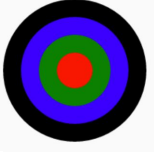
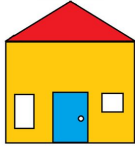





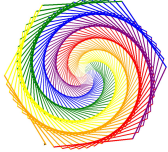
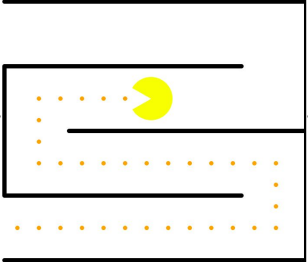
# Curriculum and Course Information

Find us at [techlab.education](https://techlab.education)

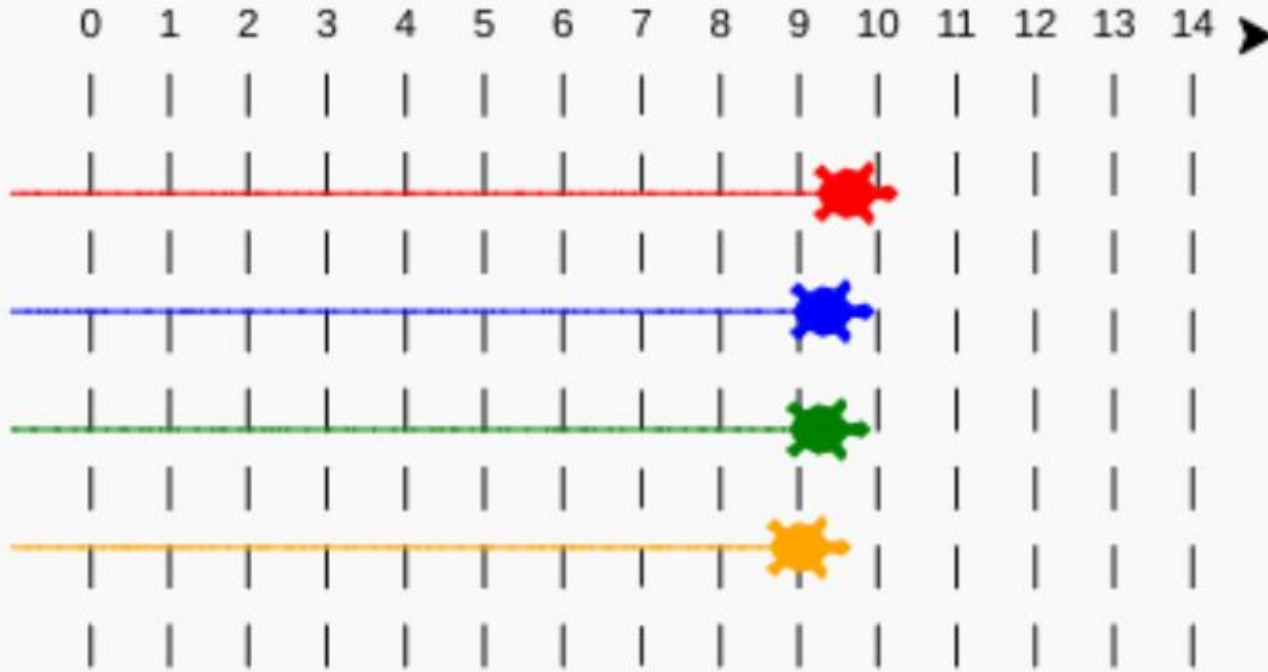
# Introduction to Python Course Outline

Modules	What they develop	Output/Problem
<p>Basics</p> <ul style="list-style-type: none"><li>• What is a Programming Language</li><li>• print, variables, input</li><li>• Datatypes: int, str, float</li><li>• Math operators</li></ul>	<p>Understanding for basics of how to think about programming languages using variables and simple input output functions Drill down into data types and applying math operations</p>	<p>Sample problem: <i>Read in two integers and print two lines. The first line should contain integer division. The second line should contain float division.</i></p>
<p>Libraries</p> <ul style="list-style-type: none"><li>• Introduction to TurtleLib</li><li>• Functions</li></ul>	<p>Understanding for why we use libraries, using turtle (a popular python library for kids) to help aid understanding power while having fun drawing! Creating functions by themselves and using it to showcase how they could use it to construct a house</p>	 <p>What shapes are in our house?</p>  

# Introduction to Python Course Outline

Modules	What they develop	Output/Problem
Loops <ul style="list-style-type: none"><li>For</li></ul>	Understanding for loops, and how it is used in programming	
Logic <ul style="list-style-type: none"><li>TRUE and FALSE</li><li>Operations: AND, OR, NOT</li><li>If-then-Else</li></ul>	Understanding the fundamental concept of programming : Logic and the if-then-else statement	Quiz of the day
Loops <ul style="list-style-type: none"><li>While</li></ul>	Use of while loops and how they differ from 'for'	
<ul style="list-style-type: none"><li>Put it all together in a longer program</li></ul>	Develop a complex game that uses random function to generate a turtle race	

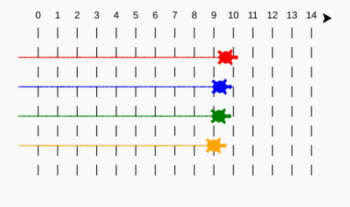
# Turtle Race - putting it all together!



# Intermediate Python

- Ages 11+
- Meant for students with basic coding experience and looking to understand more complex structures of programming, including using it for science fairs, Pi projects etc

# Intermediate Python Course Outline

Modules	What they develop	Sample Output/Problem
<p>Basics/Recap</p> <ul style="list-style-type: none"><li>• Variables, Data types</li><li>• Logic</li><li>• Branching</li><li>• Loops</li><li>• Libraries</li><li>• Functions</li></ul>	<p>Brush up on skills taught in intro, the basics of any computer programming language</p>	
<p>Complex Data Types</p> <ul style="list-style-type: none"><li>• Strings</li><li>• Functions on Strings</li><li>• Looping on Strings</li><li>• Lists</li><li>• Looping on Lists</li></ul>	<p>Understanding more complex data types which is the powerhouse for python: Strings &amp; Lists (also known as arrays)</p>	<p>Create quiz of the day using lists</p>

# Intermediate Python Course Outline

<b>Modules</b>	<b>What they develop</b>	<b>Output/Problem</b>
Nested Loops	Understanding for nesting loops within another to create complex logic	Hangman game
More Data structures <ul style="list-style-type: none"><li>• 2D Lists (Matrix)</li><li>• Dictionary</li></ul>	More about 2D lists aka matrices is the fundamental data structures for math logic used in Machine Learning .	Battleship Let's play Battleship O Turn 0 Guess Row: Guess Col:
Recursion	Understanding what recursion is and using it for simple calculations like fibonacci series. A complex problem in the end is the famous towers of hanoi.	