MODIFIED UBD LESSON PLAN

STEM 101

COURSE: Introduction to Engineering EXERCISE: Precision Instructions TIME FRAME: 2-3 Hours UNIT: Teamwork and Concurrent Engineering EXERCISE: Precision Instructions TIME FRAME: 2-3 Hours

m 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.

Materials:

- Copy paper
- Pencils Nasco no 2 pk/12

Additional Resources:

• Internet

Information

Before starting this exercise, students should have an understanding of material covered in:

✓ Reading: Teamwork and Concurrent Engineering ✓

B SAFETY: Summary of safety strategies in the lesson.

Please use this space to describe safety procedures or highlights for this lesson.

S1 DESIRED RESULTS:			
ESTABLISHED GOALS:	TRANSFER: Students will be able to independently use their learning to		
Problem Solving Techniques and Applications Standards:	• Develop directions for a single design to be assembled by peers.		
	MEANING:		
Teachers should use the STEM Academy	UNDERSTANDINGS	ESSENTIAL QUESTIONS	
Standards Correlation System available in	Students will understand that	Students will keep considering	
the STEM Connections area of a unit to extract specific standards and insert these standards here.	 Instructions are extremely important and need to be written thoroughly and use aids such as images and diagrams. 	 How instructions could be written in a more efficient manner; How they could improve their instructions to better communicate. 	



JNIT : Teamwork and Concurrent Engineering	EXERCISE: Precision Instructions	TIME FRAME: 2-3 Hours	
	ACQUISITION OF KNOWLED Students will know Students • The importance of instructions; • How other techniques could improve instructions.	DGE AND SKILL: <i>nts will be skilled at</i> Creating detailed instructions that produces the intended product no matter who uses the instructions.	
EVIDENCE:			
EVALUATIVE CRITERIA:	ASSESSMENT EVIDENCE:		
Original person found			
	Students will be tasked with constructing a paper airplane	from another students directions, and then	
Effective communication	finding the original designer of the plane		
	Other Evidence:		
Original person found	Precision Instructions Students will be tasked with constructing a paper airplane finding the original designer of the plane	from another students directions, and then	

S3 LEARNING PLAN: Summary of Key Learning Events and Instruction

1. Set Introduction

Oral and written communications are important between teams of people working on projects. Mistakes of misrepresentations can cause the end product to be something different than intended. Therefore, any written communication should be done with neat and clear handwriting. Examples of the effects of bad handwriting could range from minor misunderstandings to patients that receive the wrong prescriptions from pharmacists because of a doctor's poor handwriting. When communicating with others, precision and clarity are paramount.

2. Timeline

This activity will take two or three class days to complete. Instructors should review the case study with students before beginning he process. Students should not know whom they are going to pair up with until after they have completed Part A.

3. Collect

Instruct your students to complete Part A of the activity. At the completion of Part A collect all of the instruction papers from your students. Have them put their actual paper airplanes away and out of sight.

4. Distribute

Randomly pass out the instructions to other students, but make sure not to give instructions back to the same student.

5. Compare

Have students complete Part B. After building the plane the students are to retrieve the original plane from its creator and compare the two. Each student should then individually answer each question.

6. Grade

Using the provided rubric grade each students work.

Progress Monitoring:

- The instructor will need to monitor the classroom, checking student's 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.



COURSE: Introduction to Engineering		
UNIT: Teamwork and Concurrent Engineering	EXERCISE: Precision Instructions	TIME FRAME: 2-3 Hours

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 Understating by Design: Connecting Content and Kids. by Carol Ann Tomlinson, Jay McTighe

Integrating Differentiated Instruction and Understating 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

Engineer

Engineers work in teams constantly.

Scientist

Scientists work in teams constantly as well.

Technician

Technicians also work in teams constantly.

KEYWORDS: Please Insert Keywords from this Lesson with their Definitions

TEAMWORK—the combination action of a group of people, especially when effective and efficient.

CONTINUITY—the unbroken and consistent existence or operation of something over a period of time.

EFFICIENT—working in a well-organized and competent way.

