

Special Lesson Music and Everything Else

Read 1 If the Mathematical Constant Pi Was a Song, What Would It Sound Like

Everyone should remember the number represented by the Greek symbol π from middle school. Pi(π) shows up everywhere in mathematics. Pi also shows up in our lives and in nature where there is a circular shape, such as in planets and DNA. In fact, humans have known about the existence of pi for at least the past 4,000 years. However, in the past few hundred years, there have been efforts to increase the precision of the calculations of the digits of pi. In 2022, it was calculated to 100 trillion digits. This endless number is typically rounded down to 3.14. This is why March 14 became the annual holiday honoring this exceptional number. The date also happens to be famed physicist Albert Einstein's birthday and marks the anniversary of Stephen Hawking's death. While the day is really about math, many restaurants offer deals and discounts on circular food items, including pizza and traditional pies, to celebrate the holiday. As if celebrating the number with a holiday were not enough, there have been contests to try to memorize its endless sequence of digits that never repeat.

Devin Powell was once challenged to a pi digit memorizing contest. A few years before that, he had covered the World Memory Championship as a reporter and watched someone memorize a randomly ordered deck of cards in less than 19 seconds. Powell spent a lot of time talking to people about how they pulled off these seemingly impossible demonstrations of memory. He learned that it was not really due to some kind of natural talent for memorizing things, but some skills of using associations. He tried to get to 50 digits. After careful consideration, he decided to associate the digits with music. He mapped the numbers to the notes on the musical scale; the bigger the number, the higher up on the scale it went. At first, he was only going to have these tones in his head so that he could memorize the digits, but as he mapped the very first five digits, he found that it sounded really nice, like a lullaby. He sat down at the piano and started to play with that, which allowed him to identify the phrases that sounded really neat. He tried some parts in a major key and some in a minor key, playing with different arrangements of blocks from pi. He ended up calling it Lullapi.

Read 2 Ominous Background Music Is Bad for Sharks

According to environmental conservationists, some 100 million sharks are killed every year, far exceeding the average rebound rate for many shark populations. This number has risen sharply ever since the release of the 1975 movie *Jaws*, in which an enormous great white shark terrorizes a resort island off the coast of Massachusetts. Sharks have been demonized on screen for decades, as in *Finding Nemo*, *Sharknado*, *47 Meters Down*, and many others.

In addition to the development of an irrational fear of sharks, it has been suggested that people are less likely to support and donate money toward conserving sharks than other marine animals or even other predators, despite a strong need to maintain a healthy shark population for a balanced ecosystem.

Why do we have such a hard time helping sharks but don't have similar problems when it comes to helping tigers? What really influences our fear of sharks?

Some researchers propose that the background music in movies about sharks can negatively influence viewers' perceptions of sharks and the likelihood of them supporting related conservation efforts.

Why are sharks associated with scary music so often?

Thank the brilliant composer John Williams, who wrote the score for *Jaws*, which won him an Academy Award. It is one of the most recognizable and influential scores of all time. In modern pop culture, great white sharks are invariably tied to the movie's main theme, a simple alternating pattern of two notes: Dahh-na. Dahh-na. Dah-na dah-na dah-na! The unforgettable two notes of the *Jaws* soundtrack immediately bring to our minds haunting images of a shark's fin and swimmers' legs underwater. Unlike Hollywood films, documentaries tend to show sharks in their natural habitats. These documentaries may also fuel fear, due to the dark background music that is often associated with sharks.

In a series of experiments, the researchers found that music indeed has the power to influence public opinions about sharks. To measure the effect of scary music in shark documentaries, the researchers recruited 2,181 participants to watch a clip from a documentary, which featured sharks swimming around harmlessly, not eating anything. Some participants watched the clip with the music that originally accompanied the shark scenes in the documentary, a track called *Sharks*, which was considered ominous by an independent music expert.

Other participants watched the same clip accompanied by cheery background music. A third set of participants watched the clip with no music at all. After watching the clips, all the participants were asked to describe their attitudes toward sharks. The results showed that participants who viewed the video with its original ominous music reported more negative attitudes toward sharks than those who viewed the same scenes set to cheery music or silence. Moreover, they determined that these negative attitudes were not simply due to the music alone, but rather the combination of the video and audio. In a separate set of experiments, the subjects were asked to either listen to scary or cheery music, or sit in silence, without watching anything. It turned out that there was no effect on the attitudes toward sharks among these subjects.

The study also looked at how public attitudes toward sharks can affect efforts to save them. "By highlighting that ominous background music is associated with negative attitudes toward sharks, we hope to start a conversation about ways we can improve public perception of these ecologically important animals," says Andrew P. Nosal, an associate professor of biology at Point Loma Nazarene University.

Elizabeth Keenan, an assistant professor in the Marketing unit of Harvard Business School, says that negative public opinions about sharks continue to harm conservation efforts, which they are in desperate need of. "Any organization that intends to positively promote sharks or any other creature should carefully consider the soundtracks they choose," says Keenan. "While it may be tempting to include ominous soundtracks for entertainment value, for instance, our research shows there is a potential cost to doing so."

While this study focuses on sharks, the findings provide a general lesson about the marketing power of background music, which may well take a front seat toward influencing consumer choices.

"Atmospheric factors such as background music are known to affect consumers' preferences," says Keenan. "The key lies in determining whether these factors are influencing consumers in ways that are in line with companies' intended outcomes."