

# Component 4 Reflection Lesson Plan

**COURSE:**

Engineering Design and Development (Honors)

**TEACHER:**

Jason D. Redd

**DURATION:**

15 Days

**STANDARDS:**

This course connects to standards in the following:

Common Core State Standards for English Language Arts Anchor Standards

Common Core Standards for Mathematics

Next Generation Science Standards

Standards for Technological and Engineering Literacy

**PLTW FRAMEWORK:**

Provided by Project Lead the Way (PLTW), the PLTW Framework provides an overview of the levels of understanding that each student will build upon throughout the lesson/unit. It includes: Established Goals, Transfer, Understandings, Knowledge and Skills, and Essential Questions. The most fundamental level of learning is defined by course Knowledge and Skills statements. Each Knowledge and Skills statement reflects specifically what students will know and be able to do after they've had the opportunity to learn the course content. Students apply Knowledge and Skills to achieve Learning Objectives, which are skills that directly relate to the workplace or applied academic settings.

**Established Goals**

It is expected that students will:

Demonstrate an ability to identify, formulate, and solve engineering problems.

Demonstrate an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety,

The engineering design process is both a guide and a series of waypoints for effective problem solving. It is a tool for self-evaluation as an engineer moves through the process.

There are many stakeholders involved in an open-ended engineering design process.

The ability to communicate as a professional is a critical skill for engineers.

Engineering design projects are typically peer reviewed. Stakeholder feedback and design reviews help guide engineers through the design process.

Presentation of this design process and project findings are critical to the engineering design process.

## **Knowledge and Skills**

### **Knowledge:** Students will:

Recognize engineering design processes and how key steps in the engineering design process are related to each other.

Know the best practices and professional skills associated with contacting experts and project stakeholders.

Recognize the difference between technical writing and persuasive writing.

### **Skills:** Students will:

Interpret test results.

## Element J Documentation of External Evaluation

*Element J Documentation of External Evaluation Overview*

*Element J Documentation of External Evaluation Template*

## Element K Reflection on the Design Project

*Element K Reflection on the Design Project Overview*

*Personal Evaluation Rubric*

*Redesign and Refine*

*Element K Reflection on the Design Project Template*

## Element L

*Overview*

*Template*

Provide instructions for *Component 4 Reflection (Element J, K, and L)*.

Provide instructions for the *Technical Report*.

Assess student presentations/work.

## Guided Practice

The teacher will:

Review agenda, learning objectives, and essential questions daily.

Lead students to recall prior knowledge / experience to make connections to new content.

Introduce content to be learned.

Clarify and check for understanding by asking open-ended questions (or by some other type of formative assessment) throughout instruction. Reteach material as needed.

Pace the classroom instruction to clarify misunderstanding and provide opportunities for student feedback.

Introduce new content to be learned and how it connects to learning objectives and answers some (or all) of the essential questions.

Demonstrate skill practices students will gain from this lesson.

Demonstrate assignment(s) outcome expectations.

Review resources and equipment needed to problem-solve student assignments.

Share safety instructions to students. *Safety Instructions: Students should only utilize equipment they have been fully trained to use.*

Provide review material / resources for students to prepare for summative assessments.

## Transition

- Classroom Expectations / Routines
- Review Questioning
- Stimulus or Signal (Example: "Pencil Drop", "Eyes on Me", etc.)
- Student Reflection
- Timer

## Independent Practice (Varied Learning)

The students will:

Participate in teacher-led discussions / presentati(on. reW\*nBT/F1 12 Tf1 01 2.04 32825 Tm0G(De)(mons)-2(tr

