



Science is Cool with NASA's "Space School Musical"

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Abstract

To help young learners understand basic solar system science concepts and retain what they learn, NASA's Discovery and New Frontiers Programs have collaborated with KidTribe to create "Space School Musical," an innovative approach for teaching about the solar system. It's an educational "hip-hopera" that raps, rhymes, moves and grooves its way into the minds and memories of students and educators alike. The solar system comes alive, combining science content with music, fun lyrics, and choreography. Kids can watch the videos, learn the songs, do the cross-curricular activities, and perform the show themselves. The videos, songs, lyrics, and guides are available to all with free downloads at <http://discovery.nasa.gov/>

1. Introduction

"Space School Musical" captures students' attention as it brings the solar system to life, introducing the planets, moons, asteroids and more. The musical uses many different learning styles, helping to assure retention. Offering students an engaging, creative, and interdisciplinary learning opportunity will help them remember the content but may lead them to wonder about the universe around them and even inspire some to want to learn more, to dare to consider they can be the scientists, technologists, engineers or mathematicians of tomorrow.

1.1 The Story

The story: Hannah's science project is due tomorrow but her model of the solar system isn't finished and it's past her bedtime. How will she get it done in time? Hannah goes on a journey across our solar system, and with a little help from her friends, the most talented troupe in the Milky Way, and some really far out scientists, she gains the confidence to finish her project while she learns that space is definitely one cool place.

1.2 The Learning Process

Whether students absorb information best with their eyes, ears, or body, each lesson in the activity guide allows for their learning preferences and encourages them to interact with both the content and each other.

The lesson plans encourage a three step process in learning. First, students are exposed to the content and explore it through a variety of creative, right-brained modalities such as music, art, and physical activity. Second, students are allowed to develop their understanding of that content through engaging activities that develop academic, critical thinking, and decision-making skills. Finally, through creative self expression, students are provided opportunities to share their learning with others, cooperatively and collaboratively.

1.3 How to Produce the Play

"Space School Musical" is designed to be intuitive, requiring little to no producing, directing or performing experience. The "How to" guide has suggestions for casting, auditions, rehearsing, creating the set and costumes, and performing.

The musical is totally flexible - the entire play can be performed or just a few selected numbers; students can sing to the karaoke versions or lip-sync to the original cast. After learning about the solar system, students can even write their own lyrics.

2. The Activity Guide

The unique Activity Guide created to accompany “Space School Musical” includes 36 academic, fitness, art, and life skills lessons, all based on the content in the songs. The activities are designed to be highly engaging while helping students interact with the information, enhancing not only their academic performance in the core subjects but also physical fitness levels, life skills and decisions making processes, and visual and performing arts abilities. This approach assures that all students have the opportunity to share their innate talents and express their linguistic, mathematical, logical, spacial, musical, kinesthetic, interpersonal, and intrapersonal skills. Many activities encourage small group or partner work.

While the lessons are designed to be developmentally appropriate for upper elementary and middle school students, they can be easily adapted for students of varying abilities by adjusting the content and product of the lesson. In addition to meeting integrated academic standards, the lesson plans are designed to help encourage students to develop necessary skills to be successful citizens in the 21st century, including leadership, cooperation, creativity, communication, collaboration, problem-solving, and critical thinking.

3. How Scientists Can Utilize “Space School Musical” in Their Education and Public Outreach

“Space School Musical” commands attention! Whether scientists are visiting classrooms or afterschool programs, addressing school assemblies, offering professional development workshops or distance learning courses, showing one or more videos from “Space School Musical” brings engagement, smiles, and information to all.

Specific songs can be shown to reinforce space science topics. The “Planetary Posse” introduces the planets and dwarf planets, setting a firm foundation for conveying more in-depth information. “The Asteroids Gang” can initiate a discussion about accretion and why small bodies are so important to understanding the origin and evolution of our solar system. “MoonDance” can introduce missions that

are exploring the moons. “We’re the Scientists” shows students that no one gets all the answers right every time and helps build self confidence.

4. Figures



Figure 1: Hannah and the Planetary Posse.



Figure 2: The MoonDancers.



Figure 3: The Asteroids Gang.

6. Summary

“Space School Musical” is an original production that integrates science with music, performing arts, physical education, language arts, social themes, and leadership opportunities. It brings an innovative approach to teaching about the solar system with entertaining and memorable lyrics. The musical is universal, funny, and timeless, making it a valuable addition to programs and presentations for students and the public. The videos, songs, lyrics and guides are all available free on the Internet at <http://discovery.nasa.gov>.

Acknowledgements

“Space School Musical” is a partnership between NASA’s Discovery and New Frontiers Programs and KidTribe. Kellee McQuinn, founder of KidTribe, created, wrote, and directed the musical. Kellee and Dr. Gale K. Gorke created and wrote the Activity Guide. Shari Asplund, Discovery and New Frontiers Education and Outreach Manager, oversaw development and production of the musical and the accompanying guides.