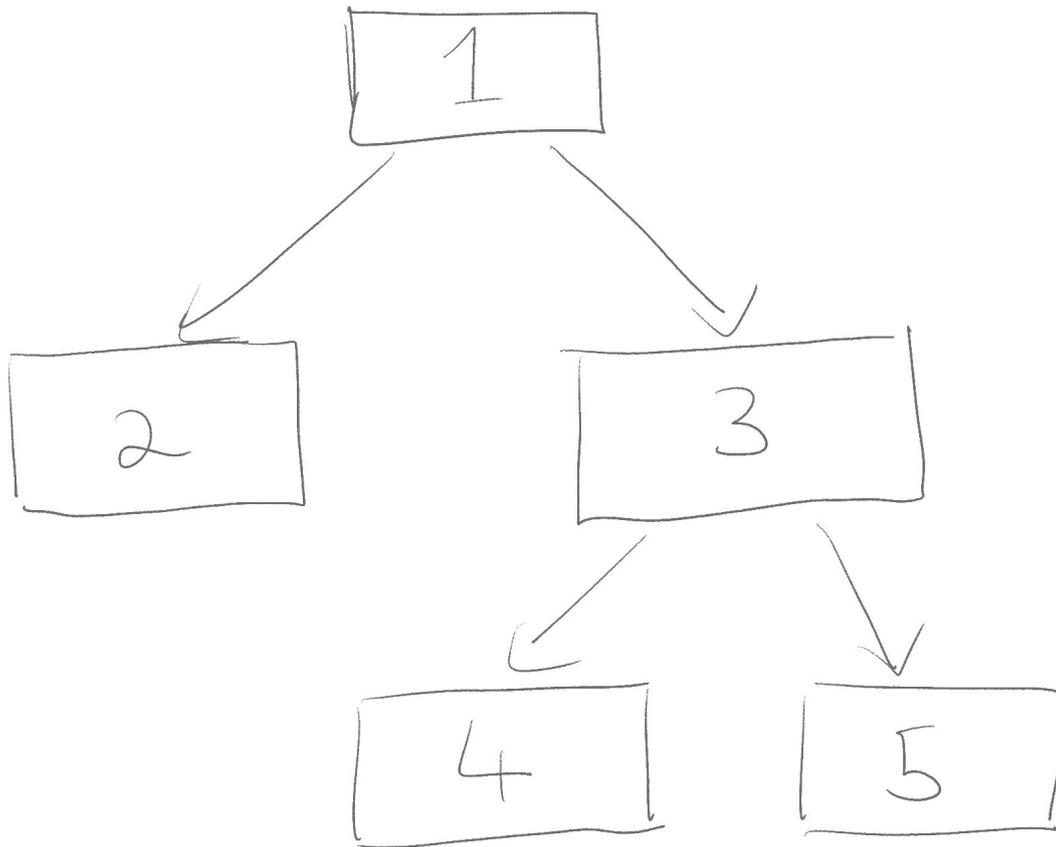


The Standard Model



The diagram above depicts different types of particles in the standard model. Below are some clues. Use the clues and your knowledge of physics to correctly name each group.

- 1 is the name for particles that make up matter.
- 4 and 5 have the same constituent particles, but different structures.
- 2 does not experience one of the four fundamental forces.
- 3 appears in the name of a very famous laboratory.

1. _____

2. _____

3. _____

4. _____

5. _____

[5]

1. Name a particle from group 2 that never has a charge.

[1]

2. Suggest two differences between group 2 and groups 3, 4 and 5.

[2]

3. Give one similarity and one difference between groups 4 and 5.

[2]

4. Name a particle from group 4 that has strangeness.

[1]

5. Name a particle from group 5 that can decay into a proton.

[1]

Fundamental Force	Boson

Complete the table above, naming each fundamental force and the boson associated with it. [4]

Give the four conservation laws that must always be true in any particle interaction. [4]

Which conservation law only applies sometimes, and when does it apply? [2]