Teacher's Guide

Game Development

PLATO COURSEWARE

Contents

Overview

Plato Courses are developed to give the instructor a variety of ways to engage different learning modalities and to give the student an opportunity to experience a range of standards and objectives to ensure academic success.

Plato Courses combine active and constructive learning activities with clear presentation and appropriate practice. An array of assessment tools allows the instructor to correctly place students at the appropriate learning level, to evaluate strengths and needs, to create individualized learning goals, and to determine proficiency. Reports assist the student in understanding where to focus to be academically successful as measured against objectives. Guidelines and tools are provided to track student progress and to determine a final course grade.

Plato Courses give the instructor control over the instructional choices for individual students as well as for the classroom. The instructor may use all of the components as sequenced or select specific activities to support and enhance instruction. Plato Courses can be used in a variety of ways to increase student achievement.

Course Components

Learning Activities

Three types of learning activities form the building blocks of active learning for this course: lessons, Course Activities, and Online Discussions.

- **Lessons**. Each lesson in this course contains one or more learning components. All contain an interactive Tutorial and a Lesson Activity.
    - **Tutorials.** Tutorials provide direct instruction and interactive checks of understanding. Practice interactions include drag-and-drop matching, multiple-choice questions, and fill-in-the-blank questions. Tutorials also often include links to informational websites, interactions, and videos, which enable students to broaden their understanding.
    - **Lesson Activities.** Lesson Activities are multipart problem-based activities that allow students to develop new learning in a constructivist way or to apply learning from the Tutorial in a significant way. Lesson Activities are designed to be an authentic learning and assessment tool.
- **Course Activities.** Course Activities presented periodically throughout the course, aim to deepen understanding of the lessons' key objectives and tie them together or tie them to other course concepts.
- **Online Discussions.** Online discussion with instructors and other students is a key activity, based on 21st-century skills, that allows for higher-order thinking about terminal objectives. An online threaded discussion mirrors the educational experience of a classroom discussion. Instructors can initiate a discussion by asking a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others. Instructors may include additional discussion topics. A rubric for grading discussion responses is included in this guide.
- **Online Games.** Each course has five games to reinforce basic content from the course in a fun and engaging way.

Learning Aids

Assessment and Testing

Best practices in assessment and testing call for a variety of activities to evaluate student learning. Multiple data points present a more accurate evaluation of student strengths and needs. These tools include both objective and authentic learning tools.

- **Objective Assessments.** There is a specific learning objective associated with each lesson. Each lesson objective is assessed through objective assessments at the end of the specific lesson and at the end of the semester.
  - **Mastery Tests** at the end of each lesson provide the instructor and the student with clear indicators of areas of strength and weakness. These multiple-choice tests are taken online.
  - **End-of-Semester Tests** assess the major objectives covered in the course. The tests are multiple-choice and are provided online.
- **Authentic Learning Assessment.** Of the assessment tools available in this course, three are designed specifically to address higher-level thinking skills and operations: Lesson Activities, Course Activities, and Online Discussions. These authentic learning activities allow students to develop deep understanding and provide data for the teacher to assess knowledge development. These three types of activities are described in the Learning Activities section above. The following comments address their use for assessment.
  - **Lesson Activities** immerse the student into one or more in-depth problems that center on developing a deep understanding of the learning objective. They also provide a tool for assessing identified inquiry skills, and 21st century skills. The Lesson Activities in this course are self-checked by the student; however, it is possible to submit this work for teacher grading on paper, by email, or by creating a drop box activity in the course learning path.
  - **Course Activities** are similar to Lesson Activities but are more time intensive and require a more integrative understanding the lesson objectives. They also provide a tool for assessing identified inquiry skills and 21st-century skills. Course Activities are teacher graded and are submitted through the drop box. These activities allow the instructor to score work on a scale of 0 to 100. A 10-point suggested rubric is provided to both the student and the teacher for this purpose.
  - **Online Discussions** encourage students to reflect on concepts, articulate their thoughts, and respond to the views of others. Thus, discussions help teachers

assess students' critical-thinking skills, communication skills, and overall facility with the course concepts. Each Course Activity has one predefined Online Discussion. Instructors can customize the course, however, to include additional discussion topics. Online Discussions may use any rubric the instructor sets. A suggested rubric is provided here for reference.

Online Discussion Rubric				
	D/F 0–69 Below Expectations	C 70–79 Basic	B 80–89 Proficient	A 90–100 Outstanding
Relevance of Response	The responses do not relate to the discussion topic or are inappropriate or irrelevant.	Some responses are not on topic or are too brief or low level. Responses may be of little value (e.g., yes or no answers).	The responses are typically related to the topic and initiate further discussion.	The responses are consistently on topic and bring insight into the discussion, which initiates additional responses.
Content of Response	Ideas are not presented in a coherent or logical manner. There are many grammar or spelling errors.	Presentation of ideas is unclear, with little evidence to back up ideas. There are grammar or spelling errors.	Ideas are presented coherently, although there is some lack of connection to the topic. There are few grammar or spelling errors.	Ideas are expressed clearly, with an obvious connection to the topic. There are rare instances of grammar or spelling errors.
Participation	The student does not make any effort to participate in the discussion.	The student participates in some discussions but not on a regular basis.	The student participates in most discussions on a regular basis but may require some prompting to post.	The student consistently participates in discussions on a regular basis.

Course Implementation Models

Plato Courses give instructors the flexibility to define implementation approaches that address a variety of learning needs. Instructors can configure the courses to allow individual students to work at their own pace or for group or class learning. Furthermore, the courses can be delivered completely online (that is, using a virtual approach) or can include both face-to-face and online components (that is, using a blended approach). Depending on the learner grouping and learning approach, instructors can choose to take advantage of peer-to-peer interaction through Online Discussions. Following are two common implementation models for using Plato Courses, along with typical (but not definitive) implementation decisions.

- **Independent Learning**
  The student is taking the course online as a personal choice or as part of an alternative learning program.

Learner grouping	independent learning
Learning approach	blended or virtual
Discussions	remove from learning path

- **Group or Class Learning**
  The online course is offered for a group of students. These students may not be able to schedule the specific course at their local school site, or they may simply want the experience of taking an online course.

Learner grouping	group interaction
Learning approach	blended or virtual
Discussions	use; additional discussion questions may be added

Game Development Overview

Course Structure
Game Development is a one-semester course with 20 lessons that cover the essential concepts of Game Development. The typical audience for this course is a high school student.

Instructional Approach
This course is designed to enable students at the high school level to develop skills and knowledge that they can use in their careers in the near future. The Lesson Activities in each lesson help enhance the lesson's content. The course also has five Course Activities that tie the lessons together. These Course Activities require critical thinking and analysis.

The Online Discussion with each of the Course Activities requires students to apply critical thinking skills to an interesting problem, while communicating and collaborating with other students. This collaboration is a critical aspect of the course, especially in fully online implementations where peer-to-peer interaction may be limited.

Games provide students with interesting and engaging ways to review and assess their knowledge.

Overall, this course is designed to be relevant and engaging for students and based upon a strong career orientation. At the same time, it's designed to be simple for teachers to manage.

Game Development

Curriculum Contents and Pacing Guide

This course has 20 lessons and is designed to be completed in one semester. The pacing guide provides a general timeline and is based on a typical schedule of 90 days per semester. The guide is adjustable to fit your class schedule.

Day	Activity / *Objective*	Type
1 day: 1	**Course Orientation** *Review the Plato Student Orientation and Course Syllabus at the beginning of this course.*	Course Orientation
3 days: 2-4	**Video Game Beginnings and Arcades** *Describe the early history of video games, including key influences.*	Lesson
3 days: 5-7	**Introduction to Home Consoles** *Compare features of early console companies.*	Lesson
3 days: 8-10	**The Bit Wars and Personal Computers (PCs)** *Discuss key influences and events during the early console wars.*	Lesson
3 days: 11-13	**Platforms and Convergence** *Analyze the many different types of gaming platforms and how the new technologies are converging.*	Lesson
3 days: 14-16	**Video Game History**	Course Activity
1 day: 17	**Games as Entertainment**	Course Discussion
1 day: 18	**Game**	Activity
3 days: 19-21	**Game and Player Goals** *Define non-entertainment goals within video game development.*	Lesson
3 days: 22-24	**Game Genres** *Discuss various game genres and their characteristics.*	Lesson
3 days: 25-27	**Player Motivations** *Analyze player motivations for playing games and how they have changed over time.*	Lesson

3 days: 28-30	**Game and Player Demographics** *Analyze the different demographics and how that differs over geographic markets.*	Lesson
4 days: 31-34	**Video Game Psychographics**	Course Activity
1 day: 35	**Mobile Gameplay**	Course Discussion
1 day: 36	**Game**	Activity
3 days: 37-39	**Story** *Compare the use of story elements in video games with their use in traditional elements.*	Lesson
3 days: 40-42	**Character Development** *Examine the different areas of character development and how story is involved.*	Lesson
3 days: 43-45	**Gameplay** *Discuss the use of various gameplay challenges and strategies.*	Lesson
3 days: 46-48	**Building the Worlds** *Discuss how various features in gameplay contribute to level design.*	Lesson
3 days: 49-51	**Video Game Story**	Course Activity
1 day: 52	**Effect of Hardware on Game Development**	Course Discussion
1 days: 53	**Game**	Activity
3 days: 54-56	**Game User Interface** *Discuss the components of game interfaces and how they draw from the theory of player centered design.*	Lesson
3 days: 57-59	**Game Audio** *Analyze the importance of audio in video game development.*	Lesson
3 days: 60-62	**Industry Roles** *Identify the various job roles within the video game industry and their responsibilities.*	Lesson
3 days: 63-65	**Mobile and Social Gaming** *Discuss the pros and cons of delivering video games through mobile devices.*	Lesson

3 days: 66-68	**Mobile Video Games**	Course Activity
1 day: 69	**Puzzles in Games**	Course Discussion
1 day: 70	**Game**	Activity
3 days: 71-73	**Development Phases** *Describe the various phases of production for game development.*	Lesson
3 days: 74-76	**Management Methodologies** *Analyze the role of management in the game production process..*	Lesson
3 days: 77-79	**Marketing of Games** *Analyze various methods used to successfully market games.*	Lesson
3 days: 80-82	**The Future of Gaming** *Discuss the existing trends and possible directions in video gaming.*	Lesson
4 days: 83-86	**Future of Video Games**	Course Activity
1 day: 87	**Compare and Contrast Game Design and Software Development**	Course Discussion
1 day: 88	**Game**	Activity
1 day: 89	**Course Review**	
1 day: 90	**End of Semester**	Assessment