Physics & Engineering VEX IQ Challenge
Hub – a Bub – Ba

Rules/Scoring

Part 1 - 45 seconds of Autonomous
Part 2 - 45 Seconds of Driver control

You and your partner share the robot (build it together) but do the challenge **separately** (Coding and Driving).

Start **anywhere** across the back wall as long as the robot is touching the court wall and as partners you **DO NOT** start in the same location (one line or tile away from each other).

Robot starting size must be within a 12" x 12" x 12" cube

Limit of 6 motors & 1 of each sensor. Unlimited parts

Floor Area Points

Orange Hubs	1 point in floor score area
Yellow Hubs	2 points in floor score area
Stacked	2x points

Posts Points

Orange Hubs	2 points
Yellow Hubs*	4 points
Stacked	2x points

Centre Field Post

Orange Hubs	3 points
Yellow Hubs*	6 points
Stacked	3x points

Special Points

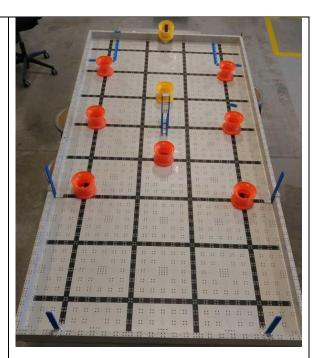|	
Yellow off of Post*	5 points

*The yellow hub on the back post cannot be pulled off and put directly back on the same post….

Overall Score

Autonomous (50%) + Driver (50%) = Final Score

VexIQ Robotics Hub Challenge Rubric
Student Assessment

Name: _____   **Date: _____**

As a Team Member in the Group				
Active and Engaged Learner (General Participation) **4 Marks**	Poor I do not participate and rarely shares ideas. I rarely stay on task and don't complete the work.	Fair I sometimes participate and shares ideas. I need reminders to stay on task and to complete work.	Good I participate and shares ideas. Most of the time I am on task and complete the work.	Excellent I share my ideas and participate often. I am always on task and I always complete work.
Cooperative Team Member **4 Marks**	Poor I rarely shares in group tasks or the use of the Robot & Coding. I do none of the work I do all of the work for the other person.	Fair I sometimes share in group tasks and the use of the Robot. I do some of the work or sometimes aggressively do all of the work.	Good I usually share in group tasks and the use of the Robot. I do my fair share of the group tasks. I sometimes help my team member(s) learn if they don't get it.	Excellent I always shares in group tasks and the use of the Robot. I always cooperate and show leadership by helping my team member(s) through teaching rather than doing their work for them.
Robot Build Quality **4 Marks**	Poor The robot does not do all of the following; drive, grab, pickup and store a hub, score a Hub. It cannot complete the tasks of scoring on posts. It tips/falls over, cannot lift, etc	Fair The robot drives, grab Hubs, can pick them up and score on an exterior Post. It doesn't tip/fall over. It is built well enough to score on a post without a flimsy arm. It has a few issues in grabbing, storing, scoring.	Good The robot drives, grab Hubs, can pick them up and score on the middle and exterior Posts. It is built solid, does not tip and has precise movements without a lot of sway. It has a few issues in grabbing, storing, scoring	Excellent The robot drives, grab Hubs, can pick them up and score on the middle and exterior Posts. It is built solid, does not tip and has precise movements without a lot of sway It is 100% effective at picking up and scoring
As an Individual				
Coding the robot **12 Marks**	Poor I basically cannot program the robot at this time and continuously needed my partners help or the teachers help. The robot does the most basic tasks (drives and pushes Hubs). I did not use any sensors	Fair I can program basic tasks for the robot to complete (drive, pickup the Hub, drop hubs, score). I needed some else to help me with this. I used a sensor to help in getting to a Hub, retrieving it or taking a hub to be scored	Good I coded the robot to complete the basic movements and could have it drive, pickup, store, score. I incorporated 2 or 3 sensors to help in getting to a Hub, retrieving it or taking a hub to be scored. I needed a bit of help for the sensors.	Excellent I coded the robot with 4 or more sensors to successfully navigated the course to be able to drive, pick up, store, score the Hubs. I could do everything myself without anyone else's help.
Autonomous Challenge **12 marks**	Poor The robot scored between 0 and 10 points	Fair The robot scored between 10 - 15 points	Good The robot scored between 15 and 20 points	Excellent The robot scored over 20 points
Driver Challenge **4 marks**	Poor The robot scored between 0 and 10 points	Fair The robot scored between 10 and 15 points	Good The robot scored between 15 and 40 points	Excellent The robot scored over 40 points