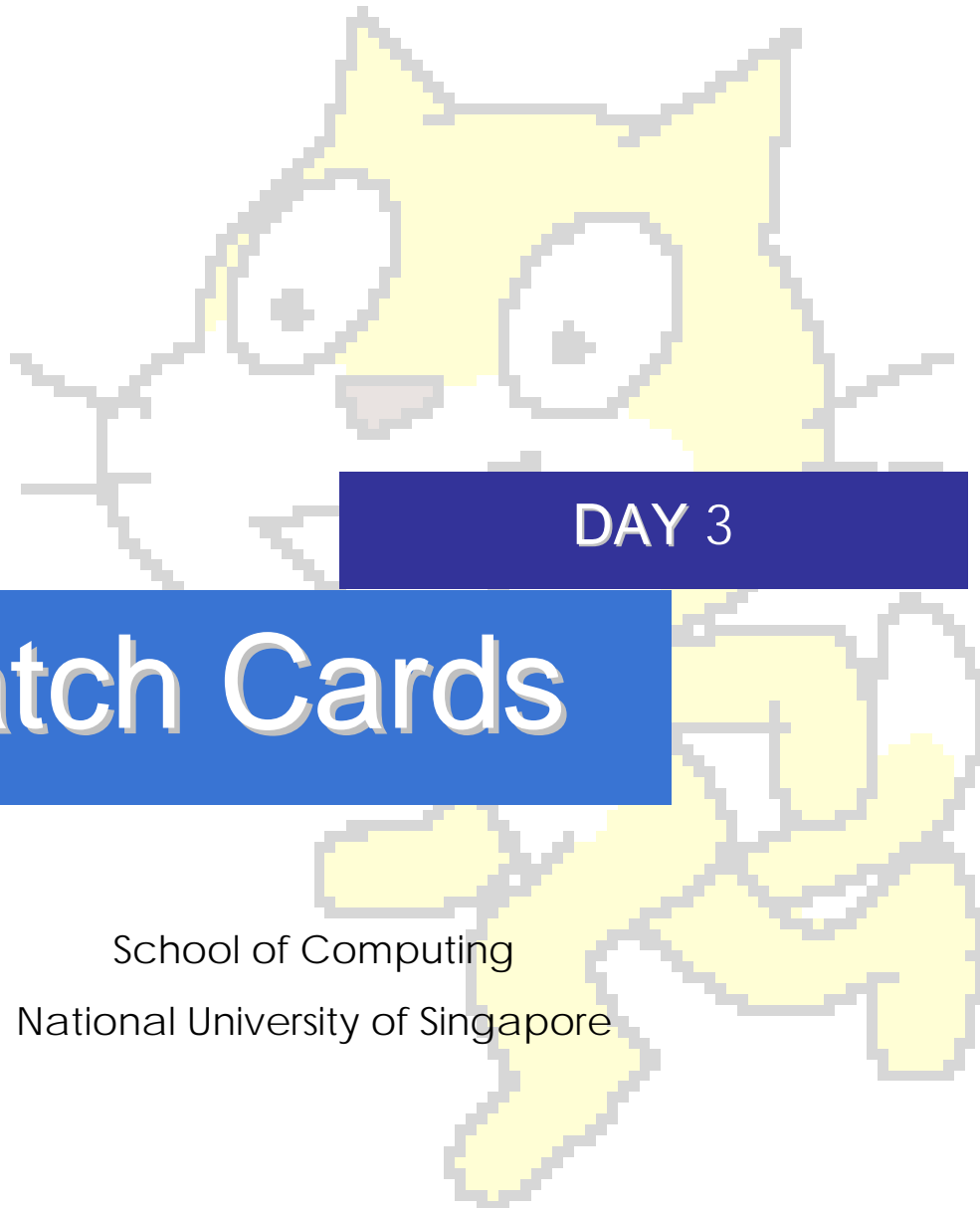# Scratch Workshop

21, 24-27 May 2010

DAY 3

Scratch Cards

School of Computing

National University of Singapore

Scratch Card 15

1. Create a new Scratch project.

2. Delete the cat sprite.

3. Choose a sprite of your liking from file and name it Dancer.

4. Copy it to make four different costumes and edit costumes to make them different from each other.

5. Animate it to your liking by using instructions from **MOTION** and **CONTROL** palettes.

```
when [green flag] clicked
forever
    wait 0.5 secs
    turn ↻ 15 degrees
    next costume
    turn ↺ 15 degrees
```

Figure 15   Final script of Card 15

Scratch Card 16

Continue from Scratch Card 15.

1. Go to the Sounds tab, and click Import button. Select Sounds followed by Music loops. Import any three clips e.g. HipHop, DrumMachine, HumanBeatBox1.

2. Go to the Scripts tab. Drag a **forever** block from **CONTROL** palette.

3. Go to the **SOUND** palette. Drag three **play sound _____ until done** blocks and drop them inside the **forever** block.

4. Select sound for each of the blocks to be one of the clips chosen at step 6.

5. Add a **when flag clicked** block on top of it.

6. To save, click *File | Save As* & give a location and filename.

Figure 16 Final script of Card 16

Scratch Card 17

Continue from Scratch Card 16.

1. Choose a Drum sprite, and an accessory for the ghost e.g. Glasses from file. Position and size these as per your liking.

2. Drag the music script from Dancer to Drum. Delete the music script from Dancer.

3. Drag the Dancer's dance script to the accessory sprite you have chosen. Delete away the next costume instruction from it.

4. To turn music 'on' and 'off' we need a variable to act as a switch. Select Make a variable from Variables palette. Name it switch.

5. When the animation starts, we want switch to be ON. Go to Drum sprite's Scripts tab. From the **CONTROL** palette, drag the **when flag clicked** block. From the **VARIABLES** palette, drag **set switch to 0** and snap it below **when flag clicked**. On the **set switch to 0** block, change the value from 0 to 1.

6. When the Dancer is clicked, we want switch to be OFF, and the Dancer to think and disappear. Go to Dancer sprite's Scripts tab. From the **CONTROL** palette, drag the **when Dancer clicked** block. From the **VARIABLES** palette, drag **set switch to 0** and snap it below **when Dancer clicked**. Go to the **LOOKS** palette. *Find an appropriate 'think' instruction and 'hide' instruction snap them below the **set switch to 0** block.*

7. When the Drum is clicked, we want switch to be ON again. Go to Drum sprite's Scripts tab. Drag **when Drum clicked** from **CONTROL** palette. Then go to the **VARIABLES** palette, drag **set switch to 0** and snap it below **when Drum clicked**. Change value of variable from 0 to 1.

8. When the accessory of the Dancer is clicked, we want Dancer to reappear. Go to accessory sprite's Scripts tab. From the **CONTROL**
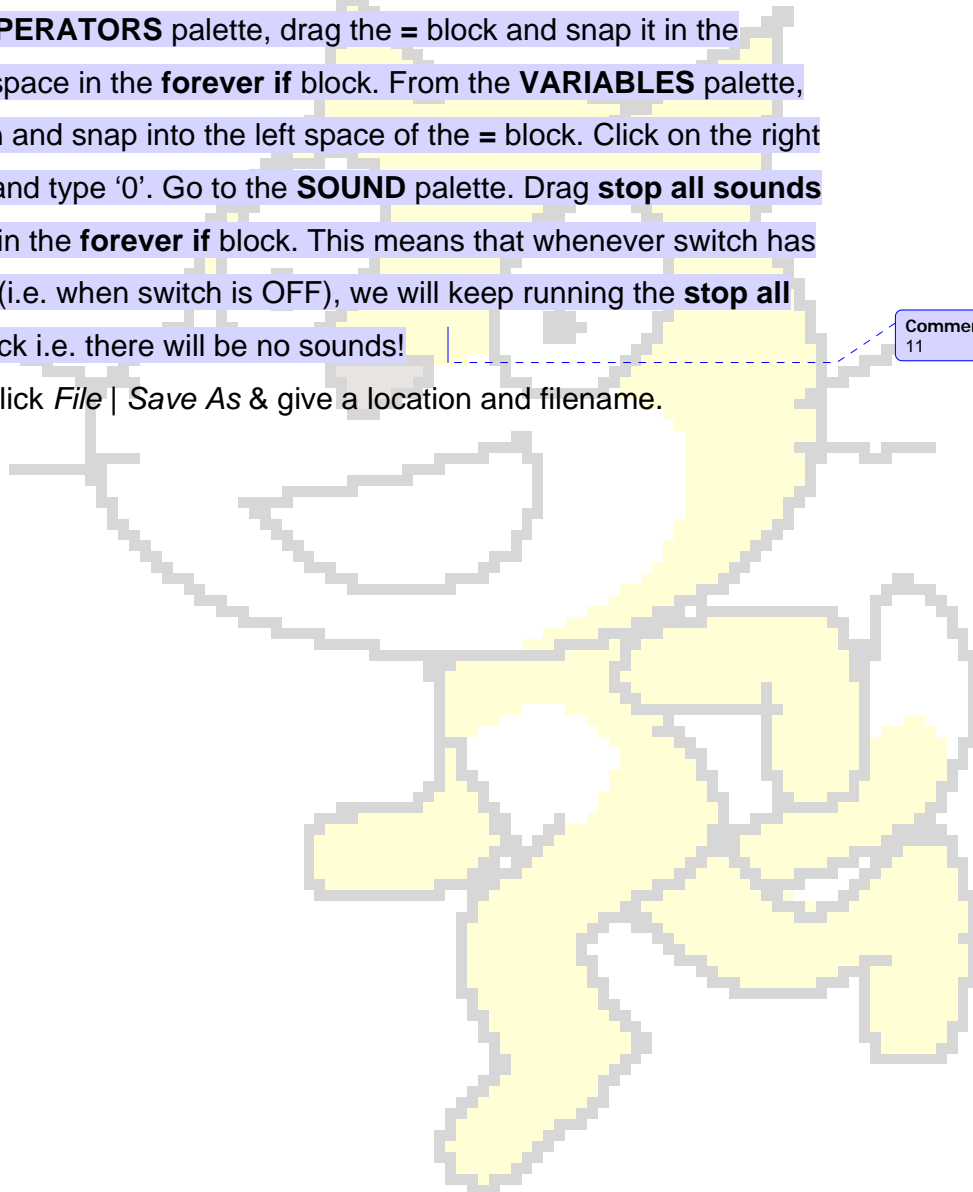
> **Comment [VAC1]:** Changed from "when flag cicked"

> **Comment [VAC2]:** Changed from "when flag clicked"

palette, drag **when <accessory> clicked**, then drag a **broadcast** block and snap it below with a message 'show up'.

9. Dancer has to show up on receiving a message. Go to Dancer sprite's Scripts tab. From the **CONTROL** palette, drag **when I receive show up** block. From the **LOOKS** palette, drag and snap a **show** block below it.

10. Finally, we want our sounds to stop playing whenever switch is OFF (i.e. value of switch is 0). From the **CONTROL** palette, drag **when flag clicked**. Then drag and snap the **forever if** block below it.

11. From th**e OPERATORS** palette, drag the **=** block and snap it in the hexagonal space in the **forever if** block. From the **VARIABLES** palette, drag **switch** and snap into the left space of the **=** block. Click on the right space of **=** and type '0'. Go to the **SOUND** palette. Drag **stop all sounds** and snap it in the **forever if** block. This means that whenever switch has the value 0 (i.e. when switch is OFF), we will keep running the **stop all sounds** block i.e. there will be no sounds!

Comment [VAC3]: Added # 10 and 11

12. To save, click *File | Save As* & give a location and filename.

```
when [flag] clicked
forever
  wait 0.5 secs
  turn ↻ 15 degrees
  wait 0.5 secs
  next costume
  turn ↺ 15 degrees
```

```
when dancer1 clicked
set switch to 0
think Hmm... for 0.5 secs
hide
```

```
when I receive show up
show
```

```
when [flag] clicked
forever
  play sound HipHop until done
  play sound DrumMachine until done
  play sound HumanBeatbox1 until done
```

```
when [flag] clicked
set switch to 1
```

```
when [flag] clicked
forever if switch = 0
  stop all sounds
```

```
when Drum clicked
set switch to 1
```

```
when glasses clicked
broadcast show up
```

```
when [flag] clicked
forever
  wait 0.5 secs
  turn ↻ 5 degrees
  wait 0.5 secs
  turn ↺ 5 degrees
```
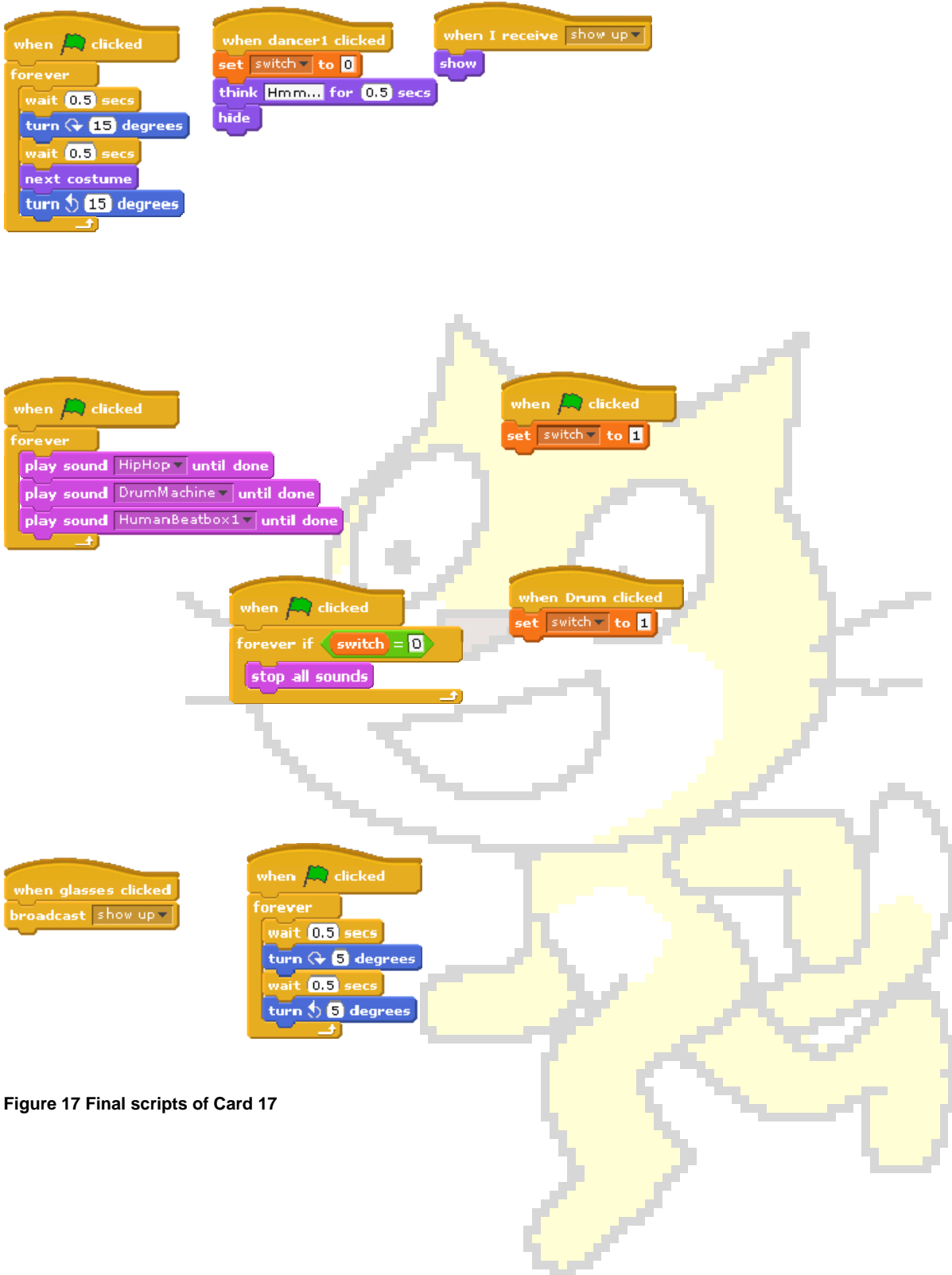
Figure 17 Final scripts of Card 17

Scratch Card 18

To make a Paddle for the game :

6. Select a sprite. Make it go to a specific starting location. For example Go To x : -180 y : -150

7. To let it move with mouse on horizontal axis , use set x to 0 from Looks palette, and replace 0 with 'mouse x' from Sensing palette.

8. Wrap the block used in Step 2 with a forever block.

9. Snap a When Flag clicked on top of the block used in step 1.

10. Click the Flag to execute the script.

11. To save, click *File | Save As* & give a location and filename.

Figure 18 Script of Paddle

Scratch Card 19

Continue from Scratch card 18. We will now make a script for the Pong

1. Create or Select a Ball sprite.
2. Make it go to a specific starting location. For example Go To x : 10 y : 180.
3. Snap a When Flag clicked on top of the block used in step 1.

   To make the Ball move :
4. Drag a When Flag clicked, followed by a forever block onto the script area for Ball Sprite.
5. Drag if on edge, bounce followed by move 10 steps block and drop these into the forever block. Change the value in move block from 10 to 5 steps.

6. Click the Flag to execute the script.
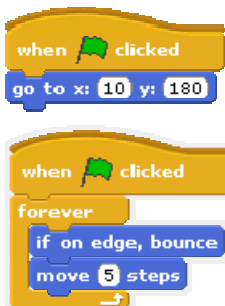7. To save, click *File | Save As* & give a location and filename.

Figure 19 Script of Ball

Scratch Card 20

Continue from Scratch card 19. Let's now make the game to stop when the ball touches a bar at the bottom of the stage.

13. Select the Stage sprite. Edit it using Paint Editor. Make a rectangular blue color bar at the bottom of the stage.

Now, let's make the ball stop when it touches the blue rectangular bar. For this , we use Sensing palette.

14. Drag the wait until ___ block from **Control** palette and sanp it below the go to x:10 y:180 block.

15. Drag 'touching color _ ?' block Sensing palette to the hexagonal space of 'wait until' block of above step.

16. Right click on the color space . A dropper should appear. Use mouse to move the dropper to stage area and stop(with a left click) at the blue color bar. You will see the color in the block changing to blue color.

17. Drag a 'stop all ___' block from control palette and snap it below the wait until block of step 2.

18. Click on the flag to execute the script.

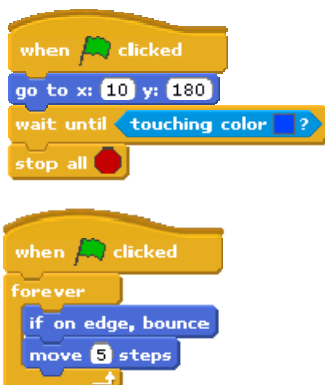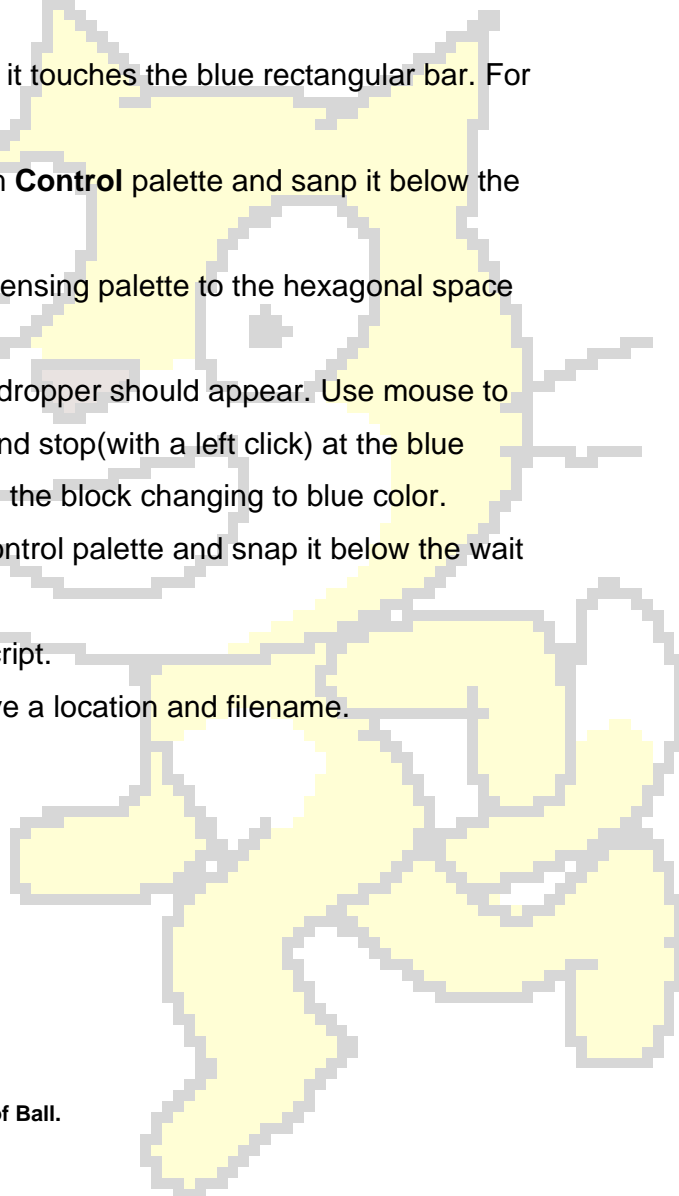19. To save, click *File | Save As* & give a location and filename.

Figure 20 Script of Ball.

Scratch Card 21

Continue from Scratch card 20.

Now let's make the ball touch the paddle and move up. We again use the Sensing palette.

1.   Drag a When Flag clicked, followed by a 'forever if' block onto the script area for Ball Sprite.

2.   Drag 'touching _ ?' block Sensing palette to the hexagonal space of 'forever if ' block of above step. Select Paddle from the drop down list of 'touching _ ?'.

3.   To make Ball change direction on touching the paddle, drag 'point in direction __' block from Motion palette and drop it into 'forever if' block. Select '0' from the available options in 'point in direction'.

4.   To move the ball , drag 'move 10 steps' block from motion palette and drop it below 'point in direction' block. Change value 10 to 5.

5.   Click on the flag to execute the script.

6.   To save, click *File | Save As* & give a location and filename.

Make the ball rotate every time it touches the paddle and moves up.

Figure 21 Script of Ball.