The Amazing World of Gumball - The Glitch Solution Sheet

Use this solution sheet to help students as they watch instructional videos at www.cs-first.com/gumball and complete the activity in Scratch. All code blocks are color coded according to their category. For additional scripting and suggestions for leading the activity, please see the lesson plan at: cs-first.com/gumballplan.

Before the Activity: Create a Club [optional]

Create a club to receive CS First and Scratch usernames and passwords for your class. This will enable students to save their work. You'll be able to access their shared projects from your club dashboard. Usernames can be reused in future clubs or activities. It takes about two minutes to create a club.

To create a club, go to: www.cs-first.com/start-club.

Follow the instructions, and select "Gumball's Coding Adventure" as your theme.

Gumball's Coding Adventure

Explore materials | See student examples

Sample CS First with "Gumball's Coding Adventure," an introductory activity based on Cartoon Network's Amazing World of Gumball episode "The Signal." This activity can be used in a classroom setting, at a conference, or at an event

Choose This Theme

Instruct students to join your club [optional]

Before students begin the activity, instruct them to join your club using these scripted directions:

1. *Go to www.cs-first.com/go and select "enter club code."*

I am a **student**

Username *

Password *

Sign In

First day of club, or need a new
username and password?

Enter Club Code

2. *Enter our club code (access the your club's code here: www.cs-first.com/dashboard).*

Gumball's Coding Adventure @

CLUB CODE:

Next session on 11/4/16   Edit Schedule

3. *Click "yes" three times to confirm location and activity.*

4. *Write down your username and password. You'll use this password to sign in to Scratch and save your project.*

Username:

Password:

Please record your username and password in your printed passport for use next time.

I'm Done

5. Click I'm done, and sign in. You can type your username and password, or click "show my username and password" to have it entered for you.

I am a **student**

Username *

Password *

Sign In

First day of club, or need a new username and password?

Enter Club Code

I am an **educator** or **volunteer**

Now, use your username and password to sign in! You will use this to sign in from now on.

Show my username and password

6. Begin watching the first video.

Video 1: Introduction

After watching this video, students will:

1. Click the starter project link next to the video.

2. Click "remix," and sign in to save the project to their account. If completing this activity as a CS First club, usernames and passwords are provided when students join your club. If students don't have accounts, move on to the next step.

3. Click the "next" arrow to watch the next video.

Video 2: Foreshadow the Glitch with Dialogue

In this video, students will:
1. Select a main character sprite and show it by selecting the looks menu and clicking the "show" block. To resize the sprite, use the "grow" and "shrink" tools by clicking the icons at the top of the toolbar.
2. Select a secondary character and show it.
3. Select a setting by selecting the "stage," the "backdrops tab," and the backdrop they'd like to use.
4. Use "say for 2 seconds" blocks to foreshadow the glitch in their story.

Code for Main character:

Video 3: The Glitch and a Response

In this video, students will:

1. Program a "glitch" using "repeat" and "change effect by" blocks.
2. Reset the "glitch" using a "clear graphic effects" block.
3. Add dialogue using "say for 2 seconds" and "wait" blocks.
4. Run both characters' code using "when flag clicked" blocks.

Code for
Main Character:

Molly

```
when [flag] clicked
show
say [Carmen!] for (2) secs
wait (2) secs
say [You won't believe what's happening!] for (2) secs
repeat (100)
    change [pixelate ▼] effect by (25)
clear graphic effects
```
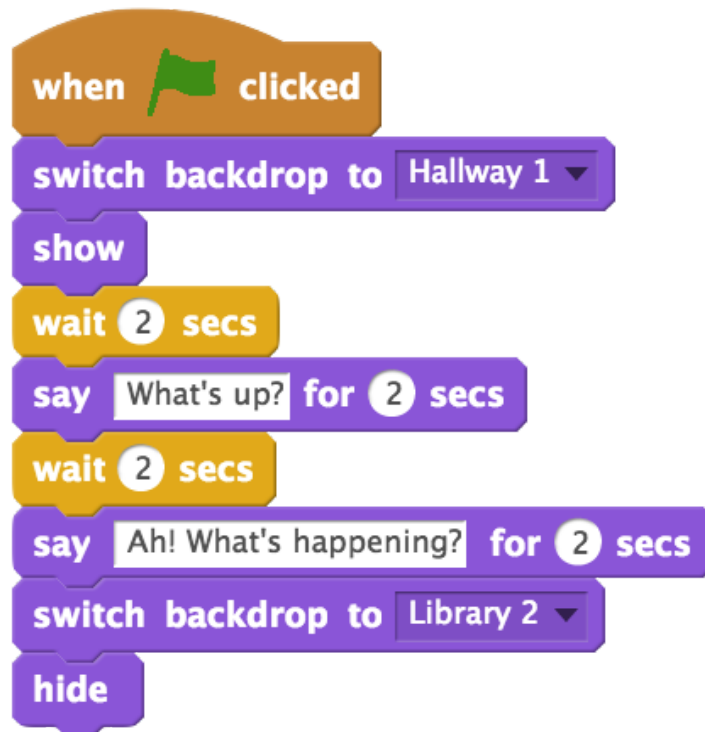
Code for
Secondary
Character:

Carmen

```
when [flag] clicked
show
wait (2) secs
say [What's up?] for (2) secs
wait (2) secs
say [Ah! What's happening?] for (2) secs
```

Video 4: Create a New Scene

In this video, students will:
1. Switch the backdrop at the start of their story.
2. Switch the backdrop at the end of the first scene.
3. Hide their second character at the end of the first scene.
4. Select a new character to show when the backdrop changes, and make it hide when the flag is clicked.

Code for Secondary Character:

Carmen

```
when [green flag] clicked
switch backdrop to [Hallway 1 ▼]
show
wait 2 secs
say [What's up?] for 2 secs
wait 2 secs
say [Ah! What's happening?] for 2 secs
switch backdrop to [Library 2 ▼]
hide
```

Code for a Third Character:

BananaJoe

```
when backdrop switches to [Library 2 ▼]
show
```

```
when [green flag] clicked
hide
```
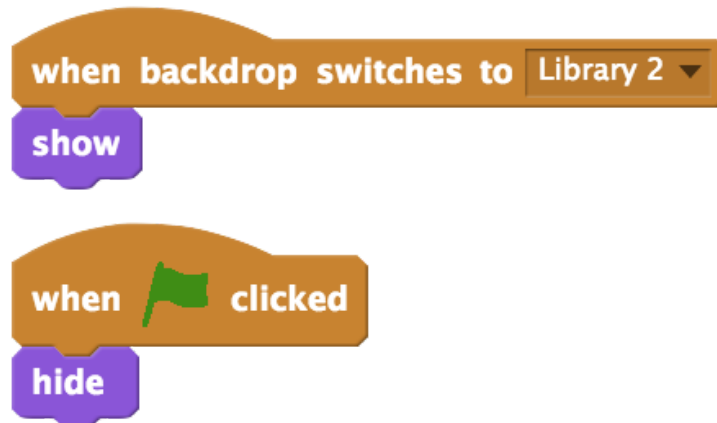
Video 5: Reuse the Glitch

In this video, students will:

1. For their main character, use a "when backdrop switches to" block to continue dialogue.
2. Use "say for 2 seconds" and "wait" blocks to build more into their story.
3. Create a "glitch" block, and use it twice in their story.

Code for
Main Character:

Molly

```
when [flag] clicked
show
say [Carmen!] for (2) secs
wait (2) secs
say [You won't believe what's happening!] for (2) secs
Glitch
```

```
when backdrop switches to [Library 2 ▼]
wait (2) secs
say [I'm so happy I found you!] for (2) secs
Glitch
```

```
define Glitch
repeat (100)
    change [pixelate ▼] effect by (25)
clear graphic effects
```

Video 6: Conclude the Story

In this video, students will:
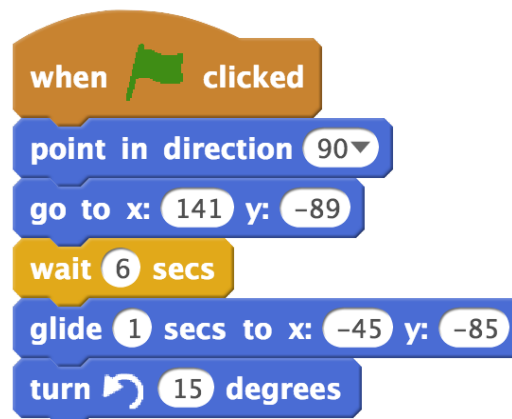1. Draw their story toward a conclusion using dialogue, scene changes, or new characters.

NOTE: Students can tell any story that they would like. The sprites and dialogue shown below are examples.
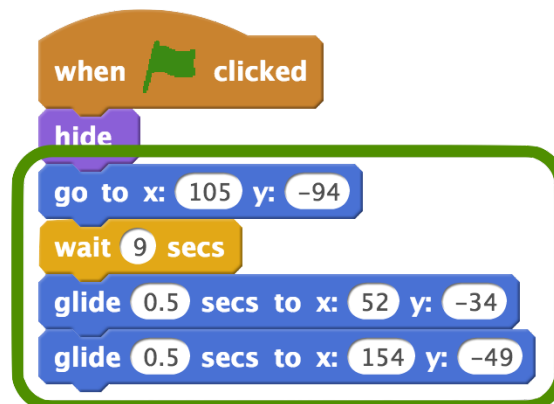
Add-On: Place to Place

In this video, students will:
1. Add "move" blocks to their character sprite.
2. Set a starting position for the character using a "go to" block.
3. Add "wait" blocks to sequence their story.
4. Add a "when flag clicked" block to start their code.

Code for Secondary Character:

Carmen

```
when [flag] clicked
point in direction (90 v)
go to x: (141) y: (-89)
wait (6) secs
glide (1) secs to x: (-45) y: (-85)
turn (↻) (15) degrees
```

Code for a Third Character:

BananaJoe

```
when [flag] clicked
hide
go to x: (105) y: (-94)
wait (9) secs
glide (0.5) secs to x: (52) y: (-34)
glide (0.5) secs to x: (154) y: (-49)
```

Add-On: Hear It Happen

In this video, students will:

1. Select a sound from the Scratch library and customize it in the Visualizer using the Edit and Effect tools.
2. Use a "play sound" block to program their sound to play when the glitch code runs.
3. Add more sounds to their Scratch project.
4. Use a "pick random" block to program different sounds to play randomly when the glitch occurs.
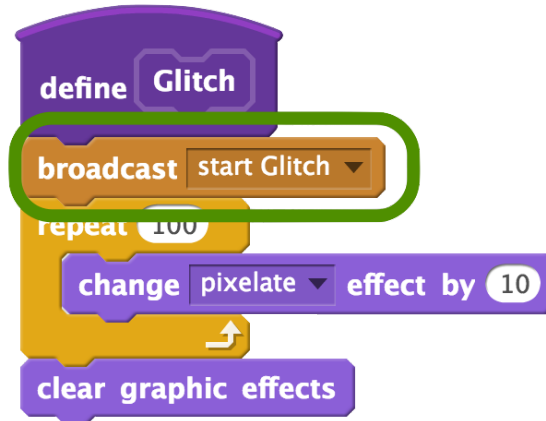
Code for
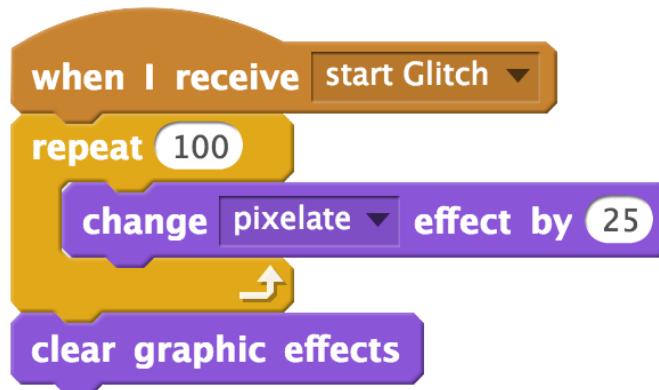Main Character:

Molly

Code for
Main Character:

Molly
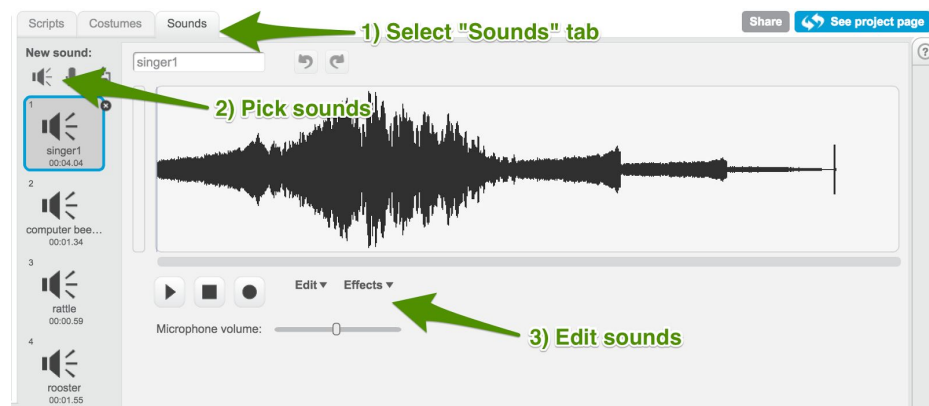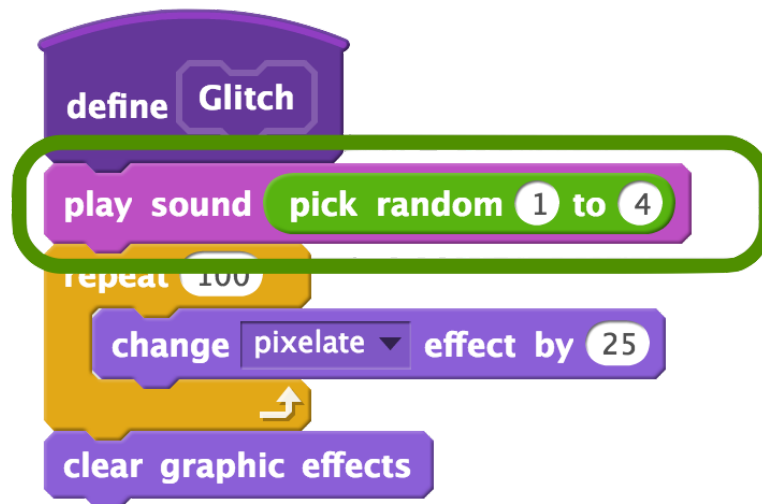
Add-On: Even Glitchier

In this video, students will:

1. Copy the "define Glitch" code into the backdrop.
2. Program their main character to broadcast a message.
3. Program the backdrop to run its code when it receives the message

Code for
Main Character:

Molly

```
define Glitch

broadcast start Glitch ▼

repeat 100
    change pixelate ▼ effect by 10

clear graphic effects
```

Code for
the Stage:

Stage
11 backdrops

```
when I receive start Glitch ▼

repeat 100
    change pixelate ▼ effect by 25

clear graphic effects
```
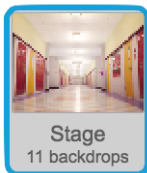
Add-On: Make Them Jump

In this video, students will:

1. Drag out "change x by" blocks to move their sprite left and right.
2. Drag out "change y by" blocks to move their sprite up and down.
3. Add "key pressed" and "if" blocks around each block stack.
4. Add a "forever" block to constantly check for key presses.
5. Add a "wait" block to time the jump.
6. Add a "when flag clicked" block to start the program.

Code for
Main Character:

Molly

```
when [flag] clicked
forever
    if < key [left arrow ▼] pressed? > then
        change x by (-25)
    if < key [right arrow ▼] pressed? > then
        change x by (25)
    if < key [up arrow ▼] pressed? > then
        change y by (100)
        wait (0.2) secs
        change y by (-100)
```

Add-On: GIF for Your Glitch

In this video, students will:

1. Download a sample GIF from the CS First website and upload it as a new Sprite.
2. Use "next costume", "wait", and "repeat" blocks to sequence the GIF frames.
3. Use a "switch costume to" block to start the GIF from the first frame.
4. Select a sprite to trigger the animation and add a "broadcast and wait" block.
5. Add a "when I receive" block to the GIF sprite.
6. Add "show", "hide" and "when flag clicked" blocks to control when the GIF appears.

Code for GIF Sprite:

Lost Signal

```
when I receive Start GIF
show
switch costume to 1
repeat 25
    next costume
    wait 0.2 secs
hide
```

```
when [flag] clicked
hide
```
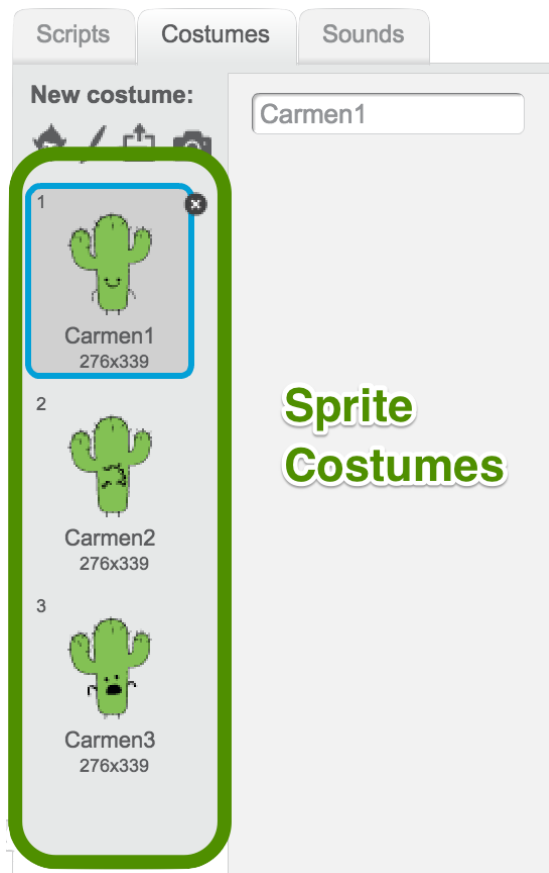
Code for Secondary Character:

Carmen

```
when [flag] clicked
switch backdrop to Hallway 1
show
wait 2 secs
say What's up? for 2 secs
wait 2 secs
say What is it? for 2 secs
broadcast Start GIF and wait
switch backdrop to Library 2
hide
```

Add-On: Say Something

In this video, students will:

1. Select a character to animate.
2. Review the costumes for that character by clicking the Costumes tab.
3. Choose several costumes using "switch costume to" blocks.
4. Add "wait" blocks to sequence their story.
5. Specify when the code should run using an Events blocks.
6. Animate additional characters using "switch costume to" and "wait" blocks.

Costumes for
Secondary
Character:

Code for
Secondary
Character:

Carmen

```
when backdrop switches to [Hallway 1 ▼]
switch costume to [Carmen1 ▼]
wait (2) secs
switch costume to [Carmen2 ▼]
wait (4) secs
switch costume to [Carmen3 ▼]
```

Code for
Main Character:

Molly

```
when [🏴] clicked
switch costume to [Molly1 ▼]
wait (4) secs
switch costume to [Molly2 ▼]
```