Coding Using Scratch - Make a Game - Grade 6

1) In this lesson you will be introduced to IF statements.

   A) Try this: when I say "beep beep" (like a car horn) I want you to pat your belly.

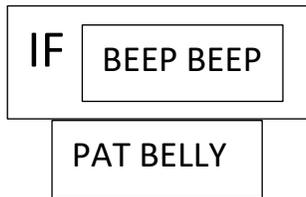   If I beep beep what will you do?

   If I do not beep beep what will you do?

   The key word is **IF**.

   If I beep beep then pat your belly.

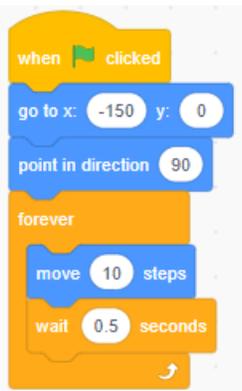   Only if I beep beep. Otherwise do nothing.

   Let's think about that as if we were using coding blocks.

IF | BEEP BEEP |

PAT BELLY

2) Now let's code in Scratch.

A) Add a new sprite and new backdrop.

B) Add the following coding blocks to create a program.

```
when [flag] clicked
go to x: -150 y: 0
point in direction 90
forever
    move 10 steps
    wait 0.5 seconds
```

What does this code do?

Show Mr. Desmond how this works.

C) Add another sprite. Choose **Apple**.

D) Click on the sprite you chose.
Go to the Control Blocks. Add the *If then* block.

```
if <> then
```

E) Go to the Sensing Blocks. **Sensing**
Add the touching block.

```
touching mouse-pointer ▾ ?   →   touching Apple ▾ ?
```

Change touching mouse pointer to touching Apple.

F) Put the touching block inside of the shape of the If then block.

```
if <touching Apple ▾ ?> then
```

G) Go to the Looks Blocks. **Looks**
Add the say ____ for __ seconds block.

```
say Hello! for 2 seconds   →   say Yummy apple! for 2 seconds
```
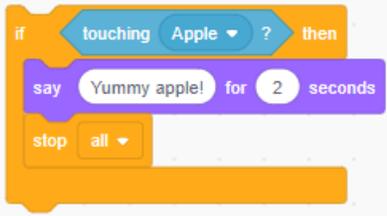
Change the say Hello! to Yummy apple!

H) Go to the Control Blocks.
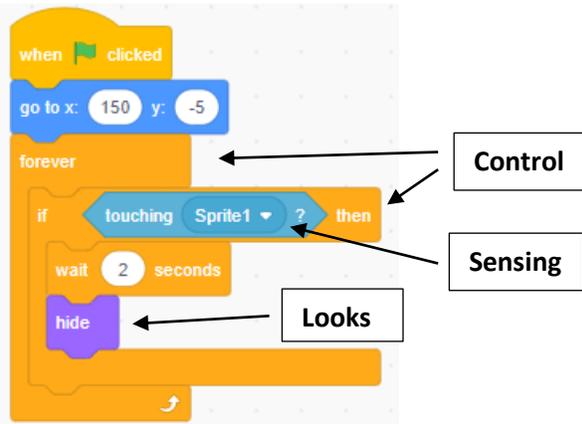Add the stop all block.

I) Place the say block and the stop all block inside the If then block.

J) Add the If then block (with all the blocks inside it) to your program for the sprite that you chose. It should look like this.

K) Click on the Apple sprite.
Add the following coding blocks.

L) Test your program.
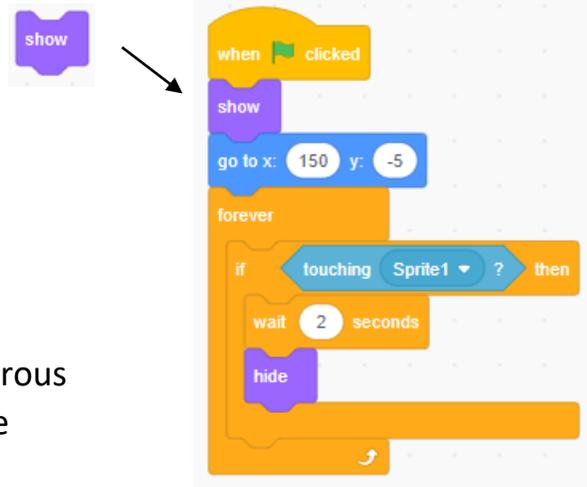
Does your sprite walk forward?

If your sprite is touching the Apple sprite what does it do?

If the Apple sprite is touching your sprite what happens?

M) Let's adjust your program so that the Apple sprite is always visible at the start of the program.

Click on the Apple sprite.

Add the show block

before the go to block

at the very beginning

of your code for

the Apple sprite.

N) Test your program numerous times. Does the Apple sprite reappear each time?

O) Show Mr. Desmond how your program works.

3) In this lesson you will review your understanding of using the *If then* block to create a program to make two sprites touch and then when they touch something happens.
   A) Choose a new sprite.

   B) Choose another new sprite.

   C) Choose a new background.

   D) Your challenge is to create a program using the If then block and the touching block so that when the two sprites touch something interesting happens.
   Have each sprite start at a different position on the stage.
   [Spread your sprites out left to right across the stage.]
   Have one sprite stay still and code the other one to move.
   Give each one of your sprites an action to perform when they are touching.

   E) Test your program.
   Is only one of your sprites moving? Do both of your sprites have an If then statement?
   Do both of your sprites have an action to perform if they are touching?
   If you answered no to any of these questions you need to fix your code.

   F) Show Mr. Desmond what you have done.

   G) Your challenge is to make one of the characters change using visual effects with the Looks change block when your characters touch. Show Mr. D.

   H) Your challenge is to make one of the characters shot, throw, launch, or fire a projectile (a flying object). The projectile should move across the width of the stage and then vanish. Show Mr. D.

   I) Your challenge is to make one of the characters change using visual effects with the Looks change block when that character gets hit (touches) by a projectile.
   Show Mr. D.

4) Make a game where one character moves up and down automatically and fires projectiles and the other character moves using the arrow controls.
   Your game must include all the elements you learned about so far.