**How to Construct a Robot Part by Part Rubric**

**Task Statement:** Students will demonstrate they can construct a robot part by part.

**Task Assignment:** Students will lay out and dimension each part; consider the weight, speed and tolerance; determine what toolsto use and how to use them; incorporate safety tips as a priority; and use appropriate materials for cost effectiveness.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Criteria - | | Novice | | Developing | | | Exemplary | Points | |
| Concepts/Skills to be | | 1 | | 2 |  | | 3 | Earned | |
| Assessed | |  | |  |  | |  |  | |
| Lay out and dimension the | | Pencil sketch main idea | | Complete sketch | to | | Complete working drawing, |  | |
| robot part by part | |  | | working drawing | and | | and dimension with exact |  | |
|  | |  | | dimensions |  | | measurements (\*add five |  | |
|  | |  | |  |  | | extra credit points to |  | |
|  | |  | |  |  | | simulate and animate the |  | |
|  | |  | |  |  | | parts) |  | |
| **(Possible 15 points)** | | (1-5 points) | | (6-10 points) |  | | (11-15 points) |  | |
| Consider weight, speed, and | | Correct height, width, and | | Correct height, width, | | | Correct height, width, depth, |  | |
| tolerance of each part | | depth of each part | | depth, weight, speed, and | | | weight, speed, and |  | |
|  | |  | | tolerance of each part | | | tolerance of each part to |  | |
|  | |  | |  |  | | balance load for winning |  | |
|  | |  | |  |  | | applications |  | |
| **(Possible 15 points)** | | (1-5 points) | | (6-10 points) |  | | (11-15 points) |  | |
| What tools will you use and | | Correct tools for the | | Correct tools for | the | | Correct tools for the |  | |
| how do you use the tools? | | correct job | | correct job; precision and | | | correct job; precision and |  | |
|  | |  | | accuracy required | | | accuracy required to save |  | |
|  | |  | |  |  | | you time and effort |  | |
| **(Possible 15 points)** | | (1-5 points) | | (6-10 points) |  | | (11-15 points) |  | |
| What safety tips are required? | | Always wear safety | | Always wear safety | | | Always wear safety |  | |
|  | | glasses; have a clean and | | glasses; have a clean and | | | glasses; have a clean and |  | |
|  | | safe work space | | safe work space; lay out | | | safe work space; lay out |  | |
|  | |  | | stock before cutting; make | | | stock before cutting; make | | |
|  | |  | | all machines set up with | | | all machines set up with | | |
|  | |  | | power off | | | power off; wear proper | | |
|  | |  | |  | | | attire; obey all safety rules; | | |
|  | |  | |  | | | select the correct tool for | | |
|  | |  | |  | | | the correct job | | |
| **(Possible 15 points)** | | (1-5 points) | | (6-10 points) | | | (11-15 points) | | |
| Use only materials provided in | | Select correct materials for | | Select the correct | | | Select the correct materials, | | |
| class | | each part | | materials, size, speed, | | | size, speed, weight and | | |
|  | |  | | weight, and application for | | | applications for all functions | | |
|  | |  | | all functions | | | and measurements to take | | |
|  | |  | |  | | | you through the applications | | |
|  | |  | |  | | | with ease | | |
| **(Possible 15 points)** | | (1-5 points) | | (6-10 points) | | | (11-15 points) | | |
| Why are you using the | | Ability to apply needed | | Choose materials to apply | | | Choose materials to apply | | |
| materials selected? | | constraints | | the best constraints and | | | the best constraints and | | |
|  | |  | | accuracy for results and | | | accuracy for results and | | |
|  | |  | | efficiencies | | | efficiencies that will | | |
|  | |  | |  | | | accurately affect | | |
|  | |  | |  | | | performance | | |
| **(Possible 15 points)** | | (1- 5 points) | | (6- 10 points) | | | (11-15 points) | | |
| Find cost of materials | | To avoid waste | | To avoid waste; and is for | | | To avoid waste; and is for | | |
|  | |  | | best business practices | | | best business practices; | | |
|  | |  | |  | | | and results in the efficiency | | |
|  | |  | |  | | | of management | | |
| **(Possible 15 points)** | | (1-5 points) | | (6-10 points) | | | (11-15 points) | | |

1. = 73-105 points; **B** = 40-72 points; **C** = 8-39 points; **D** = 0-7 points

\*Add five extra credit points to simulate and animate the parts:**\_\_\_\_\_\_\_\_\_\_**