

Unit 8 Conic Sections

Content Area: **Math**
Course(s): **Accelerated PreCalculus, CP PreCalculus**
Time Period: **Marking Period 3**
Length: **4**
Status: **Published**

Unit Overview

In this unit, students will explore conic sections.

Enduring Understandings

- Students will analyze lines, circles, ellipses, parabolas, and hyperbolas.

Essential Questions

How do you find the angle of inclination of a line and the distance between a point and a line?

How do you recognize each conic section?

How do you solve problems involving circles, ellipses, hyperbolas, and parabolas?

How do you classify a conic section on the basis of its general equation?

How do you eliminate the xy -term from the general equation for conic sections and classify a conic on the bases of its general equation if B is not 0?

New Jersey Student Learning Standards (No CCS)

MA.G-GPE.A	Translate between the geometric description and the equation for a conic section
MA.G-GPE.A.1	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.
MA.G-GPE.A.2	Derive the equation of a parabola given a focus and directrix.
MA.G-GPE.A.3	Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.

Instructional Strategies & Learning Activities

- Provide access to online book
- Provide access to book pages and problems through Canvas
- Provide access to review keys
- Provide access to webassign as learning and reviewing tool
- Specific problems will be pulled out to to provide opportunities to extend their knowledge.
- Work on problem solving in a group setting

Formative Assessments

- Daily homework checks
- Quiz
- Chapter Test
- Exit Tickets
- Warm-ups

Summative Assessment

- Unit Test
- Unit Project

Alternate Assessments

- Modified homework
- Modified quizzes
- Modified tests
- Modified projects

Closure

- Low-Stakes Quizzes - Give a short quiz using technologies like Kahoot or a Google form.
- Have students write down three quiz questions (to ask at the beginning of the next class).

- Have students dramatize a real-life application of a skill.
- Ask a question. Give students ten seconds to confer with peers before you call on a random student to answer. Repeat.
- Have kids orally describe a concept, procedure, or skill in terms so simple that a child in first grade would get it.
- Direct kids to raise their hands if they can answer your questions. Classmates agree (thumbs up) or disagree (thumbs down) with the response.
- Have kids create a cheat sheet of information that would be useful for a quiz on the day's topic.
- Kids write notes to peers describing what they learned from them during class discussions.
- Have students fill out a checklist with the objectives for the day.
- Have students complete an exit ticket without putting their name on it. Hand back exit tickets the next day in class and have students correct as a warm up.
- Ask students to write what they learned, and any lingering questions on an "exit ticket". Before they leave class, have them put their exit tickets in a folder or bin labeled either "Got It," "More Practice, Please," or "I Need Some Help!"
- After writing down the learning outcome, ask students to take a card, circle one of the following options, and return the card to you before they leave: "Stop (I'm totally confused. Go (I'm ready to move on.)" or "Proceed with caution (I could use some clarification on . . .)"