Worksheet 2:

The Quantum Vault Narrative (Grade 6)

Unit Title:

The Quantum Vault:
Why the Rules of the Universe Had to Change

Subject Alignment: General Studies & English Literacy

Part A: Bob's Discovery and Core Vocabulary

Instructions: Bob the scientist has discovered an old file about the history of the atom. Read the text below and answer the questions that follow.

The Crash Problem: When Bob first started researching the atom in the Qubit Vault, he found an old model called Classical Physics. In this model, the tiny parts of an atom the electrons were thought to orbit the center (the nucleus) like small planets orbiting the sun (the Bohr Model). Bob learned about a massive flaw, known as "The Crash Problem": If the electrons were orbiting like planets, they would lose energy and instantly spiral inward, causing the entire atom to crash! Because the universe didn't crash, the old classical rules had to be wrong.

The Quantum Solution: To fix The Crash Problem, Bob's team realized the tiny electron was not a small planet; it was a Quantum Energy Wave. When an electron is a wave, it is "fuzzy" ;

it exists in a superposition of many places at once, like a quiet bubble or a gentle vibration. This wave nature is stable and cannot crash into the nucleus. This new set of rules, which explains the wave, is called Quantum Physics, and it is the key to Bob's Qubit Vault technology.

What is the main problem Bob read about that proved the old Classical rules were flawed?

Answer:

In the Classical (Bohr) Model, what object did the electron behave like?

Answer:

How did the idea of the electron being a Quantum Energy Wave solve "The Crash Problem"?

Answer:

Define Superposition using simple language, based on the text.

Answer:

Part B: Comparing Models and Scientific Justification
Instructions: Use the text and your classroom discussion to complete the comparison table and answer the final justification question.

Feature Classical Model (Bohr) Quantum Model
Electron's Nature Small, definite particles (like a planet or marble). Quantum Energy Wave (like a bubble or a vibration).
Stability (The Crash) Unstable. Caused atoms to crash. Stable. Prevents the atom from crashing.
Why Bob needed to change the rules
The new basic unit (Qubit)