

The Milky Way, Moons and Meteorites is a an interactive show about outer space. The students learn about Earth, Earth's atmosphere, our solar system, the planets, friction, the greenhouse effect, and the difference between meteors, meteorites, and meteoroids. We also talk about gravity, stars, shooting stars, planets that look like stars, the moon and historical figures from space history like Yuri Gagarin, Neil Armstrong and Sally Ride.

The content of the show adjusts according to the students' maturity and knowledge base. The show that is explained below is high in content and abstract concepts. For example, if Dino is working with only Kindergarten students, he may substitute for a song with outer space concepts that aren't as abstract. Or he may use the same song with a simplified message.

Dino not only raps, sings, and plays the guitar, but he also uses theatrical skills to tell stories and play the roles of different characters like Grandpa O'Dell, Joe the cowboy, and Zar the space alien.

The Milky Way, Moons, and Meteorites

by Dinosaur O'Dell

The Planets Song

There is no verbal introduction to the show. The students are engaged immediately with the sound of a guitar. And then they hear singing or rapping of these lyrics:

Mercury, Venus, Earth and Mars
Jupiter and Saturn, shine like stars
Far in the distance, way past the moon
Uranus and Neptune

The lyrics in this song are about the planets in our solar system. After performing the song once, Dino asks the students to learn a clapping part. The clapping actively engages the audience while they are simultaneously listening to and passively learning the lyrics to the song. "The Planets" song recurs throughout the show. Each time another interaction is added. By the end of the show the students clap, jump, dance and sing the entire song. Having a variety of physical and musical interactions engages the brain and makes the lyrics of the song stickier.

5 Little Meteors

Dino tells a story about a camping trip with his brothers, sisters and Grandfather. Grandpa O'Dell was the first person to introduce Dino to science and on this particular camping trip there is a meteor shower.

Grandpa explains the difference between meteoroids, meteors and meteorites. He starts by illustrating the difference between Earth, the Earth's atmosphere, and outer space. The students clench one hand into a fist and pretend that their fist is the planet Earth. Their other hand is the atmosphere and it wraps around the fist. Everything outside of the Earth and the Earth's atmosphere is outer space.

Every once in a while one of the meteoroids that is flying through outer space will enter the Earth's atmosphere. When it does, it is called a meteor. The meteor is moving so quickly that when it rubs against the Earth's atmosphere, it creates a friction.

The students are asked to rub their hands together quickly. "Press them together harder and rub faster" As their hands warm up the concept of friction is explained. The heat caused by the friction becomes so great that the meteors catch on fire. Most of them burn up in the atmosphere, but every once in a while one of those meteors will hit the Earth's surface. When it does it's no longer called a meteoroid or a meteor, it's called a meteorite. Grandpa wrote a song to help the students remember the difference: 5 Little Meteors. Each verse song ends with one of the meteors either burning up, landing on Earth (becoming an meteorite) or flying back in to outer space (turning back into a meteoroid). The song is also a subtraction song which helps engage the younger students; "Let's see, 5 meteors minus the two that landed on earth, how meters are left in the atmosphere?"

The Planet's Song (reprise)

For the first reprise, the students usually remember their clapping part so Dino adds dance moves. The dance moves have meaning; for example when the lyrics "Mercury, Venus, Earth and Mars" are sung, the move is to wipe your hand across your forehead and then fan yourself with your hand. The students are asked what the moves mean and they are almost always able answer that the this move signify heat. Dino asks "why are those planets the hottest?"; "Because they are closest to the sun". Then Dino asks which of the first four planets are the hottest and about half of the time somebody knows that it's not Mercury, which is closest to the sun, but Venus, which has an atmosphere that holds in the heat. Dino explains the greenhouse effect and ask if anybody has every gone out to their car on a warm day, opened the windows, and it's been warmer in the car than it is outside. The windows of a car work like an atmosphere. They both let the heat from the sun through, and then hold the heat inside the car or close to the planet.

The Pizza Song

When Dino was a boy his mom used to bring home big cardboard boxes from the store where she worked. Dino and Dino's sister made all kinds of things with those boxes: submarines, race cars and hideouts. But the best thing they ever made was a spaceship. The morning that they made the ship, they were pretending that they were famous astronauts orbiting the earth. Dino was Yuri Gagarin, the first man in outer space, and Dino's sister pretended she was Sally Ride, the first american woman in outer space. When it was lunch time, they decided they would eat their pizza on the ship. Unfortunately, because they were in orbit, the pepperonis kept floating off the pizza. Dino asks the students why the pepperonis are floating and then asks someone to explain gravity. Dino repeats the description of gravity, making sure to include or correct any important details. He then explains that when astronauts like Sally Ride ate in space, they often ate out of tubes.

The students then sing a song about pizza. The students are engaged by singing, hand motions and fill in the blank lyrics. The fill-in-the-blank lyrics are the toppings on the pizza. Dino steers the students to space related toppings. For example "What would a space alien put on a pizza?"

Big Sky

Dino's friend Joe is a cowboy. He is also an astrophysicist. Joe grew up on a ranch and Dino asked Joe, how he got interested in outer space. Joe said "after supper my family would go sit

out on the hill behind the house and as the sky grew dark, we would watch the moon and stars come out in the sky. The stars are always in the sky, but the sun is so bright that you can't see 'em. Once the stars come out you can start to see the patterns. People like to make pictures out of the stars. There's the big dipper. There's Orion's belt. The pictures are called constellations. They are the connect-the-dots between stars. As my brothers and I sat on the hill, we would talk about what we wanted to be when we grew up. I always wanted to be a scientist. On the count of three, all y'all say what you want to be when your all grown up.

Then Joe has the students join his ranch band. The students practice playing lap drums and stopping and starting with the guitar. Joe and the students perform a country and western song together called "Big Dreams".

At the end of the song Joe has the students perform the "big ending." He tells them that they have to jump in clap with the final "hits" in the music. If they aren't jumping high enough he tells them to jump like they are on the moon and he has them explain why they can jump higher on the moon and why there is less gravity on the moon than on planet Earth. If they can't explain it, then Joe explains it.

The Planets (reprise)

This time the students learn the jumping section. They are still absorbing the words passively, though by this time, some of the kids have started to sing-along of their own initiative. The more brain cells that are connecting to the melody and lyrics (jumping, clapping, dance moves) the more likely they are going to remember the lyrics and the song's meaning.

Zar

This is a story about a space alien that crash lands his ship at the park. The students help him fix the ship. This interactive rap requires the students to push buttons with their fingers, toes, elbows, nose and bottom. After the story Dino asks if they think the story is true. He asks them to raise their hand if they believe in space aliens. Then Dino explains the organization SETI. S E T I stands for search for extra-terrestrial intelligence. Dino explains that scientists don't have any proof that there is intelligent life, or even non-intelligent life, outside of Earth. However, the scientists think it's probable because there are about 200 billion suns in our galaxy and about 100 billion galaxies and they think there is life somewhere. But a scientist needs proof, so they can't say for sure. But Dino tells the students that if they see a space alien at a park, be sure to take a picture, because that might help prove that space aliens exist.

The Planets (finale)

At this point the students can sing, dance, clap and jump with this song. Dino and the students practice and then perform the song for a final time, before ending the show.