

Elementary, My Dear Students

Many educators agree that teaching an introductory course can be more challenging than teaching an upper-level course. The effectiveness of the professor's teaching is put to the test since students have no previous material to fall back on. Many instructors require students in introductory courses to memorize terms as a way of teaching basic concepts. However, this practice can lead to students memorizing just to do well on an upcoming exam, then forgetting all that information when it is no longer on the test. This kind of memorization does not help students truly learn the necessary course concepts and grow their understanding of the subject.

Since 2019 is The International Year of the Periodic Table, I wanted to create an activity to introduce the periodic table to my students. I did not want my students to learn just to perform well on tests; I wanted them to learn about the elements and appreciate their significance in our lives. I wanted to spark their curiosity and watch the flame of knowledge grow bigger and bigger.

The Element Activity

This activity asks students to consider the following question: "If you were to become one of the elements on the periodic table, which element would you choose and why?" It involves written and oral components, which engages multiple learning styles. This inquiry sends students on an exploratory mission; they must familiarize themselves with the elements enough to find one that they feel resonates with their personality. It also opens up the opportunity for students to learn from one another about their chosen elements. It is easier for students to remember an element by relating an interesting fact or a story to it than it is when professors force students to memorize terms. When I use this activity at the beginning of the semester, it also acts as an icebreaker and helps build a feeling of community within the classroom. While I use this activity in a science classroom, it can be used for any subject matter, from literary terms, to historical events and persons, to medical terms and procedures.

Written Component

First, students are asked to write a paragraph about his/her element by answering the following questions:

- What is the name and symbol of your element? Comment on the origin of its name, if applicable.
- Which group does your element belong to?
- What are some important uses of your element?
- Do we naturally encounter this element in our daily lives? Where?
- How is this element made?
- Is your element important for the human body? What are its benefits?

This written portion gives students the opportunity to learn best practices regarding citations. Sources and references should be cited appropriately and students are encouraged to use credible sources such as the American Chemical Society.

Oral Component

Next, I ask students to prepare hints about their chosen element to pose to the classroom. Students may bring in a picture or poster of their element as a hint. A sample of the element may also be brought to class as long as it does not pose any hazard.

The class "guessing game" is very popular. The students are excited and learning happens without much effort. Hints are thrown to the class one by one until the correct identity of the element is revealed. This can be performed with the entire class or in small groups. You can even rotate groups to allow new students to mingle and learn each other's elements.

Conclusion

This activity works best with small classes. For larger classes, I assign students preselected elements to avoid multiple people choosing the same element. I carry a beaker with me to class that contains small folded pieces of paper with the names of elements and I ask students to draw one, but to not share the name of their element with anybody else. I then add a third part to the activity that allows students to state which element they would like to be and why. They share this information with the class after presenting on their assigned elements. I want to maintain this more personal aspect of the activity, as it is a great icebreaker for students.

I sometimes assign a post activity or extra credit by asking the students to create a crossword puzzle using the hints that were used during the student

presentations. These hints can be excellent tools later when students are studying for the exam.

I strongly recommend this activity model in any introductory course. I am confident that instructors and students will greatly enjoy and appreciate it, and that students will find this method of memorization very helpful in truly retaining and understanding course concepts.

Nevart N. Tahmazian, Professor, Chemistry

For further information, contact the author at Montgomery College, nevart.tahmazian@montgomerycollege.edu