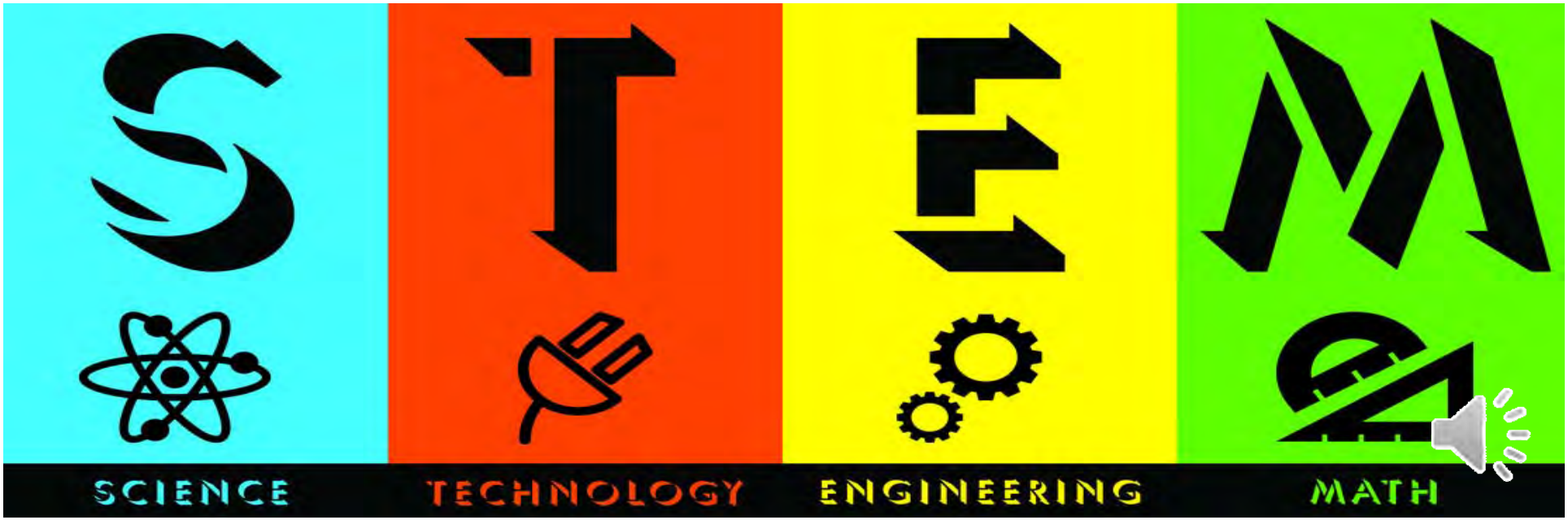
STEM Endorsement

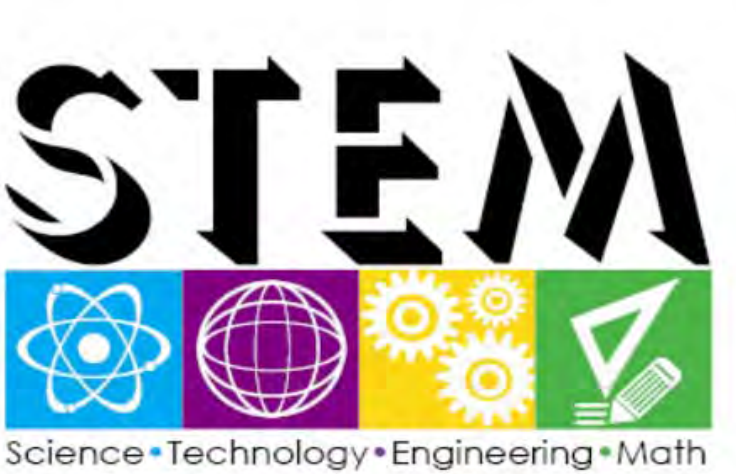
Science, Technology, Engineering, & Math

Click to watch STEM video…

https://www.youtube.com/embed/zgB-Diy8imo?rel=0?ecver=1



Overview



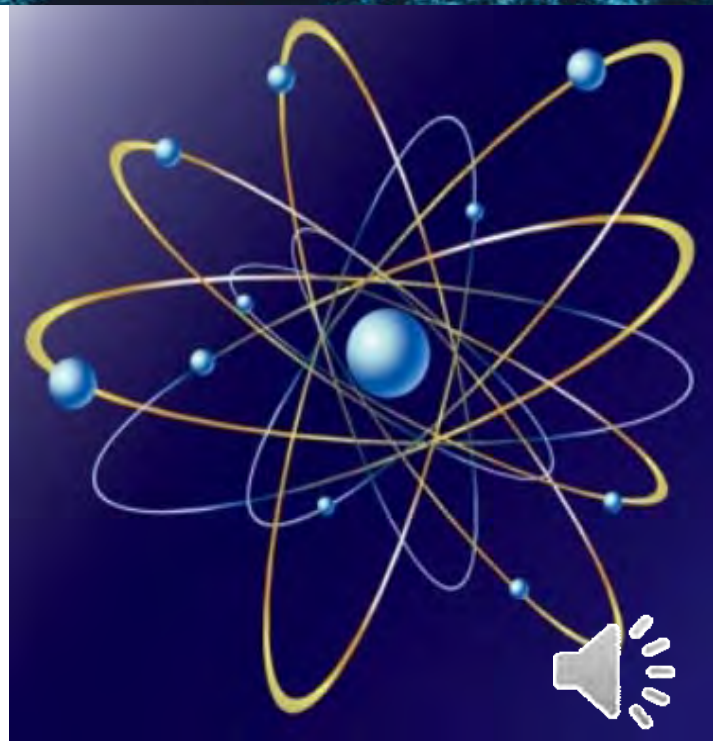
- This endorsement includes courses directly related to science, technology (including computer science), engineering, and advanced mathematics.

- You would choose this endorsement if you have an interest in or if you plan to study or pursue a career in one of the following areas:

Science

Possible career areas:

- Medical/Dental
- Astronomy
- Environmental Science
- Forensic Science
- Geology
- Marine Biology
- Meteorology
- Physics
- Zoology



Advanced Science courses available:

- AP courses in Biology, Chemistry, Physics, & Environmental Science
- Aquatic, Forensic, Earth & Space, Astronomy
- Anatomy & Physiology, Pathophysiology
- Engineering Design & Problem Solving
- Advanced Animal, Advanced Plant & Soil

Technology

- Computer Science
  - Possible career areas:
    - Computer Programming & Analysis
    - Software, Game & Web Design

- Courses available:
  - Computer Science I K
  - Computer Science Principles AP
  - Computer Science II AP A
  - Computer Science III K
  - Project-based Research in Computer Science K

Engineering

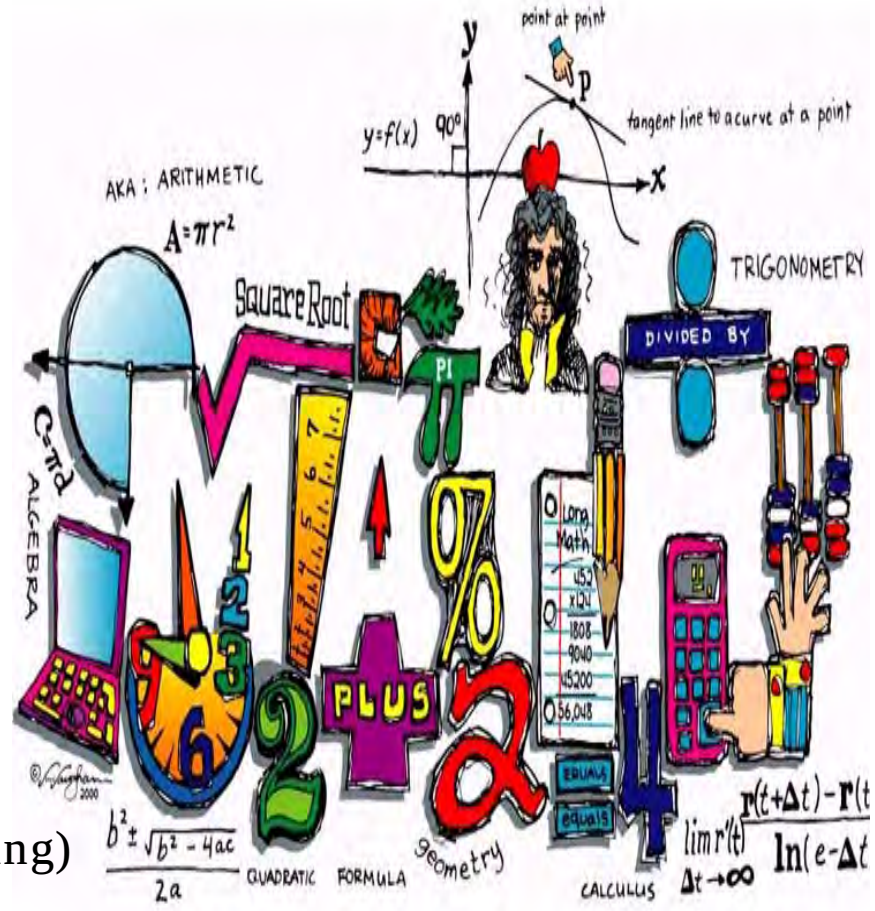
- Possible career areas:
  - Aerospace
  - Biomedical
  - Chemical
  - Civil
  - Electrical
  - Industrial
  - Mechanical
  - Petroleum

- Some of the courses available:
  - Principles of Applied Engineering
  - Engineering Design & Presentation I & II
  - Robotics I & II
  - Project-based Research in STEM
  - Engineering Design & Problem Solving K
  - Practicum in STEM

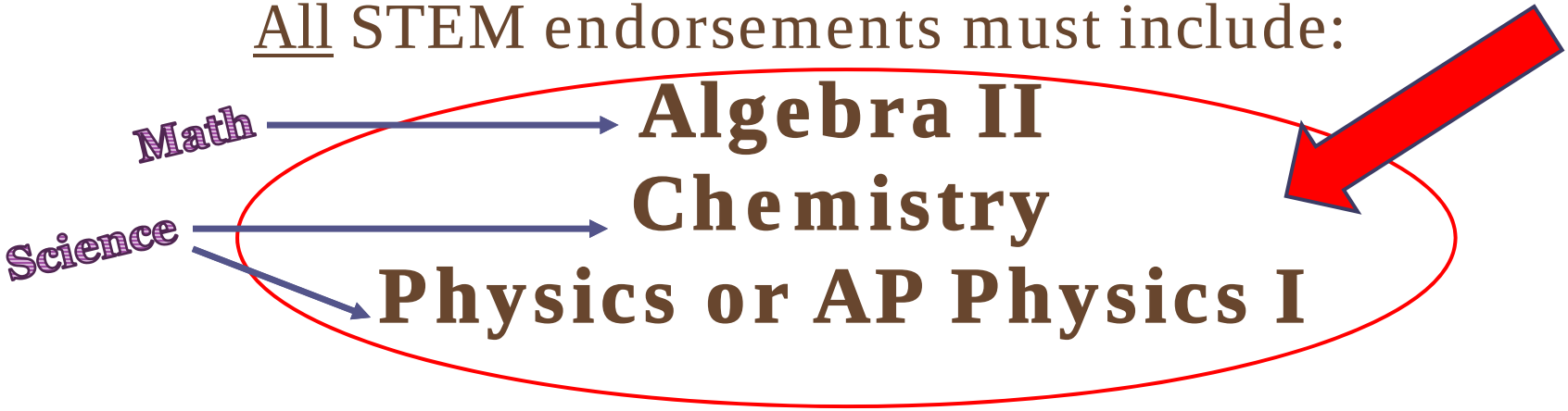
Math

- Possible career areas:
  - Accounting
  - Data Analysis
  - Economics
  - Financial Planning/Stocks
  - Research Development
  - Statistics

- Advanced Math Courses available:
  - Precalculus
  - Calculus AP (AB or BC)
  - Statistics AP
  - AQR K (Advanced Quantitative Reasoning)
  - Advanced Algebra
  - College Algebra K



All STEM endorsements must include:



IN ADDITION TO the courses outlined in the specific option chosen

The STEM endorsement can be earned by completing one of the following 5 options:

Option 1: Computer Science (Technology)

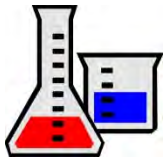
Students complete **4** computer science courses from:

- Computer Science I K
- Computer Science Principles AP
- Computer Science II AP A
- Computer Science III K
- Project-based Research in Computer Science

Option 2: CTE (Engineering)

- Students earn 4 credits by taking at least 2 courses in the **STEM cluster**
- At least 1 of the courses must be an advanced level (3rd year or higher course in the sequence)
- Example:
  - Principles of Applied Engineering
  - Engineering Design & Presentation I
  - Engineering Design & Presentation II (2 credits)

Options 3 & 4: Math & Science

- Option 3: Math 
  - 5 credits: Algebra I, Geometry, & Algebra II **and** 2 courses for which Algebra II is a prerequisite
- Option 4: Science 
  - 5 credits: Biology, Chemistry, & Physics (or AP Physics I) **and** 2 courses from the list on p. 4

Option 5: Combination

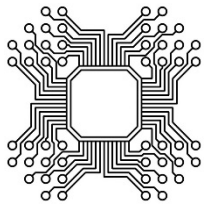
- Algebra II, Chemistry & Physics (or AP Physics I)
- 4th math & 4th science **and**
- **3** more credits from:

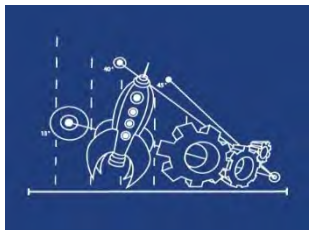
  Option 1 (Computer Science)

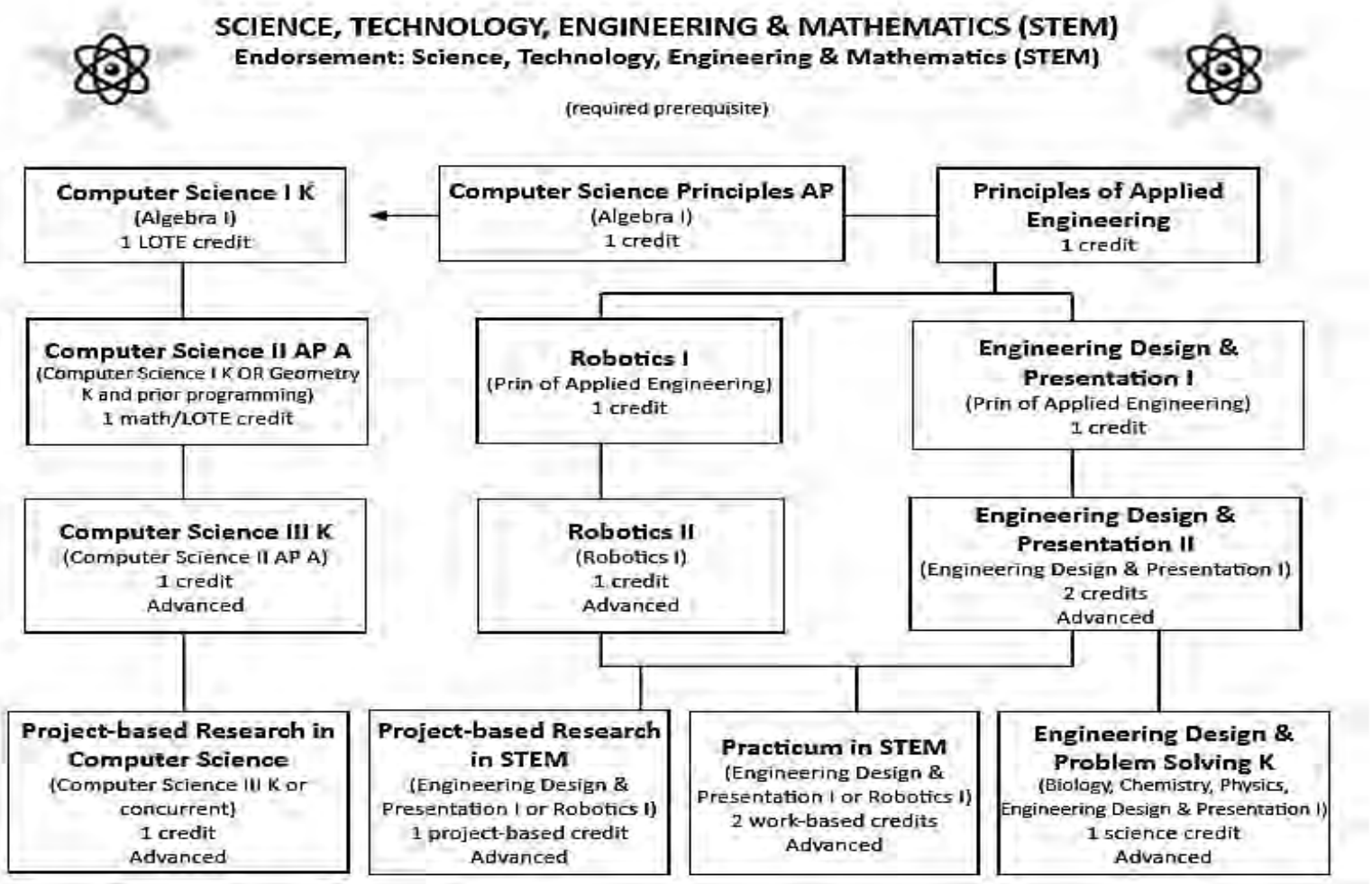
  and/or

  Option 2 (Engineering)

***Note*: If the Combination plan includes a CTE course, at least one (1) course must be advanced**






SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS (STEM)
Endorsement: Science, Technology, Engineering & Mathematics (STEM)
(required prerequisite)
Computer Science I K
(Algebra I)
1 LOTE credit
Computer Science Principles AP
(Algebra I)
1 credit
Principles of Applied Engineering
1 credit
Computer Science II AP A
(Computer Science I K OR Geometry K and prior programming)
1 math/LOTE credit
Robotics I
(Prin of Applied Engineering)
1 credit
Engineering Design & Presentation I
(Prin of Applied Engineering)
1 credit
Computer Science III K
(Computer Science II AP A)
1 credit
Advanced
Robotics II
(Robotics I)
1 credit
Advanced
Engineering Design & Presentation II
(Engineering Design & Presentation I)
2 credits
Advanced
Project-based Research in Computer Science
(Computer Science III K or concurrent)
1 credit
Advanced
Project-based Research in STEM
(Engineering Design & Presentation I or Robotics I)
1 project-based credit
Advanced
Practicum in STEM
(Engineering Design & Presentation I or Robotics I)
2 work-based credits
Advanced
Engineering Design & Problem Solving K
(Biology, Chemistry, Physics, Engineering Design & Presentation I)
1 science credit
Advanced

Sample course sequences

Career Interest	9th Grade	10th Grade	11th Grade	12th Grade
Engineering	Principles of Applied Engineering	Engineering Design & Presentation I	*Engineering Design & Presentation II (2)	* Eng Design & Prob Solv K (1 science credit) or*Practicum in STEM (2) or *Project-based Research in STEM
Engineering (PLTW) *(Cy Creek and Cy Lakes only)*	Introduction to Engineering	Principles of Engineering K (1 science credit)	*Digital Electronics K (1 math credit) or *Aerospace Engineering	*Engineering Design & Development K or *Eng Design & Prob Solv K (1 science credit)
Robotics	Principles of Applied Engineering	Robotics I	*Robotics II	*Practicum in STEM (2) or *Project-based Research in STEM
Computer Science – including overview of computer technology	Computer Science Principles AP	Computer Science IK (1 – LOTE credit)	Computer Scienc II AP A (1 – Math/LOTE credit)	*Computer Science III K
Computer Science – including project option such as mobile apps	Computer Science I K (1 – LOTE credit)	Computer Science II AP A (1 – Math/LOTE credit)	*Computer Science III K	*Project-based Research in Computer Science K
Computer Networking	See Information Technology cluster in Business & Industry endorsement			

Explore

STEM Careers – page 10

www.careercruising.com

- Careers
- Career Clusters
  - STEM
    - Related Majors, Programs of Study

Login from home!

Check out these other videos!

Science

- http://www.youtube.com/watch?v=HtBll53jMcM

Information Technology

- https://corporate.target.com/careers/career-areas/information-technology

review

- The STEM Endorsement must include what three courses regardless of the option chosen?

  (Hint: look on page 2 in the **bolded** section that begins with **Note: ….**)

- What is the focus of study for each of the 5 options under the STEM Endorsement?

  (Hint: look on page 2)