

Zoom Script

Annotated Version

Welcome aboard a tour of the universe—a fantastic voyage fueled by imagination and guided by science.

Our cosmic journey will take us through our Solar System, across our star-studded Milky Way Galaxy and beyond, to see the universe in which galaxies—giant cities of stars—become simple building blocks.

0:01	Slit opens	We begin our journey in the observatory dome at the LodeStar Astronomy Center...
0:08	Fly out of dome	Looking at a daytime sky that opens out on the universe beyond.
0:11	Spot Airplane	Most of us have made only small steps in this direction, flying a few miles above the surface of our home planet.
0:18	Airplane from above; ABQ below	But in fact, the thin veil of atmosphere that surrounds our planet barely protects a world vastly more enormous—the world of human experience, the entirety of our everyday lives.
0:30	Full Earth	The Earth is merely our starting point—a small world accompanied by its companion Moon—our home in the vast cosmos.
0:39	Earth and Moon exit to right	We inhabit a neighborhood of nine planets. Four of these huddle close to the light and heat of our Sun. The inner solar system.
0:42	Sun enters from left	Warmed by this nuclear furnace, planets such as Earth and Mars...

0:48	Mars enters from left	...have firm, rocky surfaces: familiar terrain for our experience and our imagination.
0:58	Mars fades into distance	But the solar system contains many other objects, including small, irregular asteroids...
1:02	Asteroids	Most of which tumble in orbits between Mars and Jupiter.
1:04	Jupiter enters from right	As we travel farther away from our home planet, we encounter worlds quite different from our own. The giant Jupiter could engulf more than a thousand Earths. The swirling bands of colorful clouds reveal only the uppermost layers of a planet consisting almost entirely of atmosphere.
1:20	Jupiter gone	Far away from the warming glow of the Sun, planets in the outer solar system grow bloated with light elements and gases.
1:31	Saturn enters from left	Tiny, icy particles encircle these enormous worlds, like the magnificent rings that surround Saturn.
1:41	Saturn gone	We have outpaced light on our journey so far, taking only a minute to travel the distance light would traverse in an hour.
1:44	Kuiper belt objects	We speed through a region of would-be comets and leave our Sun's family behind.
1:51	Kuiper belt gone	We accelerate rapidly away from our Earth and our solar system, to cross the immense distance between the stars.
1:59	Proxima Centauri	Light from Proxima Centauri and its companions, the trio of stars nearest

		our Sun, travels more than four years to reach our eyes on Earth.
2:12	Enter Orion from behind	Stars form out of gas and dust in stellar nurseries, such as the Orion Nebula.
2:17	Screen white	The combined light of the newborn stars causes the gas to glow...
2:24	Nebulosity to dust	...and the dust to stand out in silhouette.
2:31	Enter Crab	Another type of glowing gas cloud can result from a star's explosive death.
2:34	Pulsar	Travelling through one such stellar grave, the Crab Nebula, we see the bright, pulsating remains of the star at its center.
2:39	Crab recedes	...
2:50	Plane of galaxy	Light from the Sun takes thousands of years to reach this point in our journey. From here, we can see how the stars themselves follow a pattern: a vast, spiral disk of hundreds of billions of stars. Stars being born, stars dying, stars living out their long lives, all inhabit the galaxy we call the Milky Way.
3:01	Milky Way full-frame	Yet the Milky Way Galaxy itself shares space with others like it—most smaller, a few larger, a host of galaxies that cluster loosely together.
3:15	Local Group to acceleration	We can now take our largest leap in distance, travelling far enough to see entire galaxies as mere pinpoints of light.
3:20	Large-scale structure	From our most distant imagined perspective, we can take in the entire structure of our universe... Clouds of galaxies clumped in dense

superclusters and strung in lengthy filaments.

Our trip concludes with a view of our observable universe, billions of light-years across and home to exotic objects, powerful processes, and—at least on one small planet—life.

3:44 End