

Design Portfolio Rubric for Pick 'n Place Challenge Grabber *(detailed)*



Part A: PORTFOLIO					
Success criteria	5	4	3	2	0-1
Quality of portfolio's presentation including title and index pages	Title page contains all elements: school and student's names. Index links to marked pages and the overall presentation is of a high quality	Title page contains all elements: school and student's names. The overall presentation is of a high quality. The Index is missing	Title page contains all elements: school and student's names. The overall presentation is of an average quality. The Index is missing	The overall presentation is of an average quality. The Index and the Title page are missing	The overall presentation is of a poor quality. The Index and the Title page are missing (1)
At least three illustrations of the initial design concepts of possible grabber	Three illustrations that show connecting parts in some detail	Three illustrations, two of which show some connecting parts	Three illustrations, one of which shows some connecting parts	Two illustrations	One illustration (1) No illustrations (0)
Materials that would used to build a prototype	A comprehensive list of materials, correctly labeled and including all dimensions	A list of all materials used, correctly labeled and including some dimensions	A list of all materials used, correctly labeled without dimensions	A list of some but not all materials with some labels and dimensions	A list of some materials without dimensions (1) No list (0)
Description of the use of the principles of structural strength and stability in the design of the grabber	Uses 5 terms from the following sets: force or load or compression or tension; symmetry or triangulation; center of gravity or balance and counterbalance; support beams or struts; gusset or joining methods; aesthetics	Uses 4 terms from the following sets: force or load or compression or tension; symmetry or triangulation; center of gravity or balance and counterbalance; support beams or struts; gusset or joining methods; aesthetics	Uses 3 terms from the following sets: force or load or compression or tension; symmetry or triangulation; center of gravity or balance and counterbalance; support beams or struts; gusset or joining methods; aesthetics	Uses 2 terms from the following sets: force or load or compression or tension; symmetry or triangulation; center of gravity or balance and counterbalance; support beams or struts; gusset or joining methods; aesthetics	Uses 1 term from the following sets: force or load or compression or tension; symmetry or triangulation; center of gravity or balance and counterbalance; support beams or struts; gusset or joining methods; aesthetics No description (0)
Rationale used to decide on the type of fluid power used and where to place the piston-syringe to operate the grabber	Explains the position of the piston-syringe in terms of actions. In doing so, uses 4 terms from the following sets: pneumatic and hydraulic; system or input and output; density or particle theory; pressure or Pascal's principle; lever or pivot; friction, work done or mechanical advantage	Explains the position of the piston-syringe in terms of actions. In doing so, uses 3 terms from the following sets: pneumatic and hydraulic; system or input and output; density or particle theory; pressure or Pascal's principle; lever or pivot; friction, work done or mechanical advantage	Explains the position of the piston-syringe in terms of actions. In doing so, uses 2 terms from the following sets: pneumatic and hydraulic; system or input and output; density or particle theory; pressure or Pascal's principle; lever or pivot; friction, work done or mechanical advantage	Explains the position of the piston-syringe in terms of actions. In doing so, uses 1 term from the following sets: pneumatic and hydraulic; system or input and output; density or particle theory; pressure or Pascal's principle; lever or pivot; friction, work done or mechanical advantage	Explains the position of the piston-syringe in terms of actions (1). No explanation (0)

<i>Success criteria</i>	5	4	3	2	0-1
An orthographic drawing of the grabber showing dimensions and construction notes	The orthographic drawing shows front, side and plan views and is drawn so the scaled dimensions relate to the views and includes notes	Three orthographic drawings are presented showing front, side and plan views using a consistent scale	Three orthographic drawings are presented showing front, side and plan views using an inconsistent scale	Only two of three orthographic drawings are available	Only one of three orthographic drawings are available (1) No drawings (0)
An isometric hand drawing of the portion of the prototype used to grab the object	The isometric drawing is properly dimensioned and of high quality	The isometric drawing is of good quality with some correct dimensions	The isometric drawing of fair quality with some correct dimensions	The isometric drawing is of fair quality without dimensions	The isometric drawing is poor without dimensions (1) No isometric drawing (0)

Part B: QUESTIONS TO ANSWER – TIE BREAKER

1: What alternative designs did you consider before selecting one as the design of the prototype grabber?

2: Why did you select this particular design?

3: What did you find most difficult with the project overall?