1st October 2011

Scratch Programming Challenges for Elementary Students

MIT's child-friendly programming language Scratch enables students to create games, animations, and tell stories--among other things. While enabling students to do all of this, Scratch also helps students visualize the essentials of object-oriented programming in a clever way: having color-coded blocks of code snap together like Lego pieces is brilliant. Because of its dynamic potential, I have started the school year by having my students in grades 2-4 create small projects using Scratch.

Many of these projects are integrated with other things they are learning (creating animations to demonstrate knowledge of things they are learning in Social Studies, for instance), but I devoted one day this week to just letting students play around with Scratch so that they could get a sense of what's possible for them to create. Below are some challenges I posed for them. If you have ideas about how to build on these challenges, adapt them to provide more variety in difficult level, or anything else, please feel free to share in the comments section below.

1. Can you get two sprites to have a conversation in which they use the “wait” control to take turns? (Tip: You’ll need to use some “looks” options, which are purple, and some “control” options, which are orange. Another tip: don’t spend too much time creating your sprites. Any sprite will work just fine!)
2. Can you get two sprites to have a conversation in which they use the “broadcast” and “receive” controls to take turns?
3. Here’s a challenge using the blue “motion” commands: if “glide 1 sec to x = -200, y = 150” (note the negative or minus sign next to 200!) moves the sprite

to a spot near the top left corner, and if “glide 1 sec to x = 200, y = 150” (note that there is no negative or minus sign this time!) moves the sprite to a spot near the top right corner, what would I need to do in order to get the sprite to glide to each of the two bottom corners? (Tip: Remember that you’ll need to use an orange “control” in order to tell the character when to start gliding.)

4. Can you use the light purple / pink “sound” options to get a sprite to make a “meow” sound?
5. Can you use the purple “looks” option called “next costume” to make a sprite look like he or she is dancing, breathing fire, walking, or something similar? (Hint: Check out “dragon 1-a and dragon 1-b” in the fantasy folder that appears when you click “costumes” and “import.” Make sure your sprite has at least two costumes.)
6. Here’s a challenge using the orange “if” control and the light-blue “touching” sense: Can you get a sprite to sneeze (i.e. say “Achooo!”) if, when the green flag is clicked, he or she is touching the flower vase? (Note: you’ll find the flower vase sprite under “things.”) You’ll know you have really solved this challenge if you can prove that the sprite *only* sneezes when he or she is touching the flower vase.
7. Can you use the light purple / pink “sound” options to get a sprite to play a Happy Birthday song?
8. Using the dark orange “variables” options and the green “pick random” operator, can you get a sprite to say random numbers between 1 and 10?
9. Design a game using “pick random” and “if.” Have fun with it!

Posted 1st October 2011 by Jonathan Fichter

Labels: curriculum, Scratch, screencast

1 View comments

Mr Lonely October 2, 2011 at 6:05 AM

walking here with a smile. take care.. have a nice day ~ =D

Regards,
http://www.lonelyreload.com (A Growing Teenager Diary) ..

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