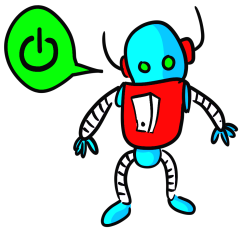

**ROBOTICS I & II Course Overview, Safety Agreement & Syllabus**

**Mrs. Hawke**
**Middleton Middle School**
**Email: shawke@msd134.org**
**Ph: 208-585-3251**

**Course Description: Robotics I-** This course provides an introduction to robotics for students with a variety of or having no programming background using LEGO MINDSTORMS EV3 kits. Students will learn to construct, control and program these robots through investigative and exploration activities. Research projects will expose the students to the engineering process. Students will learn about the FAA and flying Drones program Tello Drones with Droneology, & DroneBlocks. **Robotics II-** Students that have successfully completed Robotics I course may take Robotics II course, and will work with Mrs. Hawke on identifying additional intensive work on EV3 Robots or Botball Robots; students may program Arduino Adafruit Robot kits for more advanced skills.

**Course Objectives:**

1. Introduce students to programming mobile robots using LEGO Mindstorms EV3: 9 weeks
    - Motors and rotation, and sensors (gyro, light, touch and ultrasonic)
    - Programming using the graphical programming language or Scratch from MIT
    - Robot navigation and path planning
    - Systems and systems analysis
    - Experimental process
    - Communicating results through informal project documentation
2. Introduce students to Drones using TELLO Drones: 3-4 weeks
    - Learn about FAA Rules of flying Drones
    - Understand how Drones work
    - Fly drones using DroneBlocks
    - Program Drones to fly course created in collaboration with fellow students.
3. Integrate Science, Technology, Engineering & Mathematics (STEM) concepts: All Trimester
    - Engineering process
    - Time management
    - Project management
    - Problem solving and teamwork

**Google Classroom: • _____**

**Grading:** The daily classwork is on a 5-10 scale, where 9&10=A, 8=B, 7=C 6=D 5=F; Grades are posted daily. Students are expected to REDO D/F Grades to improve their skills.

**Classroom Rules:**

1. Be in the lab, ready to work and learn when the bell rings.
2. Follow directions the first time they are given.
3. Treat the robot kits and drones with care and respect…they will be used for years to come!
4. Respect your fellow students' right to a productive learning environment.
5. Do NOT touch any of the equipment, tools or non-LEGO/Robotic parts in the lab!
6. Clean up after yourself.

**As always, the school's student conduct expectations are upheld. See the School Handbook for Parents and Students for more detail.**

**FIRST LEGO LEAGUE Students will**:

- Research challenges facing today's scientists
- Design, build, test and program robots using LEGO® MINDSTORMS® technology
- Apply real-world math and science concepts
- Learn critical thinking, team-building, and presentation skills
- Participate in tournaments and celebrations
- Understand and practice Gracious Professionalism®

**USE CORE VALUES**

The FIRST Core Values are the cornerstones of the program. They are among the fundamental elements that distinguish FIRST LEGO League from other programs of its kind. By embracing the Core Values, participants learn that friendly competition and mutual gain are not separate goals, and that helping one another is the foundation of teamwork.

We express the FIRST philosophies of Gracious Professionalism and Coopertition through our Core Values:

- Discovery: We explore new skills and ideas.
- Innovation: We use creativity and persistence to solve problems.
- Impact: We apply what we learn to improve our world.
- Inclusion: We respect each other and embrace our differences.
- Teamwork: We are stronger when we work together.
- Fun: We enjoy and celebrate what we do!

**Robotics Classroom Procedures:**

• Start of class:
  • Read Bell Ringer with Table group and discuss.
  • Get out materials for Day: pencil, comp booklet, drones, chromebook computer, or robots/kits!
  • NO food or gum IN CLASS. WATER is allowed in a self contained sealed water bottle.
• End of class:
  • Put away/secure robots/kits/drones (all extra parts in storage box, robot in cart or plugged into charger)
  • You will be assigned a Robot kit or Drone & iPad which you must sign for.
  • **If you lose or damage any kit pieces, you will pay for the replacement through MMS' registrar.**
  • All robot kits and parts must stay in the lab or designated area at all times.
  • Log out, push in chairs, and pick up trash.
• Computers
  • Student and Classroom Computers are required for class work / projects. DO make sure they are charged so that you may use them in class daily.
• Absences and Tardiness/Other
  • The school's absence & tardiness policies are followed. See the School Handbook for Parents and Students for more detail.
  • Be responsible - find out what you missed and make it up.
  • If you do not turn in a complete kit at the end of the term, you will receive an incomplete grade until the full kit is complete or paid for.

**I, along with my parents/guardian, have read the course syllabus for Mrs. Hawke's ROBOTICS class. Our signatures below confirm that we understand its contents and agree to abide by the class rules.**

_____

**Printed Student's First and Last Name**

_____ _____

**Student Signature** **Date** **Parent/Guardian Signature** **Date**