

# Lesson 11: Abstract Data Art Project – Day 1

45 minutes

## Overview

**What story or message do I want to convey about my data?**

For this project, students use the skills they have developed throughout this unit to analyze data from a text file for a topic they are interested in or meaningful to them. Students use the data they chose in a previous lesson to identify the patterns and message they want to convey visually using The Theater. After brainstorming and planning, students develop their programs.

## Agenda

**Project Setup**

**Warm Up (10 minutes)**

**Data Visualizations**

**Activity (30 minutes)**

**Brainstorm and Planning  
Development**

**Wrap Up (5 minutes)**

**Project Reflection  
Assessment (Optional)**

## Objectives

Students will be able to:

- Identify the preconditions and postconditions of methods
- Store data from a text file in a one-dimensional (1D) array
- Use decomposition strategies to identify the classes and methods needed for a project

## Preparation

- Print copies of the Abstract Data Art Project Planning Guide (one for each student)
- Check the **Teacher's Lounge** for verified teachers on the CSA Forum to find additional strategies or resources shared by fellow teachers

## Links

**Heads Up!** Please make a copy of any documents you plan to share with students.

For the students

- **Abstract Data Art Project Planning Guide** - Handout

## Teaching Guide

### Project Setup

The unit assessment project assesses proficiency in the knowledge and skills developed in this unit. It is

completed in three class periods to plan and create the program, including reading and analyzing data and creating a visual or animation to visualize the data. Students participate in planning and feedback activities to solve problems, reinforce software development practices and self-image as software engineers, and improve their programs. Lessons 11, 12, and 13 collectively include instructions for the three-day project.

If there is not enough time for the three-day project, a one-day option achieves the targeted learning objectives and goals. If using this option, refer to the **Abstract Data Art Project 1 Day Lesson Plan**, which includes a one-day version of the **Abstract Data Art Project Planning Guide**. Direct students to develop their program on Lesson 13 to submit their project. While the one-day option covers the learning objectives and goals, it shortens planning and reflection time. Consider this tradeoff when deciding which version to use.


## Warm Up (10 minutes)

### Data Visualizations

#### *Remarks*

We have seen some examples of data visualizations throughout the unit. Some visuals are a simple image, while others are more abstract or may include animations or interactivity.

 **Do This:** Show examples of different types of data visualizations.

 **Discuss:** *What does this make you wonder about how you could create a visual or animation of your data?*


**Discussion Goal:** Students share ideas about visuals or animations they might make to convey the patterns or meaning of their data. Students might wonder about how more complex visuals might be created or about the design choices the creators made about their visuals.


## Activity (30 minutes)


### Brainstorm and Planning (15 minutes)

#### *Remarks*

Over the next few days, you will be developing a program to visualize the patterns and story about your chosen dataset. You will need to store data from a text file in a 1D array, apply algorithms to process and analyze the data, and use conditionals to decide how visuals are shown based on the data.

 **Distribute:** Give each student a copy of the Abstract Data Art Project Planning Guide.

 **Do This:** As a class, read through the Project Description on the first page of the Abstract Data Art Project Planning Guide and review the rubric on the last page.


 **Discuss:** Click through the animated slide to display the prompts. Use the Hold That Thought strategy to discuss the prompts.

- *What do you notice about the project requirements and rubric?*
- *What does success look like for this project?*
- *What barriers do you anticipate to achieving success on this project?*

**Discussion Goal:** Students share what they notice about the project requirements and rubric and identify the components to implement in their program. Students share any questions they have about the project.

### *Remarks*

Before you begin writing your program, you first need to decide what type of visual you will create, plan how you will organize your program and data, and identify the algorithms you need to develop to create your visual.


 **Do This:** Direct students to plan their visuals, create UML diagrams for their classes, and identify the algorithms they need to develop on the Abstract Data Art Project Planning Guide.

## Development (15 minutes)

 **Do This:** Direct students to Level 1 on Code Studio to develop their Abstract Data Art Good Project.

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### Abstract Data Art Project


 **Do This:** Play the music clip to cue committing their code and saving their classes to the Backpack.

## Wrap Up (5 minutes)

### Project Reflection

### *Remarks*

You made a lot of progress on your project today! Let's take a moment to reflect on what you have accomplished so far and what you need to focus on next.

 **Do This:** Direct students to respond to the Day 1 Reflection prompt on the Abstract Data Art Project Planning Guide.

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## Assessment (Optional)

**Abstract Data Art Project Planning Guide:** You can use the Day 1 Reflection as an optional completion assessment.



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