|  |  |
| --- | --- |
| http://compsci.appstate.edu/sites/compsci.appstate.edu/files/imagecache/slideshow/slideshow/ASU_compsci_logo.png  **The CS4ALL NSF Supported Program** | https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcQGzOU-XT8XZWIBUwiPs2jjgixLO3CvrEyNq90lu1dbXJ0BQume  [**https://cs.appstate.edu/cs4all/**](https://cs.appstate.edu/cs4all/) |

**Introduction/Motivation:** Time is Money! Order requirement digraphs organize tasks in order according to prerequisites. Every operation from baking a cake to building a jet has an order requirement digraph. For example, you have to mix the cake before you bake. Constructing a digraph is important in time and resource management.

**Lab Activity:**

* You will need your computer and this activity sheet.
* You will be asked to program a series of steps using SNAP
* These steps have a particular order. For example, if you have a grey Turtle then you can’t program a “Green Turtle to move” until you have changed its color to green.
* Complete the following **Guided SNAP Activity** followed by drawing a matching order requirement digraph.
* Now that you have succeeded with a short program, create your own Unique **Program** with its matching digraph using the guide below

**Guided SNAP Activity**

1. Open SNAP Program and complete the following:

* Change the Turtle’s color to “Blue”
* Move your original Turtle 15 steps Northeast while playing a sound
* Move the blue Turtle from the center and have its pen color change to “Green”, and draw a green line while walking 20 steps south
* Move the blue Turtle back to the center in 2 seconds.

\* These tasks are not in correct order. You must reorder them correctly in your program

1. After you think your program is correct, draw the order requirement digraph below. Label each command as a task and draw arrow to indicate prerequisite tasks.

**Unique Program**

Create your own original program in SNAP and draw the corresponding digraph.

1. Create a program in SNAP that has a progressive storyline
2. Use at least 10 distinct commands
3. Use more than one character, sound, and costume or background.
4. Demonstrate complexity with simultaneous commands and control commands
5. Draw a neat, labeled, and correct corresponding digraph.

**Rubric:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Programming | Creativity | Complexity | Digraph(Paper) |
| 4 | Uses 10 or more Commands | Tells a story with background, sound, character and costume changes | More than one of both simultaneous commands and control commands | Complete, correct, labeled, and neat |
| 3 | Uses 8 or more commands | At least 3 of the above components | At least one of both simultaneous commands and control commands | At least 3 of the above |
| 2 | Uses 6 or more commands | At least 2 of the above components | At least one control command | At least 2 of the above |
| 1 | Uses 4 or more commands | At least 1 of the above components | At least one simultaneous command | At least 1 of the above |