The Universe was a relatively simple place until the first stars aged and died. You couldn’t make much with just hydrogen and helium. Dying stars were another story. They created the extremely high temperatures necessary to fuse nuclei and create new chemical elements. All had distinct properties and provided the raw material for a nearly infinite number of new possibilities.
Aging and dying stars

Very high temperatures

Stars running out of hydrogen fuel

Leads to their producing elements as heavy as iron through nuclear fusion

Giant stars collapsing

Leads to supernovae with the necessary conditions to forge most of the elements of the periodic table, scattering them as they explode

Chemistry is born

Ninety-two elements, each with its own distinct structure and properties, scatter throughout space and combine with one another to form chemical compounds that interact in complex ways