

Artist Tool / Science and Technology in Society

Artisttb008 / Science and Technology in Society / Fontys University of Applied Science

Title	Science and Technology in Society
Purpose	STEM: how science brings music to life
Description	Explore how technological innovation and musical taste often go hand in hand. Explore the technological innovations and musical tastes of previous generations and cultures. Consider the technological innovations and musical tastes of the present day. Project what technological innovations might occur in the future.
STEM topics covered	Product / service improvement, Service Design, Process improvement, Social innovation, Sustainability, Open innovation (if externals are integrated)
Arts topics	Music
STEAM approach explained	combination of art elements and innovation elements
Setting	Classroom, also suitable for larger groups (split up in different subtopics à 4-6 persons); online (with good whiteboard / documentation tools and breakout rooms)
Time frame	1 hr to 3 hrs
Group size	Several groups of 4-6 persons
Schedule and activities	Tables, 4-5 paragraphs – see above
Age group / level of study	BSc, MSc, PhD
Preparation needed / pre-requirements	Materials • Large whiteboard or butcher paper • Post-its (or similar pieces of paper) • Computer with Internet access and speakers
Instructions for students	No preparation needed, just write all your ideas on the post-it. During the discussions: do not judge and follow the usual rules
Instructions for facilitators	Activity: The Technologies of Music Participation Present students with a stack of Post-it notes and request that they respond to the following questions on separate Post-it notes: A. What innovations in music technology have affected the way that I listen to or enjoy music? For example, what programs or interfaces did I use to listen to music when I was in elementary school? How do I listen to music now? Answers here may vary. Some may have listened to music on technologies such as iPods as children and now use music services such as Spotify. Others may have begun with CDs and now use iPods or Internet radio or any number of other things. B. What innovations in music technology have affected the way adults I know listen to or enjoy music? Again, answers may vary from phonographs and 8-track tapes to cassette tapes, laser discs, compact discs, minidiscs, and others. Create. On a wall or piece of butcher paper, organize the Postit notes on a spectrum or timeline according to any criteria you choose. For example, you might choose the criterion of “portable music,” which includes everything from radios and 8-tracks to CD players and iPhones. Another criterion might be “popular taste,” which, depending on the point in history, would provide a different grouping. C. What has technology changed in the ways people enjoy music? What has not changed? For example, do people still attend live concerts? Are

	phonographs still sold? Does anyone know of persons still with cassette players in their car? D. <i>Do I know someone who enjoys music in a completely different way, using a different technology than I do?</i> For example, does everyone stream music? Does everyone go to live concerts? E. <i>How have technological innovations affected the way people enjoy music in other places?</i> For example, use a music service like Spotify to discover the music that is trending in a foreign country. With Spotify, you can type the name of a country into the search bar and often come up with a “Top 50” music hit list for that specific country. What is similar about the music in this Top 50 list from the music you listen to? What is different? (Have you ever heard Belgian hip-hop?) F. <i>Does everyone in the class use the same technologies to enjoy music?</i> For example, does everyone stream music on Spotify? Are there other music services that people stream from? Are there other technologies that people use to listen to music? Does a Top 50 playlist on Spotify represent the taste of all people, or just the people who use Spotify?
Lessons learned	Formative Students will demonstrate their understanding of the interaction between technology and music participation and creation in their own lives as well as those of people they know by their participation in class discussions and activities. They get a better understanding of target groups and music business. Summative Students can analyze a specific music technology and its use or impact on the way people listen to or enjoy music. They can also analyze the impact of a technology on the way that music is created (e.g., making beats in a drum circle versus on an iPad). They can project what technological innovations or business models might occur in the future.
Additional materials	If available: additional resources, e.g. website, videos, samples ...
Author / organization	Arizona State University’s Consortium for Innovation and Transformation in Music Education (CITME); STEM/STEAM Music Education Resources https://citme.music.asu.edu/resources-steam/steam-musiced/ https://citme.music.asu.edu/