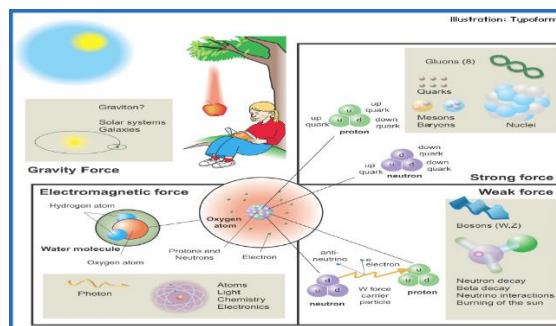


What are the basic forces of nature?

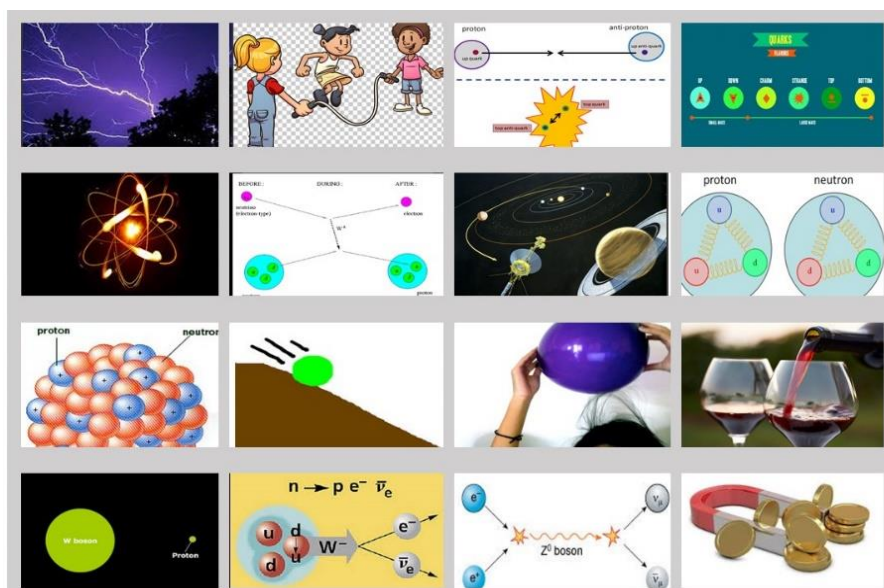
Interactions between objects produce forces. You may think of forces as pushes and pulls. All interactions can be explained by four fundamental forces: gravity, electromagnetism, the weak nuclear force, and the strong nuclear force. Gravity is caused by the curvature of space around a massive object, and it is the weakest fundamental force.



The electromagnetic force acts between charged particles and is carried by particles of light—photons. W and Z bosons carry the weak force, and gluons carry the strong force. Weak and strong nuclear forces act on subatomic particles over very short distances.

Materials: Paper, scissors

Activity: Print the diagram below and cut out each picture. Decide which fundamental force is represented by the situation shown on the picture. Put the pictures into four groups: gravity, electromagnetic force, strong force, and weak force. See answer key attached below.



Answer Key

Questions to ask: What are the four fundamental forces? Which force is the weakest in strength? What particles are affected by the electromagnetic force? Which forces act only at the subatomic scale? Which particles are the carriers of the electromagnetic force? Which particles are the carriers of the strong force?

Useful link: https://ed.fnal.gov/lsc_exhibits/list.html

