

**Scoring sheet – Pond challenge – 5th-8th grade beginners**

Team name \_\_\_\_\_ Score: \_\_\_\_\_ /50 pts

<p>1. Building a function-appropriate robot at such a size that doesn't stick out from the Start/Goal area in any direction, and can pass between the boom barriers.</p>	<p>0    1    2    3    4</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p> <p>doesn't stick out – 2 pts function-appropriateness – max 4 pts</p>
<p>2. The robot starts from the Start/Goal area with giving off a light signal.</p>	<p>0    1</p> <p><input type="radio"/>   <input type="radio"/></p> <p>yes/no</p>
<p>3. It arrives to the site where it takes on the fish through any route of the team's choice, but without going through the pond or other terrain features.</p>	<p>0    1    2</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>
<p>4. The little fish will be loaded onto the robot in a container by a crane – this mechanism is part of the stage, and is manually controllable. The team must use the crane's control pad to place the container onto the robot.</p>	<p>0    1    2</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/></p> <p>failure – 0 pts container placed, but the robot doesn't sense it – 1 pt full solution – 2 pts</p>
<p>5. The robot must detect the container being placed on its loading area with a built-in sensor, and automatically start moving once it is in place. (If you cannot solve this, you can affix a touch sensor on the side of the robot, and after placing the container, you can press it with the permission of the contest judge to start the robot.)</p>	<p>0    1    2    3</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p> <p>Senses and starts – 3 pts Doesn't start from container, only with touch sensor – 1 pt Failure – 0 pts</p>
<p>6. The robot must reach the train station by following the black line using line-tracing. The exact location where it must stop at the train station is denoted by a</p>	<p>0    1    2    3    4    5    6    7    8</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p> <p>The robot traverses the line – 4 pts It doesn't get lost anywhere – 1 pt It stops at the proper location – 3 pts</p>

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perpendicular black line besides the path.	
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<p>1. The path features unsteady terrain conditions that bar vehicles of certain weight from passing. Because of this, there are a number of weighing checkpoints along the path. At these checkpoints, the robot is stopped by boom barriers; these are a part of the stage, and are automatic. In their default state, they close down the path at certain points. When they detect the robot stopping before them, they wait for the „weighing” to finish, which takes an unpredictable amount of time, then they open up and let the robot pass through. The robot must stop at the checkpoint, signal that it’s ready for weighing with light signals, then wait for the barrier to open. After this, it can continue on.</p>	<p>0 1 2 3 4 5 6 7 8 9 10</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>The robot stops at one barrier – 3 pts The robot gives off light signal at the barrier – 2 pts It continues on after the barrier opens – 3 pts The above are performed at each barrier – additional 2 pts (if it only performs 2 tasks of the above – 1 pt)</p>
<p>2. Upon reaching the train station, the robot must stop at the black line perpendicular to its path. The container must be unloaded from the robot using a crane similar to the previous one, and place it onto the loading area of the freight train. The train station, the crane and the freight train are all part of the stage. If the container is placed properly onto the train, it will depart automatically.</p>	<p>0 1 2 3 4 5</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>It stops at the train – 3 pts Good train loading – 2 pts (Unsuccessful loading – 0 pts Loaded, but not sensed – 1 pt)</p>
<p>3. After this, the robot must return to the pond on any route of the team’s choosing, but avoiding all terrain features.</p>	<p>0 1 2</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/></p>

<p>4. The robot must dredge the debris away from the pond's shore. The red and yellow blocks symbolizing mud and broken reed are placed on predetermined spots of the shore. During the dredging, the robot may drive into the shallow (light blue) waters of the lake, but it cannot touch the deeper (dark blue) area. The robot must push the red blocks onto the empty red rectangle, and the yellow block onto the empty yellow rectangles. The task ends when the robot has pushed all block onto the right rectangle.</p>	<p>0 1 2 3 4 5 6 7 8 9 10</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>The robot properly approaches the blocks – 1 pt          The robot pushes the blocks – 2 pts (1 point per color)          It pushes away all the blocks – 2 pts (1 point per color)          It doesn't enter the deepwater (dark blue) area – 2 pts          It pushes blocks to the proper location – 2 pts (1 point per color)          It pushes all blocks to the proper location – 1 pt</p>
<p>5. After this, the robot must return to the Start/Goal area on any route of the team's choosing, but avoiding terrain features, and stop in such a way that all of its wheels and supports are within the Start/Goal area.</p>	<p>0 1 2 3</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p>