

8th Grade CS Syllabus **2019 - 2020**

Contact Information:

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Course Description:

The purpose of this course is to provide a broad-based foundation of computer science principles, internet safety and ethical issues involving information. Hands-on exploratory experience on the computer is provided to better understand career opportunities and current technology used in STEM fields. The instructional activities will include the use of word processing, database, spreadsheet, charting, and presentation software. Students will be operating in a Windows environment as well as using the Internet. This course is a prerequisite for all other courses in computer-related courses.

Online Learning Platforms:

For a deep understanding of the curriculum students will be using the following online learning tools:

- schoolology.com
- kahoot.it
- socrative.com
- bebraschallenge.org
- Google Apps
- Khan Academy
- CodeHS
- other educational web resources.

Course Outline:

I. Internet Safety and Ethical Issues Involving Information

1. Basic Internet Safety
2. Cyberbullying
3. Digital Citizenship and Ethical Issues Involving Information

II. Intro to Computer Science with Python Programming Language

1. General Introduction
 - 1.1. Intro to Computer Science with Python Programming Language
2. Introduction to Programming with Turtle Graphics
 - 2.1. Commands
 - 2.2. Colors

- 2.3. Loops
- 2.4. Functions

3. Basic Python and Console Interaction

- 3.1. Printing in Python
- 3.2. Variables and Types
- 3.3. Mathematical Operators
- 3.4. User Input

4. Control Flow

- 4.1. Comments
- 4.2. Booleans
- 4.3. If Statements
- 4.4. Comparison Operators
- 4.5. Logical Operators
- 4.6. Short Circuit Evaluation
- 4.7. De Morgan's Law
- 4.8. Floating Point Numbers and Rounding
- 4.9 While Loops
- 4.10. For Loops
- 4.11. Break and Continue
- 4.12. Nested Control Structure
- 4.13. Functions and Parameters
- 4.14. Functions and Return Values
- 4.15. Exceptions

5. Strings

- 5.1. Indexing and Slicing
- 5.2. Immutability
- 5.3. Slicing and Concatenation
- 5.4. Strings and For Loops
- 5.5. The IN keyword
- 5.6. String Methods

6. Data Structures

- 6.1. Tuples
- 6.2. Lists
- 6.3. Lists Methods

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- 6.4. 2D Lists
- 6.5. Lists Comprehension
- 6.6. Packing and Unpacking
- 6.7. Dictionaries
- 6.8. Equivalence vs. Identity

7. Python Programming Final Project

*** Please Note: Mrs. Raynor reserves the right to rearrange or alter the course timeline as needed.**

Grading Scale:

- A 90 - 100
- B 89 - 80
- C 79 - 70
- D 69 - 60
- F 59 or Below

Assessment:

The assessment process is an integral part of the study of Technology. Progress and proficiency are measured through a variety of methods including daily work, exit tickets, written examinations, chapter and unit tests, projects, teacher observation and homework (when applicable).

- Project/Test = 50%
- Quiz = 30%
- Labwork/Classwork/Homework = 20%

Homework and Late Work:

All assignments are expected to be turned in or checked off in time. Late assignments will only be accepted if the student has been ill or have an emergency. For every day that an assignment is turned in late, it will result in a 10 percent deduction from students' assignment grade. Two days is 20 percent, and three days is 30 percent. If the work is 4 or more days late, the grade will be followed by a failing grade. This is school policy, and there are no exceptions, except when excused or noted by an IEP/504.

Make-Up Work:

In the event that a student is absent for class, it is the student's responsibility to collect any materials or notes that he/she missed. Students should turn in any missed assignments as soon as possible, and it will not be accepted any later than two weeks after the original due date.

Quiz and Test Retake:

All quizzes and tests where a student earned less than 60% may be retaken to bring that student's grade for the assignment up to passing, 60%. Retaking quizzes and tests will be the student's responsibility, and must be retaken within two weeks of when the original quiz/test was given back to students. Students are welcome to come and retake their quizzes and tests at an appointed time, scheduled by the student and Mrs. Raynor.

Classroom Procedures:

1. Wait quietly in line beside the door until the computer lab is ready for your class.
2. Enter the classroom quietly, sit in assigned seats, and look for "warm-ups" on the board.
3. Drinks will be left on the special assigned area away from computers. Foods and chewing gum are not allowed.
4. The setup, the settings of the computers and the equipment are not to be tampered with unless authorized by the teacher.
5. At the end of each class, each student will straighten up the chairs and put in place books and equipment.

Classroom Rules:

1. Follow the rules from TMSA Student Handbook.
2. Respect your teacher and classmates.
3. No running in the Computer Lab.
4. Use only websites in which the teacher has instructed to use.
5. Use only TMSA email account provided by the teacher.
6. Exit inappropriate sites or images and let the teacher know immediately.
7. Never give out your personal information.
8. Turn off properly all the technology used prior to dismissal.

Course Materials:

- 1 pair of headphones
- plastic folder with 2 pockets

Wish List:

- tissues
- sanitizing wipes
- hand sanitizer

Computer Skills and Applications Contract

Mrs. Raynor will collect this contract for a homework grade.

Student:

I, _____, am aware of the policies of Triangle Math and Science Academy and this classroom and agree to abide by each of the policies, procedures and expectations.

Student Signature _____ Date: _____

Parent/Guardian:

I / We _____, have reviewed this contract and TMSA policies with my child. I agree to support and encourage my child to do his/her best to abide by these policies.