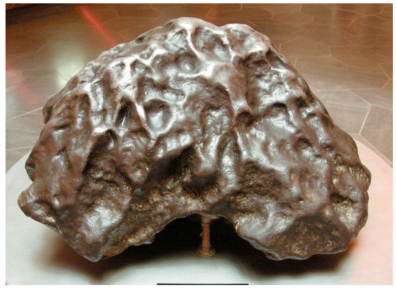
Meteorites, and their basic implications for the origin of Earth

Chondrites are stony (non-metallic) meteorites that have not been modified due to melting or differentiation of the parent body.[1][2] They are formed when various types of dust and small grains that were present in the early solar system accreted to form primitive asteroids.

One of their characteristics is the presence of chondrules, which are round grains formed by distinct minerals

An **achondrite**[1] is a stony meteorite that does not contain chondrules.[2][3] It consists of material similar to terrestrial basalts or plutonic rocks and has been differentiated and reprocessed to a lesser or greater degree due to melting and recrystallization on or within meteorite parent bodies.[4][5] As a result, achondrites have distinct textures and mineralogies indicative of igneous processes.[6]



Iron meteorites are meteorites that consist overwhelmingly of an iron–nickel alloy known as meteoric iron that usually consists of two mineral phases: kamacite and taenite. Iron meteorites originate from cores of planetesimals.[2]

Everything above this line is from Wikipedia pages.

Particles that were never melted – an agglomeration of primitive stuff

Material that must have been melted to give the present igneous texture.

Material that must have been melted to differentiate/separate iron and nickel

Implications for the origin of Earth:

The stuff of an early planet, like Earth as it first condensed in the solar nebula

The stuff of a planet after melting, and resultant segregation by mass, to make an iron-nickel core and silicate mantle like those of Earth.