

Here are a few tasks you can solve to get started with learning modern physics, along with some explanations and facts to help you along the way:

Task 1: Learn about Special Relativity

Explanation: Special Relativity is a theory proposed by Albert Einstein that describes the behavior of objects moving at high speeds. It introduces concepts such as time dilation, length contraction, and the speed of light being constant for all observers. To learn about Special Relativity,

you can start by reading about the postulates and key concepts of the theory.

Fact: One of the most famous equations in physics, $E=mc^2$, comes from Special Relativity and relates energy and mass.

Task 2: Solve problems involving Quantum Mechanics

Explanation: Quantum Mechanics is the study of the behavior of particles at the atomic and subatomic scale. To solve problems in quantum mechanics, you will need to understand concepts such as wave-particle duality, uncertainty principle, and quantum states. You can start by practicing problems involving the Schrödinger equation and the quantization of energy levels.

Fact: The behavior of particles in quantum mechanics is probabilistic, meaning that we can

only predict the likelihood of an outcome rather than knowing exactly what will happen.

Task 3: Understand the basics of General Relativity

Explanation: General Relativity is another theory proposed by Einstein, which describes the

behavior of gravity. It introduces the idea of spacetime being curved by massive objects,

and how objects move in response to this curvature. To understand General Relativity, you can

start by learning about the equivalence principle, the geodesic equation, and the curvature of spacetime.

Fact: General Relativity has been confirmed by many experiments and observations, including the bending of starlight by the Sun and the existence of black holes.

Task 4: Study the properties of particles in the Standard Model

Explanation: The Standard Model is a theory that describes the fundamental particles and forces in the universe. It includes particles such as quarks, electrons, and photons, as well as forces such as electromagnetism and the weak nuclear force. To study the Standard Model, you can start by learning about the different types of particles and their properties, as well as the interactions between them.

Fact: The Higgs boson, a particle predicted by the Standard Model, was discovered in 2012 at the Large Hadron Collider.

As a beginner, it's important to start with the basics and build a strong foundation of knowledge before moving on to more advanced topics. You can start by reading introductory textbooks or watching videos online, and then practice solving problems to reinforce your understanding.