**Using middleschoolchemistry.com lessons in a “Storyline” approach to teaching and learning science.**

The lessons in middle school chemistry can be approached in many different ways. Teachers can use lessons within a chapter as written, use them in a different order, or incorporate different parts to make their own unique lessons.

One way to present the lessons in Middle School Chemistry is through a “Storyline” approach. In a Storyline, all the lessons build toward explaining a phenomenon that students are curious about. Below is a short summary of the Storyline approach to science teaching:

**Main Features of the Storyline Approach to Science Teaching**

1. Students are presented with an engaging phenomenon they will explore over an extended period of time to understand, describe, and model.
2. As students observe and interact with the phenomenon, teachers guide a process of eliciting student-generated questions to better understand the phenomenon.
3. Using these questions as motivation for investigation, students and the teacher collaborate to develop and conduct experiments to attempt to answer the students’ questions.
4. Through repeated questioning and experimentation, students incrementally develop science concepts that build toward an understanding of the phenomenon.

**Making Sense from the Student Perspective**

An overarching idea of the Storyline approach is to engage students as much as possible in decisions about what needs to be investigated to better understand the phenomenon. Students should *want* to do an experiment because it will help them answer *their* questions and get them closer to understanding and describing the phenomenon.

An important role of the teacher is to collaborate with and guide students in developing these driving questions. Teachers also work with students on the type and progression of experiments to answer the questions.

**Honoring Student Questions While Guiding the Unit**

As a teacher, it can be difficult to balance honoring student questions and guiding the investigations in a useful direction. At the end of each lesson, it is helpful to have a class discussion about what students figured out and what still needs to be discovered. The new knowledge students have will increase the likelihood that their new questions will move the class toward understanding more about the phenomena. Collecting and discussing these new questions and working with students to evaluate and modify them, can usually lead to a question that can move the class another step toward answering the big question that drives the unit.

**The Lava Lamp and Ocean Acidification Storyline Units**

The *Lava Lamp* Storyline integrates lessons from Chapters 1-3 from Middle School Chemistry. The *Ocean Acidification* storyline uses lessons from Chapters 4-6. The phenomena in these units are very different in that the Lava Lamp focuses on a relatively small human-made device that can sit on a desk or table. The Ocean Acidification unit deals with the vast interacting systems of Earth’s oceans, atmosphere, and human activity over centuries.

A common aspect of the Storyline approach in both units is creating an environment where students *want* to make discoveries. Presenting the phenomena of the Lava Lamp as a curious mystery should be motivating for students. Showing that exhaled breath can change the color of a solution in the beginning of the Ocean Acidification unit should grab students’ attention.

A necessary feature of the units is encouraging student participation in class discussion and in student-to-student interaction. Use your own tried and true strategies for this, but two helpful resources for facilitating student interaction in class are Talk Moves and Deep Discussion Prompts which are referenced in the units.

The goal is for students to see value in participating in and understanding the investigations because they *want* to know the answer. Students will be more active listeners and more likely to ask useful questions if they are sincerely curious about the phenomena they are investigating. By eliciting student questions and deciding as a class how to answer them, students will be more invested in uncovering the secrets of the Lava Lamp and Ocean Acidification phenomena.