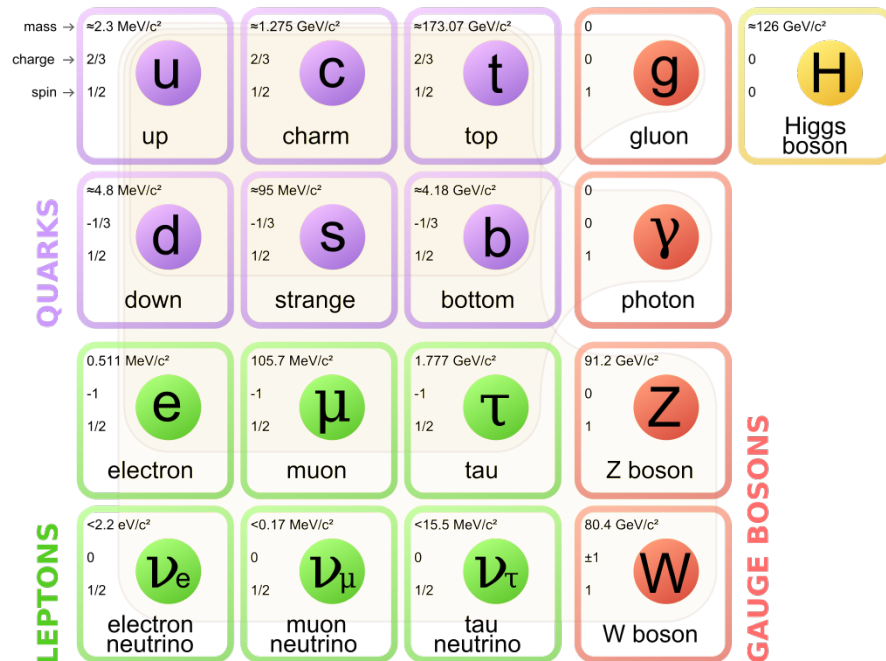


# Particle Adventure



Today we study the structure of matter and fundamental interactions from The Particle Adventure site. The idea is to learn the fundamentals of the Standard Model in physics by using the site.

Go to

<http://particleadventure.org/eternal-questions.html>

and start the Particle Adventure. By using the Particle Adventure only, answer the following questions in your notebook.

You may answer question 1. based on your general understanding of the topic. For the others you must use the Particle Adventure.

You are not supposed to use Wikipedia or any other source in the Internet, but the Particle Adventure in your answers. You should not use Google or any other search engine. Some of the exercises are easier than the others.

1. What is (a) an atom (b) a molecule (c) an ion?
2. Outline the structure of (a) an atom (b) a nucleus (c) a proton (d) a neutron (e) an electron.
3. List the fundamental interactions.
4. Explain how (a) an atom (b) a nucleus stays together in terms of fundamental interactions.
5. What are quarks? List the types of quark.
6. List the three types of fundamental particles that ordinary matter is made of.
7. What are carrier particles? What is the carrier particle of (a) electromagnetic (b) gravitational interaction?
8. What are antiparticles? Give two examples.
9. Describe the Standard Model.
10. What happens when an electron collides with a positron?