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| **Honors Programming II Course Outline https://ageehonorsprogramming.weebly.com/assignmentsprogramming** | | | |
| Note: the pace at which we will cover these subjects may deviate from this printed schedule. | | | |
| Use **processing.org** to look up any information you may need. | | | |
| **Weekly Timeline** | **Topic(s)** | **Assignments** | **Materials** |
| Weeks 1 | Introduction to Processing | Interactive videos | <http://hello.processing.org/> |
| Using the Processing3 sketchbook | Drawing shapes using the x, y coordinates, color & movement | [Honors Programming Website](https://ageehonorsprogramming.weebly.com/assignments) |
| Week 2 | Processing program code setup and draw functions. Use primitive variables, random(), movement. Use ellipse, rect, line, triangle, stroke(), fill(), rgb & strokeWeight | Draw one of the following things/scenes, a house on a street, a car or truck on a road, an animal, a robot, an alien, any other scene that you can think of Your drawing must include: setup() with size, draw(), a background color, At least 10 shapes, some shapes must be filled, using different colors, multiple stroke thicknesses. | Notes on the website. |
| Week 3 | Movement with mouseX, mouseY, if statements, variable assignment, equations for movement, text. | Create a picture or design that includes the following: shapes, colors, random numbers, variables, if statements, comments, text,mouseX, mouseY. | Notes on the website. |
| Week 4 | Conditionals and variables | Use conditionals to check for window borders and adjust the x or y appropriately. Make a ball bounce randomly around the window. | Notes on the website. |
| Week 5 | Functions - allow the programmer to break down larger programs into smaller parts.Promotes organization and manageability.Enables the reuse of code blocks from arbitrary locations in a program. | Use a return function calculateMars() that calculates the weight of a person or object on our neighboring planet. Create a drawRobot() function with parameters for x, y, bodyHeight and neckHeight. Call the function with a mouse click. | Notes on the website. |
| Week 6 | Using variablesand functions to keep score, and using mouseX & mouseY to control a shape. | Enables the reuse of code blocks from arbitrary locations in a program. | Notes on the website. |
| Week 7 | Putting it together with Pong. | Write a pong game that will keep score of how many times the ball hits the paddle before it hits the floor. | Notes on the website. |
| Week 8 & 9 | Pacman Game | Design a Pacman screen with at least 25 white dots. Use keyPress to move the pacman. When the Pacman moves over a dot, the dot will change to black, and the score will increase by one. | Notes on the website. |
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| **Python** | | | |
| Week 10 | Introduction to Python | Practice Python | codecombat.com |
| Week 11 | Using Python from the shell-setup, basic Python program organization and indentation. Code for comments, input, output, if statements. | Ask 5 questions, assign the answer to a variable and use the answer in another question. | Notes on the website. |
| Week 12 | Grok online lessons | Go through the first 4 lessons in Grok. | [https://groklearning.com/courses](https://groklearning.com/courses/) |
| Week 13 | Drawing with Tkinter | Use Tkinter – create a canvas, with 5 shapes with different colors and outlines. Add with your name text to the canvas | Notes on the website. Online Python for Kids book |
| Week 14 | import, random, user defined functions, and buttons | Draw a picture. Make sure you comment each part of the picture. Make each part of your icture a function. Make a button for each function.Make sure you create the functions BEFORE you make the buttons. | Notes on the website. Online Python for Kids book |
| Week 15 | Moving objects | Create a program and call it MoveShapes. Put in 3 different shapes and move them together and individually. | Notes on the website. Online Python for Kids book |
| Week 16 | Bouncing ball and moving a paddle with keys. | Create a Pong game with a score | Chapter 13 in the online book |
| Week 17 | Final Project | Take everything we have covered in Python or Processing and create a new game. | Python or Processing |