Teachers' Resource Card
Semiconductor: The Technological Sublime

Semiconductor *Earthworks* 2016

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About the Exhibition

UK artists Semiconductor create visually spectacular video works that are informed by scientific data and technology. They delve into unseen and unseeable worlds, making the invisible visible. Their works explore the material nature of our world, how we experience and understand it. They use technology to extend vision and hearing, time and scale, to transcend the physical limits of our human perception. Many of their works have developed out of fellowships at science facilities—places like NASA, CERN, and the Smithsonian.

Semiconductor's subjects range from the ultrabig to the ultrasmall, from celestial activity—the surface of the sun—to the trajectories of subatomic particles. Their works are not just informative, they're beautiful, presenting information in an affective way.

Earthworks (2016) is a five-channel computer-generated animation in which seismic data is processed to represent the folding, faulting and forging of the land. The activity is sped up, encompassing millennia in moments. Represented in eye-candy colours, earthly strata well-up as marbled waves, dwarfing us.

Brilliant Noise (2006) mines the data vaults of solar astronomy. Usually cleaned up for public consumption, source images have been left in their glitchy raw state. Sound plays an important role in Semiconductor's work. The rain of visual noise is accompanied by a soundtrack made by translating image into audio.

Semiconductor's works are humbling and captivating, celebrating the artistic capacity of scientific imaging technologies to serve up a new brand of sublime.

Vocabulary

Data information, facts, and statistics.
Perception the ability to see, hear, or become aware of something.
Sublime the feeling of awe when contemplating things or ideas that are larger, greater or more powerful than ourselves and beyond our capacities. Traditional sublime landscape paintings show grand, overpowering or terrifying aspects of nature. Contemporary reworkings of the sublime tradition often consider our relationship to technology.

Pre-visit discussion

What are the human senses? How do we use each one? Discuss the limits of our senses and brainstorm some ways that technology can enhance them; for example, helping us to see something very small or far away.

List some ways of displaying data. Have you ever made a graph or a map? What other ways could you show information creatively?

Post-Visit Reflection and Activities

Reflect on your visit.
What sights and sounds do you remember? What did you notice about the scale of the artworks? How did the works make you feel? What big questions were generated by your visit?

Observe macro (big) and micro (small) worlds.
Go to www.hubblesite.org to look at images and videos of celestial phenomena taken by the Hubble Space Telescope and find out more about how telescopes work.

Observe micro worlds using a paper microscope from www.foldscope.com. Prepare slides, then take photos and videos with your phone to record your discoveries.

What are some other examples of technology that allows us to extend vision or hearing?

Gather and display data.
Gather some data—perhaps from a survey of birthdays, a poll of likes and dislikes, or an experiment showing something happening over time. Search for examples of both handmade and digital infographics, then discuss how your information could be shown in a beautiful, interesting, or affecting way. Options include: designing an eye-catching chart; making a painting, sculpture, or animation; creating an atmospheric installation. You could project images, translate data into sound, or use materials that reference the data you have gathered. Have an exhibition of your data art and invite your school or community to look at your work.

Find out more about Semiconductor.
semiconductorfilms.com

Research other artworks and projects that have been informed by scientific data.

- A performance using brainwave signals as a pattern for weaving. janineantoni.net/slumber
- A 17-metre high, multi-sensory sculpture controlled by data generated by honeybees. kew.org/kew-gardens/attractions/the-hive
- Sculptures made from weather data, crowd sourced data, and data visualisation ted.com/playlists/201/art_from_data