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