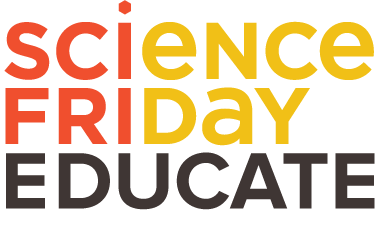
**ROV Simulation Student Hand Out**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Directions:** Use the space below to diagram what your ROV tool will look like. Remember, it should be designed so that it can acquire as many different materials as possible.

|  |
| --- |
| Materials needed: |
| Sketch of your design: |



**ROV Piloting Simulation**

**Directions:** You will have 10 minutes to successfully pilot your ROV to the ocean floor, acquire your samples, and return your ROV to the surface. You may return to the surface early if you’ve acquired all you can. Before you start your simulation, determine who will be in what role for the simulation.

|  |  |
| --- | --- |
| **ROV Pilot Name** | **ROV Name** |
|  |  |

**ROV First Simulation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Used** |  | **Number Of Materials Acquired** |  |
| **Number Of Rocks Acquired** |  | **Number Of Screws Acquired** |  |
| **Number Of Balls Acquired** |  | **Number Of Nuts Acquired** |  |
| **Number Of Bolts Acquired** |  | **Number Of Nails Acquired** |  |

**ROV Second Simulation:  
 Performing 3D operations based off of a 2D view**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Used** |  | **Number Of Materials Acquired** |  |
| **Number Of Rocks Acquired** |  | **Number Of Screws Acquired** |  |
| **Number Of Balls Acquired** |  | **Number Of Nuts Acquired** |  |
| **Number Of Bolts Acquired** |  | **Number Of Nails Acquired** |  |
| **Number Of Positions Landed On** |  | **Time It Took To Complete The Maneuvering Task** |  |

**ROV Third Simulation:  
 3D Mapping**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Used** |  | **Number Of Materials Acquired** |  |
| **Number Of Rocks Acquired** |  | **Number Of Screws Acquired** |  |
| **Number Of Balls Acquired** |  | **Number Of Nuts Acquired** |  |
| **Number Of Bolts Acquired** |  | **Number Of Nails Acquired** |  |
| **Number Of Ocean Floor Mapping Images Taken** | |  | |

**Directions:** Using the images taken and some type of image editing software such as Google Draw, Microsoft Paint, etc., combine the images to create your ocean floor map and place the image created below.

|  |
| --- |
|  |

**ROV Fourth Simulation:  
Delicate Touch**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Used** |  | **Number Of Materials Acquired** |  |
| **Number Of Rocks Acquired** |  | **Number Of Screws Acquired** |  |
| **Number Of Balls Acquired** |  | **Number Of Nuts Acquired** |  |
| **Number Of Bolts Acquired** |  | **Number Of Nails Acquired** |  |
| **Number Of Chips Acquired** |  | **Number Of Spaghetti Noodles Acquired** |  |

**ROV Fifth Simulation:  
Niskin Bottles**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Used** |  | **Number Of Materials Acquired** |  |
| **Number Of Rocks Acquired** |  | **Number Of Screws Acquired** |  |
| **Number Of Balls Acquired** |  | **Number Of Nuts Acquired** |  |
| **Number Of Bolts Acquired** |  | **Number Of Nails Acquired** |  |
| **Milliliters Of Liquid Returned Using Your Niskin Bottle** | |  | |

**ROV Fifth Simulation:  
Total Simulation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Used** |  | **Number Of Materials Acquired** |  |
| **Number Of Rocks Acquired** |  | **Number Of Screws Acquired** |  |
| **Number Of Balls Acquired** |  | **Number Of Nuts Acquired** |  |
| **Number Of Bolts Acquired** |  | **Number Of Nails Acquired** |  |
| **Number Of Chips Acquired** |  | **Number Of Spaghetti Noodles Acquired** |  |
| **Number Of Positions Landed On** |  | **Time It Took To Complete The Maneuvering Task** |  |
| **Number Of Ocean Floor Mapping Images Taken** | |  | |
| **Milliliters Of Liquid Returned Using Your Niskin Bottle** | |  | |

**Reflection:**

|  |
| --- |
| As an experienced ROV who completed all of the previous missions before attempting this final simulation, do you feel the experience you had previously made this simulation easier even when you had to perform every operation? Why or why not? Cite specific examples from this final simulation as well as previous simulations to support your claim. |
|  |

|  |
| --- |
| **Completed Ocean Floor Map From The Final Simulation** |
|  |