

HydroBot Rumble Challenge – Marking Rubric

School Name: _____

Date: _____

Team Name: _____

Marker's Name: _____

Home-Schooling: Yes / No (Circle)

		Achievement standards Key Knowledge and Skills	5 Well Above Level	4 Above Level	3 At Level	2 Below level	1 Well Below Level	MARK
Part A	Primary & Secondary Schools	1. Design and build a model of a hydrogen-fuelled autonomous vehicle using any material of choice.	Highly detailed model that features the hydrogen-fuelled system, and autonomous vehicle components such as the LIDAR, RADAR, GPS, etc.	Detailed model that features the hydrogen-fuelled system, and autonomous vehicle components such as the LIDAR, RADAR, GPS, etc.	Clear model that features the hydrogen-fuelled system, and autonomous vehicle components such as the LIDAR, RADAR, GPS, etc.	Basic model of a vehicle. Minimal attempt to showcase the systems and components of a hydrogen-fuelled autonomous vehicle.	The model does not feature the hydrogen-fuelled system, and autonomous vehicle components such as the LIDAR, RADAR, GPS, etc.	
		1. Develop a presentation outlining the STEM principles that were considered when designing the vehicle.	Clear, informative, and highly detailed presentation that identifies multiple STEM principles considered when designing the vehicle. Links multiple factors using images, illustrations, or animated explainers.	Clear, informative, and detailed response that identifies multiple STEM principles considered when designing the vehicle.	Clear, and detailed response that identifies multiple STEM principles considered when designing the vehicle.	Basic response that identifies some STEM principles considered when designing the vehicle.	Response attempts to identify some STEM principles considered when designing the vehicle.	
Part B	Secondary Schools (Only)	1. What are the methods that hydrogen could be produced effectively for vehicles?	Clear, informative, and highly detailed response that outlines multiple methods that hydrogen could be produced effectively for vehicles. The use of multiple images, illustrations, or animated explainers.	Clear, informative, and detailed response that outlines multiple methods that hydrogen could be produced effectively for vehicles. The use of some images, illustrations, or animated explainers.	Clear response that outlines methods that hydrogen could be produced effectively for vehicles.	Basic response that outlines methods that hydrogen could be produced effectively for vehicles.	Response attempts to outline methods that hydrogen could be produced effectively for vehicles.	
		2. Is it possible to produce green and renewable hydrogen?	Exhibit sophisticated thinking using multiple images that effectively show how hydrogen fuel can be generated green and renewably.	Exhibit advanced thinking using images that effectively show how hydrogen fuel can be generated green and renewably	Outline ways of producing green and renewably hydrogen fuel using some images.	Basic response outlining how hydrogen fuel can be green and renewably produced.	No attempt to generate and design ideas. No evident use of visualisations. Restricted to no evidence of creativity.	
		3. How do hydrogen-fuelled vehicles compare against battery-electric vehicles?	Visually effective and engaging, utilising animation and images to demonstrate how a hydrogen-fuelled vehicle compares with a battery-electric vehicle. Pros and cons are outlined, cost involved, manufacturing, etc.	Utilising images to demonstrate how a hydrogen-fuelled vehicle compares with a battery-electric vehicle. Pros and cons are outlined, cost involved, manufacturing, etc.	Utilising images to demonstrate how a hydrogen-fuelled vehicle compares with a battery-electric vehicle. An attempt to outline pros and cons have been made.	General response demonstrating how a hydrogen-fuelled vehicle compares with a battery-electric vehicle. No attempt has been made to outline pros and cons have been made.	Insufficient evidence to suggest understanding of how the two vehicle types compare.	
		4. How would you refuel a hydrogen-powered autonomous vehicle?	Outstanding demonstration of how hydrogen-fuelled vehicle is refuelled using animation, images and explainer content, and advanced terminology. More than three visual prompts used for explainer material.	Excellent demonstration of how hydrogen-fuelled vehicle is refuelled using animation, images and explainer content, and advanced terminology. Use of visual prompts for explainer material.	Good demonstration of how hydrogen-fuelled vehicle is refuelled using animation, images and explainer content, and advanced terminology. Use of visual prompts for explainer material.	General demonstration of how hydrogen-fuelled vehicle is refuelled using animation, images and explainer content, and advanced terminology. Limited use of visual prompts for explainer material.	Ineffective demonstration of how hydrogen-fuelled vehicle is refuelled. No use of visual prompts for explainer material.	
TOTAL								/30