AP Mentoring Year-Long Session Outline

AP Computer Science Principles

Session	Topics	Objectives
1	Introductions and Starters	▪ Establish shared goals for mentoring experience ▪ Become familiar with mentor and mentee peers ▪ Begin assessing own course and teaching
2	Course Implementation	▪ Build a yearlong plan that prepares students for both through-course and end-of-course assessments and that maximizes instructional time ▪ Implement an appropriate curriculum that addresses the goals of the course ▪ Intentionally develop the computational thinking practices by breaking them down and scaffolding them while providing ample practice and feedback to students prior to assigning projects requiring students to demonstrate the practice ▪ Create lessons that use appropriate instructional strategies to build the skill of algorithmic thinking, beginning with writing single algorithms and moving toward combining multiple algorithms to create a new algorithms
3	Problem Solving and Algorithms	▪ Design projects and investigations in computer science that will encourage students to incorporate their own passions and see connections to other fields of study ▪ Intentionally develop the computational thinking practices by breaking them down and scaffolding them while providing ample practice and feedback to students prior to assigning projects requiring students to demonstrate the practice ▪ Create lessons that use appropriate instructional strategies to build the skill of algorithmic thinking, beginning with writing single algorithms and moving toward combining multiple algorithms to create a new algorithm
4	Data	▪ Provide opportunities for students to use variables and parameters to create a general solution to be used with a variety of input values ▪ Teach students to investigate potential solutions as part of the development process when creating a computational artifact ▪ Design projects and assignments that encourage risk-taking in the service of developing creative solutions ▪ Practice analyzing data use and concerns in the context of a variety of computing innovations ▪ Create models, charts, graphs, and visualizations using data to gain new knowledge and insight ▪ Practice analyzing the impacts and effects of a variety of computing innovations
5	Formative vs. Summative Assessment	▪ Effectively and ethically implement the through course performance tasks according to procedure ▪ Prepare students for the ethical responsibilities of documentation, citation, attribution, and protection of their own and others' intellectual property

		▪ Provide students with multiple opportunities for formative and summative assessment throughout the year
6	Programming and the Create PT	▪ Create lessons that use appropriate instructional strategies to build the skill of algorithmic thinking, beginning with writing single algorithms and moving toward combining multiple algorithms to create a new algorithm ▪ Provide opportunities for students to compare and contrast correct but different solutions to the same problem as well as solutions in which the order of statements affects the outcome ▪ Create lessons that use appropriate instructional strategies to recognize patterns that can be generalized using abstraction ▪ Provide opportunities for students to use variables and parameters to create a general solution to be used with a variety of input values ▪ Teach students to investigate potential solutions as part of the development process when creating a computational artifact ▪ Design projects and assignments that encourage risk-taking in the service of developing creative solutions
7	Maintaining Motivation and Engagement	▪ Choose a programming language that is most appropriate for the mentee and their students ▪ Use recruitment strategies to create a classroom that is representative of their school population in terms of gender and race ▪ Design projects and investigations in computer science that will encourage students to incorporate their own passions and see connections to other fields of study
8	Explore PT	▪ Effectively and ethically implement the through course performance tasks ▪ Prepare students for ethical responsibilities of documentation, citation, attribution, and protection of their own and others’ intellectual property ▪ Practice analyzing data use and concerns in the context of a variety of computing innovations ▪ Create models, charts, graphs, and visualizations using data to gain new knowledge and insight ▪ Practice analyzing the impact and effect of a variety of computing innovations
9	Preparing for the Exam	▪ Understand what is truly needed in an exam review ▪ Plan a review that is appropriate for both the end of the course and preparation for the exam
10	Professional & Course Development	▪ Reflect upon and review progress and growth ▪ Plan for continued growth of both the mentee and his or her course