Title:  
Creating a Class Totem Pole

Overview:  
Students will design and construct their own section of a class totem pole that captures the spirit of their unique personality.

Grade:  
7

STEM Standards of Practice: Engage in meaningful, purposeful and relevant STEM activities using the STEM Standards of Practice Frameworks; student skills and knowledge indicators, instructional examples, resources and glossary.

STEM proficient students will be able to apply all seven Standards of Practice when demonstrating how to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world.

Real World Problem:  
Edwin chuckled. “Indians don’t own the trees or the right to carve. Carve anything you want. Your totem is your story, your search, and your past. Everybody has their own. That’s why you carve. That’s why you dance the dances. That’s why you live life—to discover and create your own story.” (from Touching Spirit Bear)

What does Edwin mean when he says, “Your totem is your story, your search, and your past.”?

Product/Prototype/Model  
Students construct a measured portion of the class totem pole.

### Content Standards

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<td>Make sense of problems</td>
<td>Make sense of problems</td>
<td>Integration of Knowledge</td>
<td>Elements of</td>
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<td>and Developme nt</td>
<td>and persevere in solving</td>
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<td>Make Model/Prototype</td>
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<td>Research to build</td>
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<td>Crete/Make product</td>
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<td>and present knowledge</td>
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**Transdisciplinary Connections:**  
Mathematics  
Social Studies  
ELA

**Enduring Understanding:**  
Students will understand the objective for the Tlingit culture to carve totem poles. How does the totem tell the story of a culture, tribe or individual?

**Connection to STEM Careers:**  

**Essential Questions:**  

<table>
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<tr>
<th>Engineering</th>
<th>How does a totem tell a story? Why do members of the Tlingit/Alaskan culture carve totems?</th>
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**Lesson Procedures: 5E Components**
*The 5E model is cyclical, not linear and components may be repeated or revisited over the course of the lesson. A 5E model lesson may last longer than 1 period or block of time.*
*Evaluation of student’s learning occurs throughout the 5E model. Evaluations may include student self-evaluation, peer/group evaluation, and/or teacher monitoring student’s progress.*

### Engagement

Did you design an activity that...
- captures students’ attention?
- activates students’ prior knowledge?
- connects to a complex question, global issue, or real world problem?

Suggested Activities
- Reading Touching Spirit Bear.
- Research history/purpose of Tlingit culture/construction of totem poles.

**Stem Standards of Practice**
- Learn and Apply Rigorous STEM Content
- Integrate STEM Content
- Interpret and Communicate STEM Information
- Engage in Inquiry
- Engage in Logical Reasoning
- Collaborate as a STEM team
- Apply Technology Strategically

### Exploration

Did you design an activity that allows students to...
- analyze the science, technology, engineering, mathematics, and other disciplines as appropriate in a complex question, global issue, or real world problem?
- apply the engineering design process, scientific investigation, and/or mathematical practices?
- select and employ technological tools that are relevant to answering a complex question, investigating a global issue, or developing solutions to a real world problem?

What mathematical formulas are used to determine how to cover the surface of a cylinder?
- How are the tools used to construct a template to cover the totem pole?

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### Explanation

Did you design an activity that allows students to...
- analyze information, data and draw conclusions?
- communicate understandings and possible solutions?

Using the measurements calculated, cut the template paper and construct a pattern for creating a section of the class totem. On the section include:
- I Am poem
- An image of an animal that best symbolized student personality.

**Stem Standards of Practice**
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- Engage in Inquiry
- Engage in Logical Reasoning
Include at least three other items that represent unique personality.

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<td>Students will have the opportunity to modify and change their section</td>
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**Extension / Elaboration**

Did you design an activity that allows students to:

- [x] modify experimental procedures, prototypes, models, or solutions?
- [ ] analyze STEM careers that relate to the learning activity?

**Evaluation**

Did you design an activity that allows students to:

- [x] demonstrate understanding of concepts through rubric-based performance assessments?
- [ ] participate in peer reviews?

See attached activity sheet and rubric for this activity.

*To check in the boxes, put you cursor in front of the box; right click; select properties; click on not checked or checked.*