Course Overview:
Self-driving cars, Google Translate, photo apps that recognize your face, voice assistants like Siri and Alexa: these are all systems built on the principles of artificial intelligence. This course is an introduction to the algorithms used by programmers for teaching computers how to make decisions in uncertain environments. While the field of AI is rigorous and highly practical, it is also a field that is rich with puzzles and games. As such our readings, assignments, and structured projects will be focused on playful AI systems. We will take a deeper look at a few specific fields in the domain of Artificial Intelligence, including risks and benefits to society. Students will then research, design, and implement their own AI system using data from a topic that interests them.

Units and Activities: What will we be learning about and doing in this course?

Our year will be split into these units of study:
1. Image Recognition: in which we use a webcam to interpret gestures, allowing people to control a game
2. Simple Games: in which we encode optimal strategies for simple games
3. Complex Games: in which students pick a complex game and write a strategy handbook
4. Social Impact of AI: in which we look at how deeply AI is integrated in our lives, and its risks
5. Coding: in which we code a basic AI from scratch
6. Fake Faces: in which we look at unsupervised learning and how AI generates new images and text
7. Computer Morals: in which we look use algorithms to make life-and-death decisions

And here's the basic roadmap of our activities:

Our three main "textbooks" for the year will be:
Standards: What knowledge and skills will I gain by the end of this course?

Anchor Standards:

Creating Computational Artifacts: Students write programs that combine building blocks to implement algorithms, and judge the efficiency of different approaches to solving problems computationally.

Digital Citizenship: Students work collaboratively to design and develop programs using an iterative development process. Additionally, students explore unintended effects of computing innovations, legal and ethical concerns, and the responsibilities of programmers.

Assessment of Learning:
Units are organized around discrete skills. Students learn and practice the skills, then when they are ready the students demonstrate their mastery of a skill. Formative assessments track a student's progress throughout a unit.

Summative assessments are generally composed of two parts:
- Part 1 = a portfolio of the skills you mastered throughout a unit
- Part 2 = a project in which you integrate those skills or apply them in a new context

Distinguished level grades indicate that a student has consistently engaged more deeply with the skills throughout a unit, not just during the summative assessment at the end. A "Spicy 🌶 Menu" describes these opportunities for deeper engagement, and is published at the start of each unit.

For information about assessment types, scoring, and overall grade calculation: click here.

Communication:
How Do I Access Work from Home, and What Should I Expect?

- All work will be posted in Google Classroom.
- The work will be explained during our in-person meetings and/or by video posted to Google Classroom.
- The work will also be explained in our Class Planner posted to Google Classroom.
- If you have any questions, email your teacher.
How Do I Know What My Grades Are?
● On Summative Assessments, teachers will provide both a 4-point grade and a letter grade.
● You can monitor your progress in the following ways:
  ○ By reading feedback and scoring returned to students on summative assessments.
  ○ By monitoring the scores and Overall Course Mastery Grade in the Parent/Student portal on JumpRope. Reminders to check grades will be sent from the school.
  ○ Communicating with your teacher if you are unclear.

Where Can I Find This Syllabus during the School Year?
● This syllabus will be available on the school website in each subject’s department tab once the school year is up and running. It will also be available in our Google Classroom.

How Do I See What’s Due?
● Assignment and summative assessment due dates with handouts are posted in Google Classroom, with connection to Google Calendar, for student access.

How Do I See What’s Past Due?
● If a student is missing a grade on an assessment, it will be listed in the red “Missing Assessment” section of the JumpRope Parent/Student Portal along with any attachments. Please contact your teacher if you have any questions.

Materials:
You'll need a laptop with a working internet connection. You can use a personal device or the school can issue you a device on request.

Sometimes you'll be asked to post digital photos of work you've done at home or on paper. For this you'll need access to a phone camera.

Accounts:
To support learning I may ask students to create accounts using your school email on one or more of the following educational or professional websites: github.com, khanacademy.org, glitch.me, code.org, codingbat.com, tinkercad.com, edublogs.org, editor.p5js.org, deltamath.com, runestone.academy, cs50.me, cs50.io, flipgrid.com, voicethread.com, marketwatch.com. (Still reading? Don't worry, you won't use all of those!)

Schoolwide Procedures:
Please see the Student Handbook for Procedures and Policies related to: Due dates and deadlines, extra credit, retaking assessments, and turnaround time for grade entry.

Personal Mobile Devices: This class will follow the procedures outlined in the student handbook.