

Name: David Dulberger	Employee ID # 27721	School: Middletown Middle School	Date: October 2023
Teacher Assignment: 8th grade Pre-Engineering		Observer/Evaluator: Chelsea Skoczylas	

STUDENT LEARNING OBJECTIVE (SLO) #1

SLO #1 Summary: The target for this SLO is for 80% or more of the target group of students to show growth of 20% or more from the Mousetrap Cars (Engineering Design Process) Pre Assessment to the Mousetrap Cars (Engineering Design Process) Post Assessment. There will be multiple formative assessment measurements throughout the SLO timeframe as well. Some of these formative assessments will be assessments on Schoology, while others will be checkpoints for the Mousetrap Car project.

The subgroup will consist of 30+ students from various 8th grade Pre-Engineering class periods. This subgroup will be developed after looking at the Mousetrap Cars (Engineering Design Process) Pre Assessment data.

- | | |
|-----------------|---|
| TE.PS.09 | Develop an understanding of engineering design.* (ITEA, STL 9) |
| TE.PS.09.01 | Explain that modeling, testing, evaluating and modifying are used to transform ideas into practical solutions.. |
| TE.PS.10 | Develop abilities to apply and analyze the design process.* (ITEA, STL 11) |
| TE.PS.10.01 | Identify the problem |
| TE.PS.10.02 | Research and Brainstorm |
| TE.PS.10.03 | Choose the solution and justify |
| TE.PS.10.04 | Construct a model or prototype |
| TE.PS.10.05 | Test and Record Data |
| TE.PS.10.06 | Evaluate, Reflect and Communicate |
| TE.PS.15 | Develop an understanding of energy and power technologies.* (ITEA, STL 16) |
| TE.PS.15.01 | Explain that energy can be used to do work, using many processes. |
| TE.PS.17 | Develop an understanding of transportation technologies.* (ITEA, STL 18) |
| TE.PS.17.01 | Analyze transportation systems, such as: land; water; air; space |

[Ctrl-Click here](#) for Individual SLO #1 Components

STUDENT LEARNING OBJECTIVE (SLO) #2-if needed

SLO #2 Summary: N/A

[Ctrl-Click here](#) for Individual SLO #2 Components

Observer/Evaluator's Signature _____ Teacher's Signature _____ Date _____

DOMAINS AND COMPONENTS OF PROFESSIONAL PRACTICE (check component(s) that apply to focus area goal(s))

Domain 1: PLANNING AND PREPARATION

a. Demonstrating Knowledge of Content and Pedagogy	☒	d. Demonstrating Knowledge of Resources	☐
b. Demonstrating Knowledge of Students	☒	e. Designing Coherent Instruction	☐
c. Setting Instructional Goals	☐	f. Designing Student Assessments	☐

Domain 2: THE ENVIRONMENT			
a. Creating an Environment of Respect and Rapport	☐	d. Managing Student Behavior	☐
b. Establishing a Culture for Learning	X ☐	e. Organizing Physical Space	☐
c. Managing Classroom Procedures	X ☐		
Domain 3: INSTRUCTION			
a. Communicating with Students	☐	d. Using Assessment for Instruction	☐
b. Using Questioning and Discussion Techniques	X ☐	e. Demonstrating Flexibility and Responsiveness	☐
c. Engaging Students in Learning	X ☐		
Domain 4: PROFESSIONAL RESPONSIBILITIES			
a. Reflecting on Teaching	X ☐	d. Participating in a Professional Community	☐
b. Maintaining Accurate Records	X ☐	e. Growing and Developing Professionally	☐
c. Communicating with Families	X ☐	f. Showing Professionalism	☐
Domain 5: STUDENT GROWTH			
a. Assessment of Overall Student Learning	X ☐	d. Standardized Local Measure (s)	☐
b (1 & 2). Assessment of Specific Student Learning Objectives	X ☐		
c. Assessment of Process for Student Learning Objectives	☐		

OBSERVATION/EVALUATION MODEL (check one)	
a. Classroom/Group Visitation Model: Required For: - SPCI, SPC II, RT, and Conditional Certificate Holders - APC Certificate Holders in an evaluation year	☐
b. Evidence of Effectiveness Model (<i>please describe if different from SLO(s)</i>): _____	☐
c. Collaborative Professional Development Model: (<i>please describe if different from SLO(s)</i>): Include Collaborators: _____	☐

List courses or equivalent unit activities completed toward the renewal of your teaching certificate: _____
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Observer/Evaluator's Signature _____ Teacher's Signature _____ Date _____

REVISED STUDENT LEARNING OBJECTIVE (SLO) #1 – Guiding Questions

School Priority Alignment (SLO #1)

What school priority is supported through this SLO (Aligned through content, strategy and/or student group)?

Response: After looking at the [SIP at a glance for MiMS](#), I am confident that this goal can help support Achievement Goals 2 and 3. Although the engineering design process does not specifically address any goals on the School Improvement Plan, reading, writing, and mathematics are all embedded in design projects. Specifically during our 1st and 2nd instructional units, students will learn to apply a variety of mathematical and literacy skills to purposeful problem solving scenarios.

For more information on Units 1 and 2 of the 8th grade Pre-Engineering class, see the county's [Scope & Sequence](#) for the course.

See below for more specific examples:

- Measurement skills within Unit 1
- Scaling and ratios within Unit 1 and 2
- Understanding mechanical advantage ratios within Unit 2
- Determining distance or speed growth percentages within Unit 2

Engineering Design Process Specifics:

- Steps 1 and 2 of the EDP involves identifying a problem or goal. Skills related to this step correlate to solving multi-step problems in mathematics.
- Step 3 of the EDP involves brainstorming and research. Skills related to this step correlate to the reading standards for comprehending non-fiction texts.
- Steps 4, 5, and 6 of the EDP require critical thinking, design drawing, measurements, and other problem solving skills.
- Steps 7 and 8 require authentic use of mathematics as students build and test their designs.

Data Review/Baseline Evidence & Student Group (SLO #1)

A: Conduct a data review

What is resulting baseline data of current student performance levels used in determining the student group and learning content of this SLO?

B: Choose Student Group

What students are targeted in the SLO? Why was the student group selected? What other information is important to know about this student group?

Response: After administering the Mousetrap Cars (Engineering Design Process) Pre Assessment at the beginning of October 2023 I found a subgroup of 36 students who scored a D or or lower on the assessment (less than 70%). Some of these students scored as low as 39% on the pre-assessment! The average score of this subgroup was 63% on the pre-assessment. This shows that there was much room for growth among this particular subgroup.

These students come from all three of the 8th grade Pre-Engineering class periods that I teach (Periods 1, 4 and 6).

https://docs.google.com/spreadsheets/d/1ED3ZdTUMpyXPrS4VPI-OufU1Oa_SCAIfLLrbyYzhb3Q/edit?usp=sharing

Class Period	Student Name(s) (First Name Last Initial)	PreTest (October 2023)
1	Caleb A.	61
1	Mutasim B.	69
1	Talmer C.	62
1	Joellen H.	69
1	Kane K.	54
1	Jackson M.	54
1	Richie M.	69
1	Hunter (Char) S.	54
1	Fionna N.	69
1	Lety P.	69
1	Ivan S.	47
1	Aurora S.	69
4	Zach L.	69
4	Cy L.	69
4	Patrick M.	69
4	Levi D.	69
4	Nicholas G.	69
4	Gavin H.	69
4	Sebastian F.	46
4	Logan K.	61
4	Silas L.	54
4	Matthew L.	62
4	Railly Z.	69
4	Talon T.	69
4	Reagan R.	69
4	Alex N.	39
4	Landon S.	62
4	Nash W.	54
6	Blake D.	54
6	Landon O.	62
6	Eli W.	54
6	Dillon A.	69
6	Anderson C.	69
6	Abigail E.	69
6	Andrew L.	69
6	Colton L.	69
	Average Scores	62.77777778

Learning Content (SLO #1)

What Frederick County Public Schools curriculum standards were selected for this SLO? What are (is) the essential knowledge and skills (critical content) that students must master? Why was this standard (s) targeted for the SLO?

Response:

One of the essential skills of the 8th grade Pre-Engineering course is to be able to understand and apply the Engineering Design Process.

TE.PS.09	Develop an understanding of engineering design.* (ITEA, STL 9)
TE.PS.09.01	Explain that modeling, testing, evaluating and modifying are used to transform ideas into practical solutions..
TE.PS.10	Develop abilities to apply and analyze the design process.* (ITEA, STL 11)
TE.PS.10.01	Identify the problem
TE.PS.10.02	Research and Brainstorm
TE.PS.10.03	Choose the solution and justify
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TE.PS.15	Develop an understanding of energy and power technologies.* (ITEA, STL 16)
TE.PS.15.01	Explain that energy can be used to do work, using many processes.
TE.PS.17	Develop an understanding of transportation technologies.* (ITEA, STL 18)
TE.PS.17.01	Analyze transportation systems, such as: land; water; air; space

As a part of the Engineering Design Process, students must be able to brainstorm ideas (preferably in a group setting), communicate solutions, and provide feedback. In CTE we call these skills our [CTE Standards of Workmanship](#). More specifically, students need to be “Skilled Professionals” and “Creative Communicators.”

Here are just a few of the necessary skills students need to successfully go through one iteration of the design process.

See below for more specific examples:

- Steps 1 and 2 of the EDP involves identifying a problem or goal. Skills related to this step correlate to solving multi-step problems in mathematics.
- Step 3 of the EDP involves brainstorming and research. Skills related to this step correlate to the reading standards for comprehending non-fiction texts.
- Steps 4, 5, and 6 of the EDP require critical thinking, design drawing, measurements, and other problem solving skills.
- Steps 7 and 8 require authentic use of mathematics as students build and test their designs.

Furthermore, Units 1 and 2 of the Pre-Engineering course involve the following academic skills and mathematical practices:

- Measurement skills within Unit 1
- Scaling and ratios within Unit 1 and 2
- Understanding mechanical advantage ratios within Unit 2
- Determining distance or speed growth percentages within Unit 2

Target & Evidence of Student Growth (SLO #1)

Resource : <http://bit.ly/target-set>

A: Determine the target for the SLO:

What is the target of your SLO? Define the target in terms of the assessment to be used and what will be measured. How is the target rigorous, attainable and clearly appropriate for the instructional interval and the selected student group? Describe the alignment of the assessment to the content and target.

Based on the target, anticipate what progress you would like to see in your student group by mid-interval?

B: Determine the progress monitoring evidence for the SLO:

Using your responses from part A:

What measure(s) will be used to monitor progress toward the SLO throughout the interval? Describe the plan to monitor progress using the measure(s) identified.

Target #1 Response:

The target for this SLO is for 80% or more of the target group of students to show growth of 20% or more from the Mousetrap Cars (Engineering Design Process) Pre Assessment to the Mousetrap Cars (Engineering Design Process) Post Assessment. There will be multiple formative assessment measurements throughout the SLO timeframe.

See Data tracking here:

https://docs.google.com/spreadsheets/d/1ED3ZdTUMpyXPrS4VPI-OufU1Oa_SCAIfLLrbyYzhb3Q/edit?usp=sharing

Target #2 Response (only if doing 1 SLO):

Strategies (SLO #1)

Resource: <http://bit.ly/InstrStratCTAC>

What are the key instructional strategies (2 or 3) that will be implemented to support students in reaching the target for this SLO? Why are the strategies appropriate for the students and learning content of the SLO?

Response:

- Explicitly modeling skills outlined on the Design Process Rubric during whole group instruction.

- Explicitly modeling skills outlined on the Design Process Rubric during small group tutoring.
- Encouraging students to regularly come to tutoring.
- Reaching out to students and parents via Schoology messages.
- Provide students ample opportunities to go through all or certain steps of the EDP.
- Showing student samples of exemplary work.
- Using rubrics and Schoology assessments to give timely feedback.
- Putting parts of the Engineering Design Process to work on a regular basis with class lessons and activities.
- Putting the full Engineering Design Process into practice with the Mousetrap Car project.
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Instructional Interval (SLO #1)

What is the appropriate length of time for students to master the content of the SLO?

Response: The goal is for students to meet this SLO by the end of Term 1 if not much sooner (January 2024 at the very latest)

Teacher Support for SLO Implementation(SLO #1)-

What support is needed for your personal growth as well as the growth of your students in the successful implementation of the SLO? Are there staff members that can provide support or training? Are there material resources that may provide assistance?

Response:

Help checking in with students in the target group!

REVISED STUDENT LEARNING OBJECTIVE (SLO) #2 – Guiding Questions

School Priority Alignment (SLO #2)

What school priority is supported through this SLO (Aligned through content, strategy and/or student group)?

Response:

Data Review/Baseline Evidence & Student Group (SLO #2)

A: Conduct a data review

What is resulting baseline data of current student performance levels used in determining the student group and learning content of this SLO?

B: Choose Student Group

What students are targeted in the SLO? Why was the student group selected? What other information is important to know about this student group?

Response:

Learning Content (SLO #2)

What Frederick County Public Schools curriculum standards were selected for this SLO? What are (is) the essential knowledge and skills (critical content) that students must master? Why was this standard (s) targeted for the SLO?

Response:

Target & Evidence of Student Growth (SLO #2)

Resource : <http://bit.ly/target-set>

A: Determine the target for the SLO:

What is the target of your SLO? Define the target in terms of the assessment to be used and what will be measured. How is the target rigorous, attainable and clearly appropriate for the instructional interval and the selected student group? Describe the alignment of the assessment to the content and target.

Based on the target, anticipate what progress you would like to see in your student group by mid-interval?

B: Determine the progress monitoring evidence for the SLO:

Using your responses from part A:

What measure(s) will be used to monitor progress toward the SLO throughout the interval? Describe the plan to monitor progress using the measure(s) identified.

Target #1 Response:

Target #2 Response (only if doing 1 SLO):

Strategies (SLO #2)

Resource: <http://bit.ly/InstrStratCTAC>

What are the key instructional strategies (2 or 3) that will be implemented to support students in reaching the target for this SLO? Why are the strategies appropriate for the students and learning content of the SLO?

Response:

Instructional Interval (SLO #2)

What is the appropriate length of time for students to master the content of the SLO?

Response:

Teacher Support for SLO Implementation(SLO #2)-

What support is needed for your personal growth as well as the growth of your students in the successful implementation of the SLO? Are there staff members that can provide support or training? Are there material resources that may provide assistance?

Response:

Reflection:

My SLO has been met with 35/36 (97%) of the target group of students showing growth of 20% or more from the Mousetrap Cars (Engineering Design Process) Pre Assessment to the Mousetrap Cars (Engineering Design Process) Post Assessment.

