



Middle School Technology Education

Purpose

The rubrics provide a guide to teachers on how to mark students. This helps with consistency across teachers, although all grading involves some subjectivity. In addition to this broad look, more valuable ongoing assessments are utilized to provide detailed data regarding student progress.

Gateway to Engineering

Statement	Exceeds	Secure	Developing	Beginning
Thinks like an engineer.	Solves problem and improves product with two or more versions.*	Uses a design process independently or collaboratively to solve a problem. Evidence for each step is present.	Follows design process with teacher facilitation.	Solutions are created without using a systematic approach.
Works with attention to detail.	Measures accurately with dial calipers and applies measurements to drawing/model.*	Creates model or sketch that is specific and accurate. (.001)	Creates model or sketch using measurements.	Creates model or sketch.
Imagines an object and creates it on the computer.	Creates exploded view or animation.*	Creates assembly from parts they created.	Creates a three-dimensional model of an object with a single part.	Creates a sketch and an extrusion.
Creates a working drawing on the computer.	Creates an accurate, dimensioned working drawing with isometric view following dimensioning guidelines.*	Creates a dimensioned working drawing with isometric view.	Creates an orthographic drawing with isometric view.	Creates a working drawing of a 3-D model.

The asterisk () denotes one possible way a student could demonstrate enrichment or extension that would be designated as Exceeds Standard.*

Applied Engineering

Statement	Exceeds	Secure	Developing	Beginning
Thinks like an engineer.	Solves problem and improves product with two or more versions.*	Uses a design process independently or collaboratively to solve a problem. Evidence for each step is present.	Follows design process with teacher facilitation.	Creates solutions without using a systematic approach.
Innovates within guidelines.	Creates an novel and effective solution to a problem.*	Creates a solution that meets all design requirements.	Creates a solution to a problem.	Creates a plan for a solution.
Uses physics concepts to solve problems.	Solves a problem using a compound machine.*	Uses all six simple machines to solve a problem.	Gives examples of the six simple machines.	Identifies the six simple machines.
Understands and applies mechanical advantage using simple machines.	Determines mechanical advantage from compound machine.	Calculates mechanical advantage correctly.	Explains relationship between force and distance/speed.	Defines mechanical advantage.

The asterisk (*) denotes one possible way a student could demonstrate enrichment or extension that would be designated as Exceeds Standard.

Automation and Robotics

Statement	Exceeds	Secure	Developing	Beginning
Thinks like an engineer.	Solves problem and improves product with two or more versions.	Uses a design process independently or collaboratively to solve a problem. Evidence for each step is present.	Follows design process with teacher facilitation.	Creates solutions without using a systematic approach.
Solves problems by selecting and applying various mechanisms.	Interfaces with multiple mechanisms or a novel solution to problem.*	Identifies a mechanism that outputs correct motion. Assembles mechanism with available parts. Interfaces with other mechanisms.	Identifies a mechanism that outputs correct motion AND assembles mechanism with available parts.	Identifies a mechanism that outputs correct motion. or Assembles mechanism with available parts.
Designs and creates programs to operate systems.	Designs and creates a program using light and wait function, digital switches and motors, open and/or closed loop systems, light sensors, and count functions.*	Designs and creates a program using light and wait function, digital switches and motors, and open and/or closed loop systems.	Designs and creates a program using light and wait function and digital switches and motors.	Designs and creates a program using light and wait function.
Summarizes and communicates how engineers use robots and their impact on society.	Communicates using an entertaining, engaging, and informative method. Involves peers or professionals outside the school.*	Professionally communicates the impact of robots on society.	Identifies current applications of robots in society.	Distinguishes between computer controlled and non-computer controlled technology.

The asterisk () denotes one possible way a student could demonstrate enrichment or extension that would be designated as Exceeds Standard.*