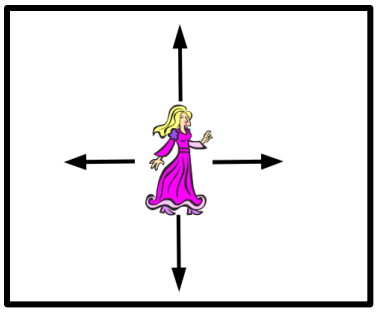
Directional Arrow Keys / Sensing /
"1. Directional Arrows," 2. "Sensing," 3."Timer ," & 4. "Increase Difficulty."
Gradesheet – *(45 pts.)*

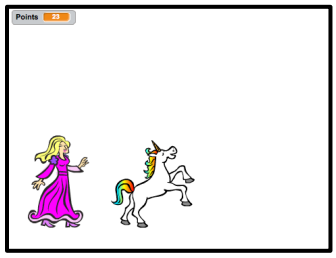
Goal: Students will be introduced to new code that they will use to recreate the models – the models are on the class ECS site. Each program builds upon the skills learned in the previous program. Any new code will be provided to the students. All of the remaining code being used in these programs have been used by the students to develop past programs – so please copy the code from your past programs and use it to recreate these programs.



Program #1: Moving the Princess Using Directional Arrows *(5 pts.)*

Although you have used many lines of code that allow you to move Sprites, you have not been introduced to the line of code that allows you to move them with the directional arrows on your keyboard. To the right is the code that will allow you to move a Sprite in an upward direction. Now, copy and paste this line of code 3 more times and change the directional values so that you can get the Princess to move Up, Down, Left and Right.

Grade Sheet *(5pts.)*	
The Princess can move in an upward direction.	1pts.
The Princess can move in a downward direction.	1pts.
The Princess can move Right.	1pts.
The Princess can move Left.	2pts.



Program #2: "Princess Gets Points When She "Senses" The Unicorn" *(13 pts.)*

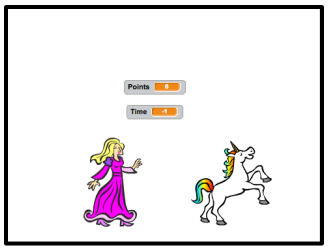
The Princess wants to touch the unicorn. Each time she touches it, she gets a point. The new code you are being introduced to in this program is a "Sensing" code. There is an image of it to the right.

Big Hint: Notice how the unicorn moves to a randomly generated point on the screen. Each time a Directional Key is pressed, a Broadcast should be sent off and Received in the Unicorn, which triggers an If/Then statement which states that If the Princess is Touched, then the Unicorn will move to a randomly generated X & Y coordinate.

Additional Hint: Place the "Change Points by 1" block in this If/Then Statement.

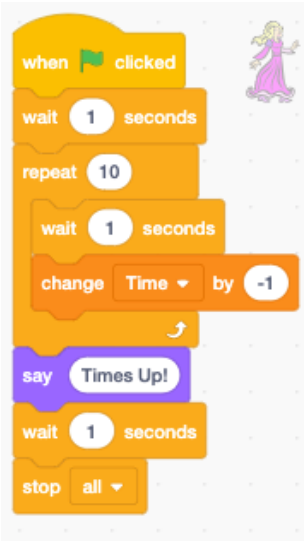
Unicorn Code

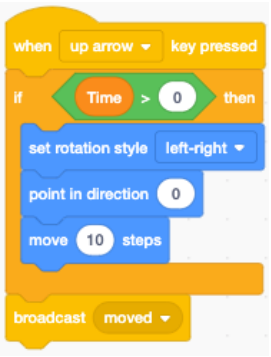
Grade Sheet	
The game starts with a Green Flag and the points are reset to zero.	3pts.
Each time the Princess touches the Unicorn, she gains a point.	5pts.
Each time the Princess touches the Unicorn, the unicorn moves to a randomly generated position on the screen.	5pts.



Program #3: "Add A Timer" *(7pts.)*

Visit the ECS website and copy the Basic Timer Model Program and add it to Program#3 Princess. Also, change it from 5 to 10 seconds and have it announce, "Times Up!" when the time runs out and finish it with a "Stop All."





Hint: Copy Program #2. Add a Repeat Loop to each Directional Key Program in the Princess that contains an "If Time >0 Then…the code that allows her to Move begins. the Princess triggered by a green flag that uses a Repeat Loop to count down 10 seconds. When the Loop finishes, say "Times Up" and then "Stop All."

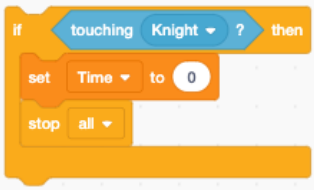
How To Stop Princess's Movement When Timer Ends: Add an If/Then command to each Directional Key program that you wrote for the Princess in Program #2 so that "If "Time is > 0" Then the Princess's movement is allowed to take place. The Broadcast should follow the If /Then command.

Grade Sheet	
A Green Flag resets and begins the clock at 10n seconds. The Princes gets a point each time she touches the unicorn. The unicorn jumps to a random spot when touched.	2pts.
After 10 seconds, the Princess says, "Times Up," the game ends and the Princess does not move and no points are acquired.	5pts.

Program #4: Chased by a Knight _ Increased Difficulty! *(20 pts.)*

In this Final Program, you will add a Knight. When the green flag is slected, the knight will go to the top left corner and wait 3 seconds. Then the Knight will continually chase after the Princess at half her speed. If he catches her, the time stops and the game is over and neither the knight nor the Princess can move nor acquire points. **Have Fun!**

How To Stop The Knight: Copy Program #3. Add a Program to the Knight that contains a Repeat Until "Time = 0". In this Repeat Loop, include the Knight's motion pursuing the Princess. Also add an If/Then statement that will contain a "Say" & "Stop All" commands **If** the Knight touches the Princess.



How To Stop The Princess After She Is Touched By The Knight: In each Directional Key Program you wrote in the Princess, add an If/Then statement that is triggered when Touched by the Knight and causes the "Time = 0" followed by "Stop All."

SGrade Sheet	
When a Green Flag is clicked, the Knight goes to a starting point of your choosing. He waits for 3 seconds before giving pursuit.	5pts.
The Knight is in constant pursuit of the Princess. He is always moving in her direction. If the Timer runs out, the game ends and no one moves!	5pts.
You must slow the Knight down so that his speed is half that of the Princess.	5pts.
When the Knight touches the Princess, he says, "I Got You." The Princess and the Knight will stop moving and the game ends.	5pts.

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