

Class Time: 15 minutes

Assignment Type: Homework

Author: D'Anna Muhammad

Adapted from the Los Angeles Unified school District Summer Reading Program

## **Words Have Meaning and Crossword Puzzle**

### **Lesson Overview:**

The activity below will allow students to gain an understanding of the characteristics of Scientific Literacy and build a deeper understanding of related vocabulary. Students will use the One-Pager format to creatively bridge the Scientific Literacy Defined information and their impression, feeling, and thoughts about it through words and images. They will also practice their understanding of the eight characteristics of Scientific Literacy by completing the Scientific Literacy crossword puzzle.

### **Materials:**

1. Scientific Literacy Course video lecture, PowerPoint and lesson handout (high school) for *Scientific Literacy Defined*
2. Instruction sheet for Scientific Literacy One Pager Activity and exemplar
3. Handouts of the Scientific Literacy Defined cross word puzzle.

### **High School Students**

#### **National Standards:**

- F: Science in Personal and Social Perspectives
- G: History and Nature of Science

#### **GA Standards:**

SCSh6. Students will communicate scientific investigations and information clearly.

#### **Best Practices for Scientific Literacy**

1. An understanding of the nature and development of scientific research and knowledge
2. Knowledge of the interdisciplinary nature of STEM
3. Possessing the ability to evaluate scientific evidence and explanations
4. Having the ability to participate productively in scientific discourse
5. Demonstrating an aptitude for scientific reasoning, quantitative literacy and critical thinking
6. Possessing a relevant knowledge of career opportunities in STEM
7. Possessing a scientist identity and STEM self-efficacy, as well as other relevant attitudes and behaviors for success in STEM
8. The ability to participate in team learning and discovery

### **Lesson Objectives:**

1. Students will gain an understanding of the characteristics of Scientific Literacy and its related vocabulary.

Student Sample

One-Pager

*Plum Pudding*

What is the modern day model of Thomson's Plum Pudding model, how about Bohr's model?  
The Plum Pudding model is like a chocolate chip cookie and Bohr's model resembles the orbit of planets around the sun.

Thomson v. Bohr

Charges

Nucleus

"No, no, you're not thinking, you're just being logical."

How did Bohr think that the electrons were in orbits?  
He said that the electrons were held in orbits by the electric force that attracts negatively charged electrons to the positively charged nucleus.

positive

electrons

Atoms

Bohr and Thomson, in my opinion, were the two scientists that together made the first model most similar to the model we use today of an atom. Bohr, using Thomson's previous discoveries of the negatively charged electrons, determined that electrons were on orbits outside of the nucleus. The model that Bohr created is called the Planetary Model. His model has now been replaced with the Mechanical Wave Model.

Protons

"To the electron, may it never be of any use!"

orbit