

**WHAT ARE
LAGRANGE
POINTS?**

1
00:00:02,185 --> 00:00:04,337
What are Lagrange Points?

2
00:00:07,951 --> 00:00:08,775
We Asked a NASA Scientist.

3
00:00:08,775 --> 00:00:12,479
Lagrange Points,
named after the Italian astronomer

4
00:00:12,479 --> 00:00:17,250
who first proposed
them, are places in our solar system

5
00:00:17,250 --> 00:00:21,154
where the gravitational
pull of the planet and the Sun,

6
00:00:21,154 --> 00:00:26,259
and the motion of the orbit combine
to create an equilibrium.

7
00:00:26,259 --> 00:00:30,263
So it takes very little energy
to retain that orbit.

8
00:00:30,263 --> 00:00:34,100
Objects that are sent
to these locations in space either

9
00:00:34,100 --> 00:00:38,104
tend to stay there
naturally or can be kept there

10
00:00:38,104 --> 00:00:42,375
with minimal energy
because the forces are in balance.

11
00:00:42,375 --> 00:00:46,312

NASA's taking advantage
of those Lagrange points to send

12

00:00:46,312 --> 00:00:50,984

extraordinary missions
like the James Webb Space Telescope,

13

00:00:50,984 --> 00:00:55,722

which will orbit the Sun at Earth's
Lagrange Point number two,

14

00:00:55,722 --> 00:01:00,860

allowing the telescope to stay in line
with Earth as it moves around the Sun

15

00:01:00,860 --> 00:01:04,731

and retain that orbit
using very little fuel.

16

00:01:04,731 --> 00:01:09,669

NASA's Lucy mission will study
the pristine Trojan asteroids,

17

00:01:09,669 --> 00:01:15,008

the remnants of our solar system
that have been gravitationally trapped

18

00:01:15,008 --> 00:01:19,012

around Jupiter's
Lagrange Point number four and Lagrange

19

00:01:19,012 --> 00:01:23,316

Point number five for over four
and a half billion years.

20

00:01:23,316 --> 00:01:25,785

So, what are Lagrange Points?

21

00:01:25,785 --> 00:01:30,356

They are places in our solar system

where objects can orbit

22

00:01:30,356 --> 00:01:34,427

the Sun at the same speed as a planet

23

00:01:34,427 --> 00:01:38,455

staying in the same place

relative to both of them.