Name: _____ **Date:** _____

Cosmic Pizza Party: A 6th Grade Physics Quest

Can a clock actually tick slower? Challenge students to apply relativity and quantum concepts to real-world scenarios in this high-engagement formative assessment.

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1. Imagine you are an astronaut on a ultra-fast 'Galactic Express' ship. If you travel at nearly the speed of light for what feels like one year to you, what would happen when you return to your friends on Earth?

A. Your friends would be exactly the same age as you.
B. Your friends would be much older than you.
C. Your friends would be much younger than you.
D. Time would have stopped entirely on Earth.

2. Albert Einstein's famous equation $E=mc^2$ tells us that _____ and energy are actually two different forms of the same thing.

A. Motion
B. Magnetism
C. Mass
D. Gravity

3. General Relativity suggests that massive objects like planets and stars do not just pull on things, but actually 'dent' or curve the fabric of space and time around them.

A. True
B. False

4. In the world of Quantum Mechanics, scientists use the 'Double Slit Experiment' to show that tiny particles like electrons can act like both solid marbles and what other form?

A. Squares
B. Waves
C. Liquids
D. Tornadoes

5. If you were to fall into a _____, gravity would be so strong that not even light—the fastest thing in the universe—could escape.

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

6. According to the Uncertainty Principle, it is impossible to know both the exact position and the exact speed of a particle at the same time.

Name: _____ Date: _____

A. True
B. False

7. Modern physics technology is in your pocket! Which of these common devices relies on Einstein's theory of relativity to give you accurate directions?

A. A compass
B. A magnifying glass
C. GPS (Global Positioning System)
D. An FM Radio

8. The tiny 'packets' or particles of light that hit a solar panel to create electricity are called _____.

A. Protons
B. Photons
C. Neutrons
D. Electrons

9. If you could observe a 10-meter long rocket flying past you at 90% the speed of light, what would happen to its appearance due to 'Length Contraction'?

A. It would look much shorter than 10 meters.
B. It would look much longer than 10 meters.
C. It would turn invisible.
D. It would look exactly the same.

10. Quantum physics and classical physics (like Newton's laws) follow the exact same rules for how objects move.

A. True
B. False