

The Common Core English Language Arts Standards (CCELA)

CHAPTER 4, LESSON 4: ENERGY LEVELS, ELECTRONS, AND COVALENT BONDING

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students observe and discuss animations modeling the covalent bonding between hydrogen atoms to make hydrogen gas and between oxygen and hydrogen atoms to make water. Students use the Activity Sheet to read the questions and information and apply them to the animations to learn the meaning of words related to electrons, attraction, energy level, and covalent bonding. Students also follow a multistep procedure to see evidence that water is made up of more of one gas (hydrogen) than the other(oxygen).

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content.

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.

- c. Use words, phrases, and clauses to create cohesion and clarify the relationship among claim(s), counterclaims, reasons, and evidence.
- d. Establish and maintain a formal style.
- e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about the animations of covalent bonding. Students also write captions describing the process of covalent bonding. Students apply reasoning from the molecular models to make and support claims about why atoms form only a certain number of covalent bonds.