

Name: _____ Date: _____

Wrangle Subatomic Zoo Animals: A 5th Grade Quantum Quiz

Students transition from Newtonian logic to particle-wave duality and spacetime warping by analyzing how tiny particles and massive stars behave.

1. Imagine you are an astronaut traveling in a super-fast rocket. According to Albert Einstein, what happens to your watch compared to a watch left on Earth?

- A. Your watch ticks slightly slower
- B. Your watch ticks much faster
- C. Your watch stops completely
- D. Your watch runs backwards

2. True or False: In the world of quantum physics, a tiny particle can act like both a solid marble and a rippling wave at the same time.

- A. True
- B. False

3. Einstein's famous equation $E=mc^2$ tells us that mass (matter) and _____ are actually two different forms of the same thing.

- A. Magnetism
- B. Electricity
- C. Energy
- D. Gravity

4. If you placed a heavy bowling ball on a stretchy trampoline, it would curve the fabric. In modern physics, what 'fabric' do massive stars curve?

- A. The atmosphere
- B. Spacetime
- C. The ocean floor
- D. Solar wind

5. When a giant star collapses into a tiny point with gravity so strong that not even light can escape, we call it a _____.

- A. Supernova
- B. White Dwarf
- C. Black Hole
- D. Nebula

6. True or False: Because of gravity, a clock at the top of a tall mountain ticks slightly faster than a clock at the beach.

- A. True

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B. False

7. The Heisenberg Uncertainty Principle says we can't know two things about a particle perfectly at the same time. Which two things are they?

- A. Color and Size
- B. Position and Speed
- C. Weight and Age
- D. Temperature and Sound

8. Which modern technology uses quantum physics to create detailed images of the inside of a human body without using surgery?

- A. Microscope
- B. Telescope
- C. MRI machine
- D. Stethoscope

9. True or False: According to special relativity, nothing in the universe can travel faster than the speed of light.

- A. True
- B. False

10. What is 'Quantum Tunneling' similar to in the real world?

- A. A ball bouncing off a wall
- B. A ghost walking through a wall
- C. A car driving over a bridge
- D. A bird flying over a tree