



MAGRA

**ON THE EDGE OF FOREVER
SCIENCE IN SPACE**

1
00:00:11,430 --> 00:00:09,190
science and star trek go hand in hand

2
00:00:13,910 --> 00:00:11,440
for 50 years star trek has inspired

3
00:00:15,589 --> 00:00:13,920
generations of scientists engineers and

4
00:00:16,870 --> 00:00:15,599
even astronauts to reach beyond their

5
00:00:19,269 --> 00:00:16,880
grasp to help create a future for

6
00:00:20,870 --> 00:00:19,279
humanity with limitless potential let's

7
00:00:22,310 --> 00:00:20,880
take a look at some of star trek science

8
00:00:24,310 --> 00:00:22,320
fiction concepts that are now a little

9
00:00:39,190 --> 00:00:24,320
closer to being science fact thanks to

10
00:00:43,110 --> 00:00:41,670
warp drives phasers and transporters

11
00:00:45,190 --> 00:00:43,120
might be what you picture when you think

12
00:00:46,630 --> 00:00:45,200
of star trek but some of the show's

13
00:00:48,709 --> 00:00:46,640

other scientific concepts are actually

14

00:00:50,630 --> 00:00:48,719

being researched and utilized aboard

15

00:00:52,950 --> 00:00:50,640

humanities laboratory in the sky the

16

00:00:57,189 --> 00:00:52,960

international space station

17

00:01:00,069 --> 00:00:57,199

science laboratory in the unique

18

00:01:03,750 --> 00:01:00,079

environment of microgravity it allows

19

00:01:06,149 --> 00:01:03,760

you to do research that's impossible to

20

00:01:08,230 --> 00:01:06,159

do on the surface of earth and that is

21

00:01:10,390 --> 00:01:08,240

going to allow us to make breakthroughs

22

00:01:12,390 --> 00:01:10,400

in ways we've never done before so we

23

00:01:13,910 --> 00:01:12,400

can live better and create new

24

00:01:16,230 --> 00:01:13,920

technologies that we can bring back here

25

00:01:17,429 --> 00:01:16,240

on earth and the money spent out there

26

00:01:19,590 --> 00:01:17,439

in space

27

00:01:22,870 --> 00:01:19,600

is investing in our future

28

00:01:28,149 --> 00:01:24,789

measuring the planet now captain

29

00:01:30,230 --> 00:01:28,159

spheroid shaped atmosphere

30

00:01:32,310 --> 00:01:30,240

oxygen nitrogen

31

00:01:34,149 --> 00:01:32,320

earth

32

00:01:36,149 --> 00:01:34,159

star trek they would scan the planet for

33

00:01:38,550 --> 00:01:36,159

life forms and the atmosphere for

34

00:01:40,230 --> 00:01:38,560

example all of those same things that

35

00:01:41,990 --> 00:01:40,240

the enterprise would observe were able

36

00:01:44,789 --> 00:01:42,000

to observe from the space station we

37

00:01:46,710 --> 00:01:44,799

have a variety of atmospheric sensors on

38

00:01:48,149 --> 00:01:46,720

the space station and really looking at

39

00:01:50,149 --> 00:01:48,159

earth from up there

40

00:01:52,310 --> 00:01:50,159

it shows you a lot of things that you

41

00:01:54,389 --> 00:01:52,320

cannot see from from the ground we're

42

00:01:56,709 --> 00:01:54,399

learning more about the earth about how

43

00:01:58,870 --> 00:01:56,719

clouds form about the winds and how

44

00:02:01,590 --> 00:01:58,880

those create hurricanes how our planet

45

00:02:03,350 --> 00:02:01,600

behaves we can understand the potential

46

00:02:05,590 --> 00:02:03,360

implications of climate change looking

47

00:02:08,550 --> 00:02:05,600

at the atmosphere for signs of life

48

00:02:10,550 --> 00:02:08,560

population change human impact on earth

49

00:02:12,550 --> 00:02:10,560

and this is what space gives you a

50

00:02:13,430 --> 00:02:12,560

perspective that you cannot have here on

51

00:02:15,670 --> 00:02:13,440

earth

52

00:02:17,990 --> 00:02:15,680

so we're moving to the point where yes

53

00:02:19,510 --> 00:02:18,000

you can say you know scan scan this

54

00:02:21,030 --> 00:02:19,520

planet it's a little fancier on the

55

00:02:26,070 --> 00:02:21,040

enterprise but the fundamentals are the

56

00:02:31,270 --> 00:02:28,710

we've got 14 science labs aboard this

57

00:02:33,910 --> 00:02:31,280

ship the finest equipment and computers

58

00:02:35,509 --> 00:02:33,920

in the galaxy much like the enterprise

59

00:02:37,589 --> 00:02:35,519

the international space station is home

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00:02:39,509 --> 00:02:37,599

to a state-of-the-art laboratory

61

00:02:42,470 --> 00:02:39,519

space station is a unique place for

62

00:02:44,390 --> 00:02:42,480

doing biomedical research also working

63

00:02:47,190 --> 00:02:44,400

in a weightless environment allows

64

00:02:49,830 --> 00:02:47,200

researchers to take gravity out of the

65

00:02:52,070 --> 00:02:49,840

equation it opens up new research areas

66

00:02:53,990 --> 00:02:52,080

to scientists who have never studied

67

00:02:55,830 --> 00:02:54,000

this kind of phenomenon so we can get

68

00:02:57,990 --> 00:02:55,840

insights into those processes that we

69

00:03:00,149 --> 00:02:58,000

can't get back here on earth there's

70

00:03:01,589 --> 00:03:00,159

amazing things that are being discovered

71

00:03:03,430 --> 00:03:01,599

it allows for the development of new

72

00:03:05,589 --> 00:03:03,440

medicines new treatments for various

73

00:03:10,550 --> 00:03:05,599

diseases and really improving the

74

00:03:14,149 --> 00:03:12,229

gentlemen there is one thing which

75

00:03:15,830 --> 00:03:14,159

requires the immediate attention of all

76

00:03:18,949 --> 00:03:15,840

of us

77

00:03:21,830 --> 00:03:18,959

specifically our future

78

00:03:24,149 --> 00:03:21,840

star trek was really a big part of space

79

00:03:27,509 --> 00:03:24,159

exploration today because it's in all of

80

00:03:29,990 --> 00:03:27,519

our souls we all share the curiosity

81

00:03:33,670 --> 00:03:30,000

about what's beyond the horizon

82

00:03:36,390 --> 00:03:33,680

people gravitated towards star trek and

83

00:03:38,949 --> 00:03:36,400

found the inspiration there to go on and

84

00:03:41,430 --> 00:03:38,959

become scientists and engineers and

85

00:03:44,229 --> 00:03:41,440

and make their contributions so the

86

00:03:49,110 --> 00:03:44,239

youthful scientists at nasa are

87

00:03:51,110 --> 00:03:49,120

conceiving things that the older people

88

00:03:53,509 --> 00:03:51,120

never thought of never occurred to them

89

00:03:55,750 --> 00:03:53,519

we're making great discoveries and we're

90

00:03:57,910 --> 00:03:55,760

laying all that foundation for the dream

91

00:04:00,309 --> 00:03:57,920

that star trek really represents we want

92

00:04:02,869 --> 00:04:00,319

that to be true and so we're working

93

00:04:04,710 --> 00:04:02,879

really hard to go make that happen

94

00:04:06,309 --> 00:04:04,720

research aboard the international space

95

00:04:07,990 --> 00:04:06,319

station is advancing knowledge of our

96

00:04:09,910 --> 00:04:08,000

bodies our home planet and our

97

00:04:11,910 --> 00:04:09,920

understanding of the cosmos but we've

98

00:04:13,350 --> 00:04:11,920

only scratched the surface there's an

99

00:04:15,270 --> 00:04:13,360

entire universe of scientific

100

00:04:49,749 --> 00:04:15,280

discoveries to be made and with that

