

# MODIFIED UBD LESSON PLAN

**COURSE:** Introduction To Engineering

**UNIT:** Failure: The Secret To Success

**EXERCISE:** Paper Bridge

**TIME FRAME:** 1 Hour



**PREPARATION:** Summary of “to do’s” that the teacher should understand and prepare before bringing this lesson to the classroom.

Teachers will need to ensure that the proper supplies are available for students to build their solutions.

## Information

Students should have an understanding of the video shown in class.

## Materials:

- Copy paper
- Paperclips
- Scissors (optional)
- Washers
- Scale



**SAFETY:** Summary of safety strategies in the lesson.

There are no safety strategies for this exercise

## S1 DESIRED RESULTS:

### ESTABLISHED GOALS:

*Problem Solving Techniques and Applications Standards:*

Teachers should use the [STEM Academy Standards Correlation System](#) available in the [STEM Connections](#) area of a unit to extract specific standards and insert these standards here.

### TRANSFER:

*Students will be able to independently use their learning to...*

- Understand how failure can be an effective tool to inform and inspire new ideas;
- Predict how one would realize the direct effects of their efforts.

### MEANING:

#### UNDERSTANDINGS

*Students will understand that...*

- Failure is a byproduct of pushing the envelope;
- Successful people fail.

#### ESSENTIAL QUESTIONS

*Students will keep considering...*

- If failure is a bad thing;
- If failure is something that happens to all people.

### ACQUISITION OF KNOWLEDGE AND SKILL:

*Students will know...*

- How a failure can lead to success;
- How failure can actually be a good thing in the long run.

*Students will be skilled at...*

- Communicating how decisions impact design;
- Interpreting failures and learning from them.

## S2 EVIDENCE:

### EVALUATIVE CRITERIA:

### ASSESSMENT EVIDENCE:

*Performance Task(s):*

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- Performance

**Paper Bridge:**

How much weight did the bridge hold

- Reflection

*Other Evidence:*

Student accurately describes a failure from the activity.

### S3 LEARNING PLAN: *Summary of Key Learning Events and Instruction*

1. Ask students to answer the following questions:
  - Based on what you learned from paper bridge activity, what does failure mean to you?
  - Describe how your bridge failed and how you made it successful.

**Progress Monitoring:**

- The instructor will need to monitor the classroom, checking students' work and ensuring students are on task and following directions.
- Ensure students store their projects at the end of class, and leave all materials in the room.  
At the end of the activity, post student projects in the room and provide appropriate feedback.



### DIFFERENTIATION: *Summary of Key Differentiation Techniques*

Please use this space to insert your differentiation techniques. Depending on the needs of students, various techniques might be needed in a classroom, therefore use the information below and experts in the area needed to design your plan for differentiation.

The ASCD Study Guide for Integrating Differentiated Instruction and Understanding by Design: Connecting Content and Kids.  
by Carol Ann Tomlinson, Jay McTighe

Integrating Differentiated Instruction and Understanding by Design: Connecting Content and Kids.  
by Carol Ann Tomlinson, Jay McTighe  
ISBN-13: 978-1416602842  
ISBN-10: 1416602844

Differentiating Reading Instruction  
by Laura Robb.  
ISBN13: 9780545022989

A Teacher's Guide to Differentiating Instruction  
The Center for Comprehensive School Reform and Improvement



### CAREER CONNECTIONS: *Summary of Career Opportunities Associated with this Lesson*

Please use this space to insert careers that might be connected to this lesson. This section will need continuous updating as new careers and emerging technologies change the opportunities available in the workforce.

**All Careers**


No matter what field or occupation, everyone will fail and should learn from those failures.

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Good sources for career connections:

Occupational Outlook Handbook  
<http://www.bls.gov/ooh>

The National Career Clusters® Framework  
<http://www.careertech.org/career-clusters>

 **KEYWORDS:** *Please Insert Keywords from this Lesson with their Definitions*

**Please use this space to insert keywords and their definitions**  
 Use resources like [dictionary.com](http://dictionary.com) to find definitions to your keywords

FAILURE—the omission of expected or required action.

PERSEVERANCE—steadfastness in doing something despite difficulty or delay in achieving success.

SUCCESS—the accomplishment of an aim or purpose.