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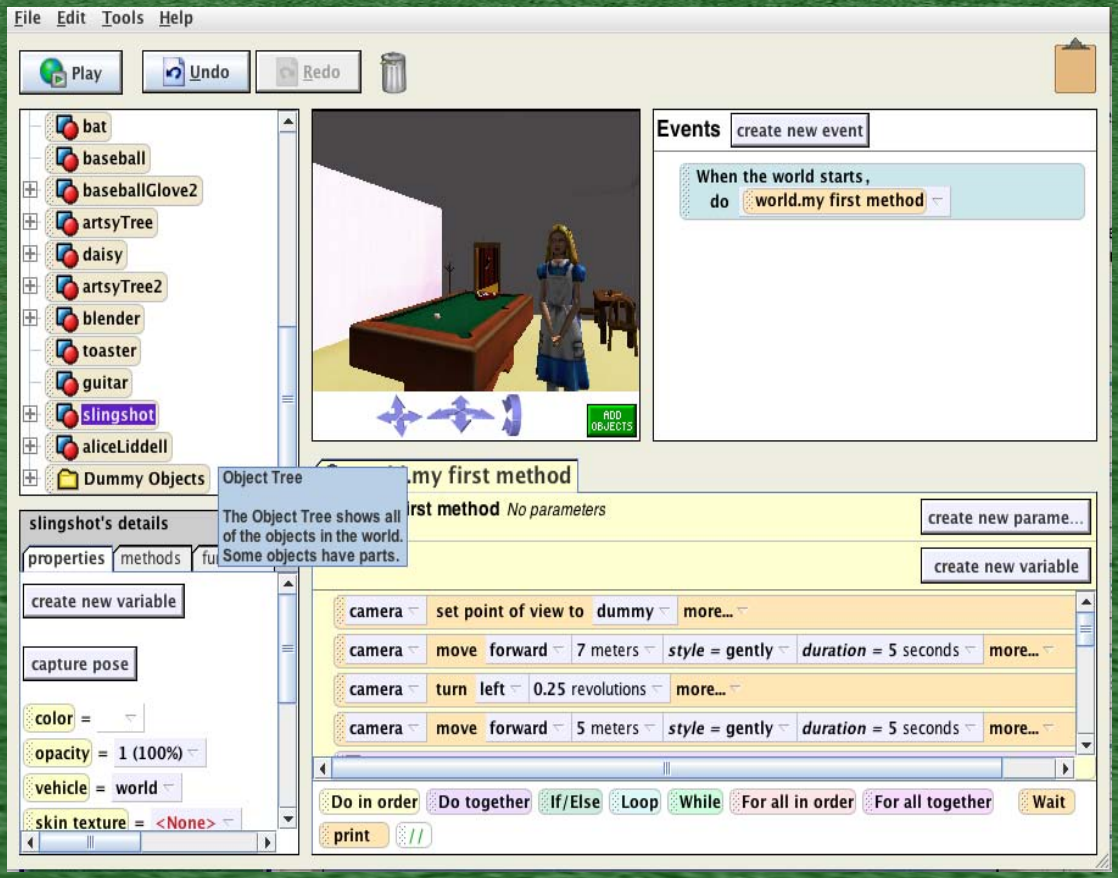
Indiana ACTE/ETEI
State Conference 2011

The Digital Hub

- Technology Educators are well suited to bring together many of the disciplines
- Many advanced 3D modeling & programming tools are free to educators
- Students are highly motivated when engaged in interactive media to tell a story*

*Kelleher, Pausch, & Kiesler 2007

Story Telling Alice & Alice 2.2

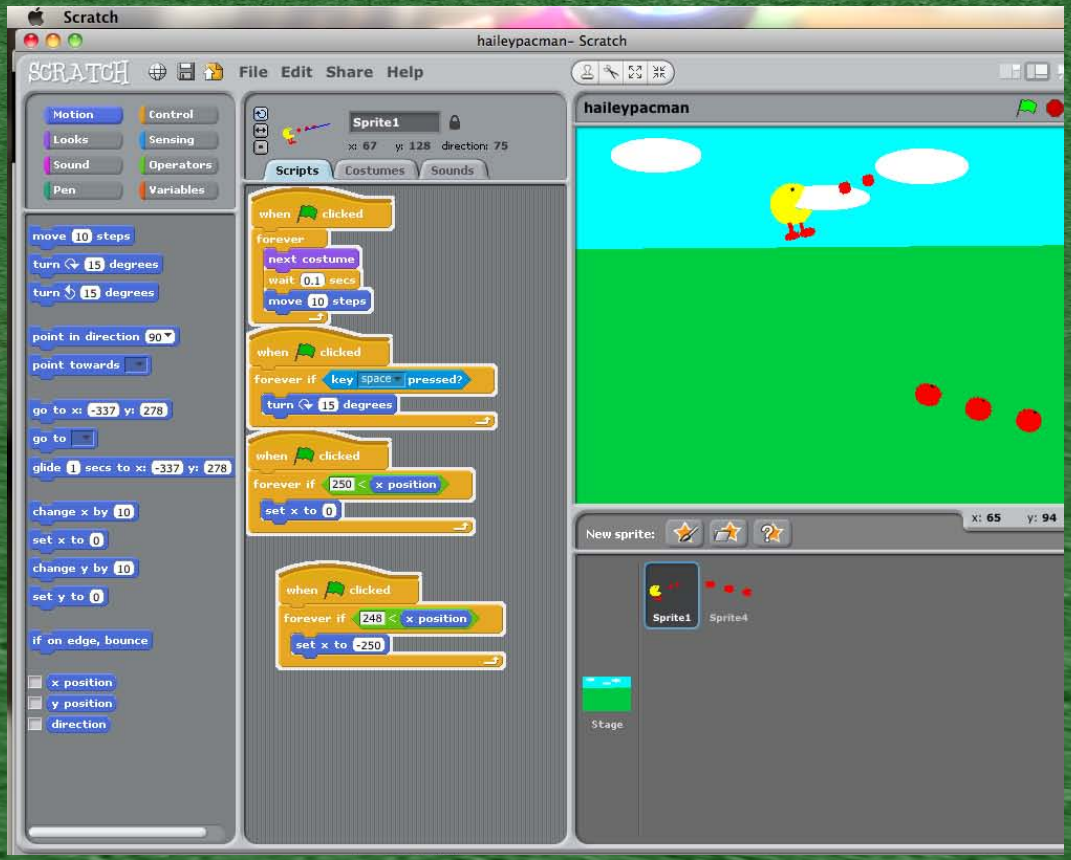


- Story Telling Version for Middle School
- Alice 2.2 for Exporting Video to Quicktime
- All Versions for Designing Games & Telling Stories (www.alice.org)

Departmental Collaboration

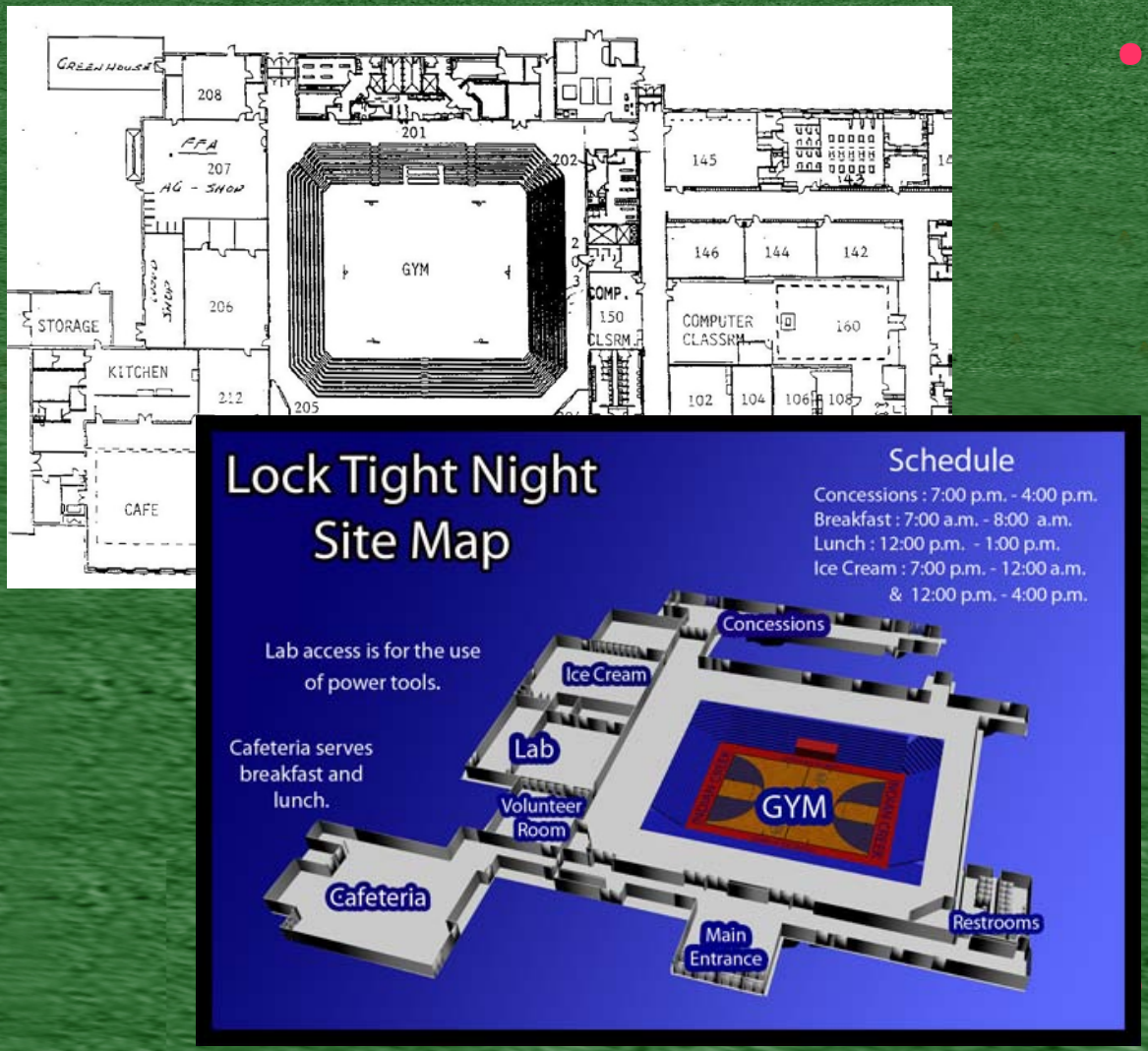
- English Department develops story/storyboard
- Technology Department creates/finds models
- Art Department adds textures/painting
- Music Department creates sound track
- Business Department programs/animates
- Back to the English Department to edit video

Start from Scratch



- Scratch for Windows, Mac OS X, & Linux (scratch.mit.edu)
- Microsoft Small Basic for Windows (dreamspark.com)
- Game Salad for Mac OS X (gamesalad.com)

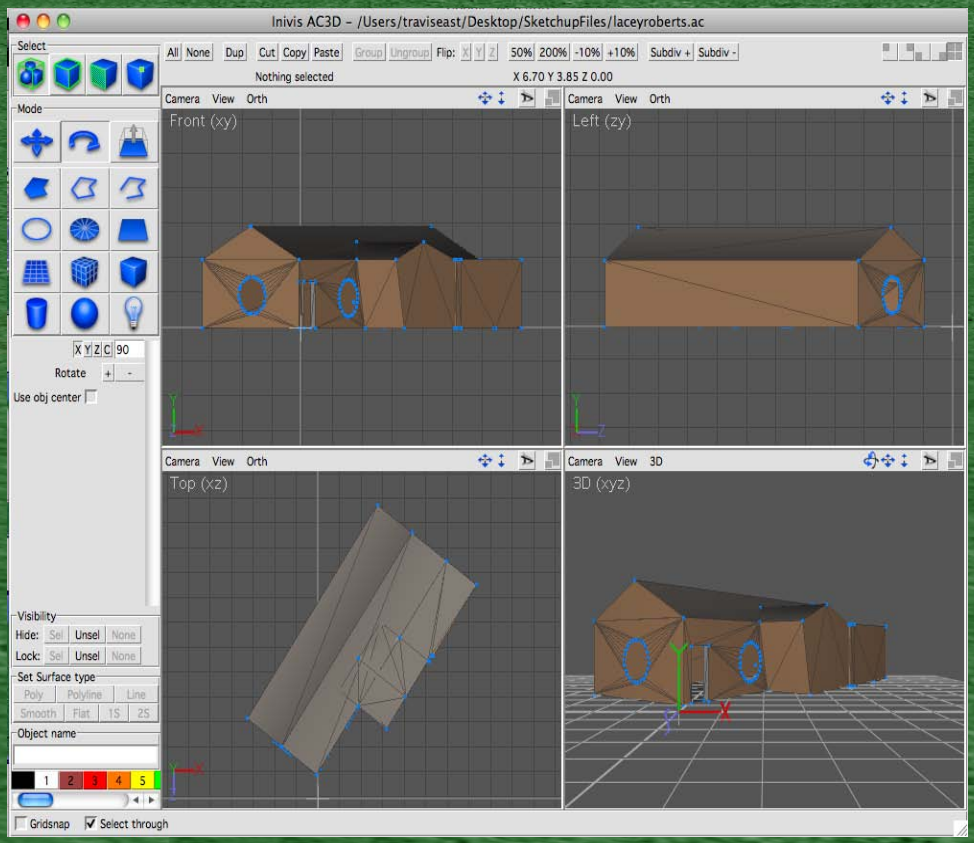
Basic Solid Modeling Tools



- PTC Pro/Desktop
  - SAT
  - STL
  - IGES
- Google Sketchup
  - DAE
  - Google Earth
  - SKP*
- Sweet Home 3D
  - OBJ

*3D sMax 2011 now imports Google SKP files

Advanced Solid Modeling



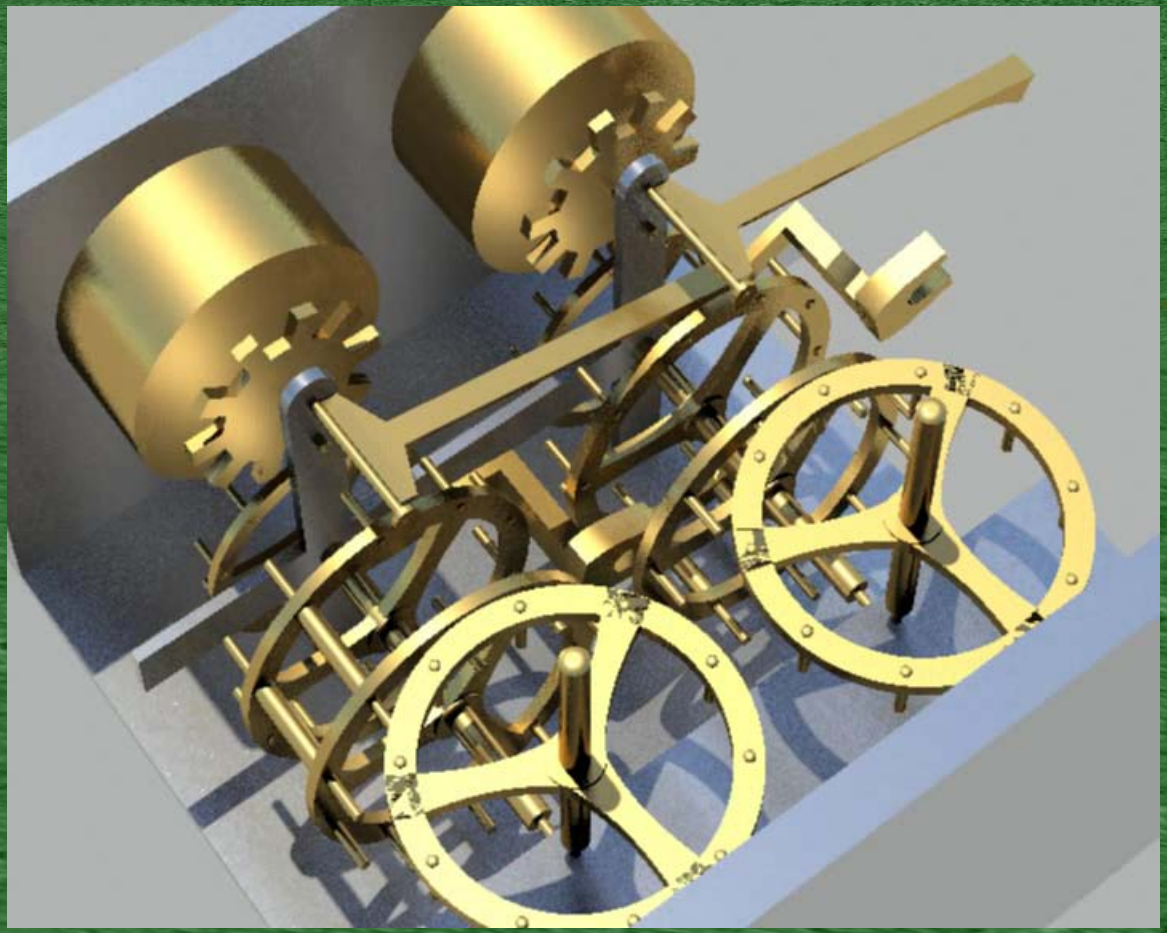
- Windows
  - AutoDesk Inventor*
  - PTC Pro/Engineer
  - SolidWorks
- Mac OS X/Windows
  - AC3D** (http://www.inivis.com)
  - Sketchup Pro***
  - Meshlab
  - Art of Ilusion

*AutoDesk 3DsMax & Maya 2011 import Inventor files

**AC3D now imports the Collada files from standard version of Google Sketchup

*** Educators in Indiana part of the Learning Exchange can get license keys for free

AutoDesk Entertainment Creation Suite

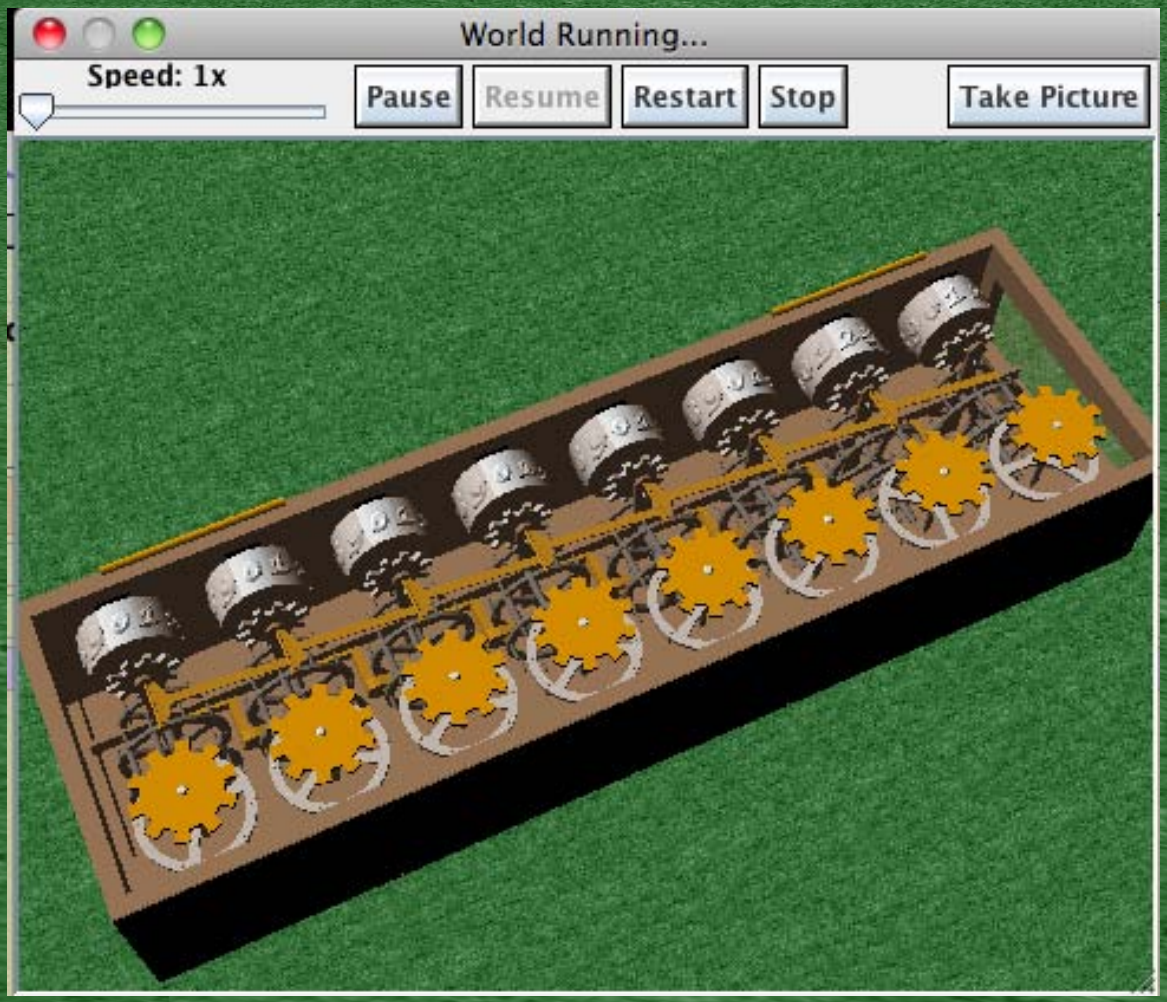


- 3DsMax
- Maya*
- MotionBuilder
- Mudbox*
- Softimage

(http://students.autodesk.com)

*Denotes Compatibility with Windows or Mac OS X

Advanced Programming Tools



- Alice 2.2
- Corona SDK
- Alice 3 Beta
- NetBeans (Plugin)
- Visual Studio (http://dreamspark.com)
- Unity 3D
- Unity 3D iPhone* (http://unity3d.com/)

*Denotes software that costs money to educators

Collaboration with Alice 2.2

- English students develop story/storyboard
  - Request models from Tech Ed Department
  - Can begin developing story without models
  - Great way to bring out students creativity
  - Must keep Alice programming simple
  - Can be further developed/polished later
  - Development can take days/weeks/months

Collaboration with Alice 2.2

- Technology Education creates/finds models
  - Can model in Pro/Desktop, Inventor, etc.
  - Can find models on sites such as Turbosquid.com & The3DStudio.com
  - Perform conversions to export to Mudbox
  - New version of 3DsMax 2011 can import Google Sketchup
  - In future versions, 3DsMax will improve compatibility.

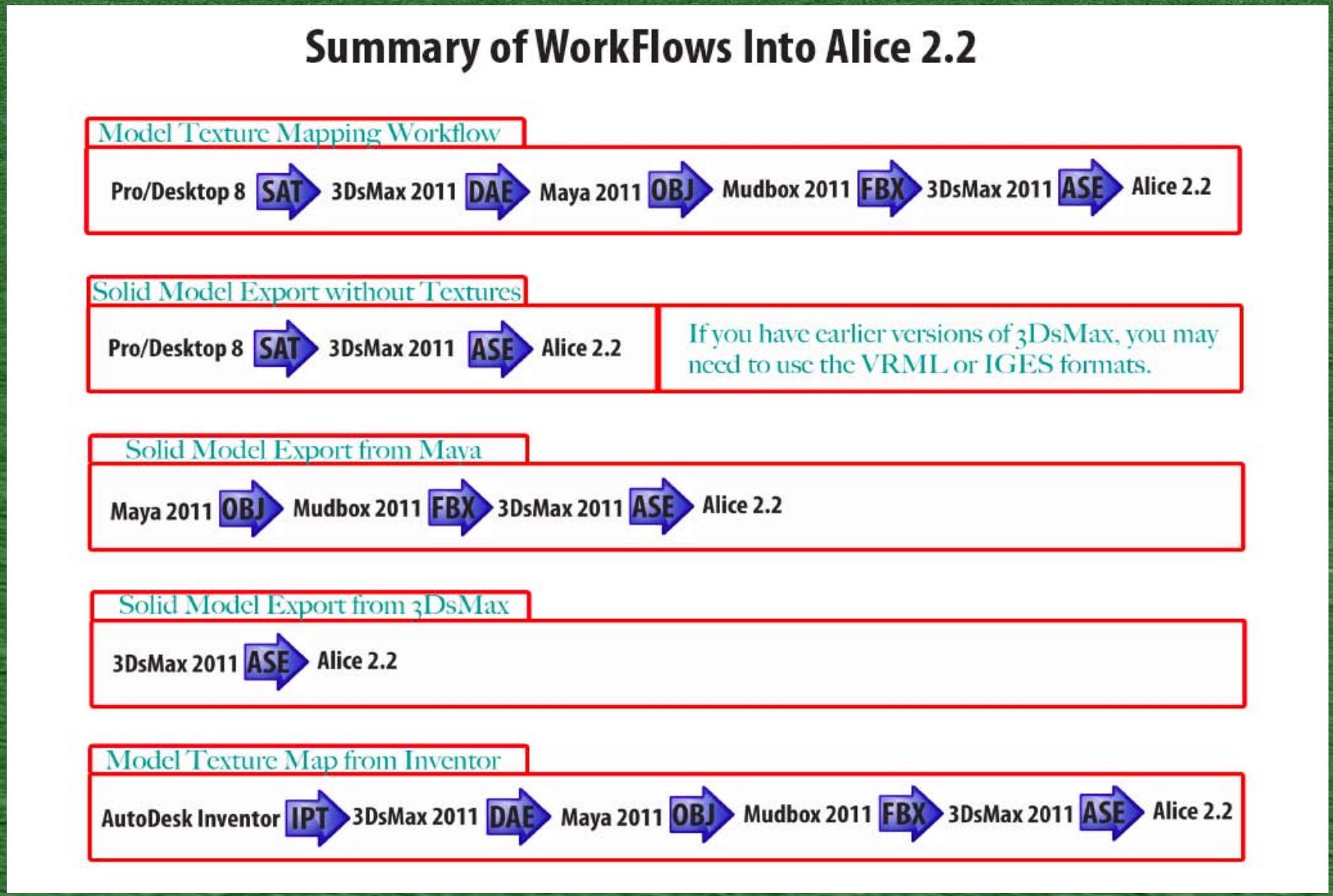
Collaboration with Alice 2.2

- Art Department adds textures/painting
  - Students paint on the models in 3D
  - Requires NVIDIA or ATI graphics card
  - Nice alternative to traditional methods of tedious texture mapping
  - Alternative to more expensive tools like Zbrush & Adobe Photoshop CS5 Extended
  - Fun and fairly simple program to use

Collaboration with Alice 2.2

- Business Department programs/animates
  - Additional conversion is required due to limitations of Mudbox export options
  - Can start a fresh Alice world if English department has not already done so
  - Can take existing Alice world and substitute the models for the new ones
  - Can make an interactive game or export a video to Quicktime
  - Can send it back to English department to edit the video all together

Workflows/Pipelines



Alice Modeling Tutorials

Tutorials for Alice 2.2

by Travis East

Digital Storytelling

CNIT 590

Purdue University

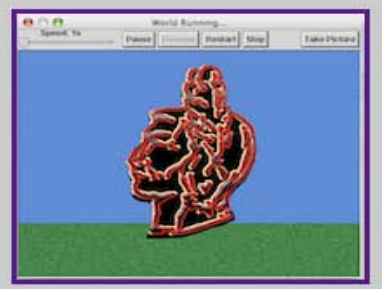
You will need Adobe Acrobrat Reader or other PDF viewer to open the tutorials on this page.

Prerequisite : Knowledge of image editing & Alice

Altering Texture Maps in Alice Models

Required Software : WinZip/Zipeg, Alice, Adobe Photoshop (or other graphics software)

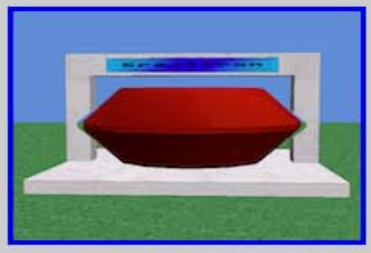
Prerequisite : Graphic of your school or company logo & general knowledge of Alice



Making Your School Logo 3D

Required Software : AutoDesk 3DsMax, Alice

Prerequisite : General knowledge of 3D design & Alice



Designing a Simple Amusement Park Ride

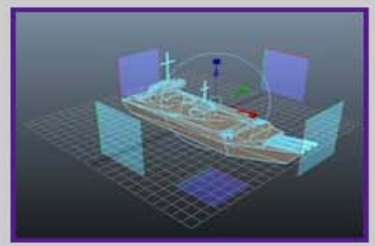
Required Software : AutoDesk 3DsMax, Alice

Prerequisite : Free Registration to TurboSquid.com & general knowledge of Alice

Downloading Free 3D Models from TurboSquid

Required Software : AutoDesk 3DsMax, Firefox, Alice

Prerequisite : General Knowledge of AutoDesk MudBox is helpful, but not required

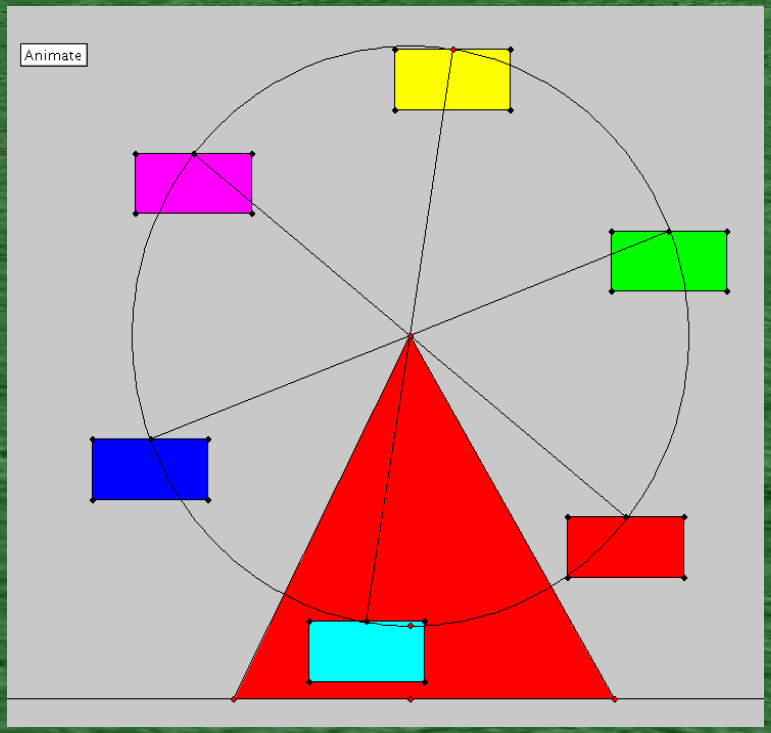


Texture Mapping Models from Solid Modeling Software

Required Software : AC3D and/or AutoDesk 3DsMax, Maya, Mudbox, Alice

Example Projects - Simulations

Geometer's Sketchpad

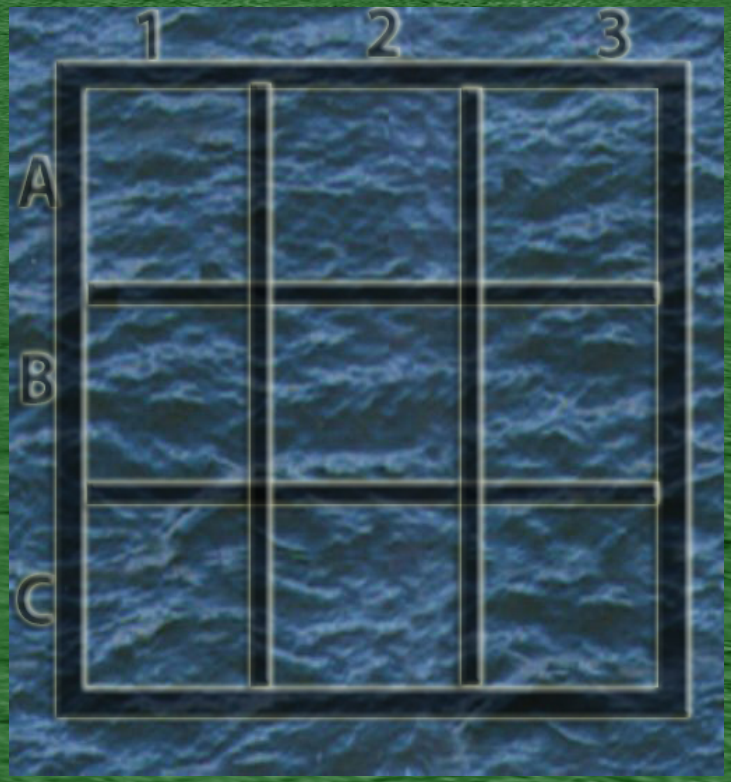


3DsMax→Alice2.2

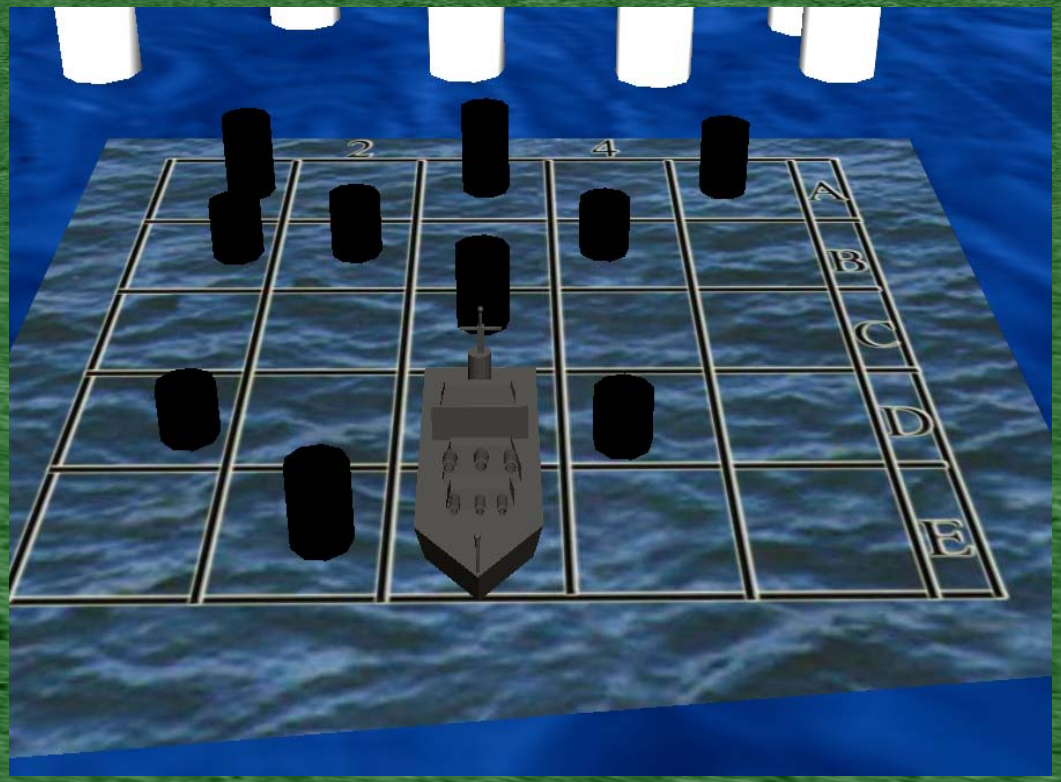
***For additional resources, visit http://www.nhj.k12.in.us/teachers/teast/frameset2.html**

Example Projects – Simple Games

RealBasic SpriteSurface



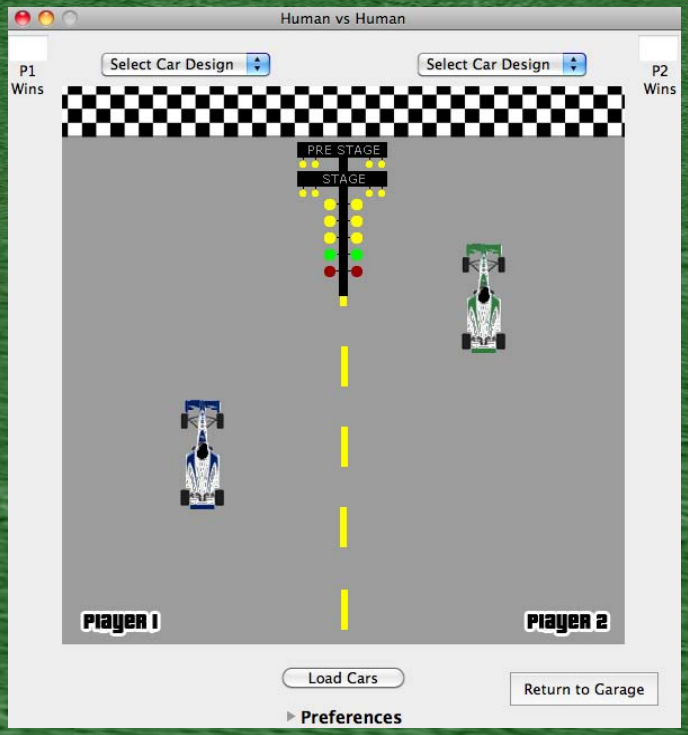
Pro/Desktop → Alice 2.2



***For additional resources, visit http://www.nhj.k12.in.us/teachers/teast/frameset2.html**

Example Projects – Advanced Games

RealBasic SpriteSurface



Pro/Desktop → Unity 3D

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Integrating Games in Tech Ed

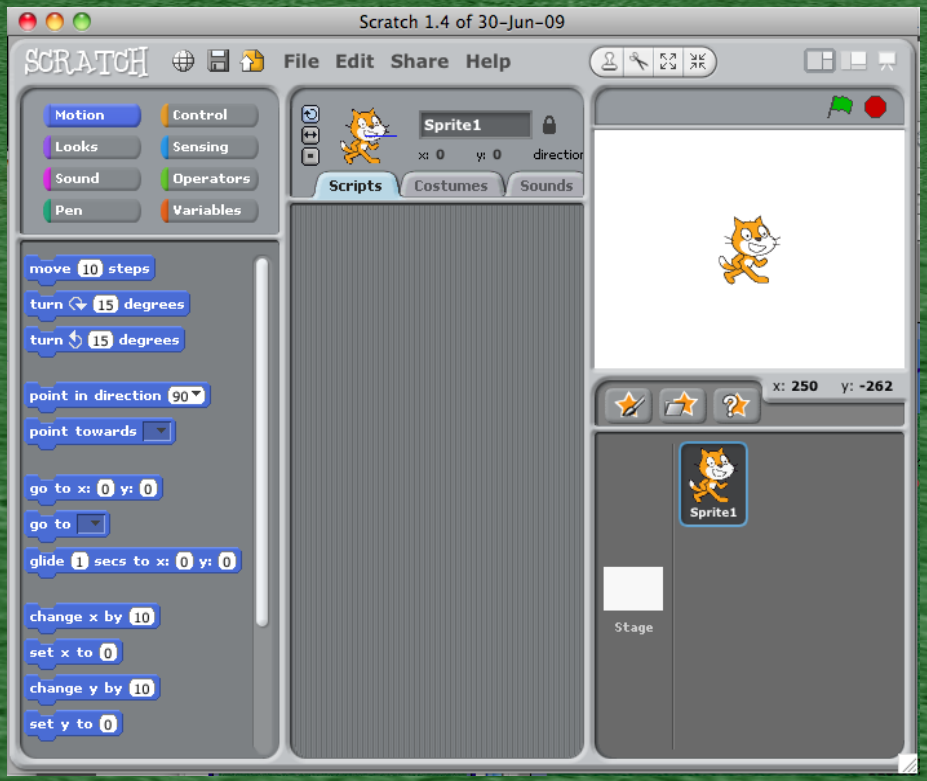
- Problem Solving Process/Design Loop
- Technology Systems/Control Systems
- Product Development
- Technology Assessment
- Trends/Market Research
- Technology Enterprise
- Communication

Sprites : Simple Control Systems

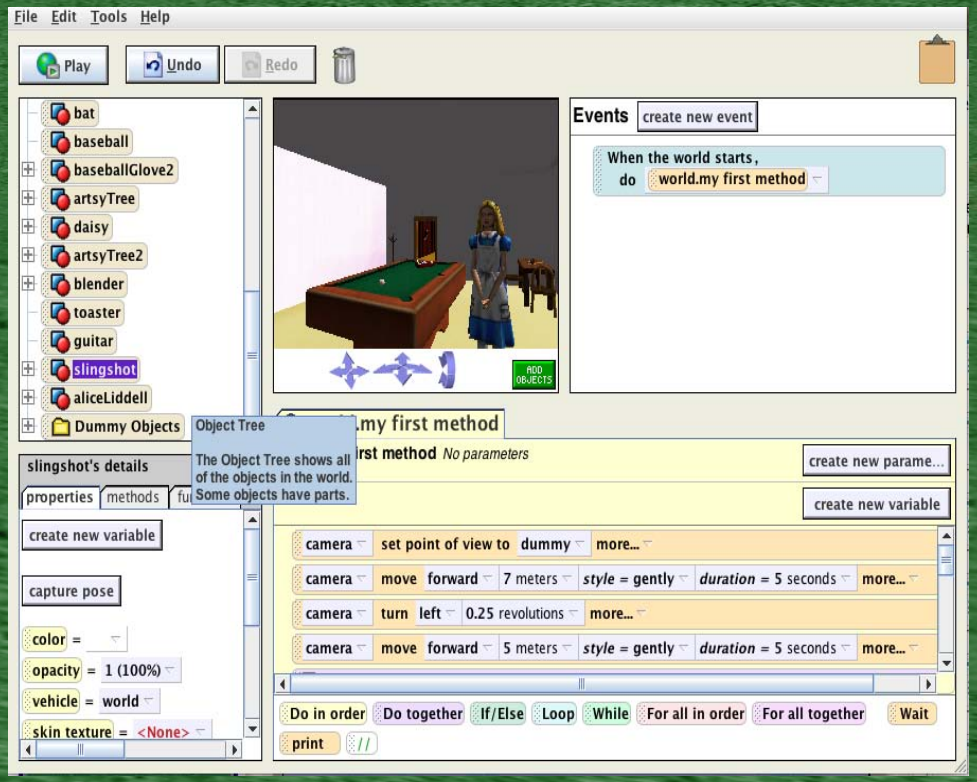
- Create a Sprite Animation that does each:
  - Travel Across the Screen
  - Go to a spot on the screen & stop
  - Move off screen and come back on other side
  - Move at an angle & bounce off screen's edge
  - Keep the character in bounds & on screen
  - Image changes when a character is pressed
  - Allows character to be controlled by user
  - Test for collision of two characters

Scratch → Alice

Simple 2D Sprite Surfaces



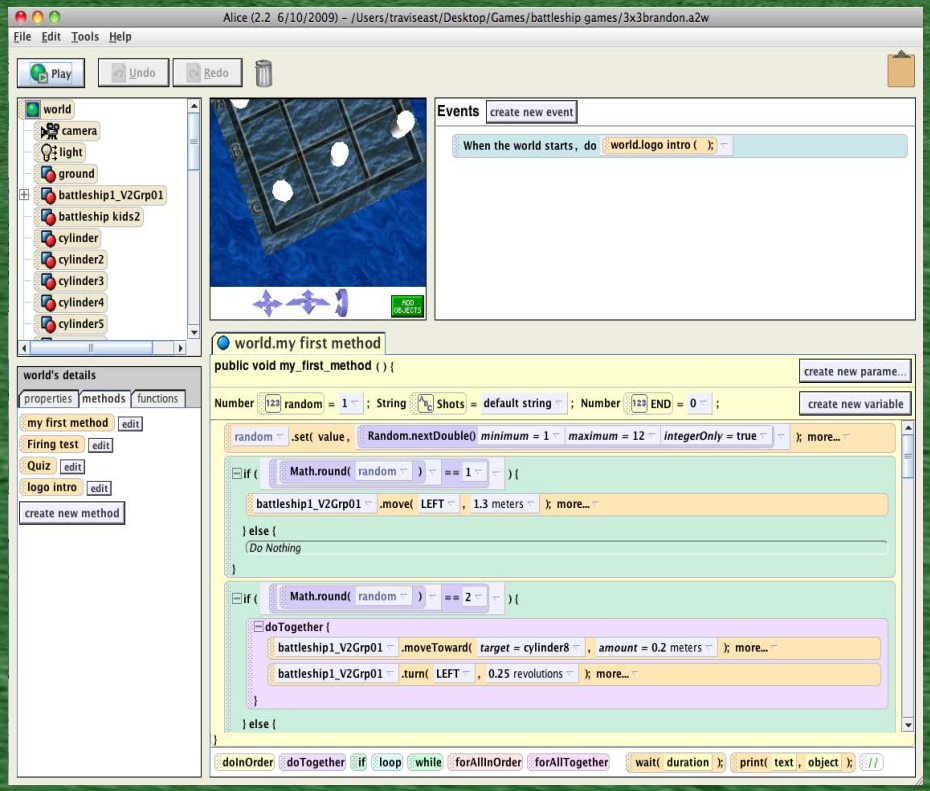
Java Programming Available*



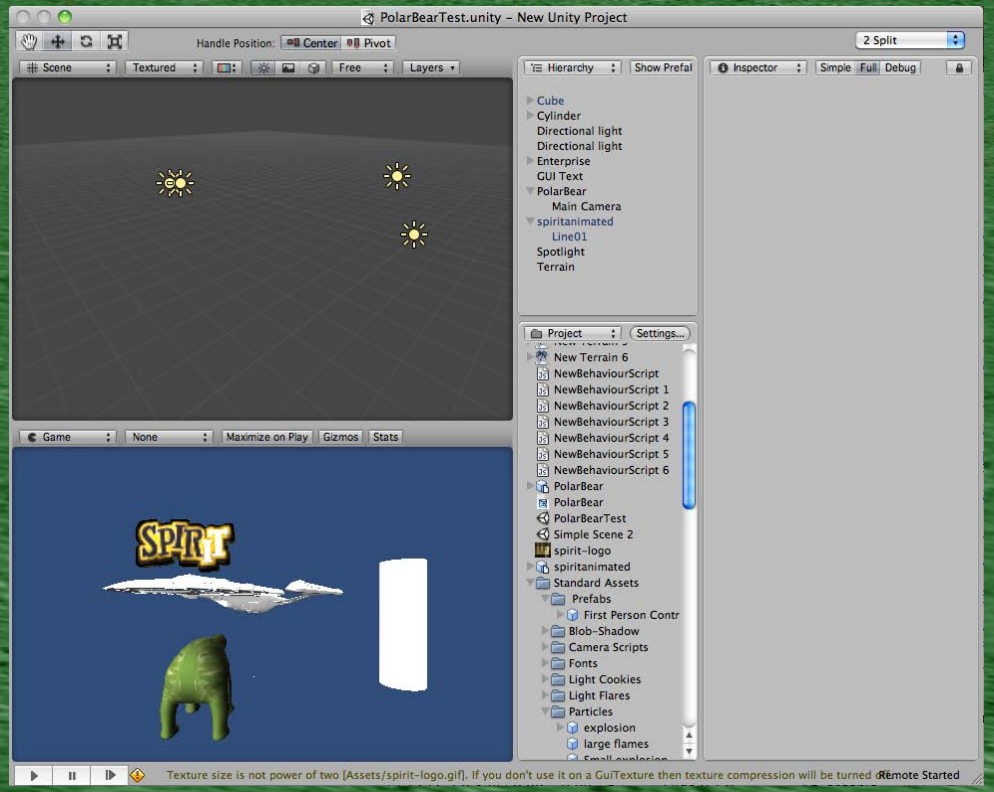
*In Alice 2.2, select the Edit Menu → Preferences → General Tab → Java Style

Alice → Unity 3D

Java Programming



JavaScript, C#, & Python*



*The dialect of Python used in Unity 3D is called Boo.

Advantages of Alice

- Students can begin using immediately
  - Built-in Model Library of Characters
  - Lighting System & Ground already set up
- Import models from AutoDesk 3DsMax (ASE)
- Programming code easy to drag & drop
- Can examine the code in Java
- Can export worlds to Quicktime Video

Advantages of Unity 3D

- Allows for Windows .EXE & Mac OS Xs .APP
- Imports animated files from 3DsMax (.FBX)
- Built-in particle systems & collision detection
- Allows for more detailed modeling/textures
- Allows scripting in three different languages
- Allows for integration with Motion Capture*
- Allows for porting to iPhone** (Not Free)

*Indiana University has a motion capture facility at the School of Education.

**Requires iPhone version of Unity 3D & Apple Developer's software loaded.

Websites & Resource Summary

- Modeling Tutorials - http://www.theeastfamily.net
- Scratch - http://scratch.mit.edu
- SmallBasic/VisualBasic - http://www.dreamspark.com
- Game Salad - http://gamesalad.com
- Alice 2.2/Alice 3.0 Beta - http://www.alice.org
- Google Sketchup - http://sketchup.google.com
- AutoDesk Software - http://students.autodesk.com
- MeshLab - http://meshlab.sourceforge.net/
- AC3D - http://www.inivis.com
- Unity 3D - http://www.unity3d.com
- TurboSquid - http://www.turbosquid.com