

## 7th Grade Fall 2023: Nuclear Energy and the Body - Project 1

### Background and Purpose

Our focus this fall is on understanding the long term impacts of nuclear energy, radiation and nuclear waste on people/their bodies, especially the impacts on Indigenous peoples, Black and Brown communities, and Asian and Pacific Islander communities. In the spring we will focus on environmental impacts, although the two issues are of course interconnected.

Your first project for this inquiry unit will explore how we can take the scientific process of designing models and combine that with the power of art to communicate the impact of nuclear energy on the human body. The stories of people affected by uranium mining and nuclear testing are often left out of the narrative about nuclear weapons development/nuclear power plants, an issue that has especially come to light recently because of the *Oppenheimer* movie!

As both scientists and artists, we are responsible for communicating about the effects of technology and phenomena, and using our knowledge we can take a stand against harm. For this project, you will take inspiration from one of the artworks listed below combined with your research about nuclear energy and the body, and create your own original artwork/documentation to share with students at the School of the Art Institute.

### Assignment instructions

You will work in groups of 2-3 to complete this assignment (You may also work independently). **The due date is November 3rd** and we will work on it twice a week (both background research and project work).

#### **Part 1 - Inspiration from Art (Due October 13th)**

Start by selecting one or more artworks of any kind (see the growing list of resources as examples below) and consider the following:

- *Theme* - What aspect of nuclear history/science does this artwork relate?
- *Impact* - What is the overall message of the artwork? Who might be the intended audience for this artwork?
- *Science* - How can you connect this artwork to nuclear science? In what ways does it represent or misrepresent a field of science (if at all)?
- *Scientist* - In what ways does the artwork represent or misrepresent the roles and responsibilities of the scientist (if at all)?
- *Question* - What questions about the intersections of nuclear art and science can you pose to the students at the School of the Art Institute?

You will record your responses on a poster paper given to you by Mx. Gluckman.

#### **Part 2 - Original Artwork/Documentation**

Create an original artwork or documentation (visual art, poetry, lyrics, scientific model, etc) about the effects of nuclear energy on the body. You **MUST** also incorporate at least one of the following concepts - INTERCONNECTEDNESS, RESPONSIBILITY, ETHICS, CARE.

This artwork **MUST** include an artist statement describing how the artwork engages with these concepts and communicates about the effects of nuclear energy on the body.

See rubric below for more details.

### **Examples of artworks that engage nuclear science & history**

- Visual Communication of radiation from Uranium mining in the US - <https://discardstudies.com/2016/05/09/illustrating-the-invisible-an-interview-with-yuko-on-the-radiation-monitoring-project-illustrations/>
- Fukushima exhibition at the Museum of Anthropology in Vancouver, BC – <https://moa.ubc.ca/exhibition/a-future-for-memory/>
- AIC exhibition on nuclear landscapes – <https://www.artic.edu/exhibitions/9894/himali-singh-soin-static-range>
- The University of Chicago Sculpture - <https://news.uchicago.edu/story/art-installation-reflects-worlds-first-chain-reaction>
- Nuclear reaction commemoration - <https://news.uchicago.edu/story/pyrotechnic-artwork-commemorates-75th-anniversary-first-nuclear-reaction>
- Cai Guo-Qiang’s work at the Hiroshima City Museum of Contemporary Art - <https://caiguoqiang.com/projects/projects-2008/the-7th-hiroshima-art-prize/>
- Isao Hashimoto’s time lapse video - <https://sites.saic.edu/earthlyobservatory/artists/isao-hashimoto/> (scroll to bottom)
- Monika Niwelinska’s photographic art - <http://www.niwelinska.com/albums/hidden-entropy/>
- Gilbert U-238 Atomic Energy Laboratory (Toy for kids!) [https://en.wikipedia.org/wiki/Gilbert\\_U-238\\_Atomic\\_Energy\\_Laboratory](https://en.wikipedia.org/wiki/Gilbert_U-238_Atomic_Energy_Laboratory)
- <http://www.jeremybolen.com/11> Unexposed film buried above the remains of the world’s first nuclear reactor
- More to be posted on Google Classroom in the digital copy of the project description. You may also suggest artwork or visual models that you find through research!

### **Rubric**

Science Standards -

MS-LS1-2: Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.

MS - LS1-3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

A high scoring project (4+/5/5+) will have the following characteristics:

<b>Criteria</b>	<b>Description</b>
Medium/Format	The medium/format of communication allows the audience to learn more about the effects of nuclear energy on the body, uses materials in a creative way, and clearly communicates both information and big concepts (interconnectedness, responsibility, ethics, care)
Audience consideration	The original artwork/documentation piece you create will elicit questions and thoughtful responses from your audience (college students at the School of the Art Institute). Your presentation is engaging and SAIC

	students send your group questions and feedback (we will share via photographs or video with audio only - no faces).
Thoroughness of content (both of the science and the art inspiration)	<p>For Part 1, all bullet-pointed questions in the prompts above are answered on your posters in a thoughtful manner, and details from your science research as well as inspiration from the art piece of your choice are thoroughly communicated.</p> <p>For Part 2 - The science of how nuclear energy affects the body is clearly communicated with both qualitative and quantitative detail (narrative and numbers). For example, you may explore the ways in which radiation affects DNA, and explain to your audience how this happens through your artwork/modeling. The project and the artist statement show a strong understanding of the scientific evidence for how the body is a system of interacting subsystems, and how the functions of cells and parts of cells are affected by nuclear energy. You must explain how radiation affects the organelles/cells and tissues of the body, and how the effects can be cascading and interconnected (one leading to another).</p>
Participation/Distribution of Labor	It is clear that all members of your group played an integral role and that each member's important thoughts, ideas, and processing of research is evident. Problems that arose were solved with care and our classroom values in mind (it is okay if you asked for support from Mx. Gluckman). Materials were used appropriately and for their intended purpose. If challenges with understanding information came about, the group responded with curiosity instead of criticism.

**Logistics:**

What materials and resources will you need for your project? (Mx. Gluckman will procure what they can if we don't already have it in the classroom or if you don't have items at home)

What role/responsibilities will each person play in your group to make sure you will be as efficient as possible while following our class values?

**Timeline and Calendar of Responsibilities:**

October/November Calendar

9th	10th	11th	12th	13th
Indigenous People's Day	Metabolism Assessment Review	Part 1 Project Work Day  - Creating posters that analyze nuclear art	Metabolism Unit L2.6	Part 1 Project Work Day  - Creating posters that analyze nuclear art
16th	17th	18th	19th	20th
Metabolism Unit L2.7  Part 1 Project Work Time  <b>Due:</b> Group Posters for Part 1	Lesson on how nuclear energy affects the DNA of cells and tissues of the body systems	Part 2 Project Work Day  Deciding what you want to communicate  Beginning to design your pieces  Deciding materials and letting Mx. G know what you need	Metabolism Unit L3.1  HW: Reading annotating about Downwinder/ Indigenous experiences near Trinity Test Site	Guest Speaker: Aileen Mioko Smith 9-10 am  Photographer, artist, and anti-nuclear activist
23rd	24th	25th	26th	27th
Metabolism Unit L3.2	Museum of Science and Industry Field Trip	Part 2 Project Work Day  Creating your original pieces	Report Card Pickup	No School for Students (Teacher work Day)
30th	31st	1st	2nd	3rd
Part 2 Project Work Day	Halloween Science Experiments!	Part 2 Project Work Day	Part 2 Project Work Day	Project Presentations and Gallery

## **Work Plan**

Who are the members of your group? (If you are working independently that is also okay)

*Group Norms* - Decide 4-5 actions you need to do in order to work together effectively, with care, and with curiosity

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By October 13th we will...(decide who is going to do what, delegate roles. For example, people may work on specific questions, people may be the scribes for the poster, etc)

By October 20th we will...

By October 27th we will...

By November 2nd we will...



