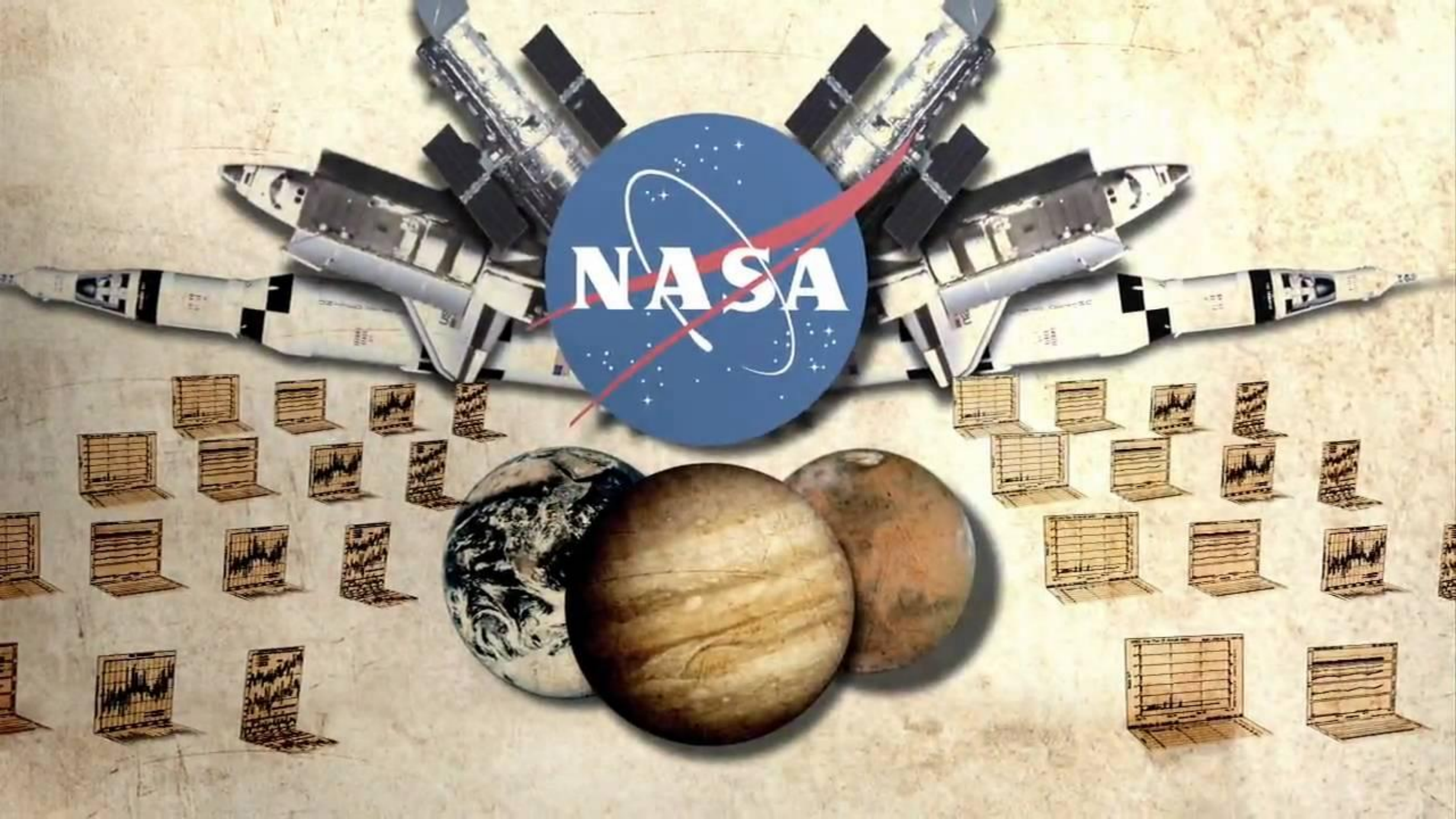
NASA

1
00:00:00,880 --> 00:00:18,779
[Music]

2
00:00:26,080 --> 00:00:21,220
graphs are used every day you see

3
00:00:32,830 --> 00:00:26,090
relationships everything from ticket

4
00:00:35,049 --> 00:00:32,840
sales to insurance claims if you want to

5
00:00:37,660 --> 00:00:35,059
see how one thing relates to another you

6
00:00:40,510 --> 00:00:37,670
can probably use a graph and believe it

7
00:00:43,660 --> 00:00:40,520
or not nASA has graphs for just about

8
00:00:47,440 --> 00:00:43,670
everything so what's the big secret

9
00:00:49,720 --> 00:00:47,450
let's start from the beginning no no no

10
00:00:52,600 --> 00:00:49,730
let's start from the right beginning the

11
00:00:54,250 --> 00:00:52,610
x axis the x axis needs to be a

12
00:00:57,819 --> 00:00:54,260
horizontal line at the bottom of your

13
00:01:02,350 --> 00:00:57,829

graph yes that's right now we will draw

14
00:01:04,749 --> 00:01:02,360
our y axis this one's vertical no no

15
00:01:08,310 --> 00:01:04,759
your Y axis needs to be on the left edge

16
00:01:12,430 --> 00:01:08,320
of your x axis now we're onto something

17
00:01:14,469 --> 00:01:12,440
hmm we need an example well let's say we

18
00:01:16,390 --> 00:01:14,479
want to travel to other planets we

19
00:01:18,580 --> 00:01:16,400
obviously need food to get there and

20
00:01:20,230 --> 00:01:18,590
back so we want to see the relationship

21
00:01:22,390 --> 00:01:20,240
between the planet we're going to and

22
00:01:25,359 --> 00:01:22,400
how much food each person will need to

23
00:01:28,510 --> 00:01:25,369
take with them so first label your axis

24
00:01:31,060 --> 00:01:28,520
as a rule we always put our independent

25
00:01:32,890 --> 00:01:31,070
variable on the x-axis in this case

26
00:01:35,140 --> 00:01:32,900
we'll put the number of days it takes to

27
00:01:37,870 --> 00:01:35,150
get to any given planet on the y axis

28
00:01:40,359 --> 00:01:37,880
will put the dependent variable why is

29
00:01:41,980 --> 00:01:40,369
it called the dependent variable well in

30
00:01:44,740 --> 00:01:41,990
our example the amount of food we need

31
00:01:47,109 --> 00:01:44,750
in kilograms depends upon how long it

32
00:01:49,710 --> 00:01:47,119
takes to get there and back so let's

33
00:01:52,140 --> 00:01:49,720
think of some examples

34
00:01:54,530 --> 00:01:52,150
National Space Station that's about a

35
00:01:57,480 --> 00:01:54,540
seven-day mission since we need about

36
00:01:59,460 --> 00:01:57,490
1.83 kilograms of food per day and

37
00:02:03,120 --> 00:01:59,470
that's so let's see 12 point 81

38
00:02:04,860 --> 00:02:03,130

kilograms now let's go to the moon we'll

39
00:02:09,810 --> 00:02:04,870
put in a few of the Apollo missions for

40
00:02:11,940 --> 00:02:09,820
reference now we have a bunch of dots it

41
00:02:15,120 --> 00:02:11,950
sort of makes sense but let's connect

42
00:02:17,700 --> 00:02:15,130
them all with a line now that looks

43
00:02:19,350 --> 00:02:17,710
better we can now see the relationship

44
00:02:21,900 --> 00:02:19,360
between how long a mission is and how

45
00:02:24,000 --> 00:02:21,910
much food we need to take this lets us

46
00:02:26,510 --> 00:02:24,010
ask some good questions like how much

47
00:02:29,780 --> 00:02:26,520
food would it take to get to say Mars

48
00:02:32,130 --> 00:02:29,790
wow that's a lot of food for one person

49
00:02:35,100 --> 00:02:32,140
fortunately NASA engineers think about

50
00:02:35,820 --> 00:02:35,110
these questions every day well there you

51
00:02:37,800 --> 00:02:35,830
go folks

52
00:02:38,880 --> 00:02:37,810
next time you want to see how two things

53
00:02:43,060 --> 00:02:38,890
relate to one another