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Unit 1 Assessment

Unit 1. Your Virtual World

Revision Date: Jul 23, 2019
Duration: 1 50-minute session

Lesson Summary

Summary:

This is the unit assessment for the first unit of the AP Computer Science Principles curriculum - Your Virtual World. This curriculum provides both a testbank of questions with answers for objective questions, and a sample final unit exam prototype for teacher use extracted from the testbank.

Outcomes:

- Students will have demonstrated their learninging in this unit through answers to both objective and essay questions

Overview:

1. Hand out assessment (2 min)
2. Students write answers to assessment (46 min)
3. Collect and grade the assessment (2 min)

Learning Objectives

CSP Objectives

- *EU DAT-1 - The way a computer represents data internally is different from the way the data is interpreted and displayed for the user. Programs are used to translate data into a representation more easily understood by people.*
    - LO DAT-1.A - Explain how data can be represented using bits.
    - LO DAT-1.C - For binary numbers: a. Calculate the binary (base 2) equivalent of a positive integer (base 10) and vice versa. b. Compare and order binary numbers.

- *EU IOC-1 - While computing innovations are typically designed to achieve a specific purpose, they may have unintended consequences.*
  - LO IOC-1.A - Explain how an effect of a computing innovation can be both beneficial and harmful.
  - LO IOC-1.B - Explain how a computing innovation can have an impact beyond its intended purpose.
  - LO IOC-1.E - Explain how people participate in problem-solving processes at scale.
  - LO IOC-1.F - Explain how the use of computing can raise legal and ethical concerns.

- *EU IOC-2 - The use of computing innovations may involve risks to your personal safety and identity.*
  - LO IOC-2.A - Describe the risks to privacy from collecting and storing personal data on a computer system.

Common Core ELA:

- RST 12.2 - Determine central ideas and conclusions in the text
- RST 12.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases
- RST 12.7 - Integrate and evaluate multiple sources of information presented in diverse formats and media
- RST 12.8 - Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text
- RST 12.9 - Synthesize information from a range of sources
- RST 12.10 - Read and comprehend science/technical texts
- WHST 12.1 - Write arguments on discipline specific content
- WHST 12.2 - Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes
- WHST 12.4 - Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience
- WHST 12.5 - Develop and strengthen writing as needed by planning, revising, editing, rewriting
- WHST 12.6 - Use technology, including the Internet, to produce, publish, and update writing products

NGSS Practices:

- 3. Planning and carrying out investigations
- 4. Analyzing and interpreting data
- 5. Using mathematics and computational thinking
- 7. Engaging in argument from evidence
- 8. Obtaining, evaluation, and communicating information

NGSS Content:

- HS-ETS1-1. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

Key Concepts

This assessment ascertains that students have a basic understandings of all the concepts presented in the unit, therefore, all learning objectives are assessed in this unit.

Essential Questions

- How can a creative development process affect the creation of computational artifacts?
- How can computing and the use of computational tools foster creative expression?
- How can computing extend traditional forms of human expression and experience?
- How are vastly different kinds of data, physical phenomena, and mathematical concepts represented on a computer?
- How does abstraction help us in writing programs, creating computational artifacts and solving problems?
- How does computing enhance human communication, interaction, and cognition?
- How does computing enable innovation?
- What are some potential beneficial and harmful effects of computing?
- How do economic, social, and cultural contexts influence innovation and the use of computing?

Students should be aware of the magnitude of impact on individuals and society that result from technological advancements in computing, as well as the rapid pace of change that occurs because of new developments.

Teacher Resources

Student computer usage for this lesson is: **optional**

In the Lesson Resources folder:

- "Unit 1 Summative Assessment Test DATABASE - AP CSP"
  - the compiled Unit Test testbank
- "Unit 1 Summative Sample Test student copy- AP CSP"
  - a sample exam
- "Unit 1 Summative Assessment DATABASE ANSWERS"
  - answer key for the Unit Test testbank
- "Unit 1 Summative Sample Test ANSWERS- AP CSP"
  - answer key for sample exam
- The instructor will have to review and develop their own evaluation of the essay questions.

Lesson Plan

Getting Started (2 min)

Make sure each student has a copy of the assessment and the necessary writing instruments.

Independent Activity (46 min)

Allow one 45-50 minute class session to administer this assessment.

Distribute the Unit Assessment Test, which consists of 25 objective questions and a choice of four essay prompts. (Teachers can instruct students in selecting one or more short essay responses for students to answer, based on teacher preferences and time allotments.)

Wrap Up (2 min)

Collect all papers from the students.

Evidence of Learning

Summative Assessment

This is the summative unit assessment for Unit 1 - Your Virtual World. A sample summative test and a testing databank of questions are provided by the curriculum. (Note that the sample assessment may not be appropriate for some classes, depending on the particular focus that the teacher has taken -- e.g., the sample assessment includes hexadecimal conversions, which are an optional component of Lesson 1-4.)

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