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Students are empowered to personalize and self-direct their STEM learning experiences supported by STEM educators who facilitate their learning.

We, at Munster High School, pride ourselves in offering students a variety of personalized and self-directed learning experiences across every grade level as well as in every discipline. This creative approach of instruction allows our students to explore a personalized route of education that fits their individual interests and needs.

Primarily, sophomore students take the Preparing for College and Careers course at MHS. The focus of this course is to guide students in an individualized exploration to their future. Students participate in a self-directed exploratory STEM project in which they are required to take an online quiz which will give them six different career choices based on their answers. The students must then research one career utilizing a minimum of three different internet sources, one of which must be the Occupational Outlook Handbook. Students then present their findings in the form of a PowerPoint presentation to the entire class. STEM educators are available to offer guidance and support during all steps of this project because of our belief that students should not feel alone during what is most likely their first in-depth exploration into a career.

A strength of this project is that students are given individualized results based on their answers to the quiz. This allows students to focus on their own specific interests rather than what a teacher dictates in a lesson. Another strength is students use of a variety of technological resources to research and share the findings of their career choice. A final strength of this project is its requirement that students explore the STEM Career Cluster, which might allow them to find an interest they would not have otherwise considered. According to the U.S. Bureau of Labor Statistics, overall STEM employment will grow about 13 percent between 2012 and 2022. This is faster than the 11-percent rate of growth projected for all occupations over the decade. Students often come into this course with an idea of what they would like to do when they grow-up. A possible area of improvement is selling students on the value of exploring the STEM career cluster more carefully and taking this project more seriously. A way to do this is sharing statistics and facts about STEM careers as well as sharing how STEM skills are relevant in every job. Another way to improve this effort is having more guest speakers from various STEM careers come in to share their “real world” experiences of their career. Just recently, we had an engineering presentation that was set up in the auditorium to draw focus on this field. It was set up by outside presenters and, although the presentation’s main focus on female and minority recruits, it was open to all interested students. We are looking forward to offering students more opportunities like these.

Additionally, our guidance department does an outstanding job of meeting every student one-on-one throughout their four years of high school and setting them up for success in college. Each year, all counselor meetings are face to face and students get to express their interests while choosing various STEM classes for next year. Based on various questionnaires that students fill out, our counselors are able to help students explore various STEM fields. To help students personalize and plan their STEM career paths, we provide students access to Indiana Career Information System Website (CIS). CIS is an Internet-based delivery system for accurate, comprehensive, current, and relevant occupational, post-secondary school and financial aid information. It contains the latest national, Indiana, and local labor market data and projections. CIS is designed to support lifelong career exploration, and career planning and decision-making through easy to use,

straightforward search and sorting utilities, and an online portfolio for saving information from all system components. Students have access to this tool throughout all four years of high school. The guidance department is always searching for new tools and software that will give students STEM opportunities at their fingertips. Our plan going forward is to research more opportunities like these that can be provided to our students.

Every teacher in each department looks to find new and exciting supplemental materials to add excitement and innovation to our curriculum. Being a one-to-one school, this task is much easier due to the large amount of electronic resources that will enable students to master the content and excel at their own pace. Among others, we use the IDOE resources, *MyMathLab*, *IXL*, *Desmos*, *MathXL*, *Munster Moodle Page* and *STAT Trek* on a daily basis. Our teachers are trained annually to master the newest editions of the software and we pass that knowledge along to our students. The software that we used is user-friendly and teachers typically act as facilitators in the learning process. All of our STEM classrooms are equipped with interactive projectors, so teachers can model real-life application problems while students do the same using their laptops. A strength of researching and using the newest technology and software programs is our students are constantly being exposed to the latest technological advances. An area of improvement for this would simply be to allocate more funds to Professional Development for our teachers and staff as well as allocating more time for students to utilize more supplemental resources in and out of the classroom.

Finally, Munster High School as a whole does an exceptional job promoting STEM-based clubs and activities. Every year, we have an eighth grade night where incoming freshman are presented with every STEM club and opportunity. The purpose of this evening is to have current club members share their experiences with the club, display their models and experiments as well as the trophies and medals they were awarded for their stellar performance. At the beginning of each school year, there are call out meetings for the STEM clubs to encourage membership. At the end of the year, each club holds a ceremony to recognize all the accomplishments which have been achieved throughout the year. Our Science Olympiad and Robotics clubs earn state and national recognition every year. Just recently, we signed up for a MathCON competition where eight of our students qualified for nationals while twenty more are waitlisted. This was a tremendous result considering there were almost 50,000 participants nationally. The offering of a wide range of STEM opportunities, such as clubs, projects, classes and having highly motivated teachers and staff serve as facilitators gives each student at Munster High School an invaluable STEM learning experience which is an amazing strength for all of our stakeholders. An area of improvement for this topic would be to poll our students and give them more of an input on the types of clubs and activities they have available to them.