

Artful Physics 2019

Artful Physics: Professional Develop for Elementary Science Teachers to Learn How to Integrate Art in Teaching Physical Science

➤ Goals of the Project

To overcome students' difficulty in physical science and help enhance their performance in physical sciences, Artful Physics is designed for elementary science teachers to learn how to integrate arts in teaching physical science, based on Lincoln Center Education (LCE), Interdisciplinary Curriculum Model (ICM), STEAM curriculum, and 5 E Learning cycle. Artful Physics is composed of five daily sessions and an exhibition at the end, which enables data collection for further design and development of an innovative method for teaching difficult physical science concepts. Artful Physics hosts 15 science teachers from Fort-Worth ISD to extend the scope and interpretation of physics by exploring various contextual information through contemporary artworks. The participants' pre- and post-self-efficacy, their knowledge in physical science, journals, conversations with peers, and artful physics lesson integrated with their final artworks will be used to qualitatively and quantitatively measure the effectiveness of the method via aesthetic experience.

➤ Outcomes

The participating teachers, by the end of the project, will be able to:

- Demonstrate the implementation of different instructional strategies and teaching materials of integrating physics with arts, consistent with the TEKS and NGSS.
- Identify and explain a well-thought-out research-based, philosophy of teaching physics with arts.
- Analyze major issues in the current physical science education within our society.

➤ Participants

15 elementary science teachers in Fort Worth ISD will participate in this project.

Lunch, refreshment, celebration dinner, and certification will be provided to the participating teachers for the project.

➤ Project Site:

Chemistry and Physics Building #303, University of Texas Arlington

➤ Project Schedule:

DATE	10/19	10/26	11/2	11/9	11/16
AM 9-12	Core concepts of Force & Motion	Contemporary Art appreciation	Contemporary Art appreciation related to	Contemporary Art appreciation	Exhibition for Artful Physics

		related to core concepts of Chemical Reaction	Core concept of Electromagnetic Spectrum	Core concept of Future Energy	
PM 1-4	Experiment & Discussion	Experiment & Discussion	Experiment & Discussion	Experiment & Discussion	
PM 6-9	Online Communication for Preparation of Artful Physics Exhibition	Online Communication for Preparation of Artful Physics Exhibition	Online Communication for Preparation of Artful Physics Exhibition	Online Communication for Preparation of Artful Physics Exhibition	Certification & Celebration

➤ **Assignments**

- *Daily Journal (100 points):* Participants need to fill out the daily journal forms and submit it to the project director. The daily journal will show their learning (core concepts, experiment results, artful integration, and drawing) on that day.
- *Exhibition for Artful Physics lesson with their final artwork (100pts):* Participants will work individually to develop their artful physics with their final arts for the exhibition that enables to teach at least one topic of physics. The rubric will be provided in the session.
- *Project Attendance:* Whenever they are absent (in any sessions of the Project), they are going to lose 10 points per session (3hrs). If they miss more than 2 days (losing more than 40 points), they are not qualified to get the certificate of completion from this Project.

➤ **Contact Information**

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