

Relative Dating Definitions

Relative Age Dating Student Definitions

Relative dating – Using layers of rock to find out if one layer rock is older or younger than another layer of rock. This type of age dating does NOT give a specific numerical age like 3.8 billion years old.

Principle of superposition – If you see a bunch of layers of rock on top of each other, then the layer on the bottom is the oldest and the layer on the top is the youngest (for example, the layers of chocolate, nougat, and caramel in the Snickers).

Principle of original horizontality – Dirt and rock carried by water or wind (sediment) is always deposited first in flat layers. So, if you see layers of rock that have been folded or tilted, then there must have been a something pushing or pulling those layers (maybe the same forces that cause earthquakes).

Cross cutting relationships – If many layers of rock are crossed or “cut” by a fault, then the fault will be younger than the layers of rock (for example, the fusion crust on a Martian meteorite can cut across a vein).

Principle of inclusions – When pieces of one type of rock are inside a layer of another type of rock, then the pieces of the first type of rock will be older than the layer of rock that they are in (for example, the peanuts in the caramel are older than the caramel itself. The peanuts had to be formed before they were placed in the caramel therefore they are older).

Unconformity – This is a rough/wavy surface that represents “missing” time, separating young rock from old rock. An unconformity can be produced when rock on the surface of the earth is eroded and then more dirt and rock are piled on top of that. We don’t see evidence of the rock that was eroded away.

How can we tell if a Martian meteorite experienced alteration while it was on the Earth or while it was on Mars?

- If the alteration happened while the meteorite was on Mars, then a vein would not cut the fusion crust. Instead, the fusion crust will cut across the vein.

- If the alteration happened while the meteorite has been on the Earth, then the fusion crust would be broken, letting water and wind into the meteorite. The fusion crust itself might even be altered.

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