

Invisible Worlds

Descriptive Transcript

[Soft electronic clicking sounds.]

Against a dark background, colorful DNA molecules begin assembling into long, twisting strands. The projected animation covers both the floor and curvilinear walls of the theater.

Four simple molecules, arranged in repeating patterns and unique combinations. Through DNA, you are related to all life on Earth.

Camera pulls back, showing the DNA strands are contained within cells of four different organisms: a plant seed, a worm, a fungus and a bacterium.

[Amplified sounds of life underground.]

The plant seed, worm, fungus and bacterium blend into a community of living organisms in the soil.

Underground, vast networks of roots and fungi exchange water and nutrients. Use your feet to direct the water.

[Water splashes and flows.]

Beads of water form on tree roots underground. An X-ray view shows water moving up through capillaries in the trees. Visitors can step on shimmering puddles projected on the floor, causing more water to shoot up through the trees projected on the walls.

[Sounds of rainforest life intensify.]

Camera pans up, emerging at the forest floor at dawn. A timelapse-style animation shows blurred, accelerated action, including a jaguar hunting a tapir.

In nature, nothing is wasted. Dead matter is recycled in soil, nourishing life above ground.

[Birds chirp, insects buzz, and leaves rustle.]

Camera slowly and steadily moves up through the rainforest trees. Spiders, butterflies, monkeys, sloths and other animals are engaged in their natural behaviors.

All of life's dramas play out in an ecosystem, as individuals cooperate and compete to survive.

[Insect buzzing intensifies.]

Animation briefly slows, to highlight the wing motion of a dragonfly in flight, as it swoops to catch a mosquito. An X-ray view reveals the dragonfly's nervous system, as well as the inside of a frog that leaps through the scene in slow motion.

Camera zooms in on a leaf, revealing chloroplasts in cells.

Green plants convert energy from the sun, and carbon dioxide from the air, into solid wood, stems and leaves.

[Thunder rumbles overhead.]

Camera rises through the forest canopy and emerges above the treetops for a panoramic view. Rain clouds gather.

Flowing energy, air, and water create Earth's climate system.

[Birds call out and wings beat.]

Above the treetops, birds form flocks. The background turns black, and the flocking birds become stylized geometric shapes, moving across the floor and avoiding places where visitors are standing.

These migrating birds are heading north. Can they navigate around you?

[Digital beeping and pinging.]

Camera pulls way out, to a view of Earth from space. The Sun and stars are also in frame.

Orbital lines indicate the paths of satellites around Earth, the “technosphere.”

All living things communicate.

[Overlapping voices speak different languages.]

Camera descends toward Earth and lines of data become visible, connecting satellites with communication devices on Earth.

Humans have created digital networks to extend the reach of our ideas. How many texts have you sent today?

[Cacophony of voices and digital sounds intensifies, then suddenly goes quiet.]

Camera lands in Central Park in New York City on a sunny morning in spring. People are engaged in various activities: picnicking, playing music, painting, meeting friends.

We express ourselves in many ways: through language, gesture, music, art.

[A scattered harmony of musical notes.]

A gathering of musicians in the Park improvise a tune. As a young woman looks on, the camera zooms into her head, revealing the structure of a brain, which is projected on the floor and walls.

[Pulsing sound.]

Neurons brighten and pulsate.

Communication begins at the cellular level, as cells signal one another.

Move across this human brain to start signaling.

When visitors step on enlarged neurons projected on the floor, flashes of color pulsate through the cell dendrites, representing communication between neurons.

Pulling out of the cellular-level view, the brain's circuitry is revealed. Brightly colored pathways

show how brain activity flows in orderly patterns.

Within each human brain, billions of nerve cells can create trillions of connections – leading to boundless thought and creativity.

The brain circuitry dissolves into large blotches of color, which then transform into sunlight reflected off the ocean's surface. Dolphins are leaping out of the water, and a boat bobs on the waves.

[Waves crash and seagulls call.]

Life is bound together in complex food webs, in which an abundance of small organisms supports fewer large ones.

[Muffled underwater sounds. Dolphins chirp.]

The camera pans down, breaking the water surface. Viewers have the sensation of being submerged. The dolphins circle around a large school of fish.

At dusk, dolphins coordinate a hunt for sardines.

*The scene darkens as the camera descends.
Invertebrate organisms swim upwards.*

Jellyfish, krill, and tiny plankton migrate upward each night to feed on algae at the ocean's surface.

*Microscopic plankton are enlarged, revealing
bizarre, alien-like life forms.*

90% of the biomass of the ocean is microscopic—tiny organisms that hold the food web together.

*A humpback whale passes through, swimming
over the walls and floor. It's illuminated by
bioluminescent plankton, which trail in its wake.*

These plankton are using light to warn away a giant predator.

*Bioluminescent plankton are projected on the
floor. As visitors walk around or wave their*

arms, the plankton form bright swirls, as if agitated by the movement.

Move around. How do the plankton react to you?

The plankton fade away, and the looped film restarts.