MDOT
Michigan Department of Transportation

1 Day FREE Workshop at Huron ISD
1299 South Thomas Rd., Bad Axe 48413
$10/participant
8 a.m. – 3:30 p.m. on January 26,2022
Register Here or at www.huronisd.org
> Educators > Professional Development
Questions: call Scott at 989-550-0003

website
www.Michigan.gov/MDOT-TRAC

- **FREE** hands-on materials for math, science, and social sciences
- **FREE** interactive software
- **FREE** training
- **FREE** replacement supplies
- **FREE** contact hours toward continued education for participating teachers
- **FREE** activities aligned to National Education Standards
- **Engineervisits** for career presentations

TRAC is a free program that provides teachers with curriculum-unhancing, hands-on tools for their math, science, and social science classes.

Teacher participation in the TRAC Program allows their students to share in two additional programs.

Trac Pipeline - Civil engineering Intership program

The TRAC Pipeline Internship Program is a great opportunity for students who are interested in math and science to work alongside MDOT civil engineers and lean more about the rewards and challenges of a career in civil engineering.

- Internships for graduating high school seniors
  - $12 per hour - seven-week program
  - $2,500 scholarship opportunities

trac national and michigan bridge contests

Seventh through twelfth grade students have the opportunity to compete in national and Michigan TRAC bridge building competitions.

- Free mileage and overnight accommodations
- Judging by top engineers
- Win prizes

Currently, more than 2,100 Michigan teachers have participated in the TRAC Program. Below are a few of the many favorable comments that have been received:

"TRAC puts excitement and content into learning."
"I recommend TRAC to the teacher of my own child."
"I can highly recommend TRAC training."
"This is the best training I've had in my 15-year career."

more information can be found on the web
www.michigan.gov/mdot-trac

MDOT

MDOT: **Providing the highest quality integrated transportation services for economic benefit and improved quality of life.**

Prepared by: MDOT Graphics
Executive\TRAC Program\Brochure(Updated 2/21)

GOVERNMENT, TRANSPORTATION I
TION, FORCE, MAGNETISM, PRICING

MICHIGAN TRAC PROGRAM

TRANSPORTATION AND CIVIL ENGINEERING

TRAC

INFORMATIONAL PAMPHLET

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TRAC consists of eight educational modules. Each module is free, includes quality equipment and free replacement supplies, and comes with an easy-to-use teacher's guide containing many activities aligned to National Education Standards.

1. Bridge Builder

- Use computer engineering to explore basic structural engineering concepts
- Explore concepts to determine how much force is transferred between members of a bridge
- Use Bentley Microstation PowerDraft v8i software to create a computer-aided bridge design
- Build and test student engineered bridges

2. Environmental

- Consider particle size and settling rates in still water
- Conduct an experiment in filtering efficiency with respect to suspended particles
- Consider environmental impacts that are created from construction activity

3. Traffic Engineering and Safety

- Introduces students to traffic management and road improvement planning
- Use math to explain curve design and explore concepts that are used to formulate equations
- Design a traffic route through obstacles using

4. Magnetic Levitation

- Determine the reaction time required to perform an activity
- Verify Newton's first law by observing how a maglev car moves with minimal resistance
- Explore Newton's second law of acceleration due to gravity and how gravity affects movement on an inclined surface
- Design, build, and race a maglev vehicle

5. Motion Module

- Demonstrate the Law of Conservation using collisions between maglev cars of different masses
- Calculate the velocity and momentum of maglev cars before and after collisions
- Study the concept of impulse
- Build a structure that minimizes impact during a collision
- Design and build a crash barrier

6. Roadway Design and Construction

- Study flow rates at varying traffic densities
- Design a roadway between two points
- Determine real estate costs of a roadway
- Estimate constructions costs, including labor, equipment, ead, and profit

TRAC

Transportation and Civil Engineering

7. Traffic Technology

- Calculate reaction time using the application of linear motion
- Determine braking distance with respect to kinetic energy and work required to stop a vehicle
- Use reaction time and braking distance to determine the timing of a stop light
- Introduce software programming as it applies to traffic technology

8. Connected and Automated Vehicles (CAV)

- Study the complexities of a transportation ecosystem
- Use programming and coding to direct an automated vehicle
- Consider the safety and mobility benefits as a result of connected vehicles

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