PA STEM Competition Rubric

TEAM Name _____

1. **Project Proposal Rubric**

	0	1	2	3	4
Defining the real-world problem	No definition of a problem or need in the community was defined	A brief definition of a problem or need in the community was defined	A Limited definition of a problem or need in the community was defined	A Satisfactory definition of the problem or need in the community was defined	A Detailed description of a problem or need in the community was defined
Identify the Extent of the Community Need	No community needs have been identified	One community need has been identified	Two community needs have been identified	Two or more community needs have identified and a way to improve the community	Two or more community needs have identified and multiple ways to improve the community
Budget **A limit of $ 500.00 will need to be presented. Exceeding $500.00 will result in a 20 point reduction**	No budget attached	A budget was presented with little detail	A budget was presented with adequate detail and knowledge of the project	A budget was presented with great detail and knowledge of the project	Detailed / itemized budget plan with price, quantity, and description of how item was used in the prototype.
Plan identifying costs of improvement	There is no plan to identify the costs of improvement	There is little evidence of a plan to identify the costs of improvement	There is some evidence of a plan to identify the costs of improvement	There is a definite plan to identify the costs of improvement	There is a detailed plan to identify the costs of improvement
Engineering principles	No evidence of the team's ability to adhere to the engineering design model of: think, create, test, reflect, and change.	Limited evidence of the team's ability to adhere to the engineering design model of: think, create, test, reflect, and change.	Some evidence of the team's ability to adhere to the engineering design model of: think, create, test, reflect, and change.	Good evidence of the team's ability to adhere to the engineering design model of: think, create, test, reflect, and change.	Outstanding evidence the team followed the engineering model: think, create, test, reflect, and change.
Conventions	No technical terminology was used or it was used inappropriately.	Proposal was unorganized, poorly written, and had grammar and spelling errors. .	Proposal incorporated one use of technical terminology as it applied to the need/problem and prototype/device	Proposal incorporated some uses of technical terminology as it applied to the need/problem and prototype/device	Proposal incorporated many uses of technical terminology as it applied to the need/problem and prototype/device.

Totals	0 X__ = ____	1 X__ = ___	2 X__=___	3 X__=____	4 X__=___

Total Proposal Total Points	

2. Presentation Skills – Content, Delivery , and Impact of Pennsylvania

(Device and Challenge Tasks)

	0	1	2	3	4
Delivery	Little to no organization Illogical or unclear flow No use of research or data No visual aids or their use was a distraction and did not have a clear purpose	Some organization Illogical or unclear flow little use of research or data No visual aids or their use was a distraction and did not have a clear purpose.	A clear organization The presentation flowed some use of research or data Some visual aids were used and had a clear purpose.	A good organization The presentation flowed some use of research or data Many visual aids were use and provided a clear purpose for the project.	Extremely well organized with a clear / logical flow of information. Concise and relevant use of research and data. Visual aids supported the presentation and did not distract from the content.
Impact project has on Pennsylvania	The project has no impact on Pennsylvania	The project has little impact on Pennsylvania	The project has some impact on Pennsylvania	The project has a good impact on Pennsylvania	The project will have a great impact on Pennsylvania
Device Knowledge / Application	The product did not address or solve a local problem. The product/device was not backed by research. The benefit of the device was not articulated.	The product did not address or solve a local problem. The product/device was not backed by research. The benefit of the device was articulated.	The product clearly addresses and solves a problem in the local community and is backed by research.	The product clearly addresses and solves a problem in the local community and is backed by research. Students somewhat articulated the benefit of the device / product to Pennsylvania's	The product clearly addresses and solves a problem in the local community and is backed by research. Students clearly articulated the benefit of the device / product to Pennsylvania's.
STEM understanding	Students did not understand the STEM skills need to develop and create a device. Students did not mention any STEM skills. Students obviously did not connect with a local company and mentor.	Students did not understand the STEM skills need to develop and create a device. Students did not mention any STEM skills. Students didn't connect with a local company and mentor.	Students possessed a clear understanding of the STEM skills necessary to develop, and create the device outlining 2 specific STEM related skills / concepts. Presenters provided the name of a company and mentor they	Students possessed a clear understanding of the STEM skills necessary to develop, and create the device outlining 3 specific STEM related skills / concepts. Presenters provided the name of a company and mentor they	Students possessed a clear understanding of the STEM skills necessary to develop, and create the device outlining 4 specific STEM related skills / concepts. Presenters provided the name of a company and mentor they

			interviewed demonstrating little understanding of the community organization and the STEM skills needed for success.	interviewed demonstrating a clear understanding of the community organization and the STEM skills needed for success.	interviewed demonstrating an outstanding understanding of the community organization and the STEM skills needed for success.
Creativity / Appearance	No craftsmanship Device did not seem age appropriate. Little to no creativity in function and/or use of materials	Poor craftsmanship Device did not seem age appropriate. Little to no creativity in function and/or use of materials.	Device displayed good craftsmanship Device appeared age appropriate. Device displayed some creativity in function and use of materials	Device displayed quality craftsmanship Device appeared age appropriate. Device displayed good creativity in function and use of materials	Device displayed a high quality craftsmanship Device appeared age appropriate. Device displayed exceptional creativity in function and use of materials
Prototype Design	The device was not thoughtfully designed	Device was thoughtfully designed	Device was thoughtfully designed Appropriately used materials	Device was thoughtfully designed Appropriately used materials Device matched specs from the project plan	Device was thoughtfully designed Appropriately used materials Device matched specs from the project plan Device adhered to all the requirements of the competition.

Totals	0 X__ = ____	1 X__ = ___	2 X__=___	3 X__=____	4 X__=___

1 Proposal Points **2 Presentation Points** **Grand Total**	_____ _____ _____

2. Project in a Box

	0	1	2	3	4
Communication	Language was exclusionary Language was unsupportive of actions and ideas.	Language was exclusionary Language was supportive of actions and ideas.	Team members used positive language. Language was supportive of actions and ideas.	Team members used positive language. Team members reassured and supported one another's actions and ideas.	Team members used positive language to support their project. Team members reassured and supported one another's actions and ideas through visuals and technology.
Teamwork	No roles were established. No team collaboration	One or two team members dominated the challenge. No roles were established. No team collaboration.	All team members were involved in the project.	All team members were involved in the project. Clear roles were established.	All team members were involved in the project. Clear roles were established. Team collaboration was evident throughout the challenge.
STEM Skills	Little to no problem solving and critical thinking took place. Teams displayed little to no determination and perseverance at the task/challenge.	Some problem solving and critical thinking took place.	Problem solving and critical thinking skills clearly took place.	Teams clearly demonstrated the ability to problem solve and apply critical thinking skills throughout the task.	Teams clearly demonstrated the ability to problem solve and apply critical thinking skills throughout the task. Teams displayed perseverance and determination.
Task Completion	No tasks were completed	One task was completed	Two tasks were completed	Three tasks were completed	Four or more tasks were completed

Totals	0 X__ = ____	1 X__ = ___	2 X__=___	3 X__=____	4 X__=___

Grand Total Project in a box Total Points	