

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

Team name \_\_\_\_\_ Score: \_\_\_\_\_ /60 pts

<p>1. Build a dredging-transporting robot suitable for the tasks! Build it to such a size that doesn't stick out from the Start/Cél (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, and reads a barcode placed on the stage by the contest judge before the contest run. The barcode denotes which dredging site it must extract and transport the mud from. The end of the barcode reading is denoted by a black line on the right end of the barcode reading area. The robot must signal the amount of lines it counted with light signals.</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>Light signal at start – 1 pt Reads barcode – 5 pts Stops at the right place – 2 pts Displays the scanned number – 2 pts</p>
<p>3. After this, the robot must back up onto the Start/Goal area, and starting from there, traverse the path denoted by the black line using line-tracing, arriving to the lake.</p>	<p>0 1 2 3 4 5 6</p> <p><input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/></p> <p>Backs up, turns in the right direction – 1 pt Traverses the path with line-tracing – 4 pts Doesn't get lost anywhere – 1 pt</p>
<p>4. The working area is closed off from trespassers with a boom barrier. At the closed barrier, the robot must stop, give off a light signal, and wait until the barrier opens (which happens after a random amount of time). After the barrier opens, it may continue on.</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 stops at the barrier – 3 pts The robot gives off a light signal at the barrier – 2 pts It continues on once the barrier is open – 3 pts</p>
<p>5. On the pond's shore, the dredging areas are denoted by three black lines perpendicular to the robot's path. The robot has to stop at the first line if the barcode had one line, the</p>	<p>0 1 2 3 4 5 6 7</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"/></p> <p>It stops at a line – 2 pts It stops at the right line – 5 pts</p>

---

second if the barcode had two lines, and the third if the barcode had three.	
--	--

<p>1. Once the robot has automatically stopped at the pond's shore, it turns towards the pond and begins dredging. The mud has to be extracted from the pond's basin; the heightened edge of the pond is a part of the stage.</p>	<p>0      1      2      3</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/>   <input type="radio"/></p> <p>Taking dredging position – 1 pt Detecting the edge of the pond – 2 pts</p>
<p>2. The mud is symbolized by colorful foam balls. The robot has to dredge up 3 units of mud and place them on its loading area.</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>Extracting 1 unit – 4 pts (proper movement -2 pts, actual extraction – 2 pts) Placing the extracted mud on the loading area – 4 pts (proper movement -2 pts, mud on the loading area – 2 pts) Repeating the process 3 times – 2 pts</p>
<p>3. After this, the robot has to transport the extracted mud to the field, traversing any route (but without touching the pond or terrain features).</p>	<p>0      1      2</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>
<p>4. Once reaching the field, the robot has to deposit the mud into the hold of a robot that will spread it. This robot is a part of the stage. Using its control pad, the team members must then spread the mud across the field.</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>Proper position – 2 pts Depositing the mud to the spreading machine – 4 pts (proper movement -2 pts, successful deposit – 2 pts) Spreading the mud – 2 pts</p>
<p>5. After this, the robot must return to the Start/Goal area (taking any path of the team's choosing, but avoiding the field, the pond and terrain features, and stop in such a way that all its wheels and supports are within the Start/Goal area.s</p>	<p>0      1      2</p> <p><input type="radio"/>   <input type="radio"/>   <input type="radio"/></p>