

Curriculum at a Glance
Technology, Engineering, STEM, Business and Computers
10-12 Principles of Engineering

In the DHS Principles of Engineering program students will work on the DHS Fuel Cell Program in efforts to compete in the Shell Eco-Marathon. Students will display growth and progress in the complexity and rigor of their projects and skills as well as utilize the design thinking methodology to solve problems and make decisions.

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| First Goal | <ul style="list-style-type: none"> ● Design, engineering and construct a fuel cell powered vehicle |
| Second Goal | <ul style="list-style-type: none"> ● Teach the community about alternative fuels and forms of alternate energy |
| Third Goal | <ul style="list-style-type: none"> ● Compete in a large scale, high level competition such as the Shell Eco-Marathon |

| Unit Name/Description | Content and/or Skills |
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| Planning/Engineering a Project | <ul style="list-style-type: none"> ● Developing engineering basic data conceptual design for an alternatively powered vehicle ● Developing detailed design for necessary components and systems (including engineering drawings) ● Developing bills of materials and build plans |
| Materials Usage | <ul style="list-style-type: none"> ● Materials selection ● Material compatibility ● Strength to weight analysis |
| Machine Usage and Safety | <ul style="list-style-type: none"> ● Fabricating components based on engineering drawings ● Advanced fabrication techniques such as welding, machining, casting ● Assembly techniques using removable and/or permanent fastener systems |

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| | <ul style="list-style-type: none">● Fabrication of composite components |
| Systems testing | <ul style="list-style-type: none">● Testing and evaluation of vehicle subsystems● Performance testing of completed vehicle |
| Presenting the Design to the Community | <ul style="list-style-type: none">● Creating a presentation to be shown to the community● Detailed explanation and discussion of the design process● Public speaking skills |