

Name \_\_\_\_\_

## The Atomic Mystery: Why Don't Atoms Collapse?

### Open-Ended Response Questions

1. Investigate and discuss the historical development of atomic models, including Dalton's, Thomson's, Rutherford's, and Bohr's models, and how they contributed to our current understanding of atomic structure.
2. Explore the real-world applications of quantum mechanics in technology and everyday life, such as in the development of semiconductors or the functioning of electronic devices.
3. Consider the relationship between the number of electrons in an atom's outermost shell and its chemical reactivity. Provide examples of elements with similar reactivity due to their electron configurations.
4. Imagine an atom with only one proton, one neutron, and one electron. Draw its atomic structure and explain how the electromagnetic force, Heisenberg Uncertainty Principle, and quantum mechanics would affect its stability.

