Objectives Students will be able to…

* **Identify, declare, and assign** variables.

Assessments Students will...

* **Write** a program that converts temperature from Fahrenheit to Celsius.

Homework Students will...

* **Read** the rest of HW 2.2
* **Complete** self-check questions 5, 6, 9, 12-15 (4th edition: 6, 7, 10, 14-17)

# Materials & Prep

* **Projector and computer** (if you are able to/opt to use Eclipse with your students)
* **White paper** **and** **markers**
* **Classroom copies** of WS 2.2
* **Pair or small group** student assignments
* **Sample online temperature converter** (<http://www.onlineconversion.com/temperature.htm>)

Since most of today’s lesson follows WS 2.2, you should have read through the worksheet. You may prefer to delete the notes from the worksheet (so it is only a sheet of exercises) if you are working on developing note-taking skills in your classroom. We recommend leaving these sections in for ELL classrooms, so your students can focus on syntax rules instead of translating what they are hearing to vocabulary they need to then write in their notebooks.

# Pacing Guide

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| Section | Total Time |
| Bell-work and attendance | 5min |
| Introduction and worksheet exercises | 25min |
| Practice-It exercises | 20min |
| Turn in worksheets, wrap up | 5min |

# Procedure

*Since much of this class involves learning syntax, there will be a lot of drilling during the class. Try to spice up the lesson by allowing students to work in pairs, or playing soft music in the background to put students in the right headspace to settle down for work.*

*Hook your class today by asking which of them are taking or have taken physics or chemistry. Ask students about working with Farenheit and Celsius temperatures—do they have to convert temperatures in class? Which measurement are they more familiar with? Which do they use more often? Show students the online calculator and ask if they ever use such online tools, and tell students that they’re going to learn how this program is built today.*

## Bell-work and Attendance [5 minutes]

## Introduction and Worksheet Exercises [25 minutes]

1. Using WS 2.2, walk students through the proper way to declare a variable.

* + - * Be sure to spot-check for understanding by having students give you the definitions of **type**, **syntax**, **declaration**, and **variable** (all bolded in the text).
      * Encourage students to use their notes if needed.

2. Guide students through the syntax rules for variable declarations by working through the first few examples of Exercise 1 in pairs.

3. Give students a few minutes to complete Exercise 1 on their own; encourage students to tackle Exercise 2 as well, then check all answers together as a whole group.

4. Using the figure on Exercise 3 of WS 2.2, walk students through the proper syntax to assign a variable.

* + - * Spot-check for understanding by asking students to define the italicized words.
      * Ask students for a few sample answers, correct them if needed, then give students a few minutes to complete Exercise 3 in pairs.

5. As a whole group, walk students through Exercise 4 and 5. Complete 5a together as a group, then let students work on 5b in pairs.

At this point, your class may be raring to get started on the rest of the assignment without your help. If they are, great! Post the Practice-it questions on the board so they can continue to that assignment once they have completed the worksheet. If you class wants you to walk them through string concatenation, go through the examples as above.

## Practice-It Exercises [20 minutes]

1. Have students log in to Practice-It to complete the following Practice-It self-check questions:

a. studentVariables

b. values of A,B,C

2. Have students complete Practice-It exercise “displacement.”

3. Students should work on their own, but if the exercise is too challenging, you might opt to have students collaborate on answers. Be sure to remind students that each student should turn in their own set of work.

## Students turn in worksheets, wrap up [5 minutes]

1. At the end of class, collect WS 2.2 and Practice-It submissions.

# Accommodation and Differentiation

If you have students who are speeding through this lesson, you should encourage them to:

* + - * Complete Practice-It self-check problem “timesOperator.”
      * Challenge them to build their own program that converts Farenheit to Celsius (this version won’t take user input—yet!)
      * Have the student create a classroom poster diagraming the parts of variable declaration & assignment.

If your class is struggling with learning syntax, you can split the lesson into 2 lessons, and/or take off some of the homework questions. If splitting the lesson in two, we recommend stopping today’s lesson before string concatenation.