

Welcome to 7th Grade Engineering Technology class. I'm sure you're anxious to get started, but before we begin let's talk about why you are here. Engineers play a vital role in our society. They are responsible for everything that makes our lives better and more enjoyable. Without engineers we would not have the clothing on our backs, the houses we live in, the cars we drive or the streets we drive them on. We would also have no roller coasters to ride, no bridges to cross, no movies to watch and no computers to play games on. Imagine how dull our world would be.

Now try to imagine how all of these luxuries that we take for granted came to be. Did they hatch? Were they born? Did they appear out of thin air? NO, someone had to design and build them. Who, you ask? People just like you. How did they do it? They used the tools, materials and resources of Technology. Therefore, Engineering Technology Education can be defined as "the study of the human-made world".

"Engineering is the profession in which a knowledge of the mathematical and natural sciences, gained by study, experience, and practice, is applied with judgment to develop ways to utilize, economically, the materials and forces of nature for the benefit of mankind."

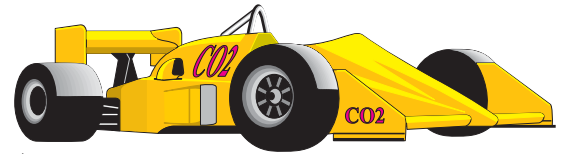
by The Accreditation Board for Engineering and Technology (ABET)

You will all get a chance to experience first hand how something is designed and then constructed. Your challenge this year will be to design and build a small CO₂ powered vehicle. In order to do this correctly and efficiently, we will be utilizing the steps outlined for us in the Design Process. The design process is a series of 9 steps, that when followed correctly, will lead us to a successful outcome. Since the design process has many different steps, we will be covering each step individually and in detail. Students will also learn about cooperation, commitment, and safety.

Each student will be required to do research on the history of transportation and he/she will use the information gathered to make decisions concerning their race vehicle. We will explore the physics behind powering these small vehicles with a CO₂ cartridge and make the connection between math, science, physics, social studies and technology.

Upon completion of this course students will:

- understand how technology plays a vital role in our society
- understand and demonstrate the steps of the design process
- understand the importance of design before production
- develop skills in designing and drafting
- learn how to develop working drawings for a particular object (3-view drawings)
- understand the importance of accurate dimensions when designing
- demonstrate the principle behind "scale" and how it applies to working drawings
- design and construct a transportation vehicle based on a given problem-solving situation
- understand and recall the definition of transportation
- understand the history and influences of transportation
- list various modes of transportation over land, sea, air and space
- understand the physics behind CO₂ powered propulsion
- develop an understanding of aerodynamics
- understand the definition of aesthetics and how it effects overall design
- test the aerodynamics efficiency of a constructed vehicle
- recognize various tools used in the construction process
- demonstrate the correct and safe use of tools used in the construction process
- understand the importance of commitment, cooperation, and safety



If a student does poorly on an activity or an exam, he/she can improve their grade by completing and submitting extra credit work. My web site has an extensive list of Extra Credit activities that vary from grade boosters (a single assignment that will increase your grade by 10, 20, or 30 points) to grade replacements (a single assignment, that when completed correctly, will replace the lowest grade for the term). These Extra Credit activities can be completed throughout the current term only. I also have printed copies of all the extra credit activities if you do not have access to the Internet.

Engineering Technology Web Site:

<http://bms-et.org/>

CURRICULUM AND GRADING

The following is a list of all the assignments that are to be completed by the end of the current term. Specific due dates will be given at the beginning of each assignment and can be reviewed on my web site in the "Homework" section.

<u>Curriculum Assignment</u>	<u>% of Total Grade</u>
Orthographic Projection Homework #1	10
Orthographic Projection Homework #2	10
Orthographic Projection Quiz	10
Orthographic Projection Test	10
Thumbnail Drawings	10
Rough Sketches	10
Final Design Pattern	10
Bandsaw Safety Test	10
Fast Cars "Aerodynamics" Video and Worksheet	10
Final Project - Completed Co2 Car	10
Classroom behavior and participation grade *	10

* Notice that the classroom behavior and participation grade brings the total to over 100%. As long as the student behaves in class and cleans up after him/herself, there will be no deduction in the final grade for the term. If there is a behavior or participation issue, this issue could lower the final grade.

It is my expectation that all assignments be handed in accurately and on time. If a student is absent for any reason, it their responsibility to see me to make up any work. I may extend a due date in special cases, but I usually expect the students to use "out-of-class" time to complete any missed work. 10 points will be deducted for each class that an assignment is handed in late. After 10 days late the assignment may not receive any partial credit and must be replaced by an extra credit activity. Extra credit activities may be found on my web site in the "Extra Credit" section.

MAKE-UP TIMES

I am usually available any morning from 7:00 to 8:00. I am also usually available after school from 2:45 - 4:00 except on Wednesdays and Fridays. I will also allow students to come during 4th period "Team Extension" as long as the supervising teacher approves. You must get permission from your original teacher.

COURSE REQUIREMENTS: A will to succeed!

A pencil will be needed in each class, please bring one to class every day. Each student will be give a 3-ring binder to be used as a Technology Portfolio during the term. These notebooks are the property of Bigelow Middle School Technology Engineering Department and should not be damaged in any way. If the binder is damaged by the student, a \$10.00 fee will be assessed to the student and grades will be withheld until payment has been made.

My Web Address:

<http://bms-et.org/>

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely, Michael Whitman

Phone: (617) 559-6800
ext. 457119

email: whitmanm@newton.k12.ma.us



~ Please sign below and return ~

Student Signature: _____

Parent Signature: _____