

Rubric for Content Knowledge and Understanding			
Criteria	Has Full Understanding	Has Partial Understanding	Has Poor Understanding
Overview			
Completeness of Required Information: 1. steps of the engineering design process; 2. ask; 3. imagine; 4. plan and create; 5. test and improve	All required information is included	One or two pieces of required information are omitted	Several pieces of required information are omitted
	All information is correct and discussed in detail	Most significant information is correct, although there are some minor errors or missing details	Significant information is incorrect, key terms are used inappropriately, and/or important details are missing
Ask			
Completeness of Required Information: 1. problem statement; 2. constraints; 3. background research (bridge types, loads and forces, environmental consideration, and materials)	All required information is included	One or two pieces of required information are omitted	Several pieces of required information are omitted
	Clear and concise explanation is given for answer choices	Explanation given for answer choices are not clear	No explanation given for answer choices
Imagine			
Completeness of Required Information: 1. brainstorming solutions; 2. choosing the best solution	All required information is included	One or two pieces of required information are omitted	Several pieces of required information are omitted
	Clear and concise explanation is given for answer choices	Explanation given for answer choices are not clear	No explanation given for answer choices
Plan			
Completeness of Required Information: 1. technical drawing: geometry and dimensions; 2. technical drawing: how forces and tolerances	All required information is included	One or two pieces of required information are omitted	Several pieces of required information are omitted
	Clear and concise explanation is given for answer choices	Explanation given for answer choices are not clear	No explanation given for answer choices
Create			
Completeness of Required Information: 1. prototype; 2. building process record	All required information is included	One or two pieces of required information are omitted	Several pieces of required information are omitted
	Clear and concise explanation is given for answer choices	Explanation given for answer choices are not clear	No explanation given for answer choices
Test and Improve			
Completeness of Required Information: 1. testing evaluation questions; 2. bridge comparisons; 3. bridge revisions	All required information is included	One or two pieces of required information are omitted	Several pieces of required information are omitted
	Clear and concise explanation is given for answer choices	Explanation given for answer choices are not clear	No explanation given for answer choices