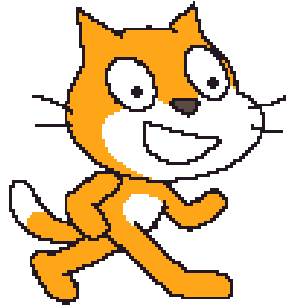**SCRATCH is a**

**FREE download from MIT**

**scratch.mit.edu**

The presenter is not connected with MIT nor is she associated with SCRATCH. She is just a teacher who finds this program to be of benefit to improving student achievement as well as engaging and creating excitement in learning!

# SCRATCH brings Math to Life!

2012 NCTM Annual Conference

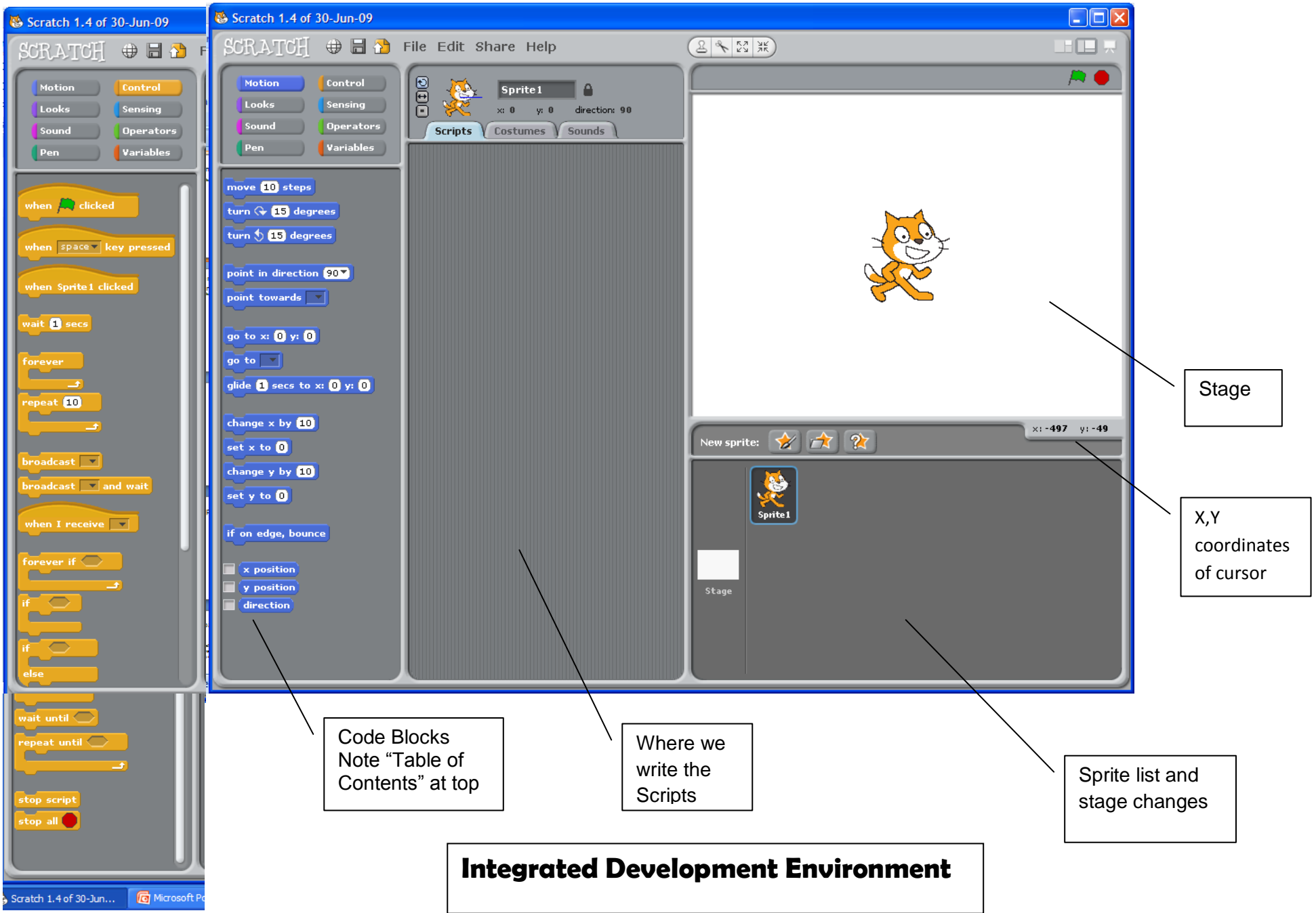Philadelphia, PA

Thursday, April 26, 2012

Presented by

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Stage

X,Y coordinates of cursor

Code Blocks
Note "Table of Contents" at top

Where we write the Scripts

Sprite list and stage changes

**Integrated Development Environment**

SCRATCH Brings Math to Life!     NCTM 2012 Philadelphia, PA     Dr. Mary Zocchi, Northwest Vista College, San Antonio, Texas

**EXPLORE Programming Logic by using Code Blocks**

1. Set up a couple basic blocks (do not connect them, put them near the top of the script page for reference)
    a. Pen (Green) – Drag <u>pen down</u> and <u>clear</u> to the script area
    b. Motion (Blue) – Drag <u>go to x: y:</u> to the script area
2. Experiment with code blocks in
    a. Control (Yellow) & Motion (Blue)
    b. Put them together, pull them apart (from the bottom, hold left), rearrange
3. Experiment with code blocks in
    a. Looks (Purple)& Sound (Pink)

**If you lose your cat (sprite) – tap on the <u>go to x: y:</u> block**

**If your stage gets too messy – tap on the <u>clear</u> block**

# QUESTIONS to ponder:

a. How big is a cat (sprite) step?
b. How can I adjust the direction my sprite is pointed? (Hint – look at the sprite above the tab 'scripts', notice the blue line? Left click and spin the cat!)
c. How do I know where my sprite by using (x,y) coordinates? (Hint – look above the script area)
d. How do I make my sprite bigger or smaller? (Hint – look above the stage – notice buttons with arrows? Click on the button and then click on the sprite)

# Task 1: Draw a Square

| What **Concepts** do I need to know? | What **Skills** do I need to have? | My Script |
|---|---|---|
|  |  |  |

# Task 2: Draw a Regular Polygon

| What **Concepts** do I need to know? | What **Skills** do I need to have? | My Script |
|---|---|---|
|  |  |  |

# Task 3: Draw a Square on a Cartesian Plane (using all 4 quadrants)

- **Click on Stage**
- **Click on Backgrounds**
- **Click on Import**
- **Click on  xy grid**
- **Click OK**
- **Click on the sprite**
- **Click on SCRIPTS and you are back to where you started.**

To change the background, follow these same steps, but explore the different folders under background.  You can also import your own photographs or draw your own background!

| What **Concepts** do I need to know? | What **Skills** do I need to have? | My Script |
|---|---|---|
|  |  | Practice using the motion block <u>glide</u> |

# Task 4: Why do I need to know these basics in order to create a video game or interactive program?

# SCRATCH brings MATH to LIFE! <span style="float:right">Global Community</span>

| Animation | Sounds |
|---|---|
| | |
| **Video Games** | **Presentations** |
| | |

# SCRATCH Makes MATH Come to LIFE!

**3**

List 3 things that you learned about SCRATCH

**2**

Write 2 ways you can support student achievement by using SCRATCH.

**1**

Create one strategy on how you can introduce SCRATCH to your teachers and/or integrate into the curriculum.

# Scripts for the tasks presented today:

## Square



## Regular Polygon