

Atomic Structure Before Reading Activity

Activity: People Search

I have chosen a People Search as a Before Reading Activity for the chapter on Atomic Structure for several reasons. The first is that this encourages students to activate and make connections to any prior knowledge they may have on the topic. Students will not only be asked to tap into their own prior knowledge but also will be introduced to a variety other students'. This activity also introduces the students to the key vocabulary, people, and topics within the chapter. This will help students locate where this chapter is headed and will help them to better focus and have a stronger sense of purpose as they read the chapter, which are important precursors to truly engage with a text. What I really love about this activity though is that not only does it have educational merit it also provides social and physical engagement. This asks students to get up, move around, and socialize with other students. And since the students are only allowed to use one other student per question, they must talk to a variety of people, hopefully including other students they may not often talk to. Given that this chapter on atomic structure is one of the first in the textbook, it will likely be taught very early on in a chemistry class. Thus, using the people search for this chapter will provide a way early on for students to better get to know each other and help to form a cohesive and close class group, which is so important to creating a safe space in which students can learn and grow.

In practice, after working on the People Search for 10-15 minutes, I will ask students to share what they have found and what they were unable to find. This worksheet will not be collected or graded as we have not yet covered the material and this really serves to help the students and myself gauge where they are coming from and where potentially the greatest difficulties in the chapter might be. I will ask students to hold on to these worksheets, as we will come back to them later.

People Search

Identifying Prior Knowledge

Topic: Atomic Structure

Instructions: You are to find other classmates who can each answer one of the questions on this sheet. When someone answers your question, have them sign your sheet.

	Answer	Responder
1) Find someone who can tell you what an atom is.		
2) Find someone who can tell you about Benjamin Franklin's "kite-flying" experiment.		
3) Find someone who can tell you what Marie Curie is most famous for.		
4) Find someone who can tell you why we can "shock" a doorknob after walking across a carpet.		
5) Find someone who can tell you what atoms are made up of.		
6) Find someone who can tell you where a nucleus "lives" inside an atom.		
7) Find someone who can tell you what the large number above each element on the periodic table stands for.		
8) Find someone who can tell you what happens when two like charges come near each other.		
9) Find someone who can tell you what types of radiation there are.		
10) Find someone who can tell you what happens to unstable nuclei.		

During Reading

Activity: Read-Aloud / Structured-Summarization Note-Taking

One of the key aspects for success in content area reading is engaging with the text in discipline specific ways. And one way to help students obtain these skills is through teacher read-alouds. I would take a section of the chapter, create an overhead, and while reading it, walk the students through the mental processes I use to make sense of what I'm reading. This would also include showing them how I would use a structured-summarization note-taking sheet. This sheet is heavily based on one created by Shanahan and Shanahan at the University of Illinois at Chicago. In an article on disciplinary literacy, they specifically worked with chemistry teachers and literacy coaches to create a during-reading note taking strategy that, when followed, would help students engage in chemistry-focused reading. This includes focusing on properties of substances and their interactions and reactions. Using this sheet during my read-aloud would not only introduce them to the style of notes, but also help students to notice the nuances of chemistry reading. A read-aloud also provides a more accessible way for struggling readers to interact with the text and content information.

In practice, I would do the read-aloud of a section of the chapter marking notes on the overhead text and verbalizing my thought processes. In addition, I would pass out the chemistry note-taking worksheet and do an example aloud with the students. I would then ask them to finish the chapter for homework and to use the note-sheet to help guide them. I would inform them that for next class, I would be checking for completion of the note-sheet. The students would be encouraged to edit them as we discussed material in class and asked to keep each chapter's notes to help them to prepare for the larger unit test.

Chemistry Note-Taking

Topic: Atomic Structure

Instructions: As you read the chapter, use the following worksheet to keep track of important people/concepts/terms, their ideas/properties, and their impacts/interactions. One example has been done.

People/Concepts/Terms	Properties	Interactions
<i>Electrons</i>	<i>Negatively charged particle; ~ 0 mass; outside of the nucleus</i>	<i>attracted to the nucleus (+) charge; moves in the space around the nucleus</i>

After Reading Activity

Activity: 'People Search' Follow-Up / RAFT

An effective after reading strategy clarifies and elaborates on students readings and asks them to extend and to reflect on this reading. One way to clarify is to look back at their pre-reading 'People Search' activity to see what they were unable to find an answer to and identify any misinformation on it by comparing their answers to what they found in their textbook chapter. An excellent way to extend and reflect on students readings is by doing a RAFT. A RAFT helps to situate the students in their own writing and gives them a chance to look at chemistry in a new way and extend on what they read. In order to do this, students must truly understand what they read in their textbook in order to apply some of this knowledge to a more creative scenario. In this specific RAFT, the prompt situates role and topic already for the students. The audience and form is left for them to determine. Perhaps as students became more comfortable with the strategy I would be able to provide less and less structure, giving them more freedom and creativity. This type of activity provides students a creative outlet in a subject that too often can be considered as solely technically and analytically minded.

In practice, I would ask students to take back out their 'People Search' that they had completed the other day in class. I would then ask them to get together with someone next to them and go over and compare their original answers or any they could not find to what they read in their textbook chapter. We would then get together as a group and share some of this newly edited information. After this, I would pass out to students the RAFT worksheet for them to complete. I would inform students that this RAFT would be collected and graded and that the grading would be focused primarily on the accuracy of the incorporated chemical concepts we read and discussed in the chapter. I would also check to make sure they are able to correctly identify their role, audience, form, and topic. After writing, I would ask some students to share their stories or plays with the class.

Chemistry RAFT

Topic: Atomic Structure

Instructions: Imagine that you are a subatomic particle in a nuclear reaction. Write a short story or play about your experiences. How do you react to the different forces you encounter? What is your opinion of other particles?

Role:

Audience:

Form:

Topic: