# Slide 1: Title Slide

## **Title:** Introduction to Particle Physics

## **Subtitle:** Understanding the Building Blocks of Matter

## **Image:** A visual representation of subatomic particles (e.g., quarks, leptons)

## **Your Name & Date**

# Slide 2: What is Particle Physics?

## **Definition:** Study of the fundamental particles of the universe and their interactions.

## **Key Concepts:**

## Fundamental particles: Quarks, leptons, bosons

## Forces: Strong, weak, electromagnetic, and gravitational

## **Image:** Diagram of the Standard Model of particle physics

# Slide 3: The Standard Model

## **Overview:** The framework that describes the known fundamental particles and their interactions.

## **Components:**

## **Fermions:** Quarks and leptons (e.g., electrons, neutrinos)

## **Bosons:** Force carriers (e.g., photons, W/Z bosons, gluons)

## **Image:** Simplified chart of the Standard Model

# Slide 4: Key Experiments in Particle Physics

## CERN and the Large Hadron Collider (LHC):

## Discovery of the Higgs boson in 2012

## Other Notable Experiments:

## Fermi National Accelerator Laboratory (Fermilab)

## Neutrino observatories

## Image: Photo of the LHC or an experimental setup

# Slide 5: Future of Particle Physics

## Current Questions:

## What is dark matter?

## What is the nature of neutrino masses?

## Upcoming Projects:

## Future circular collider (FCC)

## Deep underground experiments

## Image: Conceptual image of future particle physics experiments