Coding for Good 1: Coding Basics

Complete the five steps to earn your Coding for Good 1 Badge.

1. **Create algorithms for a computer that follows a sequence:** In order for a computer to complete a task it requires step-by-step instructions. This order of steps is called an algorithm. If the steps are confusing or out of order, the computer won't be able to do its job.

   Compare the two recipes below. Which recipe is easier to follow? Why do you think that is? What makes the other recipe hard to follow?

   Recipe 1 Instructions:

   Preheat oven to 350 degrees.

   Blend together the butter, white sugar, and brown sugar until smooth. Beat in the eggs one at a time, then stir the vanilla. Dissolve baking soda in hot water. Add to batter along with salt. Stir in flour, chocolate chips, and nuts. Drop by large spoonfuls onto ungreased pans.

   Bake for about 10 minutes.

   Recipe 2 Instructions:

   Cream together the butter, white sugar, and brown sugar until smooth.

   Bake for about 10 minutes maybe.

   Beat in the eggs one at a time, dissolve baking soda.

   Add to batter along with salt. Stir in flour, chocolate chips, and nuts.

   Preheat oven to 355 degrees.

2. **Use loops to improve your algorithm:** Loops are a way of telling the computer to repeat a certain function within an algorithm. Challenge yourself to create your own interactive game where there is a repetitive feature.

For example: In the game Simon Says, Simon might say:

First: "Simon says clap your hands three times"
Next: "Simon says jump up and down"
Lastly: "Simon says repeat step one"

3. **Use events to make things happen:** In computer programming, events are an action that cause another action to happen.

   For example: If I press play on the Youtube video, the video will start.

   If a player rolls a 4, they have to move forward 4 places.

   Practice making events for your game using the examples listed above!

4. **Learn about women in computer science:** Explore the life of Grace [Hopper](#), one of the very first programmers of the Harvard Mark 1 computer!

5. **Create your own set of commands that use events:** Use the events that you brainstormed in Step 3 to create commands for your game.

   For example: If you jump up and down four times instead of two times, you have to start over.