

March 11, 2020
STEM Education

STEM EDUCATION:

According to ACT, the US is STEM-deficient:¹

1. WHY

- a. Not enough STEM opportunities in schools.
 - i. Lack of funding
- b. 67% of all new STEM jobs will be in computing
- c. Out of 71 nations participating in the PISA, the largest cross-national test to measure scientific literacy, U.S. placed 24th in Science and 31st in Math
- d. 80% of U.S. high school students are either uninterested or non-proficient in STEM subjects
- e. Project these grim findings into a future where 85% of the jobs haven't even been created and where most of them involve STEM competencies—data literacy, computational thinking, and advanced analytical skills
- f. STEM occupations are set to grow by 8.9% between 2014 and 2024

2. Declining State Test scores ²

- a. Michigan's 11th grade SAT scores
 - i. Evidence-based reading and writing and mathematics showed declines this year.
 1. In English Language Arts, 55.3 percent of students reached proficiency.
 2. In Mathematics, 36.3 percent of students reached proficiency. The decline in SAT scores mirrors similar drops in other states, according to the College Board.

¹ <https://www.act.org/content/dam/act/unsecured/documents/STEM/2017/STEM-Education-in-the-US-2017.pdf>

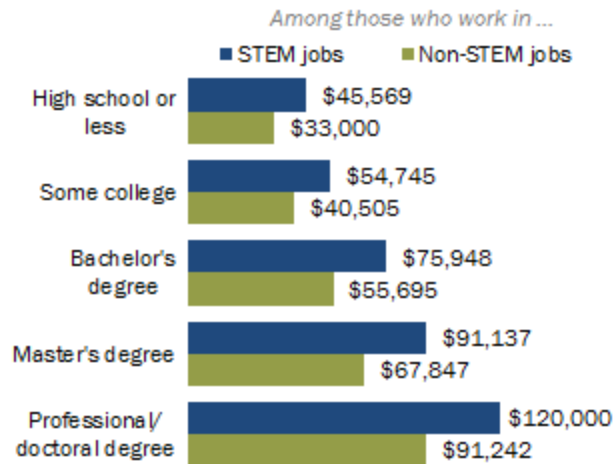
² https://www.michigan.gov/mde/0,4615,7-140-37818_34785-505918--,00.html

Constantine Middle School Falcons

*Falcon symbolism, speaks about victory, success, and rising above challenging situations. At its core, the falcon meaning signifies wisdom, vision, and protection. **WE ARE FALCONS!***

STEM workers tend to earn more than similarly educated non-STEM workers

Median annual earnings of full-time, year-round workers ages 25 and older with positive earnings



Note: Figures based on 2016 dollars. Some college includes those with an associate degree and those who attended college but did not obtain a degree. Professional degree includes those with an M.D., DDS, DVM, LL.B. or J.D. Doctoral degree includes those with a Ph.D. or Ed.D. STEM stands for science, technology, engineering and math.

Source: Pew Research Center analysis of 2014-2016 American Community Survey (IPUMS).
"Women and Men in STEM Often at Odds Over Workplace Equity"

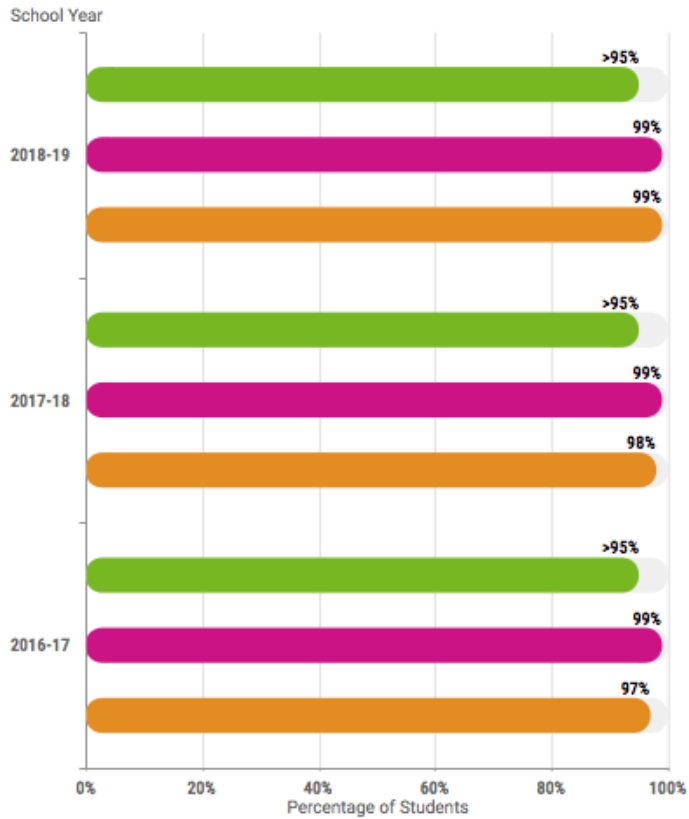
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Test Participation ?

The percent of students who were enrolled and took a state test. State tests included in this measure are the SAT, M-STEP, or MI-Access. Higher participation allows for a more complete picture of a school's performance on state tests.



Key:

- Constantine Middle School
- [Average of Similar Schools by Student Characteristics](#)
- State of Michigan Average

Mathematics

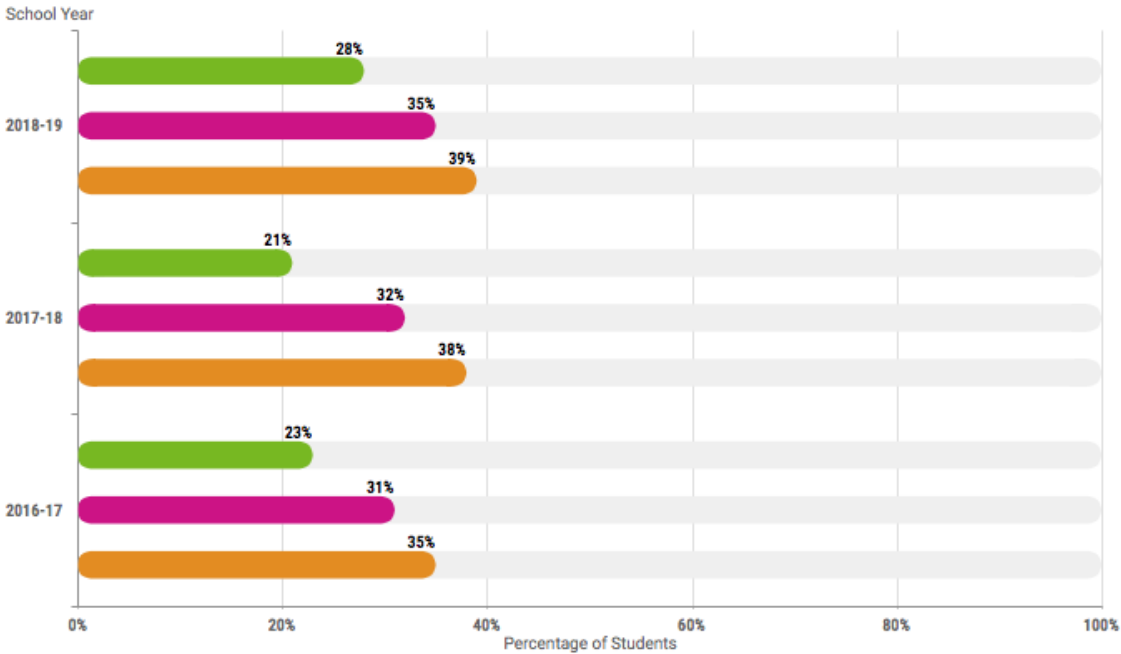
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Mr. Jim Wiseley, Principal Mrs. Megan Sorensen, Counselor Mrs. Katherine Messner Adm. Asst.

CONSTANTINE MIDDLE SCHOOL

260 W 6th St, Constantine, MI 49042
 Phone: 269-435-8940 www.constps.org Fax: 269-435-3071



Key: The graphs above show your chosen school vs two other sources of data over a 3 school-year period:

■ Constantine Middle School

■ Average of Similar Schools: ✓ Student Characteristics or Distance
? [View Schools](#) [View Schools](#)

■ State of Michigan Average

Constantine Middle School Falcons

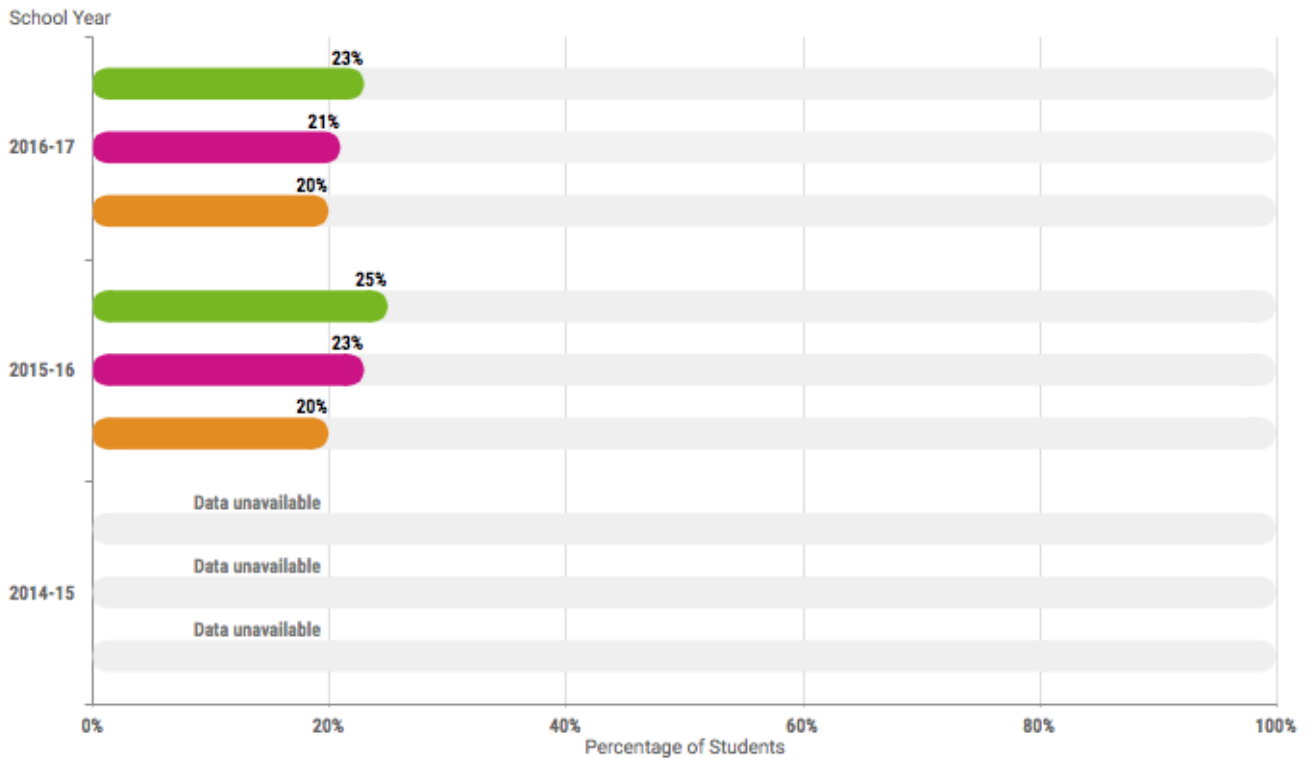
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Science



Key: The graphs above show your chosen school vs two other sources of data over a 3 school-year period:



 Constantine Middle School

 Average of Similar Schools: [Student Characteristics](#) or [Distance](#)
[View Schools](#) [View Schools](#)

 State of Michigan Average

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What can we do?

1. Have conversations
2. Have a plan
3. Dedicate funding to districts to start funding
 - a. Tax breaks to businesses or corporations that financially support schools that develop STEM programs.
4. Government-backed STEM initiatives
 - a. Iowa: Governor's STEM Advisory Council
 - i. Students participating in STEM
 1. Scored 3 pts higher in mathematics and reading
 2. 4 pts higher in science
 - b. New Jersey: Public-Private partnership Governor's STEM Scholars Program
 - c. Washington: Multisector STEM Education Innovation Alliance
 - i. Aligns the state's education and career training systems.
5. Change how we recruit teachers
 - a. Change teacher certification test Get rid of it!
 - i. High failure rate
 - ii. Does not give us an accurate evaluation of teacher quality ³
 1. "Put differently: Does the fact that a candidate pays for and eventually passes the MTTCs, as required by Michigan's lengthy and costly teacher certification regime, provide any unique, useful information to future employers or other stakeholders in the education system?"
 2. "The MTTC tests are part of the structural problem. They create a significant cost for prospective teachers and for the state without providing any meaningful return. They neither create a serious screening process nor provide valuable information about candidates to administrators or other education stakeholders."
 3. It is time for the Michigan Department of Education to dump the MTTCs. The best policy would be to abandon mandatory teacher testing altogether and allow local administrators to evaluate and hire applicants according to holistic, locally-designed criteria. Then the administrators should be held accountable for the student outcomes that result from their hiring decisions.

³ <https://www.mackinac.org/12229>

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Ingredients to a successful school:

1. Have a belief system
 - a. Core Values that define “Who” you are.
2. Qualified school staff
 - a. Energetic
 - i. Bus drivers, custodians, paraprofessionals, support staff, teachers, and administrations
 - b. Highly driven
 - c. High expectations
 - d. Can build relationships
3. Extra-curriculars
 - a. Expectations for staff and students
4. A high degree of academics, with a strong support system
 - a. STEM BioMedical, and Engineering
 - b. Trades
 - c. AP
 - d. Support Classes
 - e. Pullouts
 - f. After school supports
6. Have a plan

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Curriculum Study Timeline (Subject to change) Constantine Middle School STEM

Year 1 2020/2021

6th grade

Second Semester 25 Students

1. Design and Modeling
2. Medical Detectives

Second Semester 25 Students

1. Design and Modeling
2. Medical Detectives

7th grade

1st Semester 25 Students

1. Energy and the Environment
2. Flight and Space

Second Semester Rotations 25 Students

1. Energy and the Environment
2. Flight and Space

8th grade

1st Semester 25 Students

1. Energy and the Environment
2. Flight and Space

Second Semester Rotations 25 Students

1. Energy and the Environment
2. Flight and Space

Year 2 2021/2022

- 2 more rotations into the curriculum

Year 3 2022/2023

- Adding BioMedical

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