



VEX GO



VEX GO[®]
ROBOTICS
COMPETITION

Ocean Science Exploration

Game Manual

Competition Rules & Scoring Guide

English Version

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Version History

Version 1.0 – Released March 16, 2026

I.

I. About Ocean Science Exploration

The ocean is the cradle of life on Earth, holding infinite mysteries and precious resources. From the unique organisms inhabiting the deep seabed to the vast current systems regulating our planet's climate, from undiscovered ecological codes to sustainability challenges critical to humanity's future, ocean exploration remains a vital endeavor for understanding nature and safeguarding our home.

Beyond scientific discovery, the ocean serves as an exceptional classroom for cultivating scientific thinking and practical skills. It is with this vision that **Ocean Science Exploration** was created—specifically designed for students encountering robotics and competitive challenges for the first time. Every exploratory task in this challenge can be accomplished using foundational robotic skills, simulating real-world missions such as deep-sea specimen collection, subsea pipeline repair, and marine biological research. Through hands-on practice, students experience the seamless integration of robotics technology and ocean science, sparking curiosity while building confidence in STEM learning.

II. Match Overview

The **Ocean Science Exploration** match is played on a field measuring 3' (914.4 mm) × 6' (1828.8 mm), as shown in Figure 1. Teams complete field objectives to earn the highest possible score.

In the **Teamwork Challenge**, two teams form an alliance and collaborate on tasks during each match. Teams may also participate in **Robot Skills Challenges**, where a single team competes to achieve the maximum score.



Field Elements

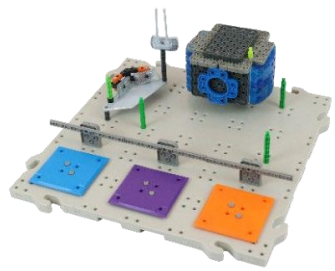
Each Ocean Science Exploration match includes the following components:

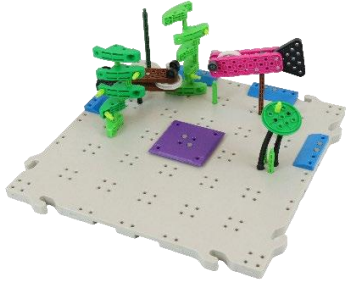
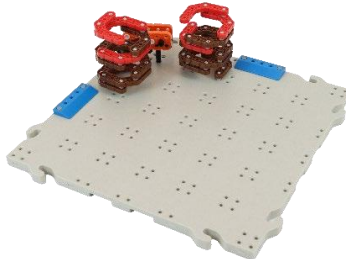
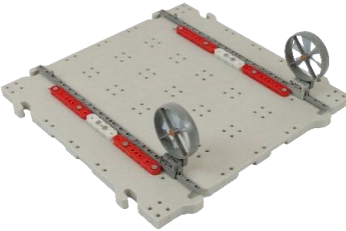
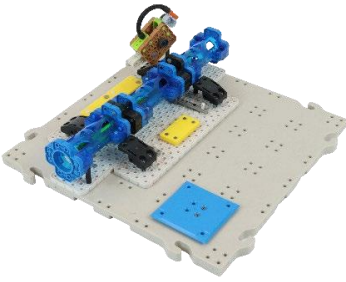
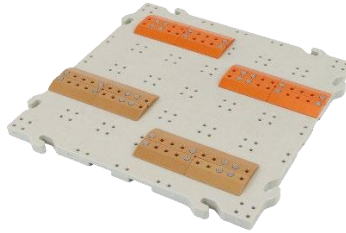
1. Underwater Lab

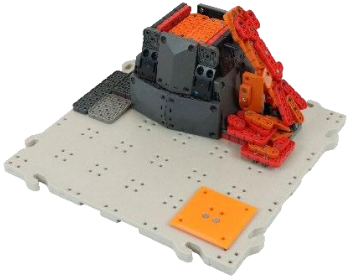
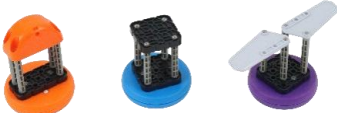
2. Clam Habitat
3. Fish Habitat
4. Ocean Wildlife 1
5. Ocean Wildlife 2
6. Turbines
7. Pipeline
8. Seafloor Topography Module
9. Volcano Module
10. One Orange Sensor, one Blue Sensor, and one Purple Sensor
11. One Pearl
12. One Starting Zone

III. Definitions

A. Field Elements & Game Objects

Element	Definition	Figure
Underwater Lab	A structure built from VEX GO components, consisting of three colored sensor bases (orange, blue, purple), one perimeter fence, and one laboratory module. At match start, each sensor is placed on its corresponding colored base.	
Clam Habitat	A VEX GO structure. At match start, the clam shell is fully closed and the pearl is secured inside.	

Fish Habitat	A VEX GO structure featuring a purple base designed to receive the Purple Sensor.	
Ocean Wildlife 1	Decorative VEX GO structures.	
Ocean Wildlife 2	Decorative VEX GO structures.	
Turbines	VEX GO mechanisms. At match start, turbines are positioned along the outer perimeter of the field, contacting alignment pins on their respective tracks.	
Pipeline	A VEX GO structure. At match start, the pipeline is disconnected. The blue base is designated for installing the Blue Sensor.	
Seafloor Topography Module	A VEX GO structural component forming part of the competition field surface.	

Volcano Module	A VEX GO structure containing two orange sensor placement zones (base and summit) and one volcanic “magma” piece. At match start, the magma rests against the volcano in a tilted position. Orange bases at both the volcano base and summit are valid installation points for the Orange Sensor.	
Sensors (Orange / Blue / Purple)	Scoring objects constructed from VEX GO parts. At match start, each sensor is placed on its matching colored base at the Underwater Lab.	
Pearl	A scoring object retrievable using the VEX GO electromagnet.	
Starting Zone	The designated initial positioning area for robots at match commencement.	

B. Additional Definitions

Scoring Objects:

Orange Sensor, Blue Sensor, Purple Sensor, and one Pearl.

Field Elements:

Field perimeter, field tiles, Underwater Lab, Clam Habitat, Fish Habitat, Ocean Wildlife 1, Ocean Wildlife 2, Turbines, Pipeline, Seafloor Topography Module, and Volcano Module.

Possession:

A robot is considered to be in possession of a Scoring Object if it is carrying, gripping, or controlling the movement of that object. Merely pushing or deflecting a Scoring Object is not considered possession. However, if a robot uses a concave portion of its structure to control the movement of a Scoring Object, it is deemed to be in possession of that object.

Student:

Any preschool child or elementary school student born on or after September 1, 2018. A Student is the individual who designs, builds, repairs, and programs the robot with minimal adult assistance.

- **Preschool Student:** Any Student born on or after September 1, 2020. Preschool Students may “compete up” and participate in Elementary School divisions.
- **Elementary School Student:** Any individual meeting the Student definition above who is not a Preschool Student.

Team:

A group consisting of one or more Students. If all members are Preschool Students, the Team is classified as a **Preschool Team**. If any member is an Elementary School Student, or if a team composed entirely of Preschool Students registers and competes as an Elementary School Team (“competing up”), the Team is classified as an **Elementary School Team**. Once declared and competing as an Elementary School Team, the Team may not revert to Preschool Team status for the remainder of the season. Teams may be formed by Students from schools, community/youth organizations, or neighborhood groups.

Driver:

The Student responsible for controlling the robot during a match.

Match:

A scheduled period of play during which a Team operates its robot on the competition field to complete Ocean Science Exploration tasks and earn points.

- **Autonomous Period:** A segment of the match during which the robot’s operation and reactions are governed solely by sensor inputs and pre-programmed commands stored in the robot’s Brain.
- **Driver-Controlled Period:** A segment of the match during which a Driver controls the robot’s operation.

Match Type	Participating Team(s)	Autonomous Period (Min:Sec)	Driver-Controlled Period (Min:Sec)
Teamwork Challenge	An alliance formed by two teams, each with one robot, competing sequentially on the same field.	None	1:00
Driver Skills Challenge	One team, one robot.	None	1:00
Autonomous Skills Challenge	One team, one robot.	1:00	None

Teamwork Challenge: A component of the VEX GO Challenge. As defined above, the Teamwork Challenge consists of Teamwork Matches, including Qualification Matches and Finals Matches, and may also include Practice Matches.

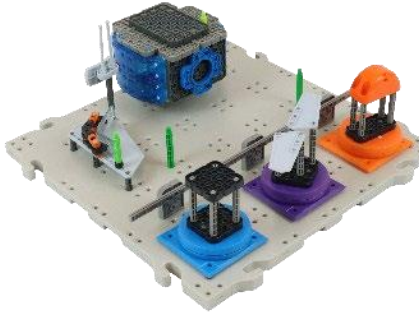
Robot Skills Challenge: A component of the VEX GO Challenge. As defined above, the Robot Skills Challenge comprises the Driver Skills Challenge and the Autonomous Skills Challenge.

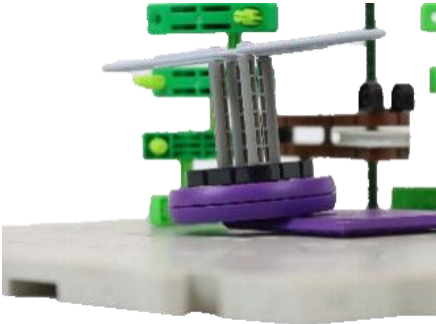
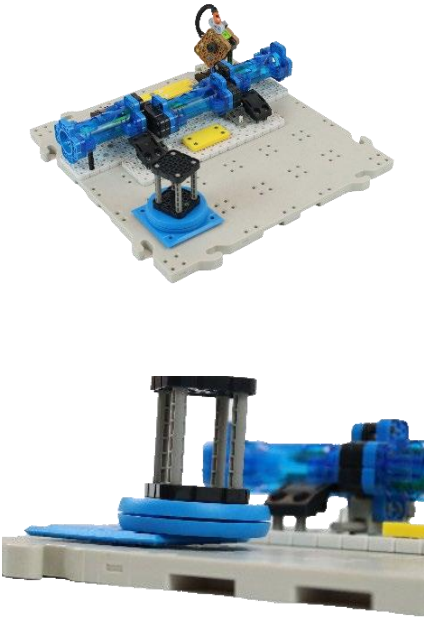
Qualification Matches: Teamwork Challenge matches used to determine tournament rankings.

Finals Matches: Teamwork Challenge matches used to determine the tournament champion.

IV. Match & Tournament Rules

A. Scoring Tasks

Task Name	Completion Criteria	Diagrams	Points
1. Retrieve Orange, Blue, and Purple Probes	Probes do not touch their colored bases at the Deep-Sea Research Station AND do not touch any robot. 1 point per probe.	 Starting Configuration  Example of Completed State	1 pt / ea
2. Install Probe at Fish Habitat	Place the purple probe onto the purple base of the Fish Habitat. The purple probe must touch ONLY the purple base.		1 pt

		 Two Examples of Completed State, Purple Sensor contacting ONLY the purple base.	
3. Install Probe at Pipeline	Place the blue probe onto the blue base of the Subsea Transport Pipeline. The blue probe must touch ONLY the blue base.	 Sample Completed States, Blue Sensor touching ONLY the blue base.	1 pt

4. Install Probe at Volcano Module

Base: Orange probe on orange base at volcano foot = 1 pt.
 Summit: Orange probe fully seated in crater, ~perpendicular to field = 3 pts.
 Base: probe touches internal orange component; circular base fully embedded in crater structure.



Two Examples of Completed State,
 Orange Sensor contacting ONLY the orange base. (1 pt)



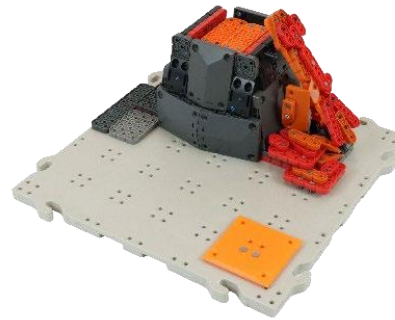
Example of Completed State

Orange Sensor fully seated in crater recess, oriented approximately perpendicular to the field tile. (3 pts)

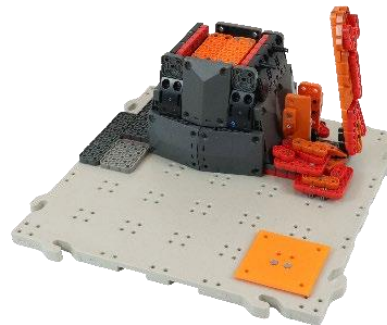
1 / 3 pts

**5. Clear
Volcanic Lava**

Move the lava away from the volcano so it is not touching the volcano AND not touching any robot.



Starting Configuration



Example of Completed State

Magma not contacting the Volcano and not contacting any robot. (2 pts)

2 pts

**6. Open Clam
Shell**

Fully open the clam shell so it is not touching any robot. "Fully open" = shell touches the rear white component.



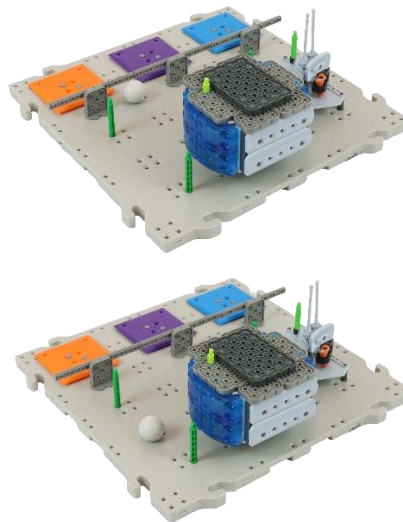
Starting Configuration

1 pt

		 Example of Completed State (1 pt)	
7. Retrieve the Pearl	Remove the pearl from the clam shell so it no longer touches the shell AND does not touch any robot.	 Starting Configuration Completed State	1 pt

8. Transport the Pearl

Deliver the pearl to the laboratory side of the Deep-Sea Research Station fence, with the pearl not touching any robot.

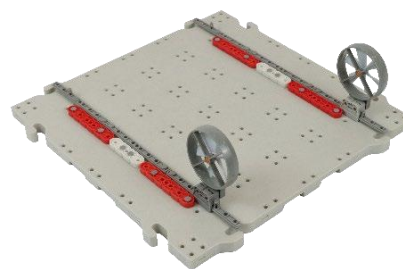


1 pt

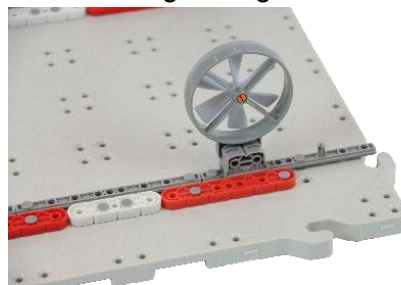
All of the above are examples of Completed State.

9. Activate Tidal Turbines

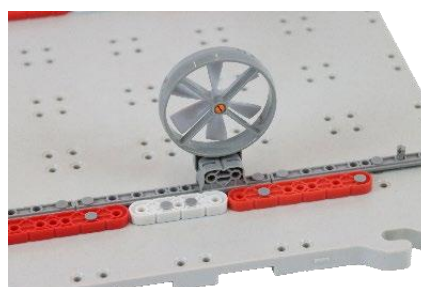
Activate turbines and move them to the operational zone.
High-power zone: turbine within white beam range on same track side = 2 pts each.
Max 4 points (2 turbines $\times$ 2 pts).



Starting Configuration

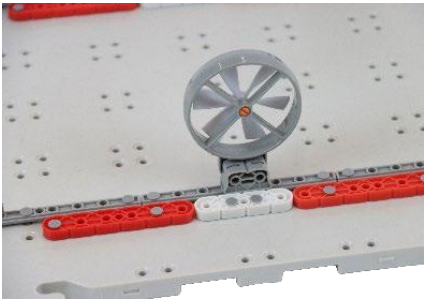
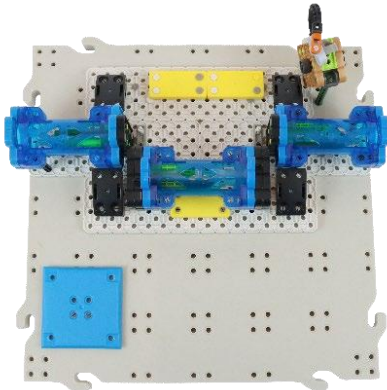
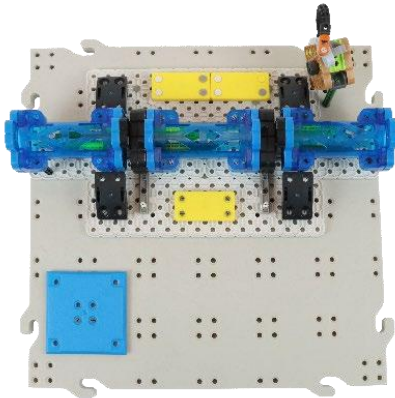


Example A of Completed State (1 pt)



Example B of Completed State

1–4 pts

		(1 pt)  Example of Completed State (2 pt)	
10. Repair Subsea Transport Pipeline	Repair/connect the subsea transport pipeline.	 Starting Configuration  Completed State	3 pts

Score Summary Table

#	Task Name	Point Value	Max Points
1	Retrieve Probes (Orange, Blue, Purple)	1 per probe	3
2	Install Probe at Fish Habitat	1	1
3	Install Probe at Pipeline	1	1
4	Install Probe at Volcano Module	0–3	3
5	Clear Volcanic Lava	2	2
6	Open Clam Shell	1	1
7	Retrieve the Pearl	1	1
8	Transport the Pearl	1	1
9	Activate Tidal Turbines	0–4	4
10	Repair Subsea Transport Pipeline	3	3
—	Total Maximum Score:	—	20

B. Match Rules

1. Each team may compete with only one inspected and approved VEX GO robot. Any act of “borrowing” or “substituting” a robot constitutes a major violation.

2. In Teamwork Challenge matches, only one robot per alliance may operate on the field at any time. Each robot’s active runtime is limited to 35 seconds. Robot exchange must occur between 0:35 and 0:25 remaining on the match clock. The second robot may enter the field only from the Starting Zone.

- During the first robot’s runtime, the second robot may be pre-placed in the Starting Zone. Prior to the exchange, the second robot must remain stationary and may not be operated. If it obstructs the first robot, it will be deemed a lack of communication between alliance partners, and the referee will not intervene.
- If the second robot begins operating on the field before the first robot’s runtime expires, it will be deemed a violation, resulting in a full match stoppage.
- During robot exchange, if the second robot moves before the first robot has left the field, it will be ruled a false start. The Driver must reset the second robot to the Starting Zone before restarting.
- If fewer than 25 seconds (0:25) remain when the first robot exits, any Scoring Objects held by that robot will be placed by the Head Referee in the nearest non-scoring position relative to the robot’s exit point.

3. Operators must set down their remote control devices when the match ends, leaving the robot stationary on the field.

Damaging field elements constitutes a major violation.

4. At the start of a match, the robot must:

a. Be in contact with the floor.

b. Be entirely within the green Starting Zone tile and must not exceed the three-dimensional volume defined by the edges of that tile.

5. Robot Size Limits:

- **Starting Size:** 9" (228.6 mm) × 10" (254 mm) × 10" (254 mm)
- **Expanded Size:** 12" (304.8 mm) × 10" (254 mm) × ∞" (∞ mm)
- *Note: ∞" indicates unlimited height when expanded.*

6. Each team must have at least one Driver. A Driver may not represent more than one team during any tournament. Drivers may move around the perimeter of the field during a match and are not required to remain in a fixed location.

- Borrowing drivers from other teams constitutes a major violation. Depending on severity, this may result in the disqualification of all associated teams and forfeiture of all match scores for the remainder of the tournament.

7. Except during robot exchange, Drivers may not contact any field elements, Scoring Objects, or robots during a match.

8. Robots may not possess different types of Scoring Objects simultaneously. At any given time, the number of Scoring Objects possessed by a robot must be ≤ 2 .

9. While possessing a Scoring Object, a robot may not trigger other scoring conditions unrelated to that object, including but not limited to:

- a. Retrieving Sensors;
- b. Removing Magma;
- c. Opening the Clam Shell;
- d. Extracting the Pearl;
- e. Activating Turbines;
- f. Connecting the Pipeline.

Penalty: Each violation incurs a 5-second stoppage. The robot must come to a complete stop at its current location, and the Driver may not control it in any way (timed from when the robot stops moving). Violated game pieces will be reset by the referee.

10. Scoring will occur immediately after the match concludes and all objects on the field have ceased moving. Points scored due to robot movement after the match clock has expired will not be counted. Referees may not review video or photos prior to scoring.

- *Note: Items exiting the field will be returned to the nearest non-scoring position by the Head Referee.*

11. Robots may not intentionally grasp, hook, or anchor to any field element. Mechanisms designed to secure field elements by bracing

against multiple surfaces are prohibited. This rule exists to prevent accidental damage to the field and to prevent robots from anchoring themselves. Minor violations with no impact on gameplay will result in a warning. Violations affecting gameplay will result in disqualification. Repeated warnings may escalate to disqualification at the Head Referee's discretion.

12. Unless otherwise noted, field dimensions may vary by ± 1 " (25.4 mm). Robots must be designed to accommodate this tolerance.

13. Replays are granted solely at the discretion of the Event Partner and Head Referee and will only occur under exceptional circumstances.

14. Robot recovery is permitted only if the robot is fully outside the field boundary, stuck, tipped over, or in need of assistance. During recovery, the Driver must:

- a. Place their tablet or controller on the floor (or table, if the field is elevated) and notify the Head Referee.
 - b. Return the robot to the Starting Zone.
 - c. Relinquish all Scoring Objects held by the robot or located within the Starting Zone to the Head Referee, who will place them in the nearest non-scoring position.
- *Note: This rule is intended to allow teams to repair or troubleshoot robots, not as a strategic advantage. Intentional or repeated recovery attempts may result in disqualification at the Head Referee's discretion.*

15. In Autonomous Skills Matches, teams may recover their robot an unlimited number of times, following the procedure outlined above.

C. Tournament Structure

1. Ocean Science Exploration features **three competition formats**: Teamwork Challenge, Autonomous Skills Challenge, and Driver Skills Challenge. The Teamwork Challenge applies to Qualification and Finals Matches. The Autonomous and Driver Skills Challenges constitute the Skills Challenge formats.

2. All teams will receive an equal number of Qualification Matches, as determined by the Event Partner. For Skills Challenges, each team will receive a minimum of three (3) Autonomous Skills attempts and three (3) Driver Skills attempts.

3. Qualification Matches will proceed according to the official match schedule, which lists alliance partners, match times, and field assignments (for multi-field events).

Note: The Event Partner reserves the right to modify the official match schedule.

4. Teamwork Challenge:

a. **Qualification Ranking:** Teams are ranked based on an average score calculated from a set number of Qualification Matches.

I. A specified number of lowest scores will be dropped and excluded from the ranking calculation. Dropped matches do not affect eligibility for the Teamwork Challenge.

Qualifying Matches	Dropped Matches
4–7 matches	1
8–11 matches	2
12–15 matches	3
16+ matches	4

Table 1: Number of Matches Dropped from Team Qualification Average

II. In certain circumstances, a team may be required to participate in additional qualification matches. These additional matches will be denoted with an asterisk (*) on the match schedule and will not affect the team's ranking (nor affect league participation). Teams are expected to compete in these matches with the intent to score.

b. Disqualification: If a team is disqualified during a Qualification Match, that match score is recorded as zero (0). The alliance partner will retain any points scored during that match.

I. In the Finals, disqualification applies to the entire alliance, not solely to the individual team. A disqualified alliance in the Finals will receive zero (0) points.

c. The number of teams advancing to the Finals will be determined by the Event Partner.

d. **Finals Procedure:** Finals will proceed starting with the lowest-seeded alliance. Each alliance will participate in one (1) Finals Match. The alliance achieving the highest score will be declared the Teamwork Challenge Champion.

I. Alliances will be ranked based on their Finals Match score. The highest-scoring alliance will be ranked first, the next highest second, and so on.

II. If a tie occurs for first place, a tiebreaker match will be played. The lower-seeded alliance will compete first. The alliance with the highest score in the tiebreaker match will be declared the winner.

III. If the tiebreaker match results in a tie, the alliance with the most accumulated match stoppage time during that match will be declared the winner.

IV. If match stoppage time is also equal, an additional tiebreaker match will be played. If the second tiebreaker match also results in a tie, the higher-seeded alliance will be declared the winner.

V. For any tie not involving first place, the higher-seeded alliance will be awarded the higher rank.

5. Robot Skills Challenge:

Teams are ranked by the sum of their highest Autonomous Skills Match score and their highest Driver Skills Match score. The team achieving the highest combined score will be awarded the Skills Champion title.

6. Scoring & Timing System:

Tournament Manager software will be utilized with the **VEX IQ Basic Game** configuration to generate match schedules and record match scores.

Game Scoring Configuration

Please select the game scoring configuration you would like to use for this tournament.

Note: The Expanded Scoresheet is only recommended for events utilizing TM Mobile and an audience display for real-time scoring during a match. If you do not plan to use TM Mobile, or plan to use TM Mobile without real-time scoring, we recommend choosing the Simplified Scoresheet. An event cannot be changed from Expanded to Simplified, or vice-versa, once it has been created.

- ☐ None
- ☒ Basic Game (VEX IQ)
- ☐ Rise Above (VEX IQ 2020/2021)
- ☐ Pitching In (VEX IQ 2021/2022)
- ☐ Slapshot (VEX IQ 2022/2023)

V. Robot Rules

Robots must meet the following requirements to compete in the VEX GO Challenge: Ocean Science Exploration.

1. **Power:** Only one (1) VEX GO battery is permitted for use on a VEX GO robot. The sole legal power source is one (1) VEX GO robot battery. No additional batteries—connected or unconnected—are allowed on the robot..

2. **Control:** Only one (1) VEX GO Brain is permitted per robot.

- i. VEX IQ, VEX V5, EXP, Cortex, VEXpro Brains, microcontrollers, or other electronic components are prohibited.

3. **Operation:** Robots may be controlled via tablet, GO Controller, or VEX IQ Controller.

4. **Motors:** A maximum of four (4) VEX GO Smart Motors is permitted.

5. **Identification:** Robots must display a team number/name plate using official VEX GO components.

6. **Legal Parts:** All structural and functional components must be official VEX GO products purchased through VEX or its authorized resellers. To verify if a product is “legal,” consult www.vexgo.com. The following non-VEX GO parts are permitted:

a. Teams may add appropriate non-functional decorations, provided they do not significantly affect robot performance or match outcomes. Decorations must adhere to the spirit of the competition. Inspectors have final authority to determine whether a decoration is “non-functional.”

- i. Any decoration must be backed by functional, legal VEX GO components. For example, if a robot features an oversized decal intended to prevent Scoring Objects from falling out, it must be backed by VEX GO components capable of performing that function.

b. Rubber bands (#32 and #64) matching the length and thickness specifications of VEX GO products. Other VEX GO products released during the current season are also legal for use.

7. **Construction:** Unless otherwise specified, VEX GO robots must be built exclusively using VEX GO products.

a. During inspection, if there is a question regarding whether a part is an official VEX GO product, inspectors may request documentation proving the part's origin, such as receipts, part numbers, or other printed materials.

b. VEX V5, EXP, AIM, CTE, and 123 products are not permitted for building VEX GO robots.

c. Mechanical/structural parts from the VEX IQ product line may be used to build VEX GO robots. However, electrical components (excluding controllers), motion components (gears, sprockets, pulleys, wheels, chain, tread, fans), and pneumatic components from the VEX IQ product line are not permitted.

d. 3D-printed parts are prohibited.

8. **Modifications:** Parts may not be modified.

- i. Modifications include, but are not limited to, cutting or bending parts.

9. **Prohibited Mechanisms:** The following mechanisms and components are not permitted:

- a. Devices capable of damaging field elements or game pieces;
- b. Devices capable of damaging other robots;
- c. Devices posing unnecessary risks such as entanglement.

10. **Starting Configuration:** At the start of a match, the robot must maintain the same configuration as inspected and must not exceed maximum permitted dimensions.

11. **Inspection:** A robot is deemed inspected and approved once recorded as “Pass” and signed off by both inspectors and team members on the inspection sheet. Teams must report to the field with their robot prior to match time. Teams must ensure the robot battery is fully charged before entering the field.

12. **Firmware:** Teams must ensure VEX GO firmware is updated to the latest version.