



Scratch Workshop for Mentors

*code::XtremeApps::2010
Junior Category*

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School of Computing



Information Technology
Standards Committee

Outline



- code::XtremeApps (CXA) competitions
- CXA Junior Category & Role of Mentors
- Introduction to Scratch & Quick Demo
- Getting Started with Scratch
- Break
- Anatomy of the “Ice Cream Truck”
- Creating a Game in Scratch

CXA



- **I got a call while on holiday in Nanjing**
 - ...“I am in a meeting and we want to organize a software competition...”
 - **code::XtremeApps::2007**
 - different from other programming competitions (NSC, NOI, IOI etc)
 - based on open standards, freely available tools and platform, (*fun* to program)
- 24 hours *non-stop* coding jam



Information Technology
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Fun Platforms



- **CXA-2007**
 - GoogleMap Mashups, Google Toolkit
 - Ruby on Rails
- **CXA 2008**
- **CXA 2009**
 - Android, Python

CXA Junior

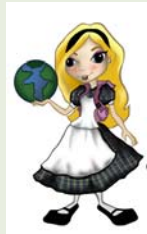


- **2008 – Started Junior Category**
 - Fun programming environment
 - For children 12 and below
 - Team based project (encourage teamwork)
 - Partnership with NYGH (Yeah!)
 - Providing venue to host event
 - Providing Mentors for the teams
 - And many other help...

History of CXA Junior Category



Alice



2008

<http://www.alice.org/>

Squeak



2009

<http://www.squeakland.org/>

Scratch



2010

<http://scratch.mit.edu/>

Role of Mentors (1)



- **Act as a big sister (da jie) to the team**
 - sms/email them to ask about their project
 - Ask them to send their test projects
 - Give them some encouragements...
- **Help answer their queries**
 - Answer them directly if you know
 - Check forum (or ask us) if you don't know

Role of Mentors (2)



- **Nudge them a little (to get started)**
 - Especially nearer to the deadline
- **Minimum Requirement: ???**
 - Send ≥ 3 email/sms to the team members
 - If no reply, call them/the team leader
 - View one version of their project



About Scratch

- MIT Media Lab
- Lifelong Kindergarten Group

The image is a poster for the 'code Xtreme Apps' competition. It features the same logo and photo of the girl and boy as seen in the top right. The poster contains the following text:

The Junior Category for the codeXtremeApps competition is back again this year!

Use your creativity and have fun while developing interesting programmes or animations using Scratch - free educational software. What if you don't know how to use Scratch? Training will be provided!

WHO CAN ENTER?

The competition is open to children 11 years and below from primary schools, international schools or home schools.

Form a dynamic team comprising 3rd members to register for the competition. Team members need not be from the same school.

WHAT ARE THE DATES?

Go to the ITSC website at www.itsc.org.sg or contact the ITSC Secretariat at itsc@itsc.org.sg for more information.

COMpetition Schedule

11 April 2011	Launch of codeXtremeApps 2011
11 May - 13 June 2011	Training on Scratch at Haring Hall High School
24 June 2011	Closing date for submission of competition entries
1 July 2011 - 17 July 2011	Judging of submissions online at Haring Hall High School Final presentation ceremony

PRIZES

1st Place	Three books or e-readers for each team member
2nd Place	Two books or e-readers for each team member
3rd Place	One MP3 player or e-reader for each team member

Let your imagination go. Sign up today at www.itsc.org.sg!

The poster also features logos for sponsors and partners, including ITSC, siren, and various educational institutions and companies like IDA, IMA, and Microsoft.

Scratch Apps



- Where to get Scratch(ed?)
 - <http://scratch.mit.edu/>
 - Download and install
- View sample project (1)
 - <http://scratch.mit.edu/projects/Adventurest1/973552>
 - (done by <http://scratch.mit.edu/users/Adventurest1>)
- View sample project (2)
 - A Maze Game
 - Done by Kia JieHui & Gwyneth Teo



How it's Done



A Quick Overview of Scratch

SCRATCH



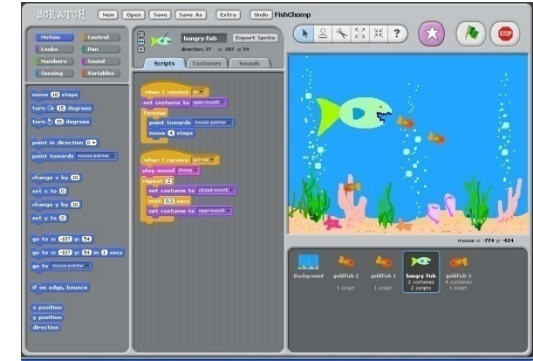
Learn... Create... Program





About SCRATCH

Scratch is a new graphical programming language designed to support the development of technological fluency.



Manipulation of Multiple Media

Connects with youth culture



Tinkerability

Allows playful experimenting with program fragments



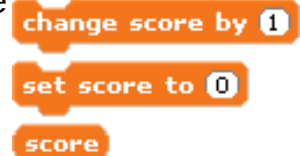
Connection to Physical World

Supports multiple design experiences



Scaffolds for Powerful Ideas

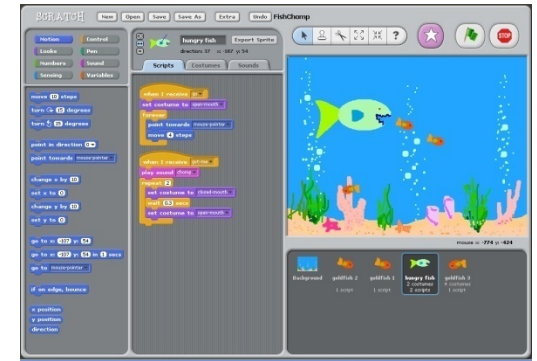
Makes concepts (such as variables) more tangible and manipulable





About SCRATCH

Scratch differs from traditional programming languages in several ways:



Building-Block Programming

Eliminates syntax errors



Allows Wide Range of Projects
Games, art, stories, music, dance....



Easy Sharing of Projects
Over Internet and mobile devices



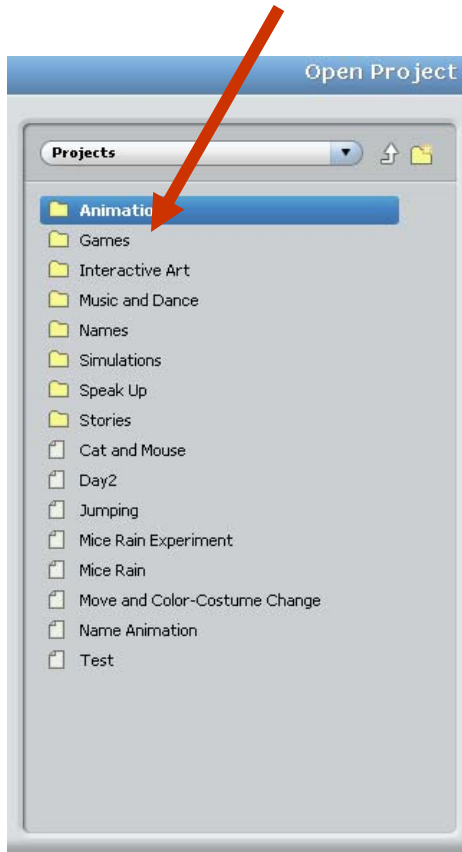
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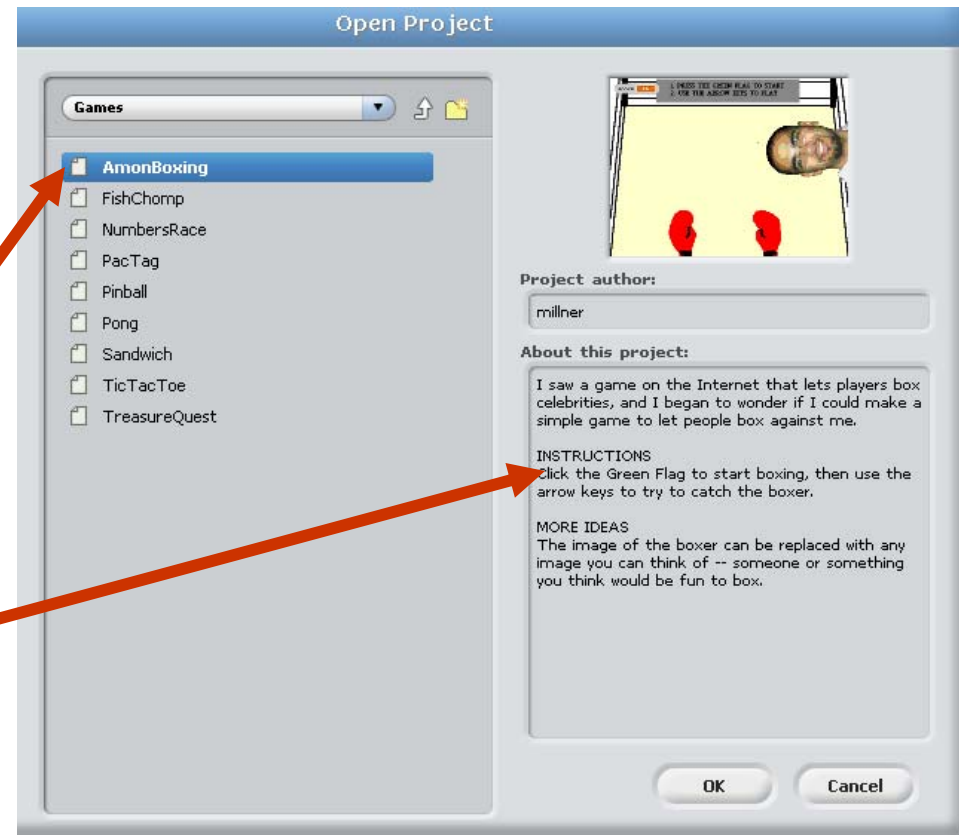
Getting Started



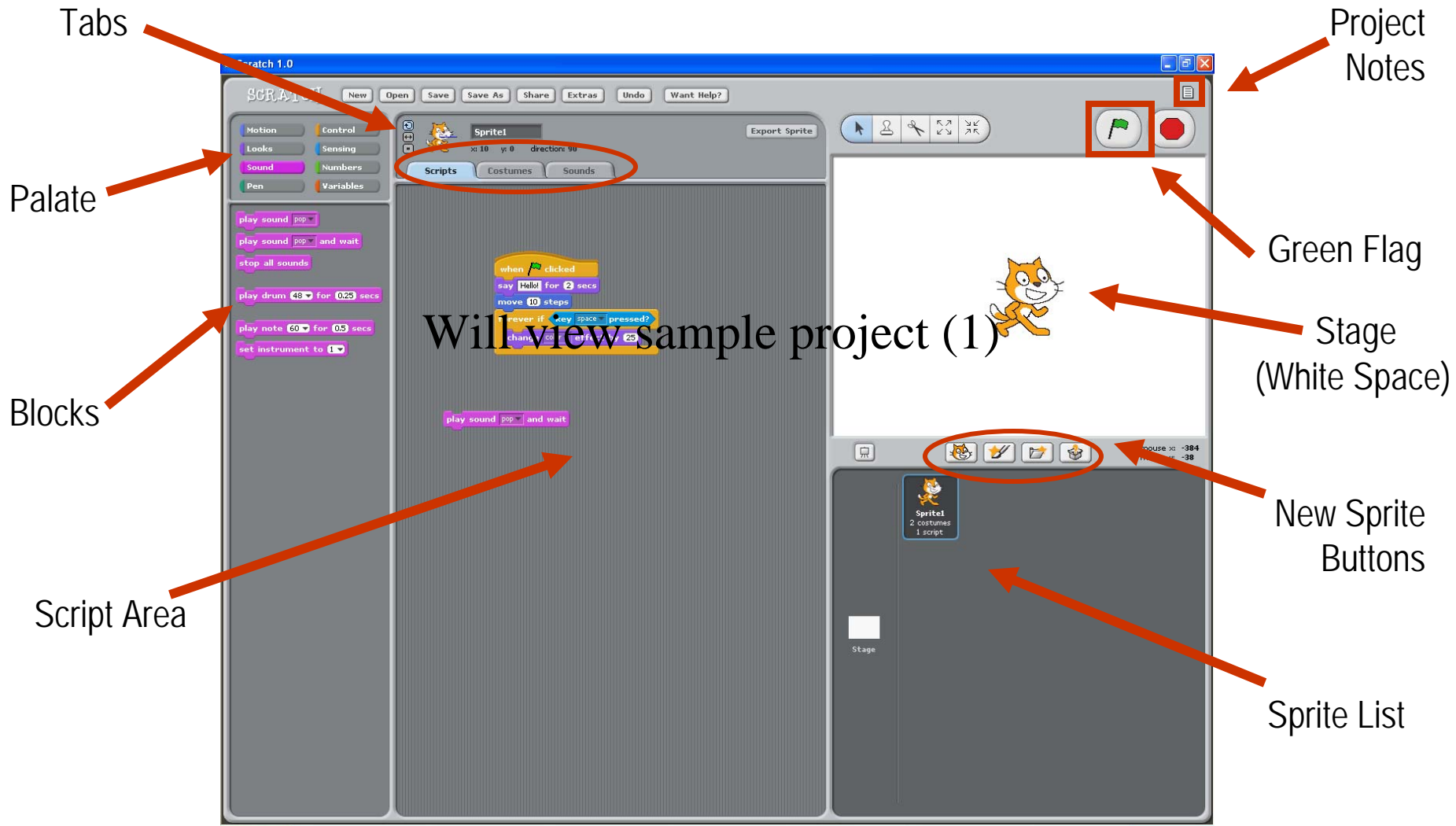
1. Click on Open to retrieve a game.
2. Select the "Games" Folder.



3. Select AmonBoxing as your game to play.
4. Read the instructions on the Right Hand Side.
5. PLAY!



The Scratch Control and Design Screen

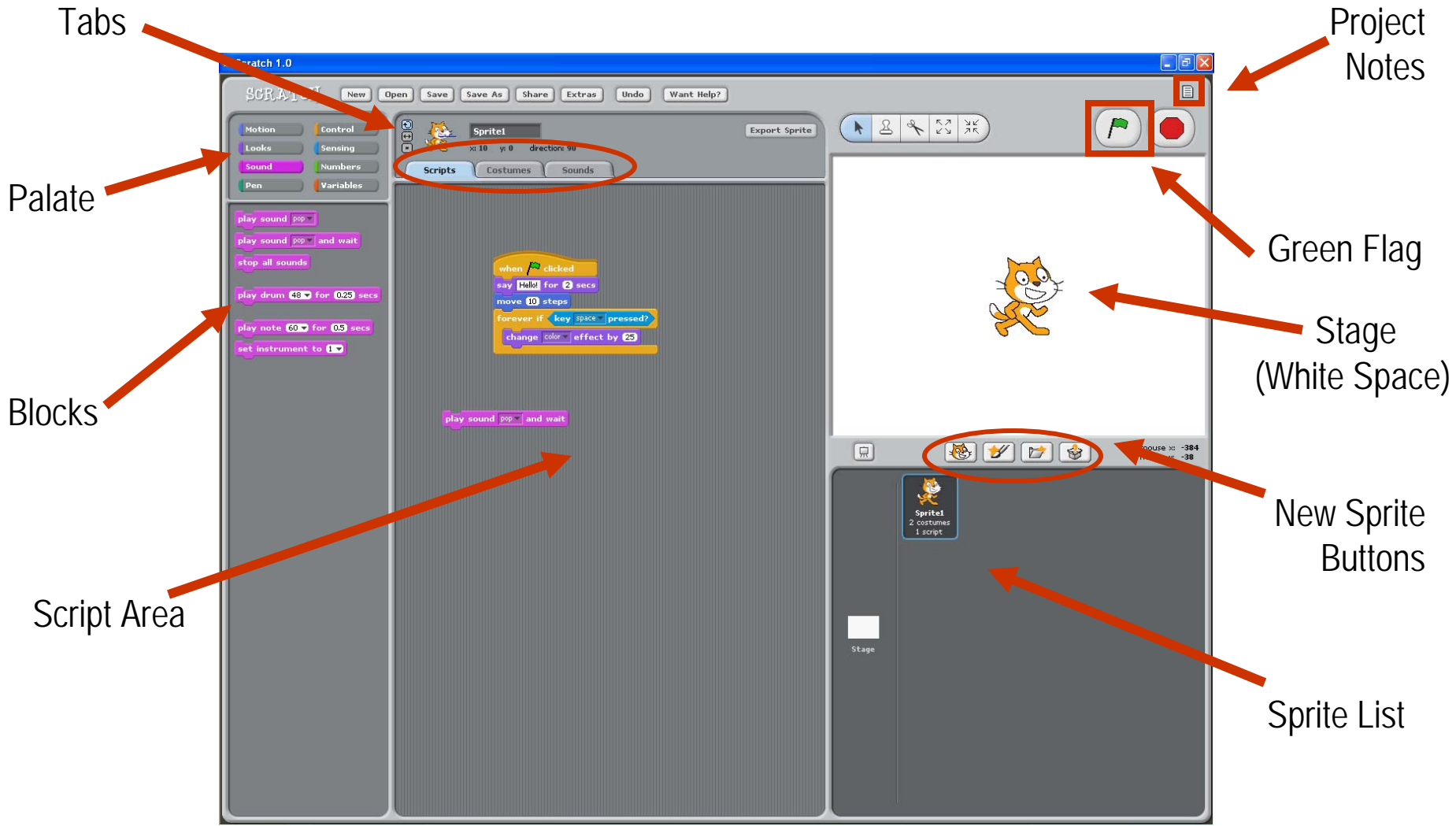




The Scratch Control & Design Screen

The screenshot shows the Scratch 1.0 interface. At the top, the title bar reads "Scratch 1.0". Below it is a menu bar with buttons for "New", "Open", "Save", "Save As", "Share", "Extras", "Undo", and "Want Help?". The left sidebar contains a list of categories: Motion, Looks, Sound, Pen, Control, Sensing, Numbers, and Variables. The "Motion" category is selected, showing a list of motion blocks: "move 10 steps", "turn 15 degrees" (left and right), "point in direction 90", "point towards", "go to x: 0 y: 0", "go to", "glide 1 secs to x: 0 y: 0", "change x by 10", "set x to 0", "change y by 10", "set y to 0", and "if on edge, bounce". Below these are checkboxes for "x position", "y position", and "direction". The center area shows the "Sprite1" panel with a "Export Sprite" button and tabs for "Scripts", "Costumes", and "Sounds". The "Scripts" tab is active. The right side of the interface features a large white stage with the Scratch cat sprite in the center. Above the stage are navigation buttons: a mouse cursor, a pin, a scissors icon, a zoom in/out icon, and a zoom reset icon. To the right of the stage are a green flag button and a red stop button. At the bottom right, the mouse coordinates are displayed as "mouse x: -394" and "mouse y: 72". The bottom panel shows the "Stage" and a "Sprite1" panel with a cat icon and the text "Sprite1" and "2 costumes".

Important Areas

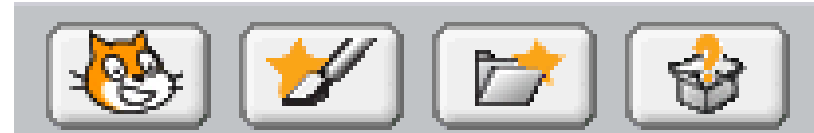


Metaphors in Scratch

- Stage and “A Play”
 - Backgrounds, Scenes,
 - Sprites, costumes,
 - Script (storyboard)
- Use of “Messages”
 - Broadcast message
 - Receive message

The Basic Buttons

- New **Sprite** Buttons
 - The Scratch objects and characters are called **Sprites**



- Get a new cat Sprite (Default)



- Paint your own Sprite



- Choose an image for a new Sprite



- Get a surprise Sprite

The Basic Buttons

- Sprite Costumes
 - Change your Sprite's Look with a costume change
 - Click on the **Costumes** tab. To add a costume click **Import**
 - To modify your Sprite using the paint function, click **Edit**
 - Any image can be used



The Basic Buttons

- Scratch **Blocks**
 - By snapping these blocks together you create a **script**
 - When you **double click** on a script, your program will run
 - The Scratch blocks are in 8 color-coded categories based on function



Exercise 1: Interactive Us

- You work in pairs
- Each will create a sprite of yourself
 - Import a picture of yourself into "Paint"
 - Edit it till "happy".
 - Create "code" for it
 - Export the sprite of yourself
- Import the sprite of your partner
- Final integration/interaction of both sprites

Interactive Us

Create a project that helps others learn about you and the people, issues, and things you care about.

move 10 steps

turn ↻ 15 degrees

say Hello! for 2 secs

set size to 100 %

play sound meow until done

wait 1 secs

when Sprite1 clicked

repeat 10

15 minutes

A sample (for *illustration* only)



Show and Tell

- Demo your Interactive Us program

BREAK

Exercise 2: Let's Create a Simple Game in Scratch

- Follow notes by Mike Scott, UT-Austin
(Download from...)

Milestones 1:

- M1: Set up the stage and the baby
 - (slides 1-11)
- Summary:
 - choosing sprite from library,
 - resizing, moving sprite
 - Adding background

Milestone 2:

- M2: Controlling the Baby's Movement
 - (slides 12-18)
- Summary:
 - Coordinate system of the stage
 - Programming the baby
 - Event Handling: respond to key press
 - Moving the baby around!

Milestone 3:

- M3: Create the Ball and Make it Fall
 - (slides 19-26)
- Summary:
 - Creating sprite with Paint, resizing
 - Programming the ball to Fall
 - Start position, Fall, and Loop

Milestone 4:

- M4: Catching the Ball and Keeping Score
 - (slides 27-33)
- Summary:
 - Concept of a variable (called Score)
 - Setting value: initialize, increment,
 - Conditionals (if)
 - Sensing Blocks: check if ball touches baby

Milestone 5:

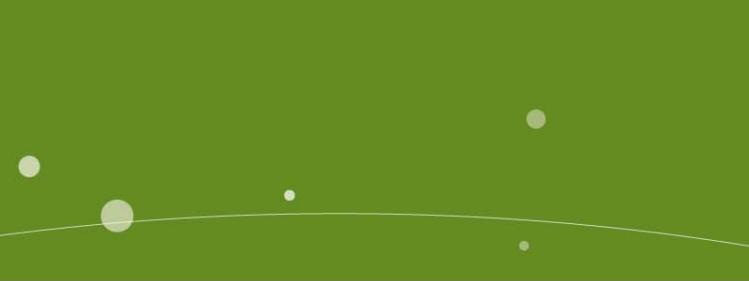
- M5: Resetting the Ball (after Catch)
 - (slides 34-35)
- Summary:
 - Moving ball to random spot
 - Can you see how the new loop goes?

Milestone 6:

- M6: Losing the Game (no Catch)
 - (slides 36-41)
- Summary:
 - Creating a Text Sprite
 - Modify properties: color, font size, etc
 - Hiding / Showing a Sprite
 - Checking for Losing condition
 - Broadcast message, Responding to a message
 - “Stop all” scripts

Milestone 7:

- M7: Project Notes, Test Program, Sharing
 - (slides 42-45)
- Summary:
 - Writing instructions for your Game
 - Testing your Game
 - Sharing your Game



Thank you!