Lesson Title	7. Gantt Charts- An Engineer's Timeline
Lesson Designer	Catherine Piscitelli
Standards	☑ CCSS ☐ NGSS ☐ ASCA ☐ Other CCSS.ELA-LITERACY.RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
Learning Objectives	Students will be able to: • Identify what a Gantt Chart is and what it is used for • Describe the elements of a Gantt Chart • Create and use a Gantt Chart to aid in engineering and design processes

Timeline	Duration
WebQuest Opening Activity Teaching the Gantt chart and revisiting engineering processes Application Activity	Three 60-minute lessons

Teaching Strategies/Student Actions	Monitoring
1. Opening Activity- WebQuest completed by students 2. Teaching the Gantt Chart- Students give answers and edit WebQuest as needed 3. Revisit the engineering process 4. Application Activity/ where students create a list of tasks for Gantt Chart; students create a Gantt Chart based on the task list and engineering process	• Teacher monitors student progress • Teacher facilitates discussion of correct answers to WebQuest questions • Teacher questioning during review • Teacher monitors each group's progress; final grading of tasks and Gantt chart using rubric

Product Description	Students will use their application skills to create a Gantt chart for solutions to an engineering/ societal need.
Evaluation	Teachers will use the rubric provided to assess the Gantt chart making sure the product includes all of the elements reflective of a good Gantt chart.

Resources and Materials	Additional Notes
• Gantt Chart WebQuest: student copy, teacher key • Internet access needed • Gantt Chart Rubric	

Teacher Resource Guide

Introduction

One of the key tools an engineer uses during their design process is a Gantt Chart. We use Gantt Charts in our everyday lives even though we may have different names for them. A more common name might be a timeline, activity bar chart, or harmonogram.

Opening Activity- What is a Gantt Chart?

Have students use several internet resources to complete the following WebQuest. Score each question on accuracy, amount of answers, and also validity and number of sources. Teacher key is included.

Teaching the Gantt Chart

Go over the correct answers to the WebQuest as a class. Together as a class, make a list of what a good Gantt chart should have. (Use answers from question #3 on the WebQuest to make the list. Also see the rubric in the Application section.)

Revisit the Engineering Process

Use the following website and diagram to discuss the engineering and design process.

- https://www.sciencebuddies.org/science-fair-projects/engineering-design-process/engineering-design-process-steps
- https://www.teachengineering.org/PDF/edp/TE_EDPTeacherMaterials_8.5x11.pdf

Application

1. Introduce the problem: ***In today's world, society has taken steps to reduce germ transmission. One of these steps is to increase the amount of "self" check-outs at grocery stores. However, customers still have to use a touch screen to complete their transaction. Your task is to create a "touchless" interface for grocery store "self" check-outs.***
2. Have students work in their small groups to determine what steps they would need to do in order to complete this project. Students should make a list of steps that follow the engineering design process order. Check student work in progress to make sure they have all the steps necessary.
3. Have students create a Gantt chart using the rubric.

Gantt Chart WebQuest

Directions: Use the internet to find the answers to the following questions. Remember to use several sources for each answer. Record your sources (websites/ links) underneath your responses for each question.

1. What is a Gantt chart? Define.

Sources:	

2. Give several examples of when a Gantt chart may be used.

Sources:	

3. What are the unifying characteristics of a Gantt chart?

Sources:	

4. List a few tools or applications you can use to create a Gantt chart.

Sources:	

5. What are the benefits of a Gantt chart?

Sources:	

(EXAMPLE) Gantt Chart WebQuest

Directions: Use the internet to find the answers to the following questions. Remember to use several sources for each answer. Record your sources (websites/ links) underneath your responses for each question.

2. What is a Gantt chart? Define.

• "A Gantt chart is a type of bar chart that illustrates a project schedule, named after its inventor, Henry Gantt, who designed such a chart around the years 1910–1915. Modern Gantt charts also show the dependency relationships between activities and current schedule status."- Wikipedia • "A **Gantt chart**, commonly used in project management, is one of the most popular and useful ways of showing activities (tasks or events) displayed against time." -Gantt.com • "**Simply put, a Gantt chart is a visual view of tasks scheduled over time.** Gantt charts are used for planning projects of all sizes and they are a useful way of showing what work is scheduled to be done on a specific day. They also help you view the start and end dates of a project in one simple view."- https://www.projectmanager.com/gantt-chart

Sources:	

2. Give several examples of when a Gantt chart may be used.

Similar to above.

Sources:	

3. What are the unifying characteristics of a Gantt chart?

• List of all tasks/ activities • Time scale • Bars representing time frames/ duration for each task • Where activities overlap • Beginning time and ending time for entire project • (Potentially) task designations to different people or departments

Sources:	

4. List a few tools or applications you can use to create a Gantt chart.

• Microsoft Excel • Google Sheets • Microsoft Word • Google Docs • Microsoft PowerPoint • Google Slides

Sources:	

5. What are the benefits of a Gantt chart?

• Clarifies goals/ objectives • Breaks down larger assignment/ project into smaller tasks • Highlights which task is to be completed on which day • Designate tasks to individuals or small groups/ defines roles • Sets time limits for tasks/ keeps people on task • Shows progression of project

Sources:	

Gantt Chart Rubric

Element	Value	Earned
Tasks needed to solve the problem are detailed and appropriate for solution.	5	
Engineering process is followed.	3	
Timescale is prominent and reasonable for project.	3	
Durations for each task are listed and reasonable.	4	
Gantt chart is well organized and easy to follow.	3	
Total	**18**	