

# Hands-on Activity 9: Analysis & Workflows

**Associated DataONE Lecture:** Lesson 9: *Analysis & Workflows*

**Objectives:** Students will understand what elements are necessary to complete a workflow and consider how a workflow is constructed for an effective outcome.

**Outcome:** Students can create a simple workflow for a common task with several steps, inputs, and outputs.

**Time Needed:** 30 minutes in class

**URLs:** If you aren't familiar with ice cream sundaes, see this reference:  
<http://www.wikihow.com/Make-an-Ice-Cream-Sundae>

**Additional Files Needed:** None

**Key Reading:** Ram, K., Feb. 2013. Git can facilitate greater reproducibility and increased transparency in science. *Source Code for Biology and Medicine* 8 (1), 7+.  
<http://dx.doi.org/10.1186/1751-0473-8-7>

Gil, Y. et al. (2007) Examining the Challenges of Scientific Workflows. *IEEE Computer*, 40, (12), 26-34. Accepted version: <http://eprints.soton.ac.uk/271187/1/computer07.pdf>

## Notes and Instructions for Instructors:

**Instructions:** This activity is intended to help you think through how to create a simple workflow using the basic building blocks of workflows covered in the lesson. For this activity, create a workflow to describe how to make an ice cream sundae. Be sure to identify inputs, outputs, processes, and decision points in your diagram.

### Solutions:

There are many possible correct responses to the prompt. Below are some ideas for elements (building blocks) in the workflow diagram:

Data inputs/outputs:

- Container (dish, cone)
- base (banana, cookie, brownie)
- ice cream (multiple flavors potentially)
- sauces (chocolate, caramel, strawberry)

- toppings (nuts, cherry, sprinkles)
- final sundae

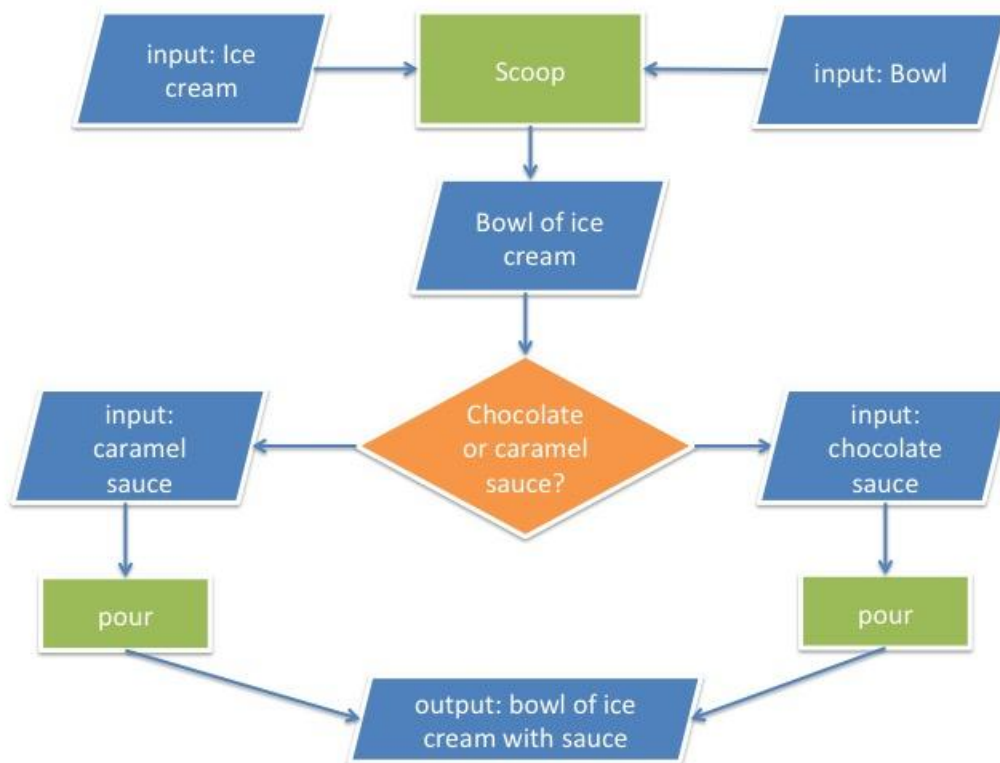
Processes:

- scooping
- adding/dropping/sprinkling
- pouring
- chopping (nuts?)
- heating (fudge?)

Decisions:

- flavor choice
- sauce, topping, base, container choices
- add more of something?

**One example workflow:**



### Student Instructions:

This activity is intended to help you think through how to create a simple workflow using the basic building blocks of workflows covered in the lesson. For this activity, create a workflow to describe how to make an ice cream sundae. Be sure to identify inputs, outputs, processes, and decision points in your diagram.