

## **Middle School Science Curriculum**

### Grade 6

Sixth grade science begins with a trimester of Physical Science. Concepts covered include the Nature of Science & Technology, Chemical Building Blocks, Chemical Interactions, Sound and Light, Motion, Forces and Energy, and Electricity and Magnetism.

The second trimester is devoted to Science Fair. Science Fair participation is a highlight of the 6<sup>th</sup> grade science program at Our Lady of Grace. The students identify research topics and follow the scientific process to prove or disprove their established hypothesis. Possible project categories include Physical Science, Biology/Life Science, Earth Science, Environmental Science, and Engineering/Inventions. Students present their projects to judges, with top projects moving on to regional and state science fair competition, providing invaluable experience and encouragement to our promising scientists.

During the third trimester the students are engaged in the Project Lead The Way STEM module called Automation Robotics. During this class they engage in the history, development, and influence of automation and robotics as they learn about the different mechanical systems, energy transfer, machine automation, and computer control systems. The students use the VEX Robotics platform to design, build and program real-world objects such as traffic lights and tollbooths.

### Grade 7

During the first trimester in 7<sup>th</sup> grade the students take the Project Lead the Way module Design & Modeling. In this class they apply the design process to solve problems and understand the influence of creativity and design in their lives. They complete a design of a playground, furniture and other ideas captured in their engineering notebooks. The students use Autodesk Inventor software to create virtual images of designs and produce a portfolio that showcases their innovative solutions.

Second trimester focuses on Life Science, which includes the topics of Cells, Anatomy and Physiology, Genetics, Infectious Diseases, Forensics and the Environment.

The third trimester is another Project Lead The Way STEM module called Medical Detectives, which incorporates and adds detail to the topics learned in second trimester. In this class, students play the role of real-life medical detectives as they analyze genetic testing results to diagnose disease and study DNA evidence found at a “crime scene.” They solve medical mysteries through hands-on projects and labs, investigate how to measure and interpret vital signs, and learn how the systems of the human body work together to maintain health.

## Grade 8

During the first trimester of 8<sup>th</sup> grade the students are engaged in the Project Lead The Way STEM module called Automation Robotics. During this class they engage in the history, development, and influence of automation and robotics as they learn about the different mechanical systems, energy transfer, machine automation, and computer control systems. The students use the VEX Robotics platform to design, build and program real-world objects such as traffic lights and tollbooths.

Second trimester focuses on Life Science, which includes the topics of Cells, Anatomy and Physiology, Genetics, Infectious Diseases, Forensics and the Environment.

The third trimester is a final Project Lead The Way STEM module called Medical Detectives, which incorporates and adds detail to the topics learned in second trimester. In this class, students play the role of real-life medical detectives as they analyze genetic testing results to diagnose disease and study DNA evidence found at a “crime scene.” They solve medical mysteries through hands-on projects and labs, investigate how to measure and interpret vital signs, and learn how the systems of the human body work together to maintain health.