VSAUCE: *WILL WE EVER VISIT OTHER STARS?*

1. What kind of document was this? (I know it's a video, be more specific than that)

This document is a video which is most likely taken from the Internet (more specifically, it probably comes from YouTube YouTube). The host of the show is a man called Michael. He tackles a specific scientific issue which we will mention in a minute. However, it is not pure hardcore science but rather a simplified version of it. Therefore, I guess you could call it a "popular science" show or, more simply put, an "educational" video dealing with science.

2. What was the general topic? What was the main question?

This video deals with space and more specifically whether or not humanity will eventually be able to visit other stars. The main question is, surprisingly enough, also the title of the video, i.e. "Will we ever visit other stars?" or, as asked by Michael in the course of the video, "WHEN will we do it?" which, I believe, is clear enough and does not need further explanation.

3. Where have we managed to put people and robots on, as far as our solar system is concerned?

As far as our solar system is concerned, we've managed to put people on the Moon and robots on asteroids as well as Mars (and even Titan, which is a moon of Saturn).

4. What have you learned about Voyager 1?

Well, actually, we haven't learned anything special about Voyager 1 yet: it will reach interstellar space sometime in the future (this year or in the next couple of years; however, since the video was released in 2013, I'm not sure how to phrase that and to what extent it's true). Since it was launched in 1977, I guess you could say Voyager 1 told us how far interstellar space actually is.

5. How many visible stars are there less than 20 light-years from our Sun? Which one is the closest? How near?

To quote from Michael, there are "about 81 stars" less than 20 light-years from our Sun which does not make much sense to me: how could there be ABOUT 81 stars? I would understand "81 stars", I would understand "about 80 stars" but "about 81 stars"? Really? Anyway, the closest one is named Proxima Centauri (4.3 light-years away). For some reason, 90% of students wrote "Proximus Centauri" which proves that they used the subtitles which, on this particular instance, were wrong. It's "Proxima Centauri". I got you. Whatever.

6. What is said about light-years? What comparisons are made?

A light-year is a truly long distance (the distance that light would travel in vacuum in a year). In one second, light would circle the Earth seven times. Michael mentions the speed of a bullet, the speed of Voyager 1, the speed of rotation of our Earth or the Helios 2 Solar Probe and they do not even compare with the speed of light, so to speak.

7. What was the fastest object ever created by man? Give details if you can.

It was the Helios 2 Solar Probe and it appeared to be really fast. However, even at that speed, it would take 19,000 years to reach Proxima Centauri.

8. What is the Alcubierre drive?

It is a theoretical solution to move objects faster than the speed of light: the idea is that you should not move the object but rather distort the space (and time) around it. It's quite complex and I don't have much time left so if you want to know more, just look it up on Wikipedia.

9. What is a Wait Calculation?

It's the math you should do to know whether you should send a spacecraft in outer space or wait for technology to improve so that the spacecraft would go faster (and eventually pass the hypothetical spacecraft you would have sent in the first place).

10. What did Andrew Kennedy do? Why is it a bit optimistic?

Andrew Kennedy had a lot of time on his hands: therefore he calculated that, given the pace of progress and Earth's economic growth, humanity will not be able to reach Barnard's star (6 light-years away from us) before year 3117. It is optimistic because it assumes we would not only know how to solve the problem of speed but also the issue of surviving interstellar radiation or how to avoid collisions with miscellaneous objects. Finally, it also assumes that humanity will survive the forthcoming years in order to achieve all this.

11. 5-50 million years, 500,000 years: what is said about those figures?

Within the next 5 to 50 million years, we could theoretically explore and colonize our galaxy when, statistically speaking, the Earth is likely to cross the path of a meteorite within the next 500,000 years. The odds are against us!

12. How fast is the camera moving in that clip?

Well, actually, it's not moving at all, since it's just an artistic impression and there is no camera… But we could assume that if there was a camera filming here, it would move at the speed of light (or even faster).

13. What would happen if we were to travel at the speed of light?

Our field of view would increase (the universe would look as if it was receding away from us) and we would eventually be blinded by the "blueshifted" cosmic background radiation.

14. What would happen to the human body when in space with no suit in the first 15 seconds?

Our beautiful beautiful bodies would sadly not inflate and explode (which would have been a lot of fun): the air in lungs and intestines would simply rush out, moist tissues would dry out (especially eyes and mouth) and freeze. Then the body would double in size and gasses in our blood would evaporate (specifically in the eyes, which would in turn burst and freeze). Fifteen seconds later, we would go unconscious (as there would be no more oxygen reaching the brain). Yes, very sexy indeed.

15. What would happen after 90 seconds? What is said about the temperature of the body? Explain.

We would be alive for about a minute and a half but would not remember any of this delightful and unique experience, which is a shame, right? The body would stay warm because there is not so much matter in space and it will cool down through radiation only (which is not a truly efficient method of cooling things down).

16. Jerky is a sort of dried-up meat. What is said about its nutritional facts?

As a snack, Michael would be worth 115,000 calories. I don't know what to do with that information. I feel a bit disgusted. I don't want to eat Michael.

17. Explain the Fermi paradox.

Given the number of planets believed to exist in our galaxy, some should be habitable. If we apply those numbers to the whole universe, a large number of planets should foster extraterrestrial life. The paradox is that we haven't been visited yet (so we know), which makes us wonder why.

18. What are the possible answers why we haven't been visited?

Maybe we *have* been visited, maybe they're here now and we can't perceive them, maybe we haven't been discovered or maybe we're just alone or not worth visiting. Or maybe life is just an illusion and nothing we think and experience is true, including the concept of universe and aliens. Okay, the last one was not featured in the video but I like this option.

19. What is the conclusion of the host of the show?

Live your life in a way that will make aliens want to visit you!

20. How awesome was this video?

I liked it, except for the part where Michael wanted me to eat him. I feel confused.