Intro to Motion 5 Workshop
Instructor: John Aden

Introduction:

You are in charge of a three-dimensional film studio filled with two-dimensional players (still images, text or video). Imagine a shoe box diorama.

You can:
- ⬜Manipulate, move, and apply behaviors to the objects in the shoe box⬜
- Move, sweep, rotate, etc. the camera, and
- You can "be the director" and move around the set looking at things from different angles without affecting anything.

The two most difficult things to grasp will be:
1. ⬜Making sure you are controlling what you think you are controlling, and⬜
2. How to move in 3D space (How do you move in 3D space using a 2D mouse on a 2D monitor?)

In this introductory class, we will explore all the ways to move objects and cameras, how to use views, ⬜and we will touch on **behaviors** and **particle emitters**. This class will not teach more advanced features, such as lights, and motion tracking.

Let's Get Started

Since Motion is usually used to make titles and other pieces to be inserted into a larger project, it is important to know the format of that larger project.

For example, if you are working with a HDV 1080i60 project in Final Cut Pro X and want to use Motion to create a title screen, you will want to have your Motion project be the same format as your Final Cut Pro X project to prevent unnecessary and time-consuming rendering.

For our uses, let's change the Preset from NTSC DV to Broadcast HD 1080. Let's also change the Duration from 10 seconds to 30 seconds. Once the project opens, immediately save your project into your Project Files.

Overview of the Workspace

At the opening of the project, it is broken up into two distinct sections, the Utility Window and the Project Window. Additionally, the HUD floats over the content as a separate window.

Utility Window:

The Utility Window is further divided by three tabs into:
- **File Browser** - From here you can import any files currently on your computer. If you have set up your files correctly you should be able to locate your content, preview it, and drag it onto the Canvas
- **Library** - Similarly set up as the File Browser but it is for locating and previewing effects, filters, behaviors, and pre-made particle generators.
- **Inspector** - This the section you will be working with the most once you get ready to start creating your project. The Inspector and the HUD are your primary tools in manipulating your content. Every aspect of your project is at your fingertips to create and change in the inspector.

  The Inspector is broken into a viewer (much like the File Browser and Library) and several tabs.
  • **Properties -** This has most of the same attributes as the HUD, and more, such as Position, Rotation, Scale, Shear, Anchor Point, and much more.
  • **Behaviors -** This tab is empty right now since we have not applied a behavior to this object as of yet. But this is where we will go when we do.
  • **Filters -** Similar to Behaviors. This is where we will go to add and change filters.
  • **Object -** This tab will always pertain to the object that is selected, whether it is Shape, Mask, or Emitters. This one is Shape.
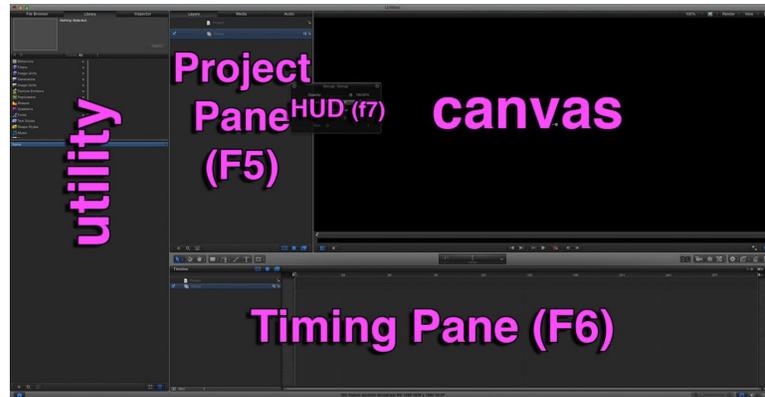
Project Window:

In the project window we can access our tools and build the project. Right now the project window is mainly taken up with the Canvas where we will be building the project. Along the top are the tools that we will be using.
- **Project Pane** - Shows the layers of the project. Pay attention to what object/camera/layer is selected when moving things in space, or applying behaviors.
- **Canvas** - This is where your video is made and viewed.
- **Timing Pane** - Similar to a timeline in Final Cut Pro X or other video editor. Pay attention to the playhead position - any behavior applied or new object added is introduced at the playhead location.
- **Toolbar** - The toolbar is at the bottom of the canvas and contains most of the tools you need to create and manipulate objects

HUD (Heads Up Display):

- The HUD floats above the desktop and shows tools for whatever happens to be currently selected.

Project Pane (F5) HUD (f7) canvas utility Timing Pane (F6)

The Toolbar

View   Create   Mask   1 FRAMES   HUD   Camera   Effects

The Toolbar is divided into groupings of tools. We will mostly use those in the View grouping.

Camera - best in 3D

☐Selecting a New Camera will convert objects to 3D.

Effects

☐The gear icon contains all the effects you can have the camera perform, as though the movement of the object through 3D space occurs because a camera is moving around it.

Move an Object, Group, Camera, or View
- With the HUD
- With the inspector☐
- On the canvas with Anchor points (usually the best option)

Red = X-axis
Green = Y-axis
Blue = Z-axis

Activity 1

Step 1: Select the Rectangle tool in the toolbar and create a rectangle.☐ It is the first Tppl of the four in the Create section of the Toolbar.

Layers   Media   Audio
▶ 3-D Group
▶ 2-D Group

Check out the rectangle layer you made in the Layers tab of the Project Pane. Note that the layer is selected and note the icon next to the name - this represents 2D objects.

Step 2: Click on the camera icon on the right side of the Toolbar. Choose "Switch to 3D" in the pop-up window.

You've just added a "camera" and converted your object to 3D in☐ one step. Once an object is 3D, the order of the objects in space becomes irrelevant.

Step 3: Change the view to the perspective view and give yourself a good overview of the camera and the rectangle. (Use the View controls in the upper corners of the Canvas.)

Be sure to select the Pointer (Transform Tool) before continuing.
Step 4: Practice moving the rectangle around in 3D space.
1. Select the rectangle in the Layers window.
2. Switch to the Adjust 3D Transform tool. It is to the right of the pointer tool on the left-hand side of the toolbar.
3. Use the controls in the HUD to move the object, rotate ☐it, or scale it. *(If the HUD is not floating above the workspace, click on the HUD icon in the Toolbar.)*
4. Look in the Inspector in the Utility window, open the disclosure triangles for position and rotation and zero the X, Y, and Z position and rotation attributes to get the rectangle back to its starting position.

Avoid the temptation of moving the rectangle by clicking on it and dragging it directly. This method produces sloppy and unpredictable movements and should not be used!
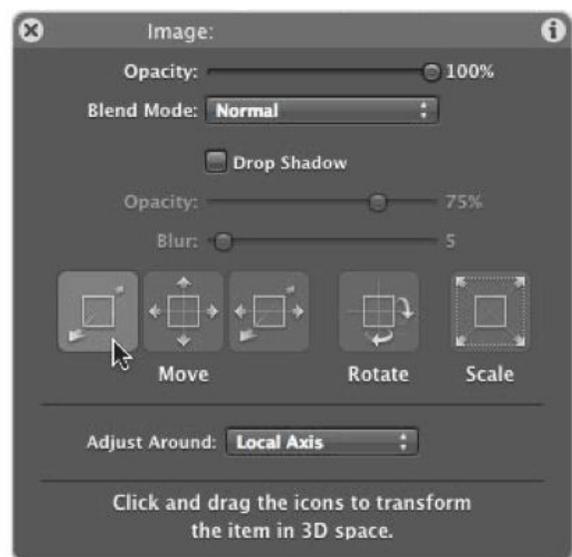
Activity 2: Surf

1. Click & drag Surf.psd file to canvas from finder window **without letting go of the mouse button**.
   a. Look for yellow alignment guides to show you when you are centered in the canvas.
   b. Pause before releasing mouse **until a floating menu appears**. Choose "Import all Layers", otherwise, all Photoshop layers will be flattened into one.
2. Add a camera, Switch to 3D, Change view to **Right**
3. Separate layers
4. Rotate Arrows 90° around y-axis (green axis)
5. We will move the camera by recording its position at various times:
   a. Click Record, Move the Camera, Move the Playhead
   b. Repeat Camera and Playhead moves to define your path through the image space
   c. Stop recording
   d. Play! (switch to Active Camera first for a better view)
6. Set a universal background color:
   a. Edit > Project Properties > Background Color

If you are unhappy with your camera movement, instead of deleting the rotational attributes, a quick way to clear all the camera movements and behaviors is to simply delete the camera and add a new one.

Remember: The 3D view tools control only the view for you (the director)

       Hold shift to move faster
       Hold option to move slower
       Shift-Z = Fit to Window
       f   = Frame Selection
       q   = Adjust 3D transform

Inspector properties can be dragged to layers. For example, if you want not only the Arrows layer, but also the Yellow Lines layer, to be rotated 90 degrees, click on the "y:" in Inspector -> Properties, and drag the whole box onto Yellow Lines.

Activity 3: Action News 2

1. Open ActionNews2.psd the same way you opened surf.psd
2. Rotate ovals to +/- 45 around a vertical axis
3. Pull the three pictures out slightly
4. Add particle emitters > SciFi > Bit Parts *or* Pyro > Hot Part from the Library
5. Add Behavior to Camera (gear icon) > Camera > Sweep

Remember: "i" key for in points, "o" key for out points (just like Final Cut Pro)