

Lesson 12: Project Digital Information Dilemmas Part 1

Overview

In this lesson students begin tackling the question of whether digitizing information has made the world a better or worse place. To begin the lesson, students place stickies on a spectrum of "worse" to "better" to state their opinion prior to doing the activity. Students then choose an article they are interested in reading using a process the class completed collectively in the previous lesson. Students will discuss their preliminary reading and opinions after today's lesson and will have a chance to start making an artifact to present their findings.

Purpose

At this point in the unit students understand a great deal about how information is digitized and they are ready to start considering the impacts of digitization on society at large.

This lesson is very similar to the project that students will complete at the end of Unit 2 in which students evaluate the benefits and harms of connecting humanity through vast networks.

Standards

Full Course Alignment

CSTA K-12 Computer Science Standards (2017)

- **IC** - Impacts of Computing

Agenda

Lesson Modifications

Warm Up (5 minutes)

Activity (35 minutes)

Wrap Up (5 minutes)

Assessment: Check For Understanding

Teaching Guide

Lesson Modifications

Objectives

Students will be able to:

- Analyze an article about information digitization to determine the information being digitized and the initial goal or purpose.
- Weigh social benefits or harms from a specific instance of information digitization

Preparation

- Print copies of articles for students

Links

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

For the teachers

- **CSP Unit 1 - Digital Information** - Slides

For the students

- **The Ethics of Computer-Generated Actors** - Article
- **DNA Testing Kits & The Security Risks in Digitized DNA** - Article
- **Athletes Don't Own Their Tattoos** - Article




Attention, teachers! If you are teaching virtually or in a socially-distanced classroom, please read the full lesson plan below, then click **here** to access the modifications.

Warm Up (5 minutes)

Remarks

This unit we have considered how our analog world can be represented digitally. Today we will consider the impact of digitizing our world. Does it make it better or worse?

 **Discuss:** *Is our world better or worse because of digital representation? Place a sticky note (or draw an X) on the board at the place on the line that feels right to you right now.*

Discussion Goal: This activity is supposed to be open-ended and something that students come back to at the end of this lesson and the following one. Don't enforce too many rules and don't spend too much time. Just ask them to make a decision and let them know they'll have a chance to make a change to their choice at the end of the next two lessons.

When students have filled in the spectrum it will look something like the drawing below.



Remarks

We're going to think more about this question together. You'll have a chance once we've done some more digging to update your answer if you like.

Activity (35 minutes)

Remarks

Yesterday, you stated an opinion on a copyright issue based on reading an article. Today, you will get to choose an article to read and respond to, focusing on the digital dilemma: Is our world better or worse?

Teaching Tip

Role of the Assessment: In this lesson, students begin a two day project where they will demonstrate their understanding of key issues surrounding digital information. This project is designed to be used in tandem with the Unit 1 Assessment to evaluate student progress in Unit 1 content. You may find after this assessment that students are confused about how some things are represented digitally. This is a good opportunity to go back and review key takeaways from previous lessons before continuing on to the Unit 1 Assessment.


 **Distribute:** Students pick one of the articles below.

- **The Ethics of Computer-Generated Actors**
- **DNA Testing Kits & The Security Risks in Digitized DNA**
- **Athletes Don't Own Their Tattoos**

 **Display:** Instructions on lesson slides.

- **Highlight/Underline:** Any information in this article that you want to learn more about.
- **At The End:** Write a 10 word summary of the article.

Group: Create groups of students who read the same article. You may need to have more than one group for a single article.

 **Discuss:** *Share your 10 word summary with the group and discuss the main content in the articles. Together look up any unfamiliar words or concepts.*

Discussion Goal: At the end of this time, students should feel comfortable with the content of their articles. Opinions will be shared later.

Remarks

Now, that you have a better understanding of the content of your article, you're going to re-read the article to determine if our world is in a better or worse place.

 **Display:** Is our world in a better or worse place because of digital representation?


 **Do This:**

Have students re-read their article in order to answer these questions. Students leave comments in the margins and text of the article.

- What was digitized?
- What was the goal or purpose of digitizing this thing?
- Is someone benefiting from this situation? If so, who?
- Is someone being harmed in this situation? If so, who?
- Are these impacts intended or unintended? How do you know?


Students should continue to annotate their article by adding the following symbols:


- Add a + next to the sentences that show benefit.
- Add a - next to sentences that show harm.
- Add a face next to sentences that show impact.

 **Discuss:** *Check back in with your group. Share some of the sentences you annotated. Did everyone identify the same areas?*

Remarks

You need to take a stand on today's question, using the article to help support your position. We will do this by creating a poster.

 **Do This:** Direct students to create posters by following instructions on the lesson slides. Students will divide a sheet of paper into four quadrants and write information in each of the quadrants. For this lesson, students will complete the top two quadrants. In the next lesson, they will finish the bottom two.

 **Do This:** Complete the top two quadrants.

Teaching Tip

Student answers will vary. Students could answer in complete sentences, draw pictures, or use other creative ways to represent information.


- **Quadrant 1:** What is being digitized? How is the information represented digitally?

- For example: Is it an image or text? Do you think it's been compressed? Which form of compression (lossy/lossless)?
- **Quadrant 2:** What is the goal or purpose of digitizing this thing?

Wrap Up (5 minutes)

Remarks

Tomorrow we will finish our position posters.

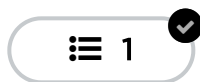
 **Discuss:** *Do you think there is always both a benefit and a harm to digitizing analog content? Why or why not?*

Discussion Goal: Answers will vary. The goal here is for students to start thinking about the tradeoffs when it comes to digitizing the world.

Assessment: Check For Understanding

Check For Understanding Question(s) and solutions can be found in each lesson on Code Studio. These questions can be used for an exit ticket.

Question: Many museums have digital catalogs of their collections. What are the potential benefits and harms of creating these digital catalogs?



Check For Understanding