

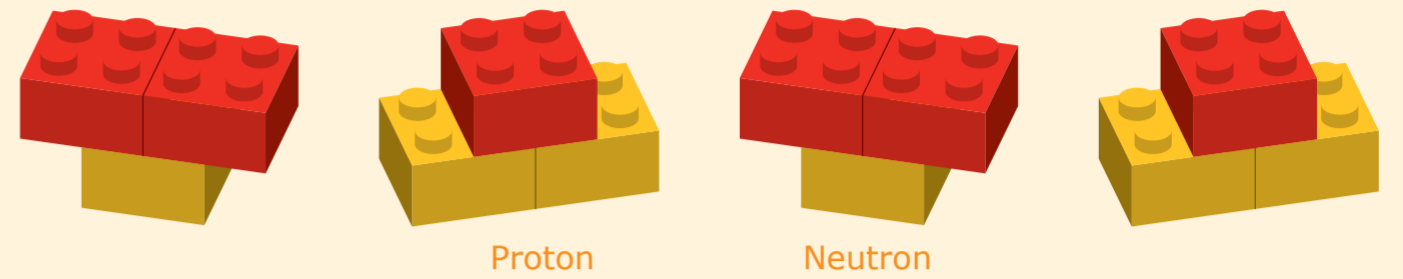
# BUILD YOUR OWN UNIVERSE

## 1: TIME = BEFORE 0.01 SECONDS THE PARTICLE SOUP



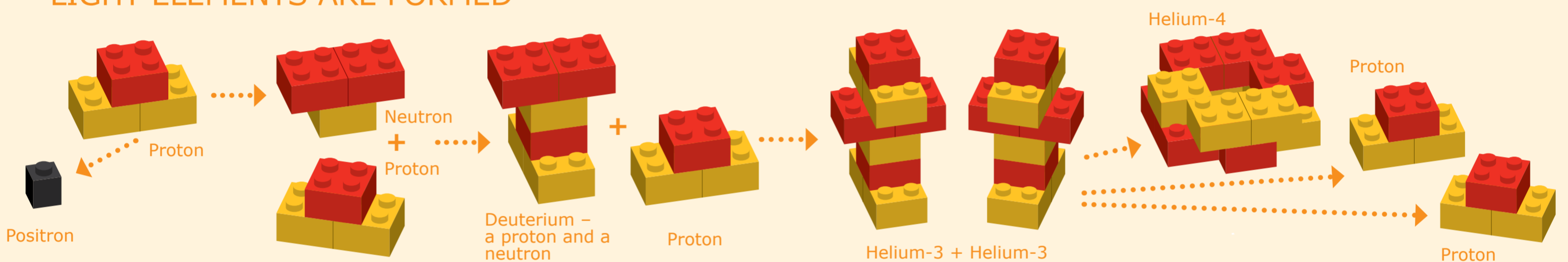
The Universe is very very hot and very dense. It is full of a jumble of strange particles: quarks, electrons, positrons and neutrinos, as well as photons.

## 2: TIME = 0.01 SECONDS - 14 SECONDS PROTONS AND NEUTRONS FORM



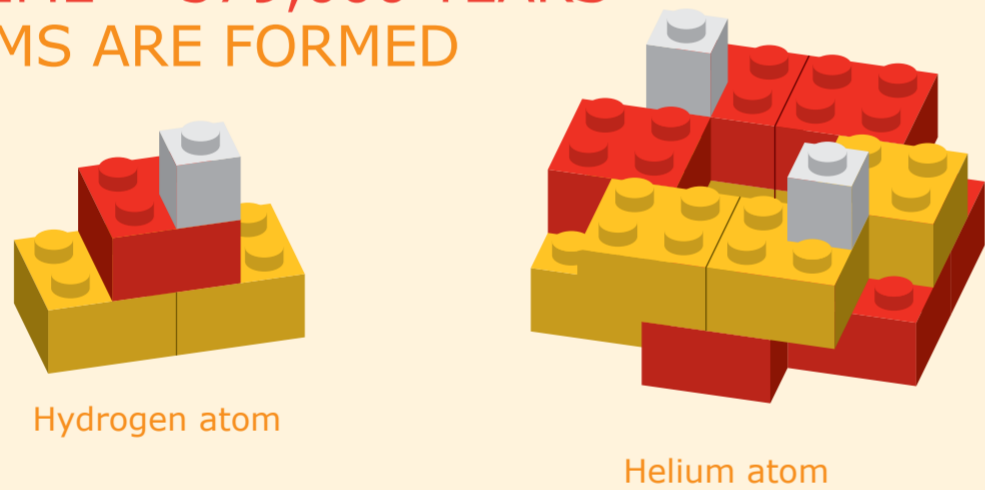
Up and Down quarks start to combine to make protons and neutrons, but it's still too hot for electrons to stick to protons to make atoms.

## 3: TIME = 3 MINUTES - 20 MINUTES LIGHT ELEMENTS ARE FORMED



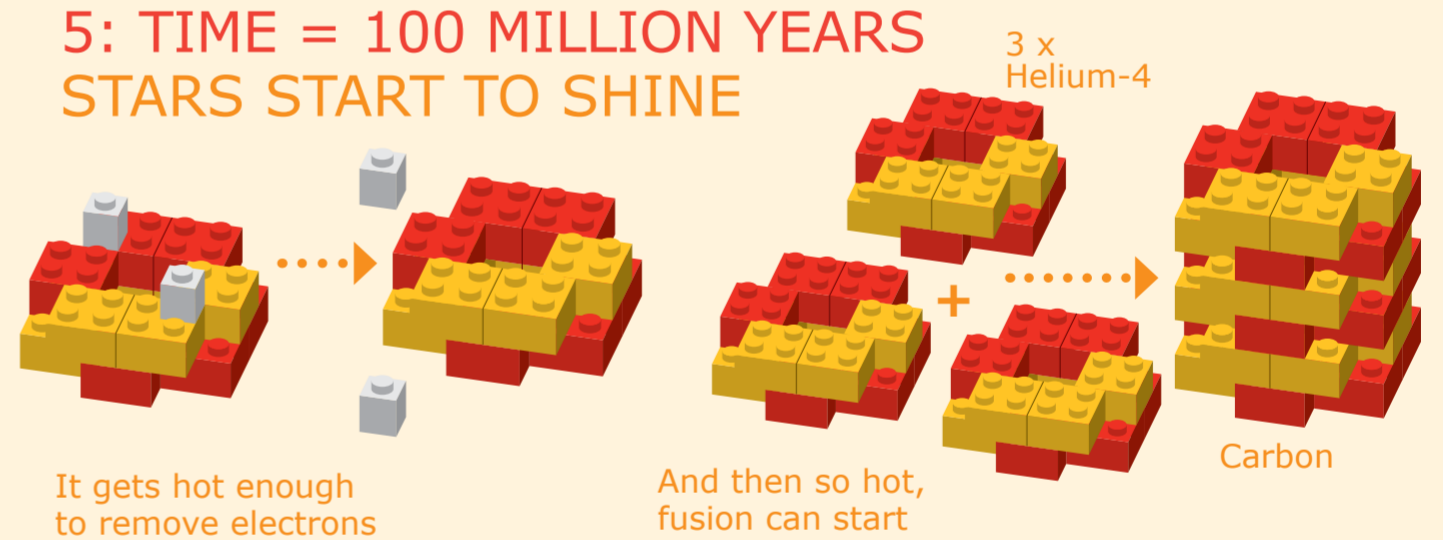
Protons and neutrons start to join together to make elements, mainly helium and hydrogen. The step that makes this possible is beta decay: where a proton turns into a neutron by firing out a positron.

## 4: TIME = 379,000 YEARS ATOMS ARE FORMED



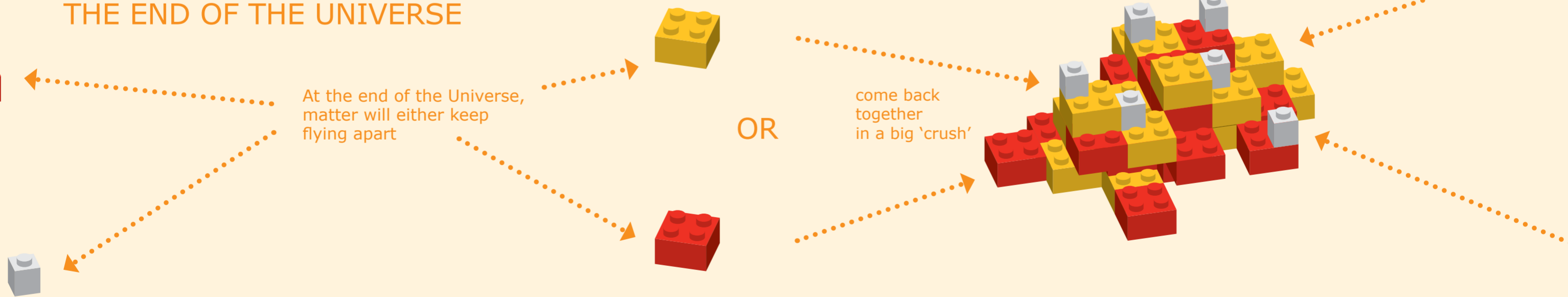
For the first time, the Universe is cool enough for hydrogen and helium nuclei to capture electrons to form atoms, and light can travel freely through the Universe.

## 5: TIME = 100 MILLION YEARS STARS START TO SHINE



The matter in the Universe has been collapsing due to gravity, forming stars. Temperatures keep increasing so that heavier elements - like carbon - can be formed through fusion.

## 6: TIME = ? THE END OF THE UNIVERSE



We don't know what will happen at the end of the Universe yet. Right now, all of the matter in the Universe is flying apart, but one theory is that at some point in the future, this will change, and everything will come flying back together in one big crunch. Other people think that things will keep flying apart forever, and the Universe will just get very cold and boring.