**Thinking Strategies Planning Guide for Science**

Adapted from PEBC Materials

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| **Thinking Strategy** | **Teacher Talk** | **Scientist Behaviors**  Comprehension: Reading, Listening, Observing | **Scientist Behaviors**  Writing and Discussion |
| **Monitoring for Meaning** | *Does this make sense?*  *What’s confusing you? Where did you get confused?*  *What can you do to help yourself understand?* | notice when their mind wanders away from the content  know when and where their understanding breaks down  use strategies to help them understand content | reflect on their hypotheses and consider possible errors in their experiments  repeat their investigations to ensure that their results are replicable |
| **Background Knowledge** | *What does this remind you of?*  *What can you connect this to?* | use what they already know to better understand the content  build background knowledge through experiences and research | use background knowledge to form hypotheses  build background knowledge by reading and observing the work of other scientists |
| **Asking Questions** | *What are you wondering?*  *What questions do you have?*  *What are you curious about?* | ask questions as they read, listen and observe to clarify meaning  make predictions and to locate a specific answer | focus each investigation by asking testable questions and designing experiments to find the answers  often ask new questions or modify their hypotheses after gathering new data |
| **Drawing Inferences** | *What are you thinking?*  *What conclusions can you*  *draw?*  *How can you connect what*  *you already know to this new idea to predict or infer?* | combine new content knowledge with their background knowledge to answer questions | develop hypotheses based on inferences  examine data and explain their observations |
| **Determining Importance** | *Is that important to*  *understand?*  *What is the main idea or message?”* | prioritize what to remember from the content presented  ignore unnecessary information | design an investigation, determining sequence of steps in a procedure  identify variables to be tested  use and analyze data to determine its significance  demonstrate the significance of their research |
| **Creating Sensory Images** | *How does that image help you understand what you just read?* | adapt their images based on the information they gain from reading, listening and observing | gather data using their five senses  record observations with illustrations  use mental pictures/models to build an understanding of a concept  visually represent their thinking with drawings, pictures, graphs, models, and charts |
| **Synthesizing Information** | *Now what are you thinking?*  *What has changed about your ideas?* | develop an overall understanding of a concept as they read, listen and observe | analyze and interpret data using tables, charts, graphs, and diagrams  draw conclusions based on what they learned during an investigation and what they already knew before the investigation |