

Teacher: Steve Sabaugh

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

Grade and Content: AP Computer Science Principles

Date: Days 5 & 6

Lesson: UNIX Environment

Overall Goal/Objective of Lesson (one sentence): A lesson that introduces students to text manipulation tools and pipelining and i/o redirection in the UNIX environment.

<p>Content Objectives (nouns)</p> <ul style="list-style-type: none">-Students will understand what regular expressions are-Students will understand what the utility sed and grep do-Students will understand what a command line text editor does-Students will understand what UNIX pipelining and i/o redirection operators do-Students will understand that there are useful features in the UNIX environment to help with productivity	<p>Assessments</p>
<p>Skill/Language Objectives (verbs/Common Core Standards)</p> <ul style="list-style-type: none">- Students will be able to demonstrate ability in taking the output from one command to another output that is not just the display- Students will demonstrate the ability to use smaller modular UNIX programs to make a custom command with pipes- Students will be able to demonstrate ability to manipulate text in the UNIX environment in-line- Students will be able to demonstrate ability to manipulate text in the UNIX environment in a CLI text editor, vi- Students will be able to demonstrate ability to find and replace text in the UNIX environment using regular expressions, grep, and sed- 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.	<p>Assessments</p> <p>Formative- M/C UNIX Quiz (22 questions)</p>

Materials

UNIX Environment slide deck

Code along notes:

`unit_plan-stevesolo/resources/UNIX_Environment/regex.md`

`unit_plan-stevesolo/resources/UNIX_Environment/text.md`

`unit_plan-stevesolo/resources/UNIX_Environment/text_editors.md`

Code along resources:

`unit_plan-stevesolo/resources/unix-src/sample.txt`

`unit_plan-stevesolo/resources/unix-src/poem.txt`

`unit_plan-stevesolo/resources/unix-src/ballad.txt`

`unit_plan-stevesolo/resources/unix-src/FranklinBio.txt`

`unit_plan-stevesolo/resources/unix-src/names.txt`

`unit_plan-stevesolo/resources/unix-src/fuit.txt`

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

<p>Time Allotment</p> <p>Day 6 only 5 minutes</p>	<p>Anticipatory Set <i>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.</i></p> <ol style="list-style-type: none"> 1. <u>Do Now:</u> List any prep work when it comes to researching or writing that you find is tedious. Think clerical more than creative. 2. <u>Share-Out:</u> Whole-class discussion of do now. I will call on volunteers to share their responses. We will see how many of those activities can be improved with UNIX utilities 	<p>Plans for Differentiation/ Culturally Responsive Instruction</p> <ul style="list-style-type: none"> -Do Now is based on student experience -Do Now consists of a culturally relevant activities -Do Now question is differentiated because there is really no right or wrong answer
<p>25 minutes</p> <p>20 minutes</p> <p>cont. Day 6</p> <p>35 minutes</p>	<p>Mini-Lesson/Direct Instruction (with Modeling) <i>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.</i></p> <ol style="list-style-type: none"> 1. <u>Video Presentation:</u> Students will watch a 25 minute video "UNIX:Making Computers Easier To Use" (1982, AT&T) featuring Bell Lab employees including UNIX co-creators Ken Thompsons and Dennis Ritchie. This video summarizes the power and usefulness of UNIX and is a very important piece of computer science history ephemera. 2. <u>Mini-Lesson:</u> Regular Expressions (see regex.pdf). 3. <u>Modeling:</u> Model how to create and match simple patterns. We will then use an on-line regex tester to experiment 4. <u>Mini-Lesson:</u> Text manipulation (see text.pdf, text_editors.pdf) 5. <u>Modeling:</u> Model how to manipulate text both in-line and using a terminal text editor. The students will 'code' along with me. 	<p>Plans for Differentiation/ Culturally Responsive Instruction</p> <ul style="list-style-type: none"> -highlighting contributors to the field from marginalized communities (the video features women engineers at Bell Labs) -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

<p>Day 6 only</p> <p>5 minutes</p>	<p>Closure</p> <p><i>What method of review/assessment will be used to complete the lesson? Students will have an opportunity for reflection, sense-making, and closure. Teacher cites multiple approaches for those students who experience difficulties. The teacher conveys that the lesson is not “done” until all students understand or can demonstrate the skill.</i></p> <ol style="list-style-type: none"> 1. <u>Share-Out:</u> Teacher will ask students to review concepts they have learned in their own words 	<p>Plans for Differentiation/ Culturally Responsive Instruction</p> <p>-Closure allows students to communicate with each other as well as hear definitions in student’s own words</p>
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