible and develop the intended science content storyline built on increasingly accurate science ideas and practices. | **Lesson Analysis: Lesson X (90 min)**   * Video Analysis Set Up and Clip Context (5 min) * Video Analysis C1 (30 min)   + Identify (10 min)   + Analyze (15 min)   + Reflect/Apply (5 min) * Video Analysis C2 (30 min)   + Identify (10 min)   + Analyze (15 min)   + Reflect/Apply (5 min) |
| 6:20 – 6:50  30 min  Slide 13-15  **Study Group Teams** | **Purpose:** The purpose of this session is to consider changes and patterns in student understanding and how the STeLLA Strategies support this growth. | **Content:** Looking at student artifacts in context of the intended science ideas, practices, and crosscutting concepts reveals patterns in student thinking and gaps in student understanding of science ideas. Examining students’ pre- and post-tests allows us to see changes in student thinking over time. | **Analysis of Student Work**   * Task Set-up (5 min) * Individual review of artifacts (5 min) * Small Group identification of patterns (10 min) * Whole Group share out (5 min) * Reflect (5 min) |
| 6:50 – 7:00  10 min  Slide 16-19  **Study Group Teams** | **Purpose:** Reflect on the year’s experiences and learning and celebrate the completion of the PD. | **Content:** Focus Questions:   * Where and how do Strategies XXX influence teacher practice and student learning? * To what extent have students taken on the STeLLA-related habits of mind? * What are you taking with you from this professional learning experience? | **Reflection and Closing (10 min)**   * Revisit the Focus Questions * Reflection and Celebration |

**SG#8 8 SESSION OUTLINE: 2 hours**

| **Time and Focus** | **Purpose and Content &**  **What Participants Do** | **Slides** | **Process** |
| --- | --- | --- | --- |
| 5:00 – 5:10  10 min  Slides 1-7    **Study Group Teams** | **Opening**  **Purpose:** Continue to build community and set the stage for learning throughout the session and into the academic year  **Content:**  Focus Questions:   * Where and how do Strategies XXX influence teacher practice and student learning? * To what extent have students taken on the STeLLA-related habits of mind? * What are you taking with you from this professional learning experience?   **What participants do:** Participants orient to the day’s activities and focus questions. They review the goals of the program.  **Resources**   * Journal * PD Binder * STeLLA Strategies Booklet * STL z-fold |  | 1. **Welcome (10 min slides 1-7)**    1. Welcome participants to the session. |
|  | 1. **Opening (0 min)**    1. Invite participants to consider the prompt and invite them to share their ideas in the chat.    2. Note patterns in participant responses. |
|  | 1. **Agenda**    1. Share the agenda, noting that much of this study session will be devoted to lesson analysis. Link the agenda to the program goals. |
|  | 1. **Program Goals (0 min)** 2. Remind participants of the STeLLA program goals. |
|  | 1. **STeLLA Norms (0 min)** 2. Remind participants that to do this kind of work together, we need to develop a strong study group where everyone feels safe to share their ideas, questions, confusions, successes, and stumbles. Having a set of agreed upon norms will help us build this kind of community. |
|  | 1. **Study Group 8 Focus Questions (0 min)** 2. Introduce the focus questions that will guide today’s work. Link back to the program goals and agenda for today. 3. Remind participants that we will return to the focus questions at the end of the session.   \*\*Adjust for content area and STL focus |
|  | 1. **STeLLA Conceptual Framework (0 min)** 2. Invite participants to review the STeLLA Conceptual Framework. 3. Note that today our analysis of practice will focus on STL Strategies XX |
| 5:10 – 6:20  70 min  (65 min + 5 min break)  Slides 8-12  **Study Group Teams** | **Lesson Analysis\*Adjust for content focus and STL strategies**  **Purpose:** The purpose of this session is to develop a shared understanding of STeLLA STL Strategy 6: Engage students in developing and using content representations and models, and SCSL Strategy D: Select content representations and models matched to the learning goal.  **Content:** Developing and using models and content representations help students make their thinking visible and represent how their thinking changes over time as they explain phenomena or solve problems. Lesson analysis can make students’ progress visible. Teachers support students in making their thinking visible and reconsidering their ideas through the intentional use of elicit, probe, and challenge questions linked with developing and using content representations and models. Engaging students in communicating in scientific ways as they develop and use models supports a classroom culture of making thinking visible. This type of engagement supports students as they make their thinking visible and develop the intended science content storyline built on increasingly accurate science ideas and practices  **What participants do:**  Participants apply what they’ve learned about the STeLLA strategies to the analysis of classroom video.  **Resources**   * STeLLA Strategies Booklet * PD Binder * STL Z-fold * Transcript(s) * LAP(s) |  | 1. **Video Analysis: Purpose (slides 8-10: 5 min)**    1. Remind participants of the purposes of video analysis |
|  | 1. **Lesson Analysis: The Basics (0 min)** 2. Remind participants that the viewing and analysis basics help to create a community where we all feel safe to share ideas, questions, confusions, successes, and stumbles. |
|  | 1. **Preparing for Video Analysis: The Process (0 min)** 2. Remind participants of the video analysis process. |
|  | 1. **Lesson Analysis Protocol (30 min)** 2. Remind participants that they have just completed the Identify section of the LAP. 3. Provide time for participants to complete the Analyze sections of the LAP (claim, evidence, reasoning, and alternatives). 4. Invite participants to share their claims, evidence, and reasoning with the whole group. Invite participants to add on to, or disagree with, the claims that others have shared. Invite participants to reflect on the analysis and journal what they want to take away from this analysis to apply in their own practice. 5. Invite participants to share their reflections with the whole group. 6. Invite the teacher whose video was analyzed to rejoin the group and share their response to the reflection question. |
|  | 1. **Lesson Analysis Protocol (30 min)**    1. Remind participants that they have just completed the Identify section of the LAP.    2. Provide time for participants to complete the Analyze sections of the LAP (claim, evidence, reasoning, and alternatives).    3. Invite participants to share their claims, evidence, and reasoning with the whole group. Invite participants to add on to, or disagree with, the claims that others have shared. Invite participants to reflect on the analysis and journal what they want to take away from this analysis to apply in their own practice.    4. Invite participants to share their reflections with the whole group.    5. Invite the teacher whose video was analyzed to rejoin the group and share their response to the reflection question. |
| 6:20 – 6:50  10 mins  Slides 13-15 | **Purpose:** Looking at student artifacts in context of the intended science ideas, practices, and crosscutting concepts reveals patterns in student thinking and gaps in student understanding of science ideas.  Examining students’ pre- and post-tests allows us to see changes in student thinking over time. |  | 1. **Analysis of Student Work (10 min)**   **PDL Note**: Prior to the session, prepare a Jamboard with three student work samples (one per frame) that will prompt discussion around interesting student thinking.  **PDL Note:** Pre-assign participants who did not collect student work to examine the work of a participant who will be in their small group.  Set-up in whole group (5 min)   * 1. Share the purpose for analyzing student artifacts and FACs: to make an evidence-based claim about student growth and understanding of science ideas, SEPs, and CCCs at the end of a unit of instruction.   2. Share the process for examining student artifacts:      1. Individually examine student pre- and post-tests and pre- and post-test FACs (5 min). Note that the artifacts have been placed on a Jamboard in each teachers’ artifact folder. Add link to SG artifact folder in chat.      2. In your small group, share evidence of patterns of growth in understanding and struggles/common student ideas (10 min).      3. Small groups will share key ideas with the whole group.   Individual examination of artifacts (5 min)   1. Add prompts to chat and invite participants to individually review their artifacts. Provide a time warning when 1 minute remains. |
|  | 1. **Analysis of Student Work (10 min)**   Small Group Discussion (10 min)   1. Remind participants that will share patterns of student thinking in their observations in their small group. Emphasize that they should ground their conversation with evidence from the artifacts. 2. Move participants to breakout rooms of 2-3 participants per room. Broadcast when 5 and 2 minutes remain.   Whole Group Discussion (5 min)   1. In whole group, invite small groups to share highlights of their conversation with the whole group. Ask probe and challenge questions to support participants in using evidence to support their claims about student thinking.  * Reflect (5 min)   How does examining student artifacts and FACs reveal student thinking? |
|  | 1. **Analysis of Student Work (10 min)**    1. Share the reflection prompts with participants. Provide individual think time and ask several participants to share their ideas with the whole group. |
| 6:50 – 7:00  10 mins  Slides 16-19  **Study Group Teams** | **Closing: Focus Questions and Closing**  **Purpose:** Reflect on the session’s experiences and learning.  **Content:**  Focus Questions:   * Where and how do Strategies XXX influence teacher practice and student learning? * To what extent have students taken on the STeLLA-related habits of mind? * What are you taking with you from this professional learning experience?   **What participants do**:  Participants reflect on their learning experiences through the session.  **Resources**   * BSCS journal |  | 1. **Focus Questions (slides 16-19: 10 min)** 2. Remind participants of the session’s focus questions. Invite them to consider how their thinking has changed as a result of the video analysis and investigation of the STL strategies. 3. If time permits, invite several participants to share their ideas |
|  | 1. **Reflection and Celebration**     1. Invite participants to individually consider the prompts on the slide & to journal about one that speaks to you.    2. Have each participant share out their reflections. Let the group know each person has the floor for 1-2 minutes. |
|  | 1. **Celebration & Gratitude**   XXX |
|  | 1. **BSCS Info (0 min)** |