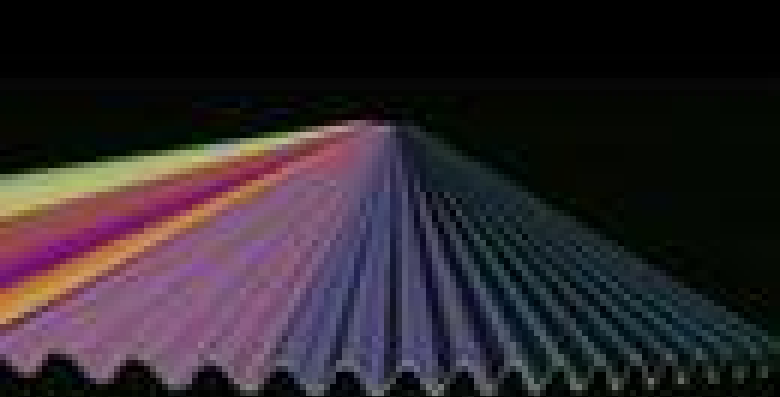
TIOLET
X-RAYS
GAMMA R

1
00:00:22,620 --> 00:00:19,950
glassed is designed to look at gamma

2
00:00:24,450 --> 00:00:22,630
rays and gamma rays of the highest

3
00:00:26,070 --> 00:00:24,460
energy form of light there's the light

4
00:00:28,320 --> 00:00:26,080
we see with our eyes but there are lots

5
00:00:30,179 --> 00:00:28,330
of other types of light gamma rays are

6
00:00:33,689 --> 00:00:30,189
the most energetic form of light the

7
00:00:34,979 --> 00:00:33,699
most powerful gamma rays are the part of

8
00:00:35,849 --> 00:00:34,989
what we call the electromagnetic

9
00:00:37,950 --> 00:00:35,859
spectrum

10
00:00:40,590 --> 00:00:37,960
which starts in radio at very long

11
00:00:42,569 --> 00:00:40,600
wavelengths goes through optical then

12
00:00:44,759 --> 00:00:42,579
through x-rays and then gamma rays at

13
00:00:47,099 --> 00:00:44,769

the very highest energy form of that

14
00:00:48,479 --> 00:00:47,109
type of radiation the reason it's

15
00:00:51,360 --> 00:00:48,489
important to look at the high-energy

16
00:00:53,039 --> 00:00:51,370
gamma rays is that many objects the most

17
00:00:55,590 --> 00:00:53,049
violent and some of the most interesting

18
00:00:57,479 --> 00:00:55,600
objects in the universe emit most of

19
00:00:59,189 --> 00:00:57,489
their light in this high-energy gamma

20
00:01:01,199 --> 00:00:59,199
ray part and the only thing that can

21
00:01:02,849 --> 00:01:01,209
generate gamma rays are incredibly

22
00:01:05,369 --> 00:01:02,859
violent events incredibly energetic

23
00:01:07,830 --> 00:01:05,379
events and we're talking stars exploding

24
00:01:10,380 --> 00:01:07,840
and neutron stars with really strong

25
00:01:12,149 --> 00:01:10,390
magnetic fields and really exotic and

26
00:01:14,490 --> 00:01:12,159
strange objects like that

27
00:01:16,980 --> 00:01:14,500
it's like Christmas trees shining and

28
00:01:19,169 --> 00:01:16,990
it's flaring there are Russians every

29
00:01:21,359 --> 00:01:19,179
day gamma ray bursts being example

30
00:01:23,760 --> 00:01:21,369
something that for a brief instant of

31
00:01:25,440 --> 00:01:23,770
time outshines the entire rest of the

32
00:01:29,370 --> 00:01:25,450
universe these are the biggest

33
00:01:35,290 --> 00:01:32,340
we think that there are the signals that

34
00:01:37,570 --> 00:01:35,300
happen when a black hole is born we

35
00:01:39,580 --> 00:01:37,580
don't know in detail how it works and by

36
00:01:42,040 --> 00:01:39,590
looking with glass we'll be able to

37
00:01:45,790 --> 00:01:42,050
study the physics of what causes a

38
00:01:48,010 --> 00:01:45,800

gamma-ray burst the thing is that most

39
00:01:50,410 --> 00:01:48,020
of the gamma rays we look at in terms of

40
00:01:52,300 --> 00:01:50,420
gamma-ray astronomy never reach people

41
00:01:55,030 --> 00:01:52,310
in the atmosphere essentially absorbs

42
00:01:56,830 --> 00:01:55,040
all of those chemicals which is the

43
00:01:58,810 --> 00:01:56,840
reason why glass has to fly on the

44
00:02:01,120 --> 00:01:58,820
settlor there's none of the gamma rays

45
00:02:03,580 --> 00:02:01,130
we want to see actually to make it to

46
00:02:04,990 --> 00:02:03,590
the ground glass is going to open up

47
00:02:07,000 --> 00:02:05,000
that part of the electromagnetic

48
00:02:10,389 --> 00:02:07,010
spectrum to better understand the

49
00:02:12,640 --> 00:02:10,399
universe it provides the widest energy

50
00:02:15,220 --> 00:02:12,650
coverage for gamma-ray bursts that has

51
00:02:17,650 --> 00:02:15,230
ever been put into space it's going to

52
00:02:19,750 --> 00:02:17,660
see the frontiers of many objects

53
00:02:21,610 --> 00:02:19,760
high-energy objects in history shows

54
00:02:23,590 --> 00:02:21,620
that when you open up a new band in the