Students, Learning, and Technology for the 21st Century
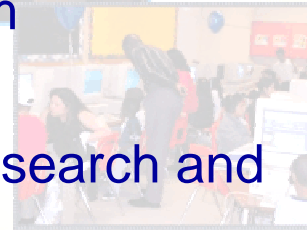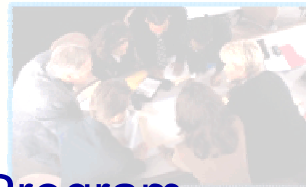
Young Scholars Program

Summer 2007

Educational Technology Policy, Research and Outreach

Davina Pruitt-Mentle

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Mr. Bafford

Important Information

- **Contact Information**
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Outline

- Introductions

- Course Overview

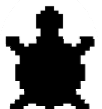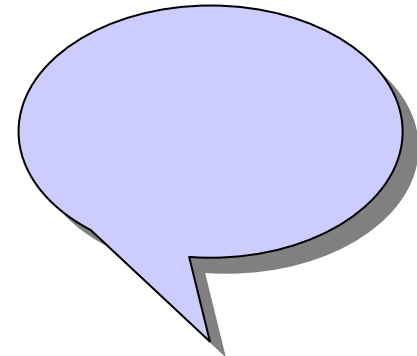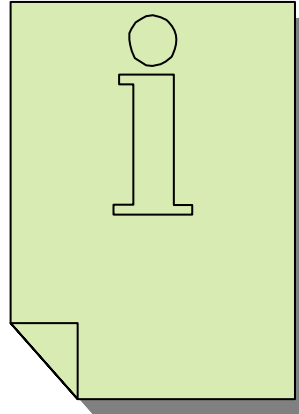- Tools and Applications

- Activities and Projects

- LOGO and MicroWorlds
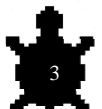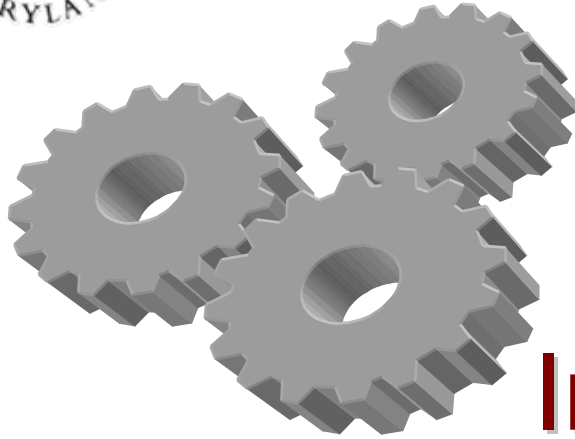
Introductions
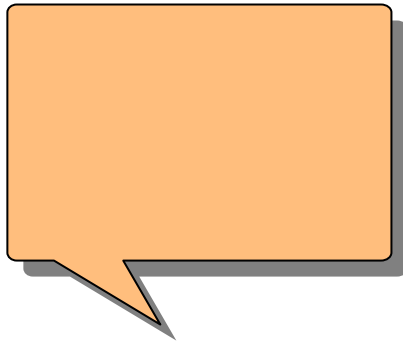
Syllabus

- 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**.
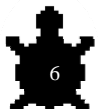
Syllabus

- **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
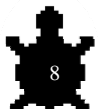
Pre-Assessment Profile

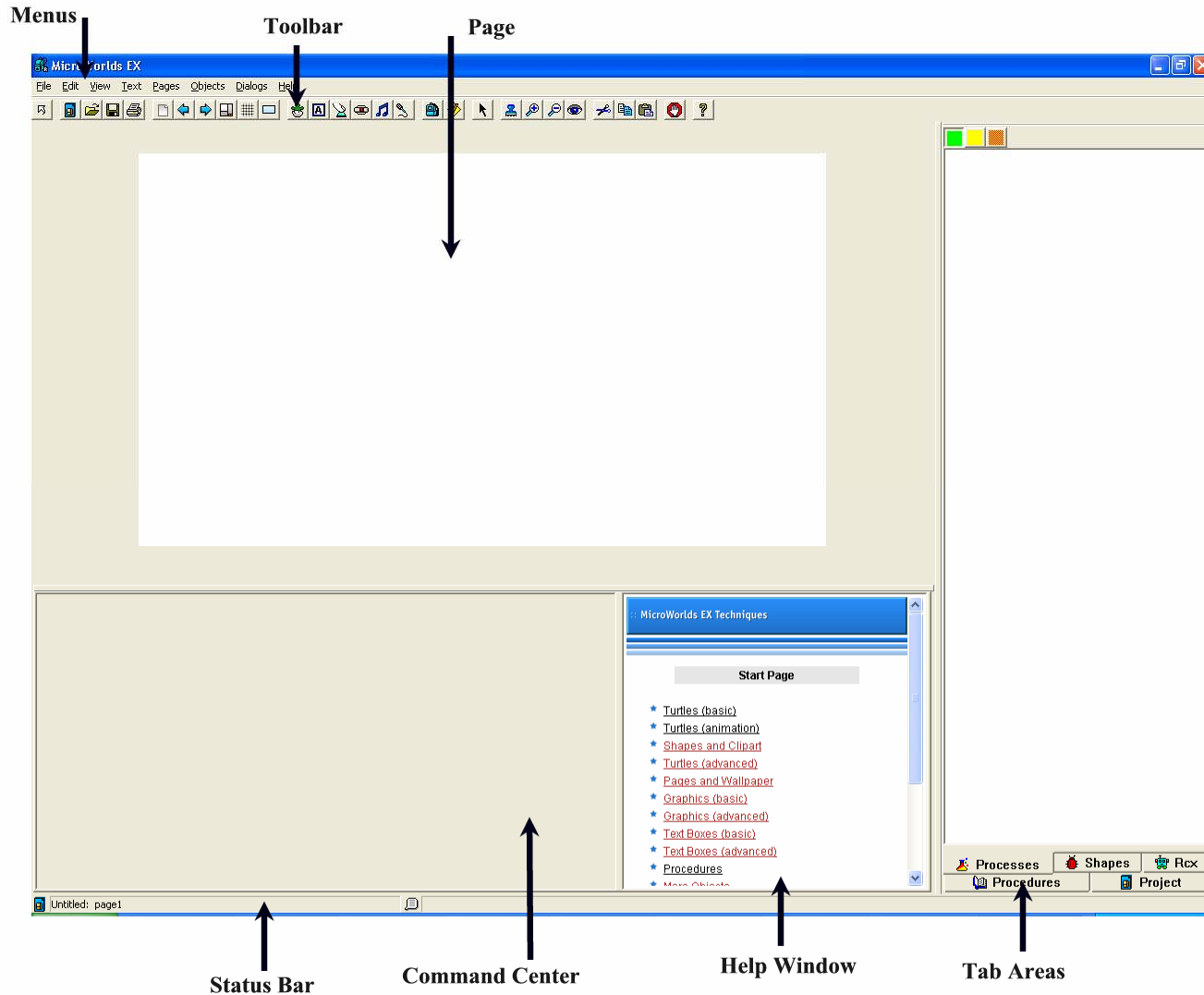Go to: http://www.edtechpolicy.com/

Click on Turtle

MicroWorlds

- Introduction

- Constructivist Scavenger Hunt

  – Internet Activity

  – For History
    http://en.wikipedia.org/wiki/Logo_programming_language

Introduction to MicroWorlds EX

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
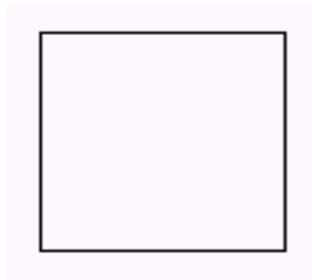 - Tabs

Some Basic Commands

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

- pu (pen up)
- repeat
- setc (set color)
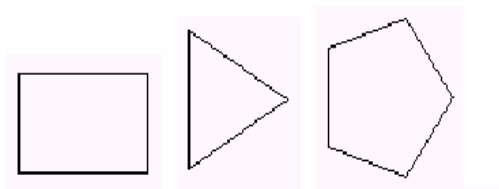- setpensize
- cg (clear graphics)

Some Basic Shapes

- Hatch a "turtle"
- pd
- fd 50
- rt 90
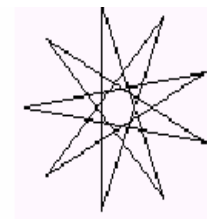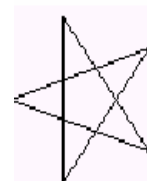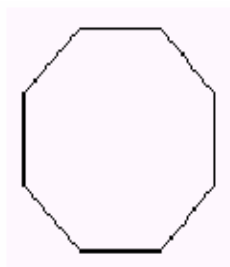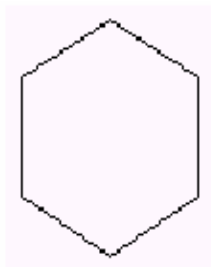- fd 50
- rt 90
- fd 50
- rt 90
- fd 50

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?

YSP: Davina Pruitt-Mentle

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:
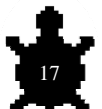
- repeat 4 [fd 100 rt 90]

Converting to a Procedure

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) $\rightarrow$ edit $\rightarrow$ 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://www.mathcats.com/microworlds.html MathCats Interactive Math games and activities

- Tic-Tac-Toe http://www.thehunters.org/logo/

- http://mia.openworldlearning.org/ Open World Learning-go to Project Folders

- http://www.cattanach.org/microworlds/index.html (go to the bottom icon and click *List Sites)*