NASA/JPL Solar System Ambassador Program

DID THE BIG BANG REALLY HAPPEN?

The Big Bang has been proposed as one theory about the beginning of our Universe. During this presentation we will discuss the theories on what banged, why it banged, and what was there before the bang. We will also cover other theories that have been postulated for how we got everything from seemingly nothing, whether multiple universes exist, and what the future holds for the universe we inhabit.

EXOPLANETS

Travel to the far reaches of the Universe and see that fact can be stranger than science fiction. Join us for a presentation of the question that has puzzled mankind for centuries: Are we alone? What was Stephen Hawking's warning about trying to contact aliens? Learn how NASA and other space agencies search for planets. What makes a planet habitable? And finally, should humans become a multi-planet species?

IS THERE LIFE OUT THERE?

Ever since humans first gazed into the night sky, the question of whether we are alone in the Universe has remained unanswered. The Universe is 13.8 billion years old yet the "Observable Universe" is 92 billion light years across (a "Light Year" is equivalent to 6 trillion miles). One would think that statistics dictate that with a Universe that vast and with one planet teeming with life (Earth) that some form of life exists out there. If so, is it intelligent and what does it look like? Is it in our own backyard, i.e. Mars, and moons in our Solar System. And, where are they? What was Stephen Hawking's warning?

Learn about the methods of planet hunting, the signatures that scientists look for that may indicate favorable conditions for life, and the requirement for life to arise.

HOW THE UNIVERSE WORKS

The Universe is stranger than fiction. Building on the Big Bang presentation, this one will take us from the "birth" of the Universe to its final days. Topics include how stars are born and die, their internal

processes, and how they have contributed to everything the Universe has. This includes how we humans are really made from star dust. You will learn everything you want to know about black holes but were afraid to ask.

What is the Universe made of? Are there parallel universes where carbon copies of us exist? Learn about the cosmic battle that will determine the fate of our Universe. And, discover why the Universe is a dangerous place.

ALL ABOARD FOR MARS

Come with us on a journey to Mars and hear about the latest discoveries of our terrestrial neighbor made by NASA. Did life once exist there and is there life now? Could our ancestors have hitched a ride from Mars to Earth on a comet? It's possible. Mars was once wet and had an atmosphere that could support primitive life forms.

We just launched an exciting mission to the Red Planet: Mars 2020. It includes the rover Perseverance and for the first time in the history of space exploration a helicopter, Ingenuity. Ingenuity is the first ship to actually take flight on another celestial body. Perseverance is actively searching for signs of ancient and/or current life. Our hopes are high that clues will be uncovered.

Come aboard for a ride to Mars.

APOLLO: HOW WE GOT TO THE MOON

We will relive the excitement and adventure of the program that brought humans to another world. Learn about how the Apollo program was a masterpiece of engineering and courage in the days when technology was in its infancy. Apollo continued in the footsteps of history's great explorers and left an incredible legacy.

What does the Moon teach us about the Earth?
We will discuss how the rocks returned to Earth revealed how the Moon was formed, who the brave astronauts were, and what we will accomplish within the next few years.

After this presentation you will not look at the Moon in the same way.

BLACK HOLES

The existence of black holes has been theorized for more than 200 years. Initially just a philosophical idea, there is now strong evidence that most, if not all galaxies contain black holes millions or billions of times more massive than our Sun. Black holes themselves cannot be observed since, by definition, no light can escape them, but astronomers can study the effects of black holes on their surroundings.

What are black holes? How do they form? How can they be studied if nothing can escape them? What is at the bottom of them – parallel universes, time travel, or something else?
In this presentation we will take a journey to a black hole and explore what we would see and feel including how to be "spaghettified."

Planetary Defense

The Universe is a dangerous place: Asteroids, comets, black holes, supernovae. And is it possible that ET will pay us a visit? How do we protect Earth from these potential catastrophes?

What are we doing to about defending life against space debris being hurled at us like fastballs? In recent years we have seen an exploding meteorite damage buildings and harm citizens in Russia and have had reports of other such phenomena. What if ET suddenly shows up on our doorstep? And, how do we defend other planets from being contaminated by us Earthlings?

These incidents all point to the need to take planetary defense seriously. Just ask a dinosaur about its importance.

We are actively planning defensive measures. Join us to learn about the steps that are being taken to protect us.

OUR SOLAR SYSTEM

Our solar system has 8 planets (sorry Pluto), 5 dwarf planets, 181 moons, and 552,894 asteroids. That's just part of the solar system. Further out are the Kuiper Belt and the OORT cloud.

How and when did our solar system form? Well, much of what we have today are the survivors of an ancient demolition derby. We may be standing

on the second version of Earth. And, did you know that the planets were not always in the same order as they are today and that Saturn saved the Earth?

We will also learn what Einstein said that gravity is and how the planets and moons stay in orbit.

IS TIME TRAVEL POSSIBLE?

From science fiction novels to movies to television have provided a wealth of fantasy and in some cases, science reality. One of the most famous novels is the "Time Machine" written by Herbert George Wells, aka H.G. Wells and the "Father of Science Fiction." He foresaw such futuristic happenings as space travel and even something similar to the World Wide Web. He knew his science.

Let's take up his mantle and explore the questions of time travel. Is it possible? – **YES, BUT**. What did Einstein and Hawking say about the subject? Can we return to the past? You may want to ask your grandfather.

Join us for a trip through time.