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4ST
GRADE

3.0



SCRATCH PACK

CODING PROJECTS



Creative Coding Book for Kids

Lesson 01 Introduction to Scratch

Students get introduced to the Scratch App interface and terminology. Students get introduced to different coding blocks in different categories.

Lesson 02 Personality Test

This lesson will teach students how to compare different variables using logical and relational operators that are used to create conditions.

Lesson 03 Calculate Accounts

This lesson will teach students how to operate on multiple variables and how to manipulate variables.

Lesson 04 Pizza Rush

This lesson will teach students how to create and use a new variable type called Lists.

Lesson 05 Frank's Memory

This lesson will allow students to practice using and manipulating lists.

Lesson 06 Matching Cards

This lesson will teach students how to create a random list of numbers.

Lesson 07 Sorting Order

This lesson will teach students how to be able to sort the values of the list items in ascending or descending order.

Lesson 08 Pics Word

This lesson will teach students how to jumble up the items of a list.

Lesson 09 Pen Kaleidoscope

This lesson will teach students how to use the pen extension library provided by Scratch. This category allows characters to draw on the stage like a pen.

Lesson 10 Pen Patterns

This lesson will allow students to practice using the pen extension library to by drawing geometric shape patterns.

Lesson 11 Pen Paths

This lesson will allow students to practice using the pen extension library to having other characters interact with the pen drawings.

Lesson 12 Video Sensing

This lesson will teach students how to use the video sensing extension library provided by Scratch. This category allows webcams to interact with projects through Video Sensing.

Lesson 13 Video Effects

This lesson will allow students to practice using the video sensing extension and pen libraries.

Lesson 14 Chatbot (Open Project)

This lesson will have students create a whole project from scratch.

Lesson 15 Dreams Museum (Open Project)

This lesson will have students create a whole project from scratch.

Lesson 2 – Personality Test

This lesson will teach students how to compare different variables using logical and relational operators that are used to create conditions.



The **or** block compares two conditions, if at least one of them is true, it returns true; if neither of them are true, it returns false.



The **and** block compares two conditions, they both have to be true to return true. If only one is true or none are true, it returns false.

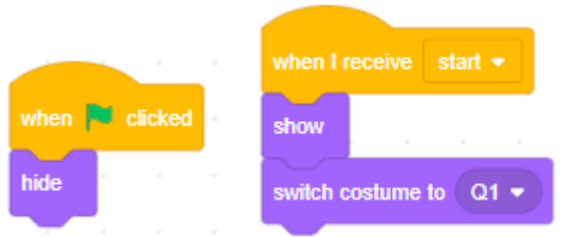
****These blocks can be stacked inside each other, which can be used to test more conditions**

This project can have multiple characters that the students should program:

- At the start of the program the title background should appear, and the project starts when the BG is clicked by sending a start message.

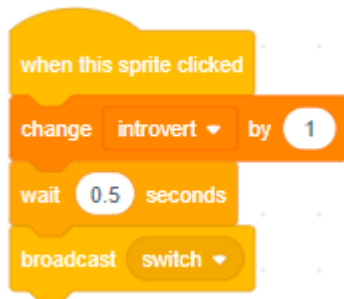


- When the start message is received both the question and answer characters are made to appear at the first costume, after being hidden at the start.

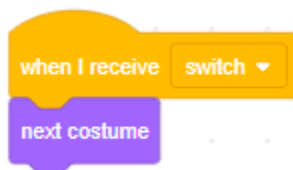


*(There are 3 answer characters for the 3 personality types, and in each character there might be more than one answer to a question that represents the personality)

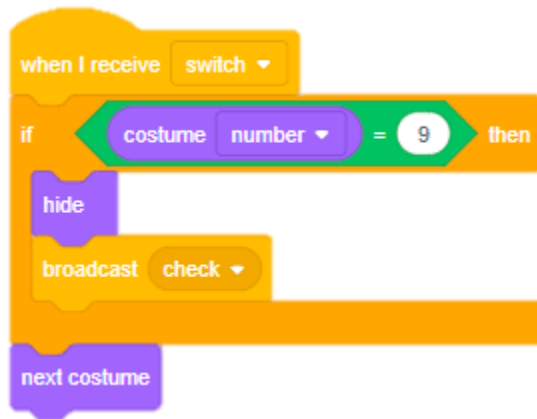
- When any of the answer characters is clicked, then the variable of the answer of that personality is changed by 1, then a message called switch is sent out



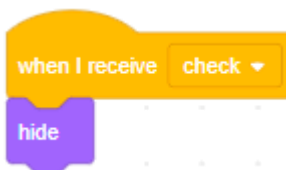
- When the switch message is received, all the answer characters will switch costumes



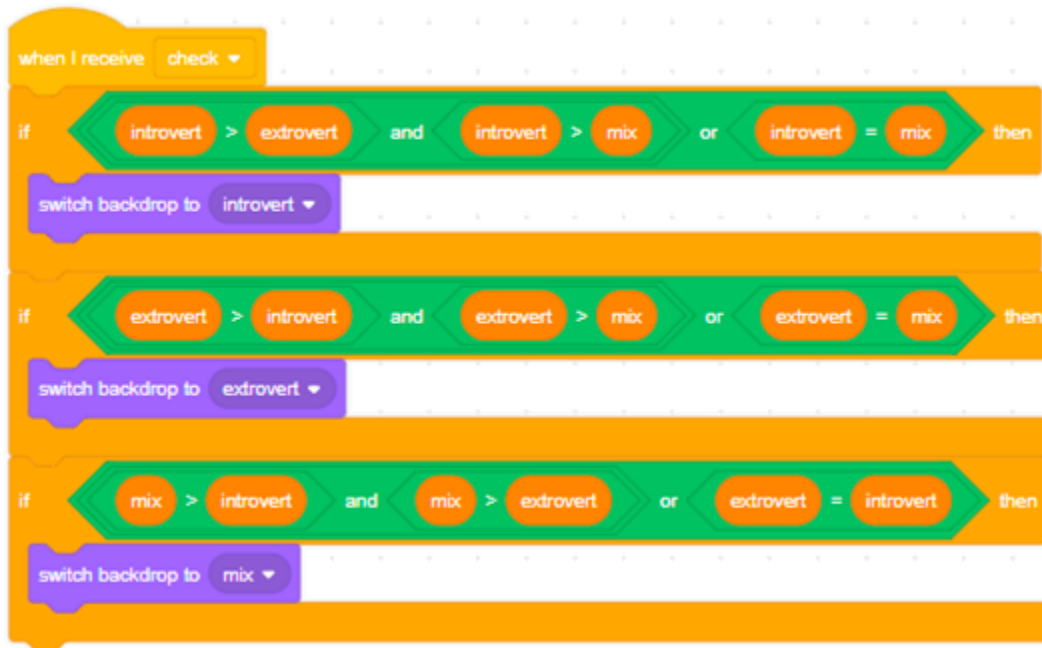
- When the switch message is received, the question character will switch costumes but it will first check if it reached the last question. If yes, then it will hide and broadcast a check message



- When the answer characters receive the check message they will also hide



- Finally, when the check message is received, all the variables that were change when the answers were clicked are compared to each other



** if one of the personality variables is greater than the other two then the background of that personality is shown. Or if there are equal variables then these conditions are also set.

All variables are set to 0 at the very start of the program before the start message is sent.

The extra challenge: the students can add a bonus question to ask the user for their birth month so that they can get their birthstone in return.



PERSONALITY TEST



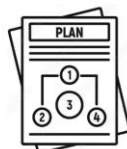
Create a personality test!

- Answer the questions
- You will get a result based on the number of most answered traits that belong to your personality



Check out the lesson's gallery to find additional characters and background options

- 1 Add your characters
- 2 Choose a background
- 3 Create a plan to follow



- decide the initial characteristics of your characters you want to start with
- figure out how to add 3 variables for each personality result
- figure out how to change each variable when the trait of that personality is clicked
- figure out how to compare the final results for the 3 variables and give the personality of the highest variable

PERSONALITY TEST

Think about the order

This block checks if 2 conditions are both True at the same time.

This block checks if any of the conditions is True

- 4 Drag all the code blocks that you think you will need to the script area



PERSONALITY TEST



Modify your program to ask a bonus question

Hint: figure out how to add a bonus question that asks for your birth month and tells your birthstone



CHALLENGE YOURSELF!