

The hunt for the Higgs and the origins of mass have a fascinating history. In 1964, several groups of scientists, including British physicist Peter Higgs and Belgian physicist Francois Englert predicted that the mass of fundamental subatomic particles arose through interactions with an energy field now called the Higgs field. The energy field permeates the universe. Particles that interact more with the field are more massive, while others interact little with the field, and some not at all. A consequence of this prediction is that a subatomic particle called the Higgs boson should exist. After nearly 50 years of searching, researchers at the LHC found the Higgs boson in 2012. For their successful prediction, Higgs and Englert shared the 2013 Nobel Prize in physics.

The heaviest known fundamental subatomic particle is the top quark, discovered in 1995 at Fermilab, located just west of Chicago. There are six known quarks. Two are stable and found at the center of protons and neutrons. The other four are unstable, and are created only in large particle accelerators. A single top quark has a mass comparable to an atom of tungsten. The results could help us better understand one of the most fundamental problems in physics — why matter has mass.

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Questions:

- 1-What is discussed in the text above?
- 2-How many paragraphs are there?
- 3-State one problem in physics.
- 4- where mass comes from?
- 5-According to scientists predictions, how did the mass of fundamental subatomic particles arise?
- 6-Put true or false:
  - a-Particles that interact less with the field are more massive.
  - b-The Higgs boson does not exist at all.
  - c-Higgs' and Englert's prediction was proved as true.
  - d-There are two known stable quarks.
- 7- Write a paragraph about any topic related to physics.