



Lesson Activity

Title	Build a better MESA Student
ID Number	MS-MESA-6
Sequence and Duration	<ul style="list-style-type: none"> • Lead-In - Heroes of Engineering (10 minutes) • Build a Better MESA Student (40 minutes) • Reflection (10 minutes)
Age Level	Middle School/High School
Essential Question	How can I improve as a MESA student and as a student in general?
Learning Objectives	<p>Heroes of Engineering</p> <ul style="list-style-type: none"> • TSW will learn about pioneers in engineering. • TSW will identify characteristics that led to these people becoming heroes of engineering <p>Build a Better MESA Student</p> <ul style="list-style-type: none"> • TSW will identify characteristics that are beneficial for success as a MESA participant • TSW will identify characteristics that are beneficial for success as a student <p>Reflection</p> <ul style="list-style-type: none"> • TSW will conduct a self-evaluation identifying their strengths and areas of improvement as a MESA participant and as a student • TSW will select characteristics that they would like to improve upon • TSW will identify strategies to improve these characteristics
Other Objectives	<ul style="list-style-type: none"> • TSW will learn about engineers that overcame prejudice, discrimination and challenges to find success • TSW will identify with other students who share the same characteristics
Key Terms	•
Materials Needed	<p>Per Class:</p> <ul style="list-style-type: none"> • Copies of the Heroes of Engineering Comics <p>Per Team:</p> <ul style="list-style-type: none"> • Poster Board, Butcher Paper or other large piece of paper • Markers • Colored Pencils • Construction Paper • Glue Sticks • Scissors <p>Per Student:</p> <ul style="list-style-type: none"> • EDP Notebook • Pencil or Pen
Lead In	<p>Heroes of Engineering (10 minutes) EXPLORE</p> <ol style="list-style-type: none"> 1. Divide students into groups of 3 or 4 2. Hand each group one of the 12 Heroes of Engineering Comics, created by the American Society of Mechanical Engineers, or have them read the comic on-line at http://anniversary.asme.org/comicbook.shtml 3. Ask the student to read the comics and the create a list of the characteristics/qualities of that person that allowed them to successful. Ask them to think of at least 5. 4. Ask each group to give a brief synopsis of the story and share their list 5. Write down the characteristics on the whiteboard and use hash marks to keep count of those that are listed by more than one group.

Activity	Build a Better MESA Student (40 minutes) EXPLORE/DESIGN <ol style="list-style-type: none"> 1. Tell the students that they will be creating a new hero called The MESA Kid. The MESA Kid is the ideal MESA student and they are going to decide what “powers” aka characteristics/qualities he must have. 2. Ask each group to discuss this for 10 minutes and to create a list of those characteristics/qualities. Tell them that when they have finished their list they should ask for a set of materials. 3. Using the provided materials they will need to create a picture of their The MESA Kid labeling each of the characteristics and providing a short description of each. This should take about 10 minutes. 4. When all of the groups are finished with their drawing or time is up ask the groups to share their drawings and describe the characteristics/qualities they have chosen. Create another list on the board of the characteristics they have chosen. 5. When all the groups have presented ask them to vote as group for the Top 10 characteristics 						
Closure	Reflection (10 minutes) <ol style="list-style-type: none"> 1. Handout the EDP Notebook and ask each student to reflect on the characteristics of The MESA Kid. Ask them to list on the EDP notebook which ones they are strong in and which ones are they need to improve on. 2. Have them star at least 2 that they would like to work on this year. 3. Have them write down strategies that they will use to try and improve on these characteristics. 						
Informal Assessment	<ul style="list-style-type: none"> • Monitor students to check for engagement & understanding. • Monitor students to check for understanding. 						
Formal Assessment	<ul style="list-style-type: none"> • Creation of group list of characteristics of Heroes of Engineering • Creation of group list of characteristics of The MESA Kid • Completion of reflection on the EDP Notebook. 						
Extension	<ul style="list-style-type: none"> • As a follow-up, students that are interested could create their own cartoon strips using The MESA Kid as their heroes. 						
Trouble Shooting	<ul style="list-style-type: none"> • To help students visualize what their The MESA Kid poster may look like have a pre-created poster as an example. The Super Advisor Poster may be a good one for this activity as it is similar but will not give them specific ideas for their own poster. 						
SEI Strategies Used <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 33%;"> Preparation <input type="checkbox"/> Adaptation of Content <input type="checkbox"/> Links to Background <input checked="" type="checkbox"/> Links to Past Learning <input type="checkbox"/> Strategies incorporated </td> <td style="vertical-align: top; width: 33%;"> Scaffolding <input type="checkbox"/> Modeling <input checked="" type="checkbox"/> Guided practice <input type="checkbox"/> Independent practice <input checked="" type="checkbox"/> Comprehensible input </td> <td style="vertical-align: top; width: 33%;"> Grouping Options <input checked="" type="checkbox"/> Whole class <input checked="" type="checkbox"/> Small groups <input type="checkbox"/> Partners <input checked="" type="checkbox"/> Independent </td> </tr> <tr> <td style="vertical-align: top;"> Integration of Processes <input checked="" type="checkbox"/> Reading <input checked="" type="checkbox"/> Writing <input checked="" type="checkbox"/> Speaking <input checked="" type="checkbox"/> Listening </td> <td style="vertical-align: top;"> Application <input checked="" type="checkbox"/> Hands-on <input checked="" type="checkbox"/> Meaningful <input type="checkbox"/> Linked to objectives <input checked="" type="checkbox"/> Promotes engagement </td> <td style="vertical-align: top;"> Assessment <input checked="" type="checkbox"/> Individual <input checked="" type="checkbox"/> Group <input type="checkbox"/> Written <input type="checkbox"/> Oral </td> </tr> </table>		Preparation <input type="checkbox"/> Adaptation of Content <input type="checkbox"/> Links to Background <input checked="" type="checkbox"/> Links to Past Learning <input type="checkbox"/> Strategies incorporated	Scaffolding <input type="checkbox"/> Modeling <input checked="" type="checkbox"/> Guided practice <input type="checkbox"/> Independent practice <input checked="" type="checkbox"/> Comprehensible input	Grouping Options <input checked="" type="checkbox"/> Whole class <input checked="" type="checkbox"/> Small groups <input type="checkbox"/> Partners <input checked="" type="checkbox"/> Independent	Integration of Processes <input checked="" type="checkbox"/> Reading <input checked="" type="checkbox"/> Writing <input checked="" type="checkbox"/> Speaking <input checked="" type="checkbox"/> Listening	Application <input checked="" type="checkbox"/> Hands-on <input checked="" type="checkbox"/> Meaningful <input type="checkbox"/> Linked to objectives <input checked="" type="checkbox"/> Promotes engagement	Assessment <input checked="" type="checkbox"/> Individual <input checked="" type="checkbox"/> Group <input type="checkbox"/> Written <input type="checkbox"/> Oral
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