# Complex Conditionals

**Teacher:** Kuri DiFede
**Subject:** AP Computer Science A

**Learning Goals:**

- Students will understand boolean logic and complex conditionals by comparing Java syntax to real life examples and recognizing patterns
- Students will apply this knowledge by demonstrating on short worksheets.

**Assessment:**
Students will be formatively assessed on their work done in class and participation. I will use the information in class to tailor instruction to individual students who are struggling or who are interested in pushing further. Additionally I will also use this time to push students who are drifting off task.

Additionally, students will be working on classwork (finish for homework) that is due tomorrow. This work is graded on completion, but the work done is used to determine further instruction.

**CCSS Standards:**
CCSS.ELA-LITERACY.RST.11-12.3
Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

CCSS.ELA-LITERACY.RST.11-12.4
Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*.

**Prerequisite Skills / Links to Past Learning:**
Students will need a basic knowledge of boolean variables, as well as conditional logic and syntax.

**Materials, Resources, and Technology:**

- Macbook Computers
- iTunes U slides
- Runestone.Academy Chapter

**Vocabulary**

- Ampersand
- && (And)
- || (Or)
- ! (Negation)

- Truth Table
- Short Circuit

**Instructional Procedures:**

- 5 mins - And/Or Introduction
    - Students start with real world and/or examples - look to find And and or
    - Introduce And/or, show specific syntax for Java.
- 10 mins - And / OR examples
    - We will go over several examples of AND with students participating by drawing on the tables
    - We will go over several examples of OR with students participating by drawing on the tables
- 10 mins: Short Circuit Evaluation
    - I will introduce short circuit evaluation and why it is important.
    - Students will complete short circuit examples in class.
- Truth Tables
    - I will introduce the concept of a truth table
    - We will complete the tables for AND and OR together.
- 10 min - Classwork / Homework time. Students will work individually and in small groups to complete the assignment. The homework was to read the runestone chapter and to do examples in the book.

**Accommodations:**

While the students in my class are very different, they seem to have a similar desire to learn and understand this material. This makes the workshop method work very effectively, as the students are able to work alone or in groups (though each person is doing the work individually) and can ask questions and struggle at their own pace. Students have access to my slides, and digital course texts that can help them understand topics - they are encouraged to ask each other questions and ask me when they need help. I find that this method allows students to get the help they need on an individual basis.

**Homework:**

- Runestone Academy 5.3 exercises 1-6.
- Define vocabulary listed above.

**Next Lesson:**

After this lesson, we will do some review workshop style (where students are working on their understanding) and cover DeMorgan's law.  After this, we will start our programming project which applies the knowledge of conditionals into creating a chatbot.