Student Support Strategies

Differentiated student support strategies offer teachers a way to meet all students' needs. The classroom brings together students from different backgrounds with varying degrees of science knowledge. Being an effective teacher, therefore, requires the implementation of creative and innovative teaching strategies in order to meet students' individual needs.

Throughout these lessons, a flag (▶) denotes formative assessment opportunities where you may change instruction in response to students' level of understanding and making sense of phenomena. Below are some strategies you might implement based on those assessments. There is no one strategy that works best for every teacher, so try different strategies to determine which are best for you and your students.

Suggested strategies for students who *have not* met the targeted expectations:

- **Centers:** Set up a center at which students can continue to explore making vibrations and hearing/feeling sound. Pair students so that a student who understands the concept well works with another student who needs help. This also helps those students who have a deeper understanding of the concepts as they refine their thinking through teaching.

- **Small Group Reteach:** Set up a modified investigation in which students can work with the concept of vibrations producing sound. Select a few students who need extra support and question them as they explore the instruments.

- **One-on-One Conferences:** Use silent reading time or other times when students work independently to conference with small groups or individual students.

- **Sticky-note Feedback:** Write comments and questions on sticky-notes about the student's written work in their notebooks. This will help students reflect on their thinking and improve their performance.

- **Group Consensus:** After completing their work, have students work with a partner or a small group to compare answers or notebook entries. They should have a discussion resulting in a response everyone agrees with. Then have them share that response with the class or use the Use of Color or Line of Learning strategy to change the response in their notebook.

- **Key Points:** Have students describe the important points that should have been included in their model. List each of those key points on the board. After the discussion, number all of the important ideas. Have students return to their original work and number each of the key points that they included in their own model.

- **Use of Color:** Have students use color to correct their original work. For instance, they can use green to indicate key points that they already had in their work, use red to delete information, and use blue to add points from the discussion that they feel support their work.

- **Line of Learning:** Similar to Use of Color, after writing in their notebooks, ask students to put a line under their initial ideas. After the class discussion or a group consensus, students can add new ideas presented below the line. This allows students to add to their own initial written ideas with additional thoughts from other students or the teacher, while identifying the origin of the idea.

- **Sentence Starters:** If students are struggling, provide them with sentence starters. It narrows the focus for their ideas.

- **Find a Good Idea:** If students are stuck and productive struggle has failed, have them go and find a good idea. Let them walk around the class to find a good idea in written work or in completing an experiment. Direct them to bring the good idea back and write it in their notebook, citing where they found the good idea, or who it came from. Then direct them to implement the idea.

- **Scaffolds for Cause and Effect:**

  When I <cause>, I notice <effect>.

  If I want <effect>, I need to <cause>.

  I wonder what the effect would be if ___.

  I think ___ is causing ___.

Suggested strategies for students who *have* met the targeted expectations:

- **Self-Direction Opportunities:** Present the activities in a more open-ended fashion so students can deepen their understanding of the relationship between vibrations and sound. This can include exploring changes in volume (soft-loud) or pitch (high-low). They can solve problems in novel ways, formulate their own questions, and plan investigations within the constraints of the classroom and available materials.

- **Grouping:** Advanced students are better served when paired up or in small groups; occasionally group them in same-level groups.

- **Class Discussion:** Have a student who has met your target expectations lead a debate in class about an experiment or question. The student can present his/her idea, and other students can agree or disagree but must give evidence to back up their thinking. To keep the discussion focused, you can ask questions to keep students' thinking on track.

- **Crosscutting Concepts:** While all students can and should interact with the crosscutting concepts, in this case cause and effect, have advanced students use other crosscutting concepts to think about and make sense of the phenomenon of sound. This could include identifying what patterns they see or how the structure of an instrument produces different sounds (structure and function).

- **Four Corners:** Have students individually determine their ideas about a statement, an answer to a problem, or their thinking about an issue. Label each of the four corners of the classroom with a different response. It could be four different responses to a question or how confident they are in their answer (strongly agree, agree, disagree, strongly disagree). Students move to the corner that best aligns with their thinking. When all students have chosen a corner, have their group discuss why they have chosen that corner. If you have a large group in a corner, divide them into sub-groups so everyone can discuss. Tell them anyone in the group may be called on to defend their group's position.