ACTIVE SCIENCE SESSION - Grade 4

Phase of the Learning Cycle	Summary	Questions that Guide Instruction	In the Notebook
Engage SL.4.1, SL.4.1.A SL.4.1.B, SL.4.1.C SL.4.1.D	● Focus question is introduced ● Important terms are discussed and annotated ● Prior knowledge or experience is elicited ● A plan is developed collaboratively ● Data collection tool is designed collaboratively and constructed by students	● **What terms in this question are important for us to consider?** ● **If this is what we want to know, how can we use these materials to investigate?** ● **What data do we need to collect?** ● **How can we best organize the data?** ● **What do you predict will happen when…?**	● Focus Question ● Data collection tool
Investigate SL.4.3, W.4.8 L.4.5.C	● Students engage with phenomena and work collaboratively to collect and record data, discuss findings and solve problems ● Teacher asks higher level questions to deepen students' thinking and reasoning	● **What do you notice about…?** ● **Why do you think …..?** ● **What would happen if…?** ● **How does this compare to….?**	● Data/observations collected and recorded
Make Meaning SL.4.6, RI.4.3 L.4.6	● Data is reported ● Graphs/charts/diagrams are made ● Data is analyzed ● Meaning is made from the experience ● Concepts are constructed and discussed ● New terms are introduced to word bank	● **What data do you have to share?** ● **Did you notice any patterns or relationships?** ● **How can we display this data in order to look for patterns?** ● **Why do you think this happened?** ● **Why do we think this makes sense?**	● Averages calculated ● Graphs and/or class charts and diagrams are made
Apply and Extend SL.4.1.B, SL.4.1.C, SL.4.1.D, SL.4.3, SL.4.6	● Connections to a larger context are made ● Real world applications of concepts are identified and discussed ● *Embedded informational text(s) are used to extend and apply content (shared research)*	● **How might this information be used?** ● **Why might this information be important?** ● **What new questions can we ask?** ● ***Does the reading support or refute our thinking/evidence?***	● *Information and thinking from informational text(s)or discussions is added to writing as appropriate*

CONSIDER PLACEMENT OF **FORMATIVE ASSESSMENT** FOR EACH LESSON

COMMUNICATION SESSION - Grade 4

Phase of the Learning Cycle	Summary	Questions that Guide Instruction	Use of the Notebook
Shared Review SL.4.4, RI.4.1, RI.4.3, L.4.6, L.4.1.J	Concepts, patterns, graphs and new terms from the investigation are reviewed and discussed	**What did we do yesterday?** **What did we find out?** **Can you explain the pattern we observed in our data?** **What evidence supported our thinking?** **Why do you think this happened?** **Why might these ideas be important or useful?**	Students bring notebook to discussion and actively use data and graphs to share their understanding.
Shared Writing SL.4.6, L.4.6	- Teacher models the thinking and organization of the writing by choosing relevant language frames - Students contribute ideas and data to formulate the writing piece - Writing piece is read aloud for clarity and revision	**What information or ideas do you think we need to share with other scientists?** **What words or phrases will help us describe the pattern/share data/add another idea/explain why we think this happens etc.?** **How do you think this sounds?** **Do you think any of these words or ideas need to be changed or moved?**	Students use their data and graphs and class charts and diagrams to contribute the content of the writing piece
Scaffolding L.4.1.J	- Teacher removes shared writing and provides frames and/or guides that help students organize and articulate their own ideas - Relevant word bank words are brought to the foreground - Students annotate their own data to use as evidence - Student ideas are shared orally using frames	**What sentence frames or terms will help you communicate your ideas?** **What data will you use in your writing?** **Turn and talk to your partner to share your idea about….**	- Students highlight and/or annotate their data to identify the specific evidence they will use to support their thinking during their writing - Students orally rehearse using the frames and terms to articulate their own ideas
Independent Writing W.4.4, W.4.10	Students write about what they have learned at the level of independence that they have achieved	**Is there a word or phrase on the board that would help you share that idea?** **Tell me what you want to say next.** **Be sure to include the idea/connection that you shared in our discussion.** **What data will you use to support that idea?**	Students have their annotated data open and are using the scaffolding to communicate their ideas independently

Adapted from Fulwiler, B.R. (2007). *Writing in Science.* Portsmouth, New Hampshire: Heinemann.