





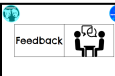









# UTK Unit 4 We Are Engineers!

## Lesson 11

 <b>Phenomenon:</b> Engineers can improve their solutions.	 <b>Question to Investigate:</b> How can we improve our designs?	 <b>Lesson Objective:</b> Students practice giving and receiving feedback to improve their designs.
 <b>Success Criteria:</b> I can use feedback to improve my solution. 		

Launch	
	<b>Let's remember our Essential Question: How do engineers help the world?</b>
	Introduce new vocabulary: Feedback. <b>Feedback is the practice of relaying information to someone about their behavior, actions, or performance. Feedback helps us improve our designs in engineering.</b>
	<b>Let's watch this video called "<a href="#">Feedback Helps</a>" to think more about how we can improve our designs?</b>  After watching the video, ask: <b>What did you notice? How did the fox improve his design?</b>  <b>Yes, he used feedback from others. When he listened to others, he was able to improve his design. We are going to practice giving and receiving feedback today as we plan, create, and improve our designs today.</b>
	<b>When you give feedback to another person, you should always BE KIND. When you are kind, you tell the person what you like about their design. You should also be HELPFUL and SPECIFIC. When you are helpful and specific, you tell the person your idea for what they could add or change and why. Giving feedback helps to improve the design.</b>
	<b>When someone gives you feedback, you need to do 3 important things. LISTEN to the feedback, SAY "thank you for your feedback," and then THINK about the feedback. After listening and saying thank you, you need to decide if the feedback is helpful or not. You might want to incorporate what they say into your design or it may spark a different idea in your mind.</b>
	<div data-bbox="321 1629 1398 1724" style="border: 1px solid black; padding: 10px; margin-bottom: 10px;">           Note: Pass out white boards to students or you can also use a small piece of paper and pencil.         </div> <b>We are going to play a game to practice giving and receiving feedback. To begin, draw this butterfly on your whiteboard.</b> Give students 1-2 minutes to draw a butterfly (or other shape you choose).  <b>Now you will turn to a partner to give and receive feedback. Remember to be kind and helpful. Remember to listen, say thank you, and think about the feedback.</b> Allow enough

	<p>time for students to give and receive feedback in partnerships.</p> <p><b><i>Did your partner give you some feedback on how you can improve your butterfly? Take a few minutes to think about your feedback, is there anything you want to add or change to your butterfly to improve your design? Go ahead and improve your design now if you want to.</i></b></p>
<b>Explore</b>	
	<p><b><i>What are some other solutions for the Billy Goats to get to the other side of the river? Turn and Talk to your partner. How can we improve our solution?</i></b> Allow time for students to brainstorm ideas.</p> <p><b><i>We are going to use a <u>Design Thinking Process</u> to improve our solution. How can the goats get to the other side of the river?</i></b> Set out different materials for students to use (items could include: construction paper, cardboard, glue and tape, legos, blocks, snap cubes, yarn, popsicle sticks, playdoh, and/or clay)</p> <p><b><i>When you are working, ask your partner for feedback.</i></b></p>
	<p><b><i>When you want to ask for feedback, you could say, “What do you like about my plan?” or “What can I improve?” OK, let’s be engineers!</i></b> Students begin a Design Thinking Process. Students are solving the problem of how to get the goats across the river. Encourage creativity.</p> <div data-bbox="345 909 1401 1003" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Note: Students do not have to build a bridge, but any idea that may get the goat across the river for example a boat, zipline, buoys, robot.</p> </div>
<b>Reflect</b>	
	<p><b><i>Today we practiced giving and receiving feedback while we improved our solutions. How did you improve your design?</i></b></p>