**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 loops |
| **Source:** | Made up |
| **Grade Level:** | 5-6 |
| **Topics Covered By Activity:** | For loops and while loops |
| **Objective (Learning Outcomes):** | In this activity, students are expected to develop an understanding of loops and an appreciation for their practical usefulness. |
| **Safety Approval Date:** |  |

Please identify specific safety hazards in the table below

|  |  |  |
| --- | --- | --- |
| **Check if applicable** | **Hazard** | **Why is this required?** |
| x | Electricity | Required to power Raspberry Pis that are used for coding in this activity. |
|  | 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.)

**Loops: what are they?**

Loops in programming are simply small segments of code that do the same thing over and over. While that sounds a bit boring, it is really really useful in practice! Say a teacher wants to print out the names and birthdays of all their students. Instead of having to type “print…” every time, they can use a loop to do this for them!

So, what’s this whole loop business?

**While loops and for loops**

There are two kinds of loops – while loops and for loops. They are named this because of what they instruct the computer to do. The while loop says “While something holds true, keep running this loop.” A for loop says “For every item (e.g. for every student in a classroom), run the loop (e.g. print their name and birthday) and stop running the loop once you’re out of items.”

These seem a bit different from each other, but you can use either one for getting a job done – there are ways of coding using only for loops or only while loops. It’s all up to you – the programmer!

**Example:** For instance, if we wanted to print the names and birthdays of every student in the class, we could do it using either loop:

|  |  |
| --- | --- |
| for student in class  print student\_name  print student\_birthday | index = 0  while index < num\_students  print class[index].student\_name  print class[index].student\_birthday  index = index + 1 |

As you can see, the same task can be accomplished using either type of loop, so you can choose whichever one you’re more comfortable with! However, in some cases one type of loop is easier than the other – e.g. here, a for loop would be more appropriate as it requires less lines of code and is the simpler solution.

**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.)

Ensure all RasPIs are connected to screens/keyboards/mice and have starter code on them. Either hand out printed instructions or put them up on a projector screen.

**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. Explain to the students the following instructions: now, expanding on their Strict Parent program, they will make an Annoying Strict Parent program that uses loops to check in on you every 1minute, asking whether you have completed a certain task or not (it an ask for a different task every time). So long as you haven’t completed all the tasks, the annoying strict parent will keep checking in on you to see if you’ve completed a task every minute. Once you have completed all the things you have to do, the annoying strict parent settles down a bit, but every 2 minutes checks in to ask if you’re sure you’ve done everything you had to do or if perhaps you forgot to do something. Gosh, that’s annoying…

**Diagrams or any supplemental information (attach/embed if applicable):**

**Curriculum Connection (Optional)**

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

* If some students are way ahead of the class on this activity, show them how to make a program pop up a photo – that way the annoying strict parent can have a visualization (from google images) to go along with the negging!

**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 per student | Programming |  | Tripping on power cords | Cable organization, tape cables to floor if necessary |  |  |
| 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) |