Teacher Cheat Sheet - Game Coding Challenges
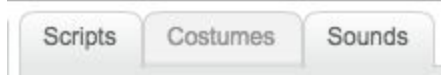
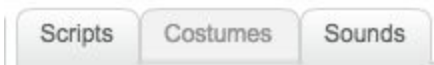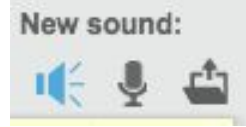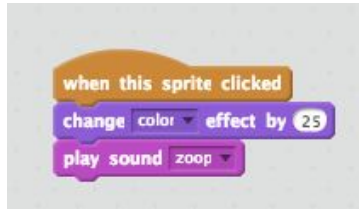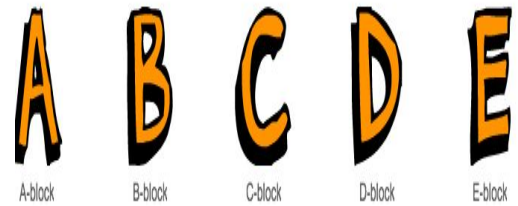|		
Challenge #1 - Movement: Make your sprite move across the screen. When it hits the walls, it must bounce off and keep moving.	*(image: Scratch blocks — when green flag clicked, forever, move 10 steps, if on edge, bounce)*	1. The When Flag is clicked is your **Event** control. The Forever loop is found in the **Control** section. 2. Attach the two commands together. 3. Add *move 10 steps* 4. Drag the *move 10 steps*, 5. Scroll down to - *if on edge, bounce* 6. Place the - *move 10 steps* - and the - *if on edge, bounce* - inside the forever loop. 7. Once you are finished, click the *green flag* to run the program.
Challenge #2: Make your sprite(s) change costumes.	*(image: Scratch blocks — when green flag clicked, forever, switch costume to costume1, wait 0.5 secs, switch costume to costume2, wait 0.5 secs)*	1. Ensure the Sprite you are using has more than one costume. To check this, click on the Sprite, then click on the **Costumes** tab. *Scripts Costumes Sounds* 2. Go to **Events** block and select - *when flag is clicked*. Drag it onto your scripts area. 3. Use the *forever loop* out of the **Control** section. 4. Attach the loop to the event block. 5. From the **Control** section add- *wait 1 secs* 6. From the **Looks** section add - *switch costume to* - block. Add 2 of these. Place the first - switch costume into the forever loop, followed by a - wait 1 second block. Do this again with the other two blocks. You can adjust the times you wait by clicking on the number inside the - wait 1 sec - block. 7. Click the drop down box within the - switch costume to - block to switch to different costumes.
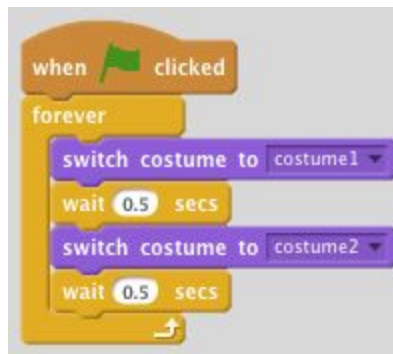
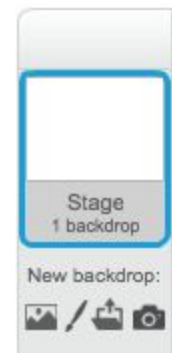|		
Challenge #3 - Sound: Build a program where when different buttons are pushed, different sounds are heard.		1. Go to the *Events* section and drag the - *when space key pressed* - onto the script area. 2. Next go to the **Sound** section. 3. Add - *play sound* - onto the script area (this sound could be something different depending on the sprite). To add sounds click on the **Sound** tab. 4. You have three options to add sounds. The first one is the speaker, and it allows you to choose sounds from the library, the second is the microphone which allows you to record sounds, and the third is the folder that allows you to upload sounds from your computer. 5. Once you have chosen the sound you want to add it will then become available when you click on the drop down box on the block - *play sound* 6. To run the program, press the key that you chose and listen for the sound.
Challenge #4 Write a program where you write and animate your name		1. Start by clicking into the SPRITE library. 2. Click on the troll and this will take you into the SPRITE library. When you are in the library you will see *letters* as one of the options to click on. Choose on the first letter of your name.

	when this sprite clicked
	play sound hip hop
	repeat 10
	  turn 15 degrees
	  wait 1 secs
		Sprite Library
		
		Category
		All
		Animals
		Fantasy
		Letters
		People
		Things
		Transportation
		
		A B C D E
		A-block B-block C-block D-block E-block
		
		3. Once you have chosen the first letter of your name, you will go back to the *SCRIPT* area and click on the *LOOKS* tab. Under the *LOOKS* tab you will find - *change colour effect by 25* -. Drag this over to the script area. Once there, go to the *EVENTS* tab and drag over - *when sprite is clicked*. Attach the two together.
		4. Now when you click on the letter, it will change the colour effect by 25. Add the rest of the letters of your name and add similar script to the sprites.

Challenge #5: Switching Backgrounds Write a program where you can switch backgrounds by pressing a key.	when space key pressed switch backdrop to next backdrop	1. First go to the background section of the screen and choose two different backdrops. Stage 1 backdrop New backdrop: 2. Click on the mountain image to access the different backdrops. You have a variety of different backdrops to choose

from.

Backdrop Library

Category
All
Indoors
Outdoors
Other

Theme
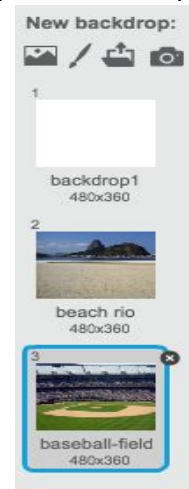Castle
City
Flying
Holiday
Music and Dance
Nature
Space
Sports
Underwater
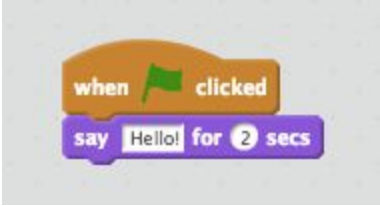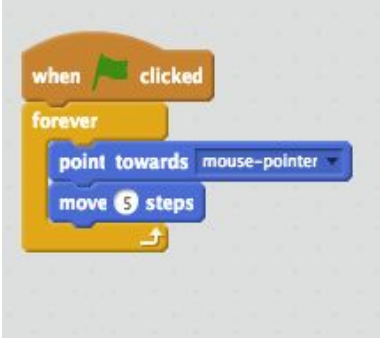
1. Choose two different backdrops and once they are clicked on, you will find that they can be accessed by clicking on the **BACKDROPS** tab.

| Scripts | Backdrops | Sounds |

2. You should see evidence of two different backdrops. For example:

New backdrop:

1 backdrop1
480x360

2 beach rio
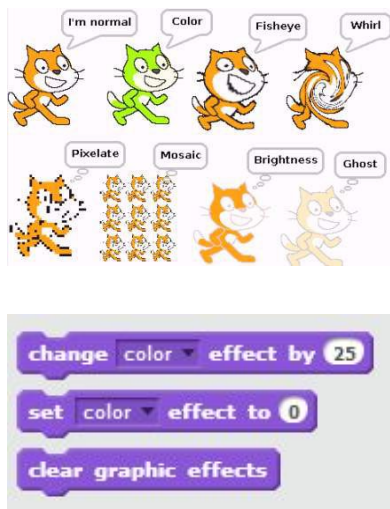480x360

3 baseball-field
480x360

3. Click on **SCRIPTS**, and click on **EVENTS** and find the tab - When Space key is pressed - and drag it over to the script area. Now go to the **LOOKS** section and take the - *switch backdrop to* - tab and attach it to the - *When space is pressed tab* -.

4. Now click on the - *switch backdrop to* - drop down box and change it to - *next backdrop*. Now press space bar and enjoy.

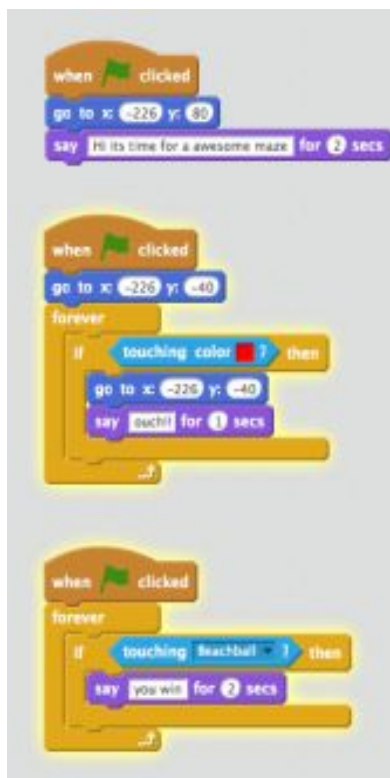|		
Challenge #6 Write a program where a sprite can talk		1. Click on the *EVENTS* tab and drag the - when flag is clicked - into the scripts area. 2. Move to the *LOOKS* tab and drag the - *say Hello! for 2 secs* - tab over and attach it to the flag tab. When you click on the green flag, the sprite will then say "Hello" for 2 seconds. You can change what the Sprite says by clicking on "Hello" and typing in..
Challenge #7 Create a program where the sprite is moved by the arrow keys		1. Click on the *EVENTS* tab and get four different - *when ___ key is pressed* - and move them onto the script area. 2. Go to the *MOTION* block and take two - *change x by __* - and two - *change y by ____*. Move these blocks into the Script area. 3. Attach the change x's and y's to the *EVENT* blocks. 4. Click on the dropdown box of the *EVENT* block and change to the keys you would like to be used. Normally, the keys up, down, left and write are used. 5. Change the - *change x and y* - *MOTION* blocks to positive and negative numbers. You use positive and negative numbers to move left and right, and up and down. Click on the up arrow and make the - *change y by 10*. Click on the down arrow and make the - *change y by -10*. Click on the right arrow and change x by 10. Click on the Left arrow and change x by -10. 6. Once you are done click on the corresponding keys to make your Sprite move.
Challenge #8 Write a program where one object follows the mouse without being controlled by the user		1. Choose a Sprite. Once you have chosen that Sprite, click on it and click on the *SCRIPTS* tab. Start the program by clicking on the *EVENTS* tab and dragging out the - when flag is clicked. Next go to the *CONTROL* tab and drag out the - forever loop. 2. Click on the *MOTION* tab and drag the - point towards ____, and - move __ steps blocks into the Script area. 3. Attach the forever loop onto the *EVENTS* block. Place the - *points towards, and the* - move 5 steps inside the forever loop.

		4. Click on the drop down box within the - *point towards* ____ *tab*. Choose mouse-pointer. This means that the Sprite will follow the mouse pointer for an unlimited amount of time. Run the program by pressing the green flag.
Challenge #9 Animate a sprite to change colours, and effects		1. Begin by choosing a sprite. Once the sprite is Start by clicking on the **CONTROL** tab. 2. Use - *When Green Flag clicked*. 3. Go to the **LOOKS** tab and take out the - *change* ____ *effect by 25*. Also, take out the - set _____ effect to 0. 4. Attach the blocks together and use the dropdown box to change the different effects. You can change the **CONTROL** to be a key pressed by changing the blocks to - *when* ___ *key is pressed*.
Challenge #10 Maze Game		1. Click on the **CONTROL** tab and drag out 3 - *when green flag clicked* - and 4 - when arrows are clicked. 2. You can use the previous movement methods (as described earlier in the cheat sheet) or, go to **MOVEMENT** and drag out 4 - *point in the direction*, and 4 *move* __ *steps*. 3. Attach the four - *move in the direction* - to the **CONTROL** - when arrows are clicked and change them to the different degrees necessary to move. Up = 0 Left = -90 Down = 180 Right = 90 4. Once you have established how the Sprite is going to move, put the Sprite at the start of the maze. Once this is done, check to see what the co-ordinates are (eg. x=-226, y= 80). 5. Go back to **MOTION** and drag out 2 - *go to x: ___ y: ___*. 6. Attach these to - *when Green flag clicked* - and set the coordinates to the beginning of the game. 7. Go back to **CONTROL** and grab a forever loop, and an If - loop as well. 8. Attach the Forever loop to one of the - *go to x:__y:__*.

		9. Take the *If* loop and place it inside the forever loop. 10. Go to the **SENSING** tab and drag out a - *Touching colour___*. Drag this into the If loop box. It will slide right into it. In order to set the colour of your border all you have to do is click on the touching colour ___, then click on your border. This will automatically set your program to that colour. Now that the colour is set, once your sprite touches this colour they will be sent back to the start of the game. 11. You can add sounds, and dialogue by following the instructions set out in the previous lessons.