

Winter Lakes High School 2021 - 2022



SYLLABUS - 2021-22

Instructor

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Google Classroom

Class Code xbt2nfp
<https://classroom.google.com/u/0/c/MTYxNTkzNjAwOTY2>

COURSE DESCRIPTION

The Winter Lakes High School MakerSpace is a place for students to use technology to create individual projects. Students use technology to research, design, construct, test, evaluate and improve products, and to communicate their creative process. Students construct their knowledge of science and engineering concepts through this process.

QUARKS

Students earn quarks for participating in MakerSpace sessions, creating original products, and completing assignments on the related scientific concepts and/or engineering processes. Instructions for projects and associated activities are posted on the MakerSpace Google Classroom.

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Activity Completed	Quarks Earned
Working on projects during "MakerSpace" session	2 quarks/session
Posting FlipGrid video describing project/process	1-2 quarks/session
Completing computer simulation related to project	1-2 quarks
Completing engineering design cycle records	1-2 quarks/session

One trimester credit is granted after a student earns **50 quarks**.

GRADES

MakerSpace grades are Pass/No Pass.

ASSESSMENT

Passing or proficient projects include:

- 1) At least one product that reflects the criteria and constraints of the project;
- 2) Analysis of the effectiveness of the product;
- 3) Suggestions for improvement.

Projects that demonstrate mastery include:

- 1) Record of design process;
- 2) Multiple products of iterative testing and improvement;
- 3) Systematic collection of data from iterative testing;
- 4) Accurate communication of underlying scientific principles.

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STANDARDS - GRADES 9-12

ISTE Standards for Students: (all grades)

- ISTE 1. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

NGSS High School Physical Science and Engineering Design (9th-12th grade)

- HS ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
- HS ETS1 -4 Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.
- HS PS2-3 Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
- HS PS3-3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.