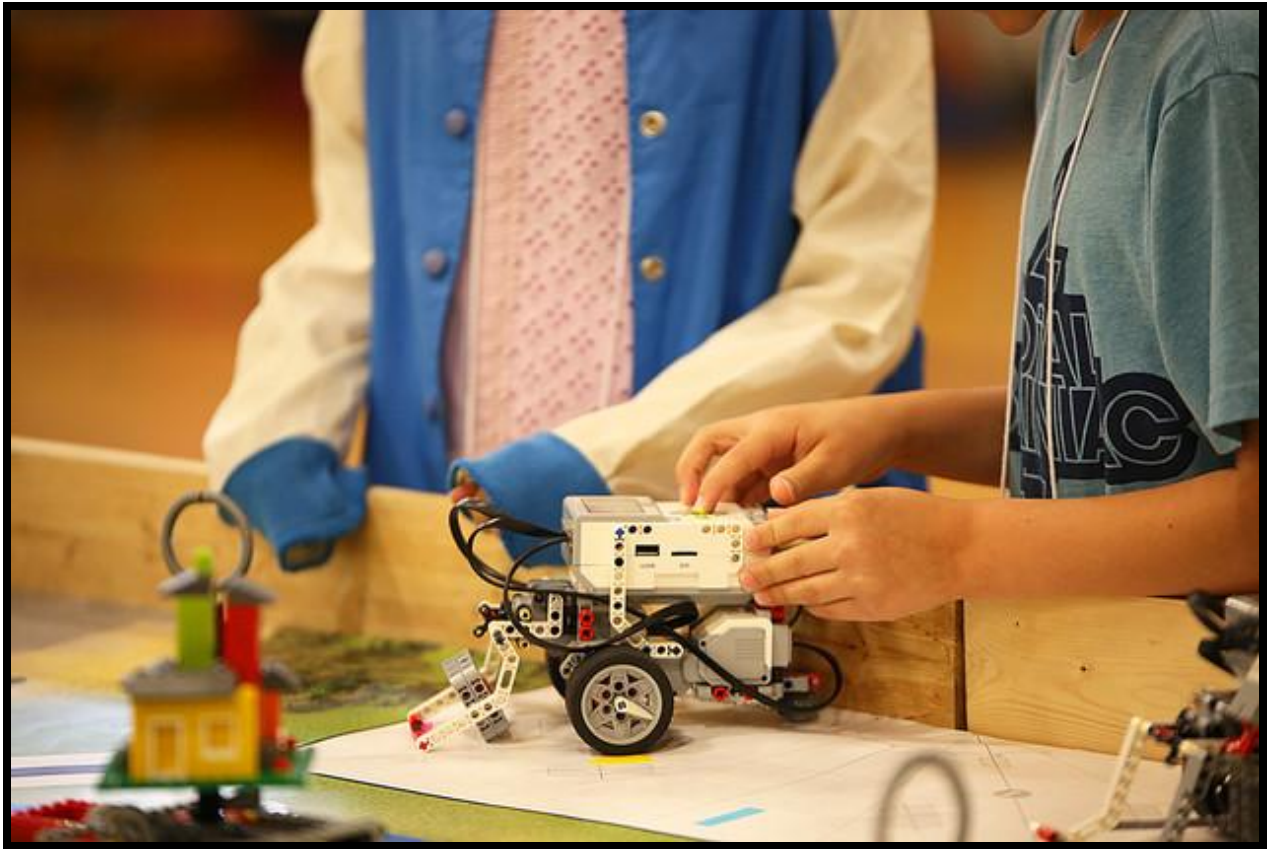
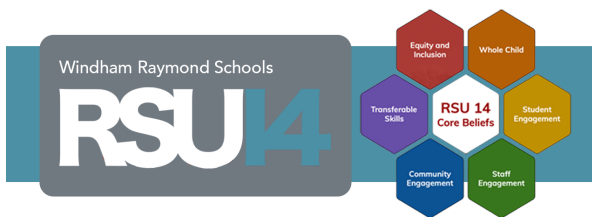


S.T.E.M. Grade 7



Windham Middle School



Curriculum Guide

Windham Middle School

STEM, 7th Grade

With the key focus on the “Engineering Design Process” students will be introduced to a variety of technologies. Students will be challenged to think outside the box and take educated risks. Emphasis will be placed on (but not limited to) group work, brainstorming, reflection and redesign.

Course Level and Description

One Quarter 9 week course

Level: Open to all

Using a hands-on approach to STEM (Science, Technology, Engineering & Math) projects, students will be exposed to a number of past, present and future technologies.

Graduation Standards and Performance Indicators

Students will develop abilities and skills for a technological world that can be applied both locally and globally.

MS.IT.1A

- A. Apply the design and engineering process through product development.

MS.IT.1B

- B. Use technology to personalize a product.

MS.IT.1D

- D. Recognize and appreciate the value of craftsmanship.

MS.IT.1E

- E. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. (ETS1-1)

MS.IT.1F

- F. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. (ETS1-4)

Students develop knowledge, understanding and appreciation of the interrelationship between design, technology, the individual, society and the environment.

MS.IT.2A

- A. Evaluate possible solutions and select the best one to solve a problem.

MS.IT.2B

- B. Select an approach to the design process and produce a product.

MS.IT.2C

- C. Select and use industry-related tools and equipment to solve real-world problems.

MS.IT.2D

- D. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (ETS1-2)

MS.IT.2E

- E. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. (ETS1-3)

Students demonstrate an understanding of safety to apply personally and professionally.

MS.IT.3A

- A. Select and use the proper personal protective equipment (PPE) for general purposes.

MS.IT.3B

- B. Interact to ensure a safe working environment.

MS.IT.3C

- C. Demonstrate proper tool selection and storage.

21st Century Skills/Guiding Principles

- ☐ Clear and Effective Communicator
- ☐ Self-Directed and Lifelong Learner
- ☐ Creative and Practical Problem Solver
- ☐ Integrative and Informed Thinker

Units and Course Activities

<u>Units</u>	<u>Activities</u>
Dream Houses Rube Goldberg MAGLEV Parachute Woodworking Rocketry Circuits and Coding 3D Printing and Laser Engraving	

Curriculum Materials may include:

3D Printers Scroll Saws Hand Tools Various Shop Materials Makey Makey
