

From the Gulf of Mexico to Jupiter's Moon Europa

EXPLORER CLASS SCORE SHEET

Company Name

Company CEO: _____

Product demonstration station officials: _____

Safety Check and Set-Up (up to 10 points total)

- 5 points – Company presents signed safety inspection sheet.
- 5 points – Vehicle and control system present no safety hazards.

Examples:

- All power cords, power bars, pressurized cylinders, etc. are secured.
- No hazardous materials are leaking onto the pool deck.
- Vehicle is hand-launched by team members in a safe manner.

Company is cleared for demonstration: _____ (official's initials) _____ total points (out of 10)

Note: An official's decision to disqualify a company due to safety concerns is final. If there is a safety concern, please contact the lead safety inspector or competition coordinator.

Check here if the company presented you with a JSA (Job Safety Analysis).

Organizational and Operational Effectiveness (up to 10 points total)

- Up to 2 points – Organization
 - Chain of command evident 1 _____
 - Roles clear and executed well 1 _____
- Up to 2 points – Task Plan
 - Task plan is well thought out to maximize score
 - Alternate plans available 1 _____
 - All team members are aware of the plan 1 _____
- Up to 2 points –Time Management
 - Awareness of time 1 _____
 - Adjusting timeline to adapt to situations 1 _____
- Up to 2 points – Team Cooperation
 - Composure under pressure 1 _____
 - Supportive of each other 1 _____
 - Team communicates well with each other
- Up to 2 points – ROV Deployment and Control
 - ROV deployed 1 _____
 - ROV deployed and under control to perform tasks 1 _____

Total points (out of 10) _____

Penalty Points

Tether pulling: Issue a warning for the first infraction. Begin deducting points AFTER the first infraction.

Illegal communication: Company members at the side of the pool may not communicate visual evidence of the ROV status (location, need to turn, etc.).

Debris: Companies that leave debris (e.g. parts of their ROV, including weights and flotation) in the pool such that a diver must retrieve the debris will also receive penalty points. Product demonstration props are NOT considered debris. A company constructed collection basket is considered debris.

Diver Assistance: At the international competition diver assistance will be available only after the product demonstration time is complete, and will result in a 5 point penalty.

Fuses

If a vehicle blows the MATE power supply in-line fuse, the company is allowed one spare. If the vehicle blows the second MATE fuse, the product demonstration performance period is over. The company will receive points for the product demonstration tasks that they have completed up to that point but will not receive a time bonus score.

Bonus points for size and weight

Size bonus, up to 20 points – _____

- ROV is less than 58 cm – 20 bonus points
- ROV is within 58.1 cm and 64 cm – 10 bonus points
- ROV is within 64.1 cm and 70 cm – 5 bonus points
- ROV is within 70.1 cm and 85 cm – 0 bonus points

Judge initials: _____

CEO initials: _____

Weight bonus, up to 20 points – _____

- ROV is less than 17 kg – 20 bonus points
- ROV is between 17.01 kg and 19 kg – 10 bonus points
- ROV is between 19.01 kg and 22 kg – 5 bonus points
- ROV is greater than 22 kg – 0 bonus points

Judge initials: _____

CEO initials: _____

EXPLORER Product Demonstration Task Scoring Breakdown:

Task #1: Mission to Europa	Scoring – up to 100 points
<p>Judges' Notes: Companies may complete the steps of Task #1 in any order except for the following: The four steps of connecting the ESP to the power and communications hub (1.5, 1.6, 1.7 and 1.8). These steps MUST be completed in order. Companies may alternate between this and the other tasks (2 – 5). Companies that cannot complete one of the steps 1.5 through 1.8 cannot continue with the remaining steps of Task #1.</p>	
1.1 10 points – inserting the temperature sensor into the venting fluid	_____
1.2 up to 20 points – measuring the temperature of the venting fluid	_____
<ul style="list-style-type: none"> ○ 20 points – within 2°C of benchmark ○ 10 points – within 4°C of benchmark ○ 5 points – within 5°C of benchmark ○ 0 points – not within 5°C of benchmark 	
1.3 up to 10 points – determining the thickness of the ice crust	_____
<ul style="list-style-type: none"> ○ 10 points - ≤ 10 cm from true depth ○ 0 points - > 10 cm from true depth 	
1.4 up to 10 points – determining the depth of the ocean underneath the ice	_____
<ul style="list-style-type: none"> ○ 10 points - ≤ 10 cm from true depth ○ 0 points - > 10 cm off from true depth 	
1.5 5 points – retrieving the ESP's cable connector from the elevator	_____
1.6 up to 15 points (5 points each) – laying the cable through three waypoints	_____
1.7 10 points – opening the door on the power and communication hub	_____
1.8 20 points – inserting the cable connector into the port on the hub	_____
TOTAL POINTS FOR TASK #1 _____	

Task #2: Mission-Critical Equipment Recovery**Scoring – up to 40 points**

Judges' Notes: Companies may alternate between this and the other tasks. The proper serial numbers must be identified before the CubeSat can be placed in the collection basket.

- 2.1 up to 20 points (5 points each)** – finding and identifying the serial numbers of the four mission-critical CubeSats _____
- 2.2 up to 20 points (5 points each)** – recovering the CubeSats and placing them in the collection basket _____

TOTAL POINTS FOR TASK #2 _____**Task #3: Forensic Fingerprinting****Scoring – up to 40 points**

Judges' Notes: Companies may complete the steps of Task #3 in any order and may alternate between this and the other tasks.

- 3.1 up to 10 points (5 points each)** – collecting one sample from two oil mats _____
- 3.2 up to 10 points (5 points each)** – returning the samples to the surface _____
- 3.3 up to 20 points (10 points each)** – analyzing gas chromatographs to determine the samples' origin _____

TOTAL POINTS FOR TASK #3 _____**Task #4: Deepwater Coral Study****Scoring – up to 30 points**

Judges' Notes: Companies may complete the steps of Task #4 in any order and may alternate between this and the other tasks.

- 4.1 up to 10 points (5 points each)** – photographing the two coral colonies _____
- 4.2 up to 10 points (5 points each)** – comparing the photos to previous years to assess the condition of each colony _____
- 4.3 up to 10 points (5 points each)** – returning two coral samples to the surface _____

TOTAL POINTS FOR TASK #4 _____**Task #5: Rigs to Reefs****Scoring – up to 50 points**

Judges' Notes: Companies MUST complete the steps of Task #5 in order. Companies may alternate between this and the other tasks. Companies that cannot complete one of the steps cannot continue with the remaining steps of Task #5.

- 5.1 10 points** – installing a flange on the top of the wellhead _____
- 5.2 10 points (5 points each)** – securing the flange with two bolts _____
- 5.3 10 points** – installing a wellhead cap over the flange _____
- 5.4 20 points (5 points each)** – securing the cap with four bolts _____

TOTAL POINTS FOR TASK #5 _____

Please use the scoring summary worksheet below to verify and tally scores.

SCORING SUMMARY WORKSHEET

SAFETY CHECK & SET-UP						
Signed safety inspection sheet		0				5
Vehicle and control system present no hazards		0				5
ORGANIZATION		0	1	2	3	4 5
Company is effectively organized to undertake the product demonstration		6	7	8	9	10
Safety check, set-up, and organization point total:						
SIZE and WEIGHT Bonus						
Size bonus		0	5	10		20
Weight bonus		0	5	10		20
Task #1: Mission to Europa (up to 100 points)						
Inserting the temperature sensor into the venting fluid		0				10
Measuring the temperature of the venting fluid		0	5	10		20
Determining the thickness of the ice crust		0				10
Determining the depth of the ocean under the ice		0				10
Retrieving the ESP's cable connector from the elevator		0				5
Laying the cable through three waypoints		0	5	10		15
Opening the door of the power and communications hub		0				10
Inserting the cable connector into the port		0				20
Task #1 point total:						
Task #2: Mission Critical Equipment Recovery (up to 40 points)						
Finding and identifying the serial numbers of the four critical CubeSats		0	5	10	15	20
Recovering the CubeSats and placing them in the collection basket		0	5	10	15	20
Task #2 point total:						
Task #3: Forensic Fingerprinting (up to 40 points)						
Collecting one sample of two oil mats on the seafloor		0	5			10
Returning the samples to the surface		0	5			10
Analyzing gas chromatographs to determine the samples' origin		0	10			20
Task #3 point total:						
Task #4: Deepwater Coral Study (up to 30 points)						
Photographing two coral colonies		0	5			10
Comparing the photos to previous photos to assess their condition		0	5			10
Returning two coral samples to the surface		0	5			10
Task #4 point total:						
Task #5: Rigs to Reefs (up to 50 points)						
Installing a flange on top of the wellhead		0				10
Securing the flange with two bolts		0	5			10
Installing a wellhead cap on top of the flange		0				10
Securing the cap to the flange with 4 bolts		0	5	10	15	20
Task #5 point total:						
PENALTY POINT DEDUCTIONS						
Illegally pulling tether _____ infractions X - 5						
Illegal communication _____ infractions X - 5						
Leaving debris in the pool _____ infractions X - 5						
Diver assistance after product demonstration _____ - 5						
Exceeded 5-minute demobilization period _____ minutes X - 1 =						
TIME BONUS						
1 point for every minute and 0.01 point for every second under 15 minutes						
Duration of Product Demonstration: _____						
Minutes under 15 remaining: _____ X 1 point = _____						
Seconds remaining: _____ X 0.01 point = _____						
Time bonus						
TOTAL PRODUCT DEMONSTRATION SCORE						

Official's initials: _____

Company CEO's initials: _____