Homework: Roblox Magic Clicker 🎮

What we learned today and cool things to try at home!

What We Made Today ✨

We created a Roblox part that grows bigger when you click it!

*Here's the magic code that makes it work:

```
local part = script.Parent
local clickDetector = Instance.new("ClickDetector", part)

local function growPart()
    part.Size = part.Size + Vector3.new(1, 1, 1)
end

clickDetector.MouseClick:Connect(growPart)
```

Understanding Events in Roblox 🔔

Events are one of the most important things in Roblox scripting! Think of them like special signals that happen when something occurs in your game:

- When a player clicks something ➡️ MouseClick event happens
- When a player touches something ➡️ Touched event happens
- When a player presses a key ➡️ KeyPressed event happens

The really cool thing about events is that they let your code **wait and listen** for something to happen. This is different from code that just runs from top to bottom once.

In our growing part example:

1. The game sets up a **ClickDetector** that listens for clicks
2. The **MouseClick event** waits patiently until someone clicks
3. When clicked, the event **connects** to our function
4. Our code jumps directly to the function, without restarting

It's like setting up a doorbell - the code waits until someone presses it, then runs only the specific code for what should happen.

Roblox Code Dictionary 📚

- **script.Parent** - The object that contains our script (like a backpack holding something)
- **ClickDetector** - A special power that lets parts detect when they're clicked
- **function** - A set of instructions with a name (like a recipe)
- **Vector3** - Three numbers that tell Roblox about width, height, and depth (like XYZ coordinates)
- **Connect** - Linking an event to a function (like connecting a doorbell to a light)

How It Works (Simple Version) 🧠

1. Game starts → Creates ClickDetector
2. Player clicks part → ClickDetector activates
3. Activation → Runs growPart function
4. Function runs → Part gets bigger

Important: The code doesn't restart when you click! It JUMPS to the function.

Your Challenges 🏆

For each challenge below, start with our original code and **ONLY change what's INSIDE the function**. Keep all the other code exactly the same!

```
local part = script.Parent
local clickDetector = Instance.new("ClickDetector", part)

local function growPart()
    -- THIS IS THE ONLY PART YOU NEED TO CHANGE
    part.Size = part.Size + Vector3.new(1, 1, 1)
end

clickDetector.MouseClick:Connect(growPart)
```

Challenge 1: Color-Changing Block

Make a part that changes color when clicked.

Hint: Only change the code inside the function - replace the size line with:

```
part.BrickColor = BrickColor.new("Really blue")
-- Try different colors like "Bright red", "Lime green", "New Yeller"
```

Challenge 2: Shrinking Block

Make a part that gets smaller when clicked.

Hint: Only change the code inside the function - just change the + to - in the size line:

```
part.Size = part.Size - Vector3.new(0.5, 0.5, 0.5)
```

Challenge 3: Teleporting Part

Make a part that moves to a random nearby position when clicked.

Hint: Only change the code inside the function - replace the size line with:

```
part.Position = part.Position + Vector3.new(
    math.random(-10, 10),
    math.random(0, 5),
    math.random(-10, 10)
)
```

SUPER Challenge: Magic Block Collection 🌟

Create THREE different parts that each do something unique when clicked:

- One that changes color
- One that changes size
- One that plays a sound or moves

For each part, use the same basic code structure (with the ClickDetector), but change what happens inside the function to make each part do something different!

Need Help? 🤔

If you get stuck, check:

1. Is your script inside the part?
2. Did you spell everything correctly? (Lua is picky about spelling)
3. Try printing a message to see if your function is working:

```
local function myFunction()
    print("My function is running!")
    -- Rest of your code
end
```

Have fun and see you next week for more Roblox coding adventures!