Students, Learning, and Technology for the 21st Century

Young Scholars Program
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Educational Technology Policy, Research and Outreach
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Important Information

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Outline

• Introductions
• Course Overview
• Tools and Applications
• Activities and Projects
• LOGO and MicroWorlds
Introductions
Syllabus

• Course Description – An Overview
  – Learner centered-constructivist teaching AND learning
    • Interdisciplinary-crossing boundaries
    • Workforce skills
    • College or higher education skills
    • Along the way….increase the science/math/technology pipeline
    • Along the way…learn *Microworlds*, *StarLOGO*, Excel, and other software applications
Syllabus

• Objectives
  – Focus on **inquiry and group** based methods of learning;
  – **Collaborate with peers** to adapt/redesign problem materials;
  – Experience **problem based learning** through **active engagement** in an appropriate activity;
    • Know the elements of problem solving, including key content identification, scientific literacy, habits of mind, and critical thinking and learning events involved in project development;
  – **Provide and accept feedback gracefully** (to and from other participants and instructors);
  – **Actively participate in all** class field trips; actively participate in class discussions;
  – Be a **reflective learner**.
Syllabus

• Goals
  – understand, utilize and experience **skills needed** for the 21st century workforce and/or higher education opportunities
  – explore and use a **variety of technology/computer applications**;
    • use technology to **explore and design** multimedia presentations and simulations
    • **design and program** Logo environments (games, animated stories, and interactive multimedia presentations);
  – design and present an **e-portfolio** highlighting projects and experiences.
  – design and present **individual**, and **collaborative LOGO programmed** projects
In other Words

- Mini activities and assignments/projects
- Individual and Team Projects
- Field Trips
- E-portfolio
Pre-Assessment Profile

Go to: http://www.edtechpolicy.com/
Click on Turtle
MicroWorlds

- Introduction
- Constructivist Scavenger Hunt
  - Internet Activity
  - For History
    http://en.wikipedia.org/wiki/Logo_programming_language
Introduction to MicroWorlds EX

Menus

ToolBar

Page

Status Bar

Command Center

Help Window

Tab Areas
MicroWorlds EX

• Files are called *Projects*
• Objects and text are displayed on *pages*
• Can you find:
  – Menu bar
  – Toolbar
  – Page
  – Command Center
  – Status Bar
  – Procedures area
  – Tabs
Some Basic Commands

• fd (forward)
• rt (right)
• bk (back)
• lt (left)
• pd (pen down)

• pu (pen up)
• repeat
• setc (set color)
• setpensize
• cg (clear graphics)
Some Basic Shapes

- Hatch a “turtle”
- pd
- fd 50
- rt 90
- fd 50
- rt 90
- fd 50
- rt 90
- fd 50
Can you draw and program these?

Write commands to draw each of these shapes. For each shape, how much does the turtle turn to draw each angle?
Short Cuts

In the command center
• fd 100
• rt 90
• fd 100
• rt 90
• fd 100
• rt 90
• fd 100
• rt 90

Is the same as:
• repeat 4 [fd 100 rt 90]
Converting to a Procedure

(On the Procedures Tab)

Once you know the commands you want to convert the command to a procedure

to square
repeat 4 [fd 100 rt 90]
end

Test it:
1. Create a button
2. Type the procedure in command center
3. On the turtle (object) → edit → command
MicroWorlds Exercise

Turtle Geometry and Teaching Turtles Words

See Handout
You can draw the shapes in any size, thickness, or color.

to colorsquare
setpensize 5
setc 15
repeat 4 [fd 100 rt 90]
end
An Animated Story

Walk through the creation of an Animated Story
Class Needs More Practice?

- Answering Basics
- For beginning work with animation, try make a face, animate me, race cars, bouncing off walls, or growing spider. For beginning work with a game, try obstacle course. For beginning work with textboxes, try animated story.
MicroWorld Examples

Visit some of the following to see what is possible:

- [http://mia.openworldlearning.org/](http://mia.openworldlearning.org/) Open World Learning-go to Project Folders
- [http://www.cattanach.org/microworlds/index.html](http://www.cattanach.org/microworlds/index.html) (go to the bottom icon and click *List Sites*)