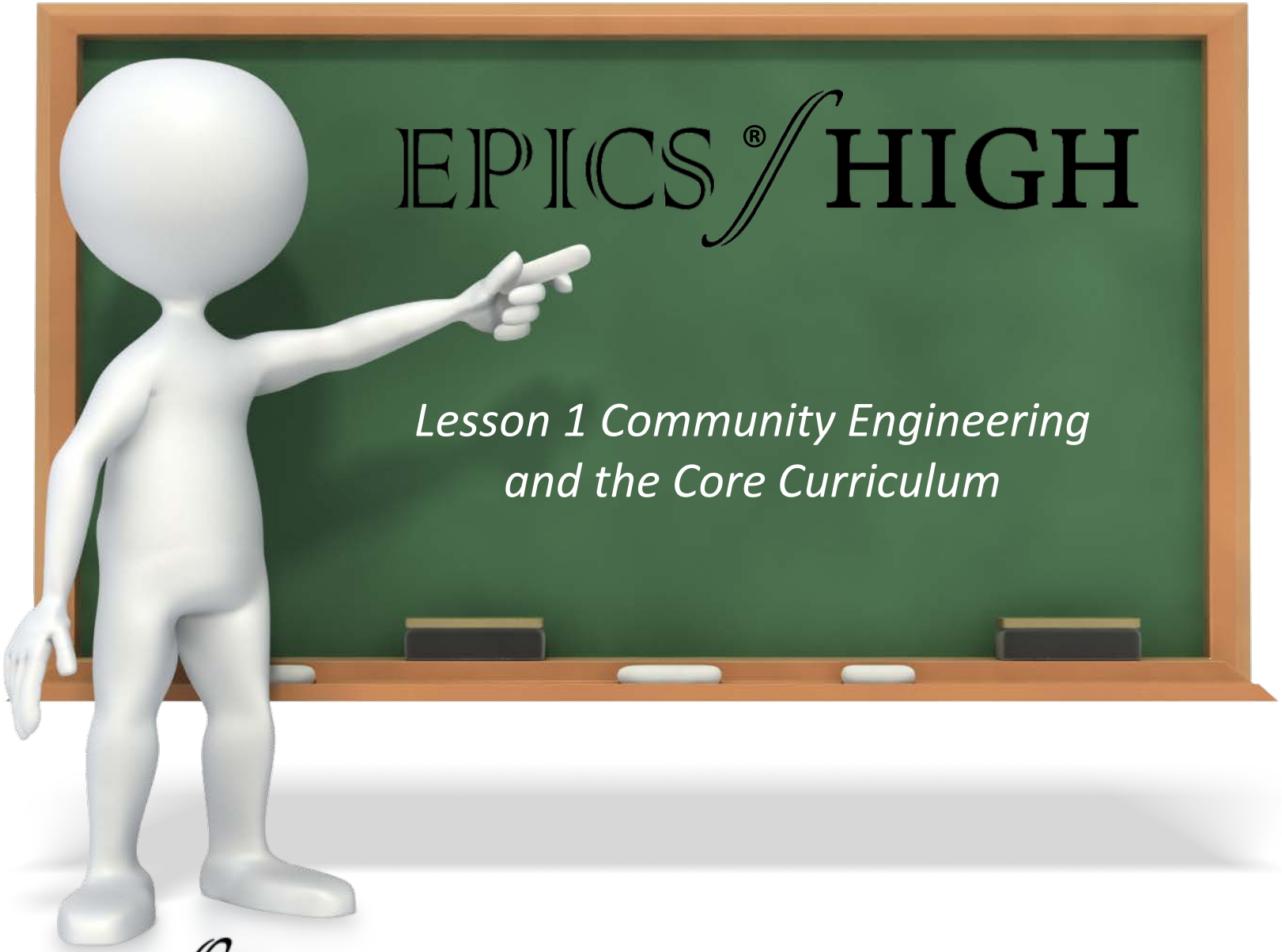


Lesson 1 Community Engineering and the Core Curriculum

EPICS® HIGH

Essential Question:

What are problems in the community that can be solved by skills we are learning in the classroom?

EPICS® HIGH

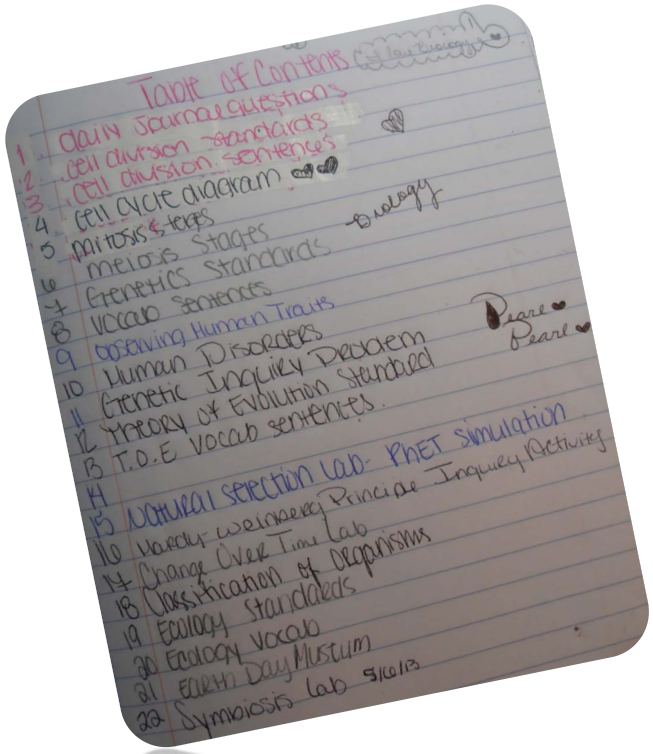
1Community, Engineering and the Core Curriculum Overview

1. Class Basics
   - Notebook
   - Line of Learning
   - Common Core Standards
2. Video- Bicycle Airbag Helmet
3. Solving a need in the community
4. Brainstorm Projects in your community

EPICS® HIGH

Prepare your notebook

- *Table of contents*

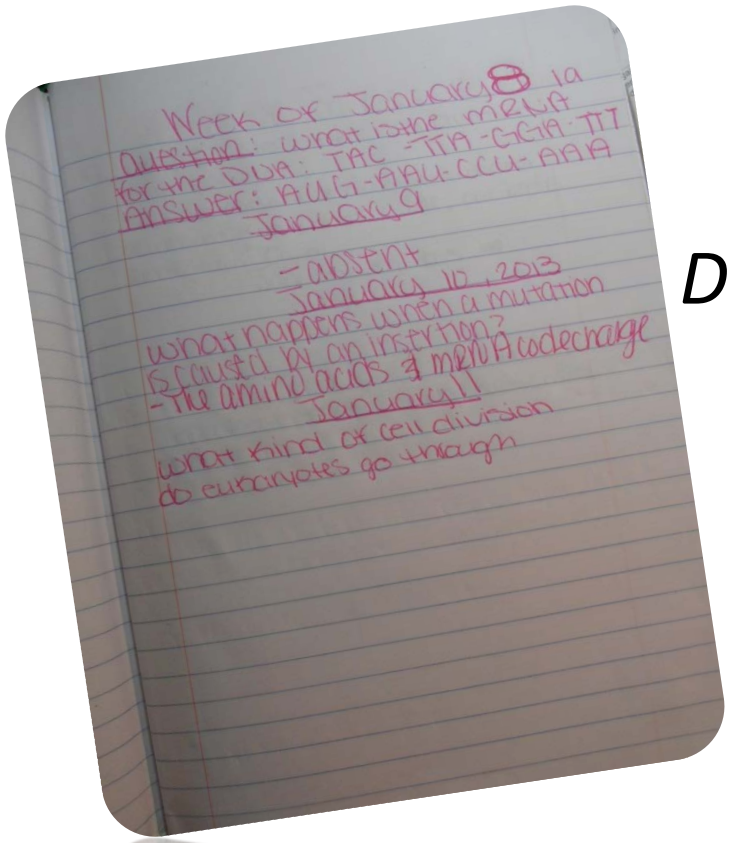


EPICS HIGH

Prepare your notebook

- *Line of Learning Lesson 1*
- ***Question:** What are problems in your community that can be solved by the skills you are learning in this class?*

Date



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Standards:

NGSS HS. Engineering Design HS-ETS1-3.
ETS1.b

ELA/Literacy – RST.11-12.8

Standards Statement

Students will use the resources given to answer questions about service learning and its uses with engineering and learning core content. They will be using different sources to synthesize the information into a document that will be added to their notebooks as an artifact of this unit. Students will be looking at engineering standards with ELA standards that are used to evaluate information.

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Review: What is Service-Learning?

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Service-Learning

"Service-learning is a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility and strengthen communities."

Resource: *Corporation for National and Community Service*.
www.nationalservice.gov

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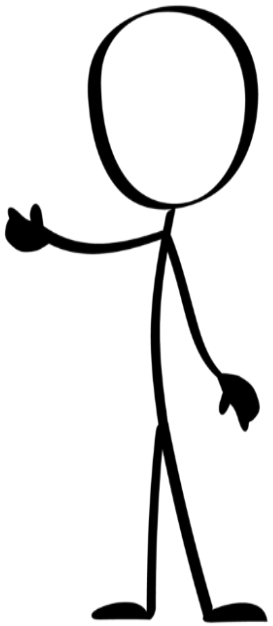
Click on the image below to launch a Youtube video about the bicycle helmet

EPICS® HIGH

https://www.youtube.com/watch?v=CMAhptqk-4Q

How would the Bicycle Airbag Helmet be considered a Service-Learning Project?

EPICS® HIGH



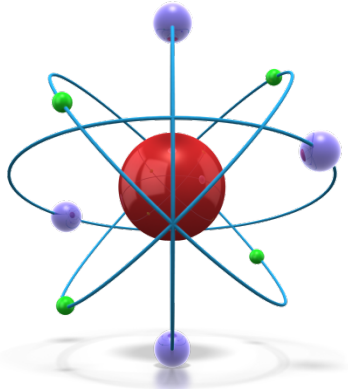
How would this helmet serve the community?

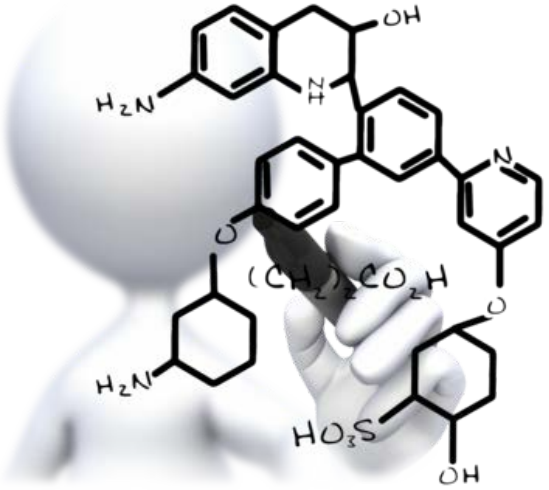
EPICS® HIGH

Who in particular would it serve in your community and why?

EPICS® HIGH

What Scientific Principles would you need to know to be able to test this product?





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Constraints

Do you see any potential issues with the Bicycle Airbag Helmet?

Aesthetic Appeal

Cost

Safety

Reliability

EPICS® HIGH

Questions you still have about the product

EPICS® HIGH

What Academic skills and disciplines would you need to master to be able to test and develop this project?

Are there any social, cultural or environmental issues associated with this project?

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Limitless Imagination!

What are some of the Engineering projects and or products that you see in your community that demonstrate "Limitless Imagination"?

EPICS® HIGH

Limitless Imagination!

How could this engineering design be a Service-Learning Project?

EPICS® HIGH

What core curriculum would you use to be able to complete the project?

Anatomy

Mathematics

Computer Science

Biology

Physics

English Language Arts

EPICS® HIGH

Brainstorm

EPICS® HIGH

Share out

EPICS® HIGH

Do you have enough information to be able to determine the constraints of the project?

- *What would you still need to learn?*

EPICS® HIGH

What questions would you still need to ask?

EPICS® HIGH

Service-Learning in our community

Can you think of some issues that we have in our community that we might be able to use as a starting point?

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Service-Learning in our community

Use your notebook page and write down your ideas to share with your team.

You will have 5 minutes

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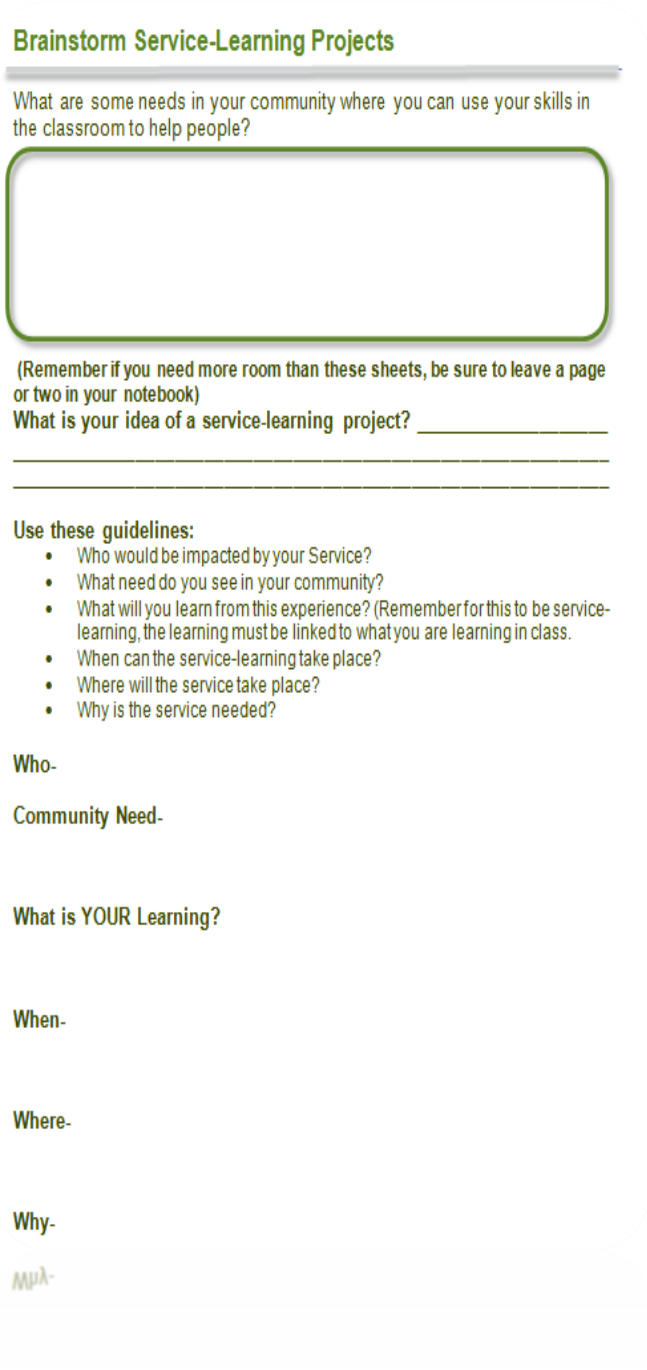

Brainstorm Service-Learning Projects

What are some needs in your community where you can use your skills in the classroom to help people?

(Remember if you need more room than these sheets, be sure to leave a page or two in your notebook)

What is your idea of a service-learning project? _____

_____

_____

Use these guidelines:

- Who would be impacted by your Service?
- What need do you see in your community?
- What will you learn from this experience? (Remember for this to be service-learning, the learning must be linked to what you are learning in class.
- When can the service-learning take place?
- Where will the service take place?
- Why is the service needed?

Who-

Community Need-

What is YOUR Learning?

When-

Where-

Why-

What-

Service-Learning in our Community

Share your ideas with the team

EPICS® HIGH

Service-Learning in our Community

Sketch your example of an engineering design that improves the lives in your community

EPICS® HIGH

Reflection

Have you?

- *Evaluate a solution to a real world problem and determine the constraints?*
- *Explore how Service-Learning involves community, students and academics*
- *Evaluate data from different sources to determine if it was authentic and valid?*

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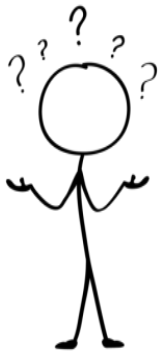
Lesson Artifacts



Student sheet Lesson 1

- Notebook Check
- Table of Contents
- Line of learning

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Exit Slip

Name _____ EPICS/HIGH

Three things I learned about the connection between Academics and Service-Learning:

3 ★★★

Two ways I contributed to class today:

2 ★★

One question I still have is:

1 ★

My efforts in class were:

Fabulous ☺ OK Could Be Better ☹

- *Answer the Questions on the sheet*
- *If you have further questions write them on the back*

EPICS® HIGH

EPICS® HIGH
Lesson 1Community, Engineering
and Core Curriculum

EPICS® HIGH