Teacher: Steve Sabaugh

Unit Plan: UNIX and 'UNIX-like' Operating Systems

Grade and Content: AP Computer Science Principles

Date: Days 7 & 8

Lesson: Intro to C Style Syntax with the bc Calculator

Overall Goal/Objective of Lesson (one sentence)**:** A lesson that introduces students to the C family language using the interactive programming language and calculator utility bc.

Content Objectives (nouns) -Students will be introduced to the C style syntax or the "Curley Braces" languages -Students will understand what the utility bc does -Students will understand that there are useful features in the UNIX environment to help with productivity	**Assessments**
Skill/Language Objectives (verbs/Common Core Standards) - Students will be able to demonstrate ability to calculate the date of Easter using bc - Students will demonstrate the ability to make smaller modular programs (functions) within the UNIX environment. - Students will be able to demonstrate ability to manipulate numbers in the UNIX environment - 9-12.DL.4 Independently select advanced digital tools and resources to create, revise, and publish complex digital artifacts or collection of artifacts. - 9-12.DL.5 Transfer knowledge of technology in order to use new and emerging technologies on multiple platforms.	**Assessments** Formative- M/C UNIX Quiz (22 questions) see UNIX_Quiz.pdf Formative- bc Academic Calendar Exercise: Calculating the Date of Easter see bc_Assessment_Solution.pdf

Materials

Code along notes:
unit_plan-stevesolo/resources/bc/bc.md

Assessment Resources:
unit_plan-stevesolo/assessments/UNIX_Quiz.pdf
unit_plan-stevesolo/assessments/bc_Assessment_Solution.pdf
unit_plan-stevesolo/assessments/Easter_Date.pdf

Teacher's Laptop and projector

Student computers with a UNIX/Linux environment
Student's Resource folder
Journal
Pen/Pencil
usb stick

Sequence of Lesson Plan

Time Allotment	**Anticipatory Set** *List specific statements or activities you will use to focus students on the lesson. State clearly what students are learning/doing and how it connects to prior learning.* 1. **Do Now:** UNIX Quiz	**Plans for Differentiation/ Culturally Responsive Instruction** -Corrections will be given the following class
15 minutes		
30 minutes cont. Day 8 10 minutes	**Mini-Lesson/Direct Instruction (with Modeling)** *What information is essential for the student to know before beginning and will this skill be communicated? How will you be demonstrating this skill? Identify strategies to be used to determine if students have learned the objectives. The teacher models the process to be followed and makes connections to previous instruction. The teacher checks for student understanding. The teacher's explanation should be clear. Questions and tasks are higher order and have multiple possible answers.* 1. **Mini-Lesson:** bc Calculator Language and C Language 2. **Modeling:** see bc.pdf 3. **Mini-Lesson:** Go over Quiz. Address any concerns.	**Plans for Differentiation/ Culturally Responsive Instruction** -Mini-Lesson notes are completed in guided notes format, therefore being easier to copy and comprehend -Material is presented in clear and easy-to-follow format

35 minutes	**Guided Practice (with Teacher Monitoring)** *List activities which will be used to guide student practice (i.e. small groups, whole group with less scaffolding, partners). Teacher monitors individual and group understanding, providing timely feedback. Students are actively engaged in discussions and extend them without mediation by the teacher. Students assess and make improvements to their work.* 1. **Guided Practice:** Students will work in heterogenous groups on Academic Calendar assignment. After reading Easter_Date.pdf, they will use the formula given in that document to solve for the date of Easter for a set of given years. For a solution see bc_Assessment_Solution.pdf	**Plans for Differentiation/ Culturally Responsive Instruction** -Groups are differentiated because students are working with partners based on coding level. -Groups are small so students can collaborate effectively