

# Grades 10–11 Science, Project-Based Learning

## Video 1 (Day 1)

### Lesson Graph

This document accompanies a sample lesson scored using the UTeach Observation Protocol (UTOP). The video lesson is a shortened version of a 58-minute class period observed at Manor New Tech High School in Manor, Texas.

This document describes the objectives and agenda for the 58-minute class period and aligns the actual minutes of the class with the minutes of the video.

The project observed in this classroom was a multi-day project. The video, sample scores, and more for this and other days of the project are available on the UTOP website:  
<http://utop.uteach.utexas.edu/?q=sample-utop-scoring>.

### Objective

- We will review the shapes of conic sections.
- We will view and reflect upon an entry video that introduces our final project.
- We will investigate conditions essential and not essential to life by analyzing student work and a blog article.

### Products

- I will use my notes, team help, and feedback to correctly complete a warm up on conic sections
- I will write an individual reflection on the entry video in my notebook and work with my team to submit a team reflection on the entry video.
- I will work with my team to complete charts on conditions for life that relate to displayed student work and to a blog article.

### Agenda

1. Conic sections warm up (1 per student)
2. Entry video:
  - View and take notes
  - Entry video reflection (1 per person in notebook, 1 per team submitted via journal response)
3. Conditions for life (1 per team)

### *Due Today*

- Warm up (conic section; 1 per student)

- Entry video reflection in notebook (1 per student)
- Entry video journal (1 per team)
- Essential life conditions (1 per team)

### ***Coming Soon***

- Group contracts (tomorrow)
- Stars and habitable zone (tomorrow)

## **Texas Essential Knowledge and Skills and Learning Outcomes**

### ***Algebra II TEKS***

2A.b.5.A. Describe a conic section as the intersection of a plane and a cone.

### ***Learning Outcome***

Critical thinking

### **Video / Class Period Time Alignment**

The actual class time is in black below. Video times are in blue and bracketed.

<b>Time in minutes</b>	<b>Description of activity</b>
0–5.5 [not shown]	<b>Logistics</b> Students gather necessary supplies, such as class notebooks, and instructor takes attendance. One instructor organizes seating charts while the other monitors the hallway to ensure students get into class on time.
5.5–6.5 [not shown]	<b>Instructor conversation</b> Instructors discuss the sequence of the lesson with each other as well as how to play the video from the projector.
6.5–8.5 [0:20–2:09]	<b>Video viewing directions</b> Instructor defines objectives for watching the video and describes the video launch in the larger context of the lesson.
8.5–14.5 [2:09–5:27]	<b>Video plays twice</b> This video launches the project. Students watch a teacher-developed video that outlines the expectations of the project.

Time in minutes	Description of activity
16.5–57.5 [5:27–28:16]	<p><b>Student work time</b></p> <p>Students work in groups, submit their warm up assignment reviewing conic sections, and post a journal entry. Students spend some time planning for their project and conducting a gallery walk to review other students' brainstorming ideas. This prompts group discussion. As students work on these first aspects of the project, the instructors circulate, answering questions and assisting students.</p>
57.5–58	<p><b>Class ends</b></p> <p>Instructor dismisses the class.</p>