Is It Alive?
Background Reading

It is pretty clear to most people, even very small children, that icicles are not alive. They are cold to the touch; they don't move, except to drip or to fall to the ground when they break; they don't reproduce. At the opposite end of the spectrum, it is also clear that household pets and human friends are alive, especially when you see them run, jump, or respond to you. Those are fairly easy examples. But what about a clock or a seed? Are these things living or nonliving, and how can you tell?

You know that a clock is nonliving, right? But its hands move, it makes noise, and it responds when you turn its dials or press its buttons. That's more lifelike than an icicle, isn't it? And what about a seed? Even though we're told that it holds the potential for life, it looks about as lively as a stone. As you can see, the distinction between living and nonliving is not always clear-cut. Some inanimate objects have characteristics of living organisms, while many living organisms, on the face of it, seem utterly lifeless.

So how does one distinguish between living and nonliving things? First of all, the scientific definition of living includes those things that are alive or have ever been alive—including what's left of a tree that died years before. Likewise, the seed, which appears lifeless and can remain dormant for years before finally germinating under the right environmental conditions, qualifies as living. In contrast, nonliving things are not alive, nor have they ever been.

But what does it mean to be alive? According to biologists living organisms are characterized by seven "signs of life": 1) living things have highly organized, complex structures; 2) living things maintain a chemical composition that is quite different from their surroundings; 3) living things have the capacity to take in, transform, and use energy from the environment; 4) living things can respond to stimuli; 5) living things have the capacity to reproduce themselves; 6) living things grow and develop; and 7) living things are well-suited to their environment.

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