

## Weekly breakdown - Week 4

**Weekly objective:** Students will understand how to use the math library, look up scripting documentation, building algorithms and use of loops and switch statements

### Goals:

Students will be able to:

- Iterate off instructor's methods to start developing new feature ideas
- Learn math functions absolute value, and clamp
- Begin implementing basic math equations in their code
- Experiment with new feature ideas in prototype code
- Discuss creative problem-solving techniques and ways to build algorithms from ideas
- Using scripting documentation to learn more about libraries
- Learn CS concepts of loops: for, foreach, while, switch statements and enumerations
- Benefits of parent-child relationships

### Live Lecture Topics:

- Build a 3D model representation of a clock
- Drive 3D model rotations of clock parts by system.time
- Drive daylight source rotation by system.time
- Directional light source connected to procedural sky system
- Use parent-child relationships to simplify math in relationships
- Setting parents with transform component
- Global vs local orientation
- Unity versions, content import/export,
- UI screen vs global space
- Anchoring and positioning of elements
- Deleting components vs game objects
- Switch statements syntax and use cases
- Switch statements vs if-else statements
- Enumeration syntax and use cases
- UI element dropdown use of enumerations
- Connecting UI elements to public methods in other scripts
- Private, public and protected methods/variables
- Method structure: return type, input variables
- Variable passed by UI must be same in method call
- Synchronizing initialization of variables in script and UI elements
- For, foreach, while loops
- Using booleans to activate and deactivate user features
- Breaking an idea down to discrete parts
- Developing an algorithm from the parts of your idea
- Constraints on position, scale and rotation

- Define the parameters of the clamp function
- Demonstrate scripting API documentation for clamp function
- Rotation: quaternion, quaternion.identity, localRotation, pitch, yaw, roll

**Assignment:** Follow [this](#) tutorial and build the clock to prepare for integrating it into your painting app