**Activity Safety Form**

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| **Program:** | jrDEEP Summer Academy |
| **Course Title:** | Cool Code |
| **Instructor(s):** | Connor Smith, Anastasiya Martyts |
| **Season:** | Summer |
| **Year:** | 2014 |
| **Project/Activity Name:** | Practice with if statements |
| **Source:** | Made up |
| **Grade Level:** | 5-6 |
| **Topics Covered By Activity:** | If statements |
| **Objective (Learning Outcomes):** | This activity is intended to familiarize students with if statements and make them comfortable using if statements effectively in their code. |
| **Safety Approval Date:** |  |

Please identify specific safety hazards in the table below

|  |  |  |
| --- | --- | --- |
| **Check if applicable** | **Hazard** | **Why is this required?** |
| x | Electricity | Used to power the Raspberry PIs that students will be coding on. |
|  | Open Flame |  |
|  | Projectiles |  |
|  | Natural Gas |  |
|  | Compressed Air |  |
|  | Glassware |  |
|  | Dissection Equipment |  |
|  | Biological Material/Specimen |  |
|  | Chemicals |  |
|  | Tools (ex. soldering iron, hacksaw, drill)  **Please specify in the materials list** |  |
|  | Other: |  |

Safety Materials/P.P.E. Required for this Activity

|  |  |  |
| --- | --- | --- |
| **Check if Required** | **Safety Material/Personal Protective Equipment (P.P.E.)** | **Explanation (Specify when this is required i.e. is this during preparation and/or while the activity is taking place and who wears/uses the piece of P.P.E. i.e. Instructor, student etc. please be explicit)** |
|  | Goggles |  |
|  | Lab Coats |  |
|  | Nitrile Gloves |  |
|  | Table Coverings |  |
|  | Fume hoods |  |
|  | Biosafety Cabinets |  |
|  | Spill Kits |  |
|  | Disposal Mechanisms (ex. broken glass, biologics, chemicals) |  |
|  | N95 Masks |  |
|  | Other: |  |

**Background Information:** (Outline any information that would be required to support the activity. Assume the person reading this Activity Write-Up isn’t a specialist on this topic.)

If statements are one of the most common tools in programming. Just like you deal with a lot of conditional things in real life – e.g. IF you do all your homework on time, then you can go over to a friend’s house, or ELSE you can’t.

That’s all the if statements are! You are simply telling a computer that if a certain condition is met, it should execute the if statement and if that condition is not me, it should skip the if statement and execute a different part of the code instead.

Some examples of if statements, else if statements, and else statements include:

if pink\_unicorn

turtle.draw(rainbow)

else if fairy

turtle.draw(magic\_dust)

else

turtle.draw(sad\_face)

print “There are no fairies or unicorns n this program :’(“

**Preparation:** (Outline any preparation work that must be completed by you and/or anyone else (lab techs, volunteers, etc.) prior to class time. Please be as detailed as possible, and highlight any health and safety protocols to be followed.)

Raspberry PIs must be set up with mice and keyboards, ready for the kids to code on. Make sure all the Ras PIs have the starter code on them, with the above examples in it, so that the kids can run it to see what happens. Also, either printouts with instructions for the activity or a large projectr screen with these instructions are required.

**Procedure:** (Please detail **all** the steps required to complete this project/activity. State what will be done by instructor(s), counselor(s) i.e. certain steps, entire demonstration, etc. and what will be done by your students. Outline any Safety procedures required due to location/venue of activity.)

1. Ask the students to run the example code provided. Instruct them to change values of the variables pink\_unicorn and fairy from 0 to 1 and vice versa (as well as both to 0 and both to 1). Observe which parts of the code get executed. Note that when one of the statements is executed, the rest are not – the computer executed the code as soon as it meets one condition, and ignores the rest.
2. Instruct the students to make a Strict Parent program – give them a list of conditions a strict parent tells their kid to do before they can go play with friends. The trick here is that sometimes, a combination of certain activities will satisfy the strict parent’s conditions to go out with friends, while other combinations will not. What the strict parent program must do is check a child’s to-do list for completion of certain tasks and if those tasks are completed, tell them they are allowed to go play with friends. Otherwise, tell them to stay in and do more work! (hint: use LOTS of if/else if/else statements here!)

**Additional/Extension Activities & Procedure (if applicable):**

* If some students are struggling, narrow down the list of conditions for them to make it easier to represent the strict parent’s demands using if statements.
* If students are finding the activity too easy, add in more factors into the equation – e.g. time: you can’t go out if you’ve finished all your work but it’s late or you didn’t eat the broccoli over dinner.

**Student Take Home/Materials Kept:**

**None**

Materials **(Please include all materials including consumable items, tools, stationery, arts & craft supplies, chemicals, biologics, etc.).** Please identify (in the notes column) any hazardous materials PRODUCED as a result of the project/activity.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Quantity** | **Purpose in Activity** | **Route of Transmission** | **Anticipated Health Risk** | **Safety Precautions** | **Storage/Disposal Arrangements** | **Notes** |
| Raspberry Pi | 1 Each | Programming |  |  |  |  |  |
| SD card (4 GB) | 1 Each | Programming |  |  |  |  |  |
| Power Cable | 1 Each | Programming |  |  |  |  |  |
| Monitor | 1 Each | Programming |  |  |  |  |  |
| HDMI Cable | 1 Each | Programming |  |  |  |  |  |
| HDMI to DVI Adaptor | 1 Each | Programming |  |  |  |  |  |
| Keyboard | 1 Each | Programming |  |  |  |  |  |
| Mouse | 1 Each | Programming |  |  |  |  |  |

Use the below chart to inform how you fill out various sections of your Activity Safety Sheet.

|  |  |  |  |
| --- | --- | --- | --- |
| Anticipated Health Risks (Use the following relevant descriptions in the materials table) | | Safety Precautions (Use these and other descriptions the show how you will specifically address each of the safety precautions mentioned on the left side of this table.) | |
| 1 | Materials are sharp and may cut skin (Utility Knives, Scalpels, Scissors) | 1 | Instructors will advise on the appropriate use of materials (for 1-10 above) |
| 2 | Materials may poke or pierce skin (Wooden Skewers, Sticks) | 2 | Instructors will review the MSDS for materials prior to and during the activity (3-8) |
| 3 | Materials are toxic if ingested (Chemicals such as Bleach, Detergents, Indicators) | 3 | Participants will wear dust or N95 masks at all times (4 and 5) |
| 4 | Materials are hazardous if inhaled (Chemicals, Powders, Dust, Solder) | 4 | Participants will wear nitrile gloves at all times (6) |
| 5 | Materials are an irritant to lungs (Chemicals, Powders, Dust) | 5 | Participants will wear goggles at all times (7) |
| 6 | Materials are an irritant to skin (Chemicals, some Soaps, Allergens) | 6 | Students will be instructed on the use of the eye station in-lab (7) |
| 7 | Materials are an irritant to eyes (Chemicals, Powders, Dust) | 7 | Instructors will have a fire extinguisher within arm’s reach while performing activity (8) |
| 8 | Materials are flammable/Use of Open Flame (Alcohol, Gases, Fuels, Matches) | 8 | Instructors will establish a safety perimeter of 5m while performing the activity/during testing (8 and 10) |
| 9 | Participants may present serious allergies (Nuts, Shellfish, Milk, Eggs, Fruits, Food Colouring) | 9 | Instructors will review student allergies prior to commencing activity (9) |
| 10 | Materials are or can be involved as projectiles (Rocks, Golf Balls, Rockets) | 10 | Instructors will advise of any hidden allergens (9) |
| 11 | Materials present a slipping hazard if spilled | 11 | Instructors will monitor participants for indications of an allergic reaction (9) |
| 12 | Materials are hot and may burn skin. (glue guns, soldering irons) | 12 | Instructors will review the procedure with students, prior to testing (1-10) |
|  |  | 13 | Instructors will explain any necessary emergency protocol (always) |
|  |  | 14 | Instructors will debrief and discuss any sensitive issues before, during and after the activity (always) |
|  |  | 15 | Only Instructors with training will complete the specified activity or demo always. |
|  |  | 16 | Spill Clean up kit provided (11) |
| Routes of Transmission | | Questions to ask about your Materials and Activity (Address any that are relevant in your above Activity Safety Sheet) | |
| 1 | Eyes | 1 | Are there any ethical concerns regarding your workshop? |
| 2 | Skin contact | 2 | Are there any sensitive issues or activities? |
| 3 | Inhalation | 3 | Are there safety concerns if specific procedures are not followed? |
| 4 | Ingestion | 4 | Do any of the materials have an MSDS? |
| 5 | Other (please specify) | 5 | Do any of the materials or activities require special training? |
|  |  | 6 | Questions to ask about your Materials and Activity (Address any that are relevant in your above Activity Safety Sheet) |