

UTA CARES Report

Theresa Jorgensen, Associate Professor, Mathematics

Project title: Utilizing OER Resources to Strengthen the Student Experience in Geometry

Context:

Math 3301, Foundations of Geometry, is a junior level mathematics course. It is offered every Fall and Spring semester. The class size is typically 30 students, of which approximately 15 students are math majors (usually working toward their secondary teaching certification) and 15 students are math minors (usually engineering majors.) Two textbooks have been in rotation for this class as the required texts. They are

1. Sibley, T. Q. (2015). *Thinking geometrically: A survey of geometries*. Washington, D.C.: Mathematical Association of America.
 - a. **Cost: \$100**
2. Marvin J. Greenberg (2007). *Euclidean and Non-Euclidean Geometries*. New York, NY: W.H. Freeman.
 - a. **Cost: \$130**

Impact of financial support from UTA CARES grant:

The funding provided by the UTA CARES grant was essential to the process of converting this course so that all the resources would be free to students. I had been unhappy with the textbooks utilized in prior years for Math 3301, but without the incentive and associated expectations provided by the UTA CARES grant, it is not likely that I would have put in the extra time to make the move to OER. The grant was the crucial piece that ensured the work would happen.

Implementation of UTA CARES grant:

Summer 2018 – planning stage

1. Attended UTA CARES orientation and training workshop on May 15, 2018.
2. Selected initial OER resources for the Fall 2018 course.
 - a. Criteria
 - i. Can be utilized in Math 3301 to support the learning objectives in a student-centered, active-learning pedagogical environment.
 - ii. Free cost to students
 - iii. Accessible (ideally available online)
 - iv. If an OER textbook, the textbook must be recommended by The American Institute of Mathematics Open Textbook. <https://aimath.org/textbooks/>
 - b. Key materials selected
 - i. *Art of Mathematics: Geometry* by Julian F. Fleron and Volker Ecke (<http://www.artofmathematics.org>)
 - ii. *Geometry with an Introduction to Cosmic Topology* by Michael P. Hitchman (mphitchman.com/download.html)

- iii. *Dimensions* by Jos Leys, Etienne Ghys, and Aurelien Alvarez (http://www.dimensions-math.org/Dim_E.htm)
- iv. Flatland, by Edwin Abbott <http://www.gutenberg.org/ebooks/201>

Fall 2018 – Implementation

1. Students were clearly informed that the course would be utilizing OER resources and that the cost to them for those resources would be zero dollars.
2. See the Syllabus, at the end of this report for details of the topics covered and the associated assignments.
3. I completed a Daily Agenda, which I used to track my implementation of the materials. The goal of this Daily Agenda document was to serve as an Instructor Guide for future instructors of the course, so that they would have a Scope and Sequence that details the mathematical activities the students engaged in in class together with the corresponding preparatory assignments and associate homework.
 - a. Creation of this Daily Agenda was the most time consuming part of the implementation, but also the most worthwhile. It served as a reflective opportunity for me that I find I don't often make time for when teaching my typical courses.

Assessment:

At the end of the Fall 2018 semester, 3301 students were surveyed to evaluate their views on the implementation of OER resources in the course. The student views were overwhelmingly positive.

24 students completed the survey. There were 14 Juniors, 8 Seniors, 1 Sophomore, and 1 Graduate student.

10 out of the 24 students took out student loans that semester, while 15 out of the 24 students were Pell Grant recipients.

Most of the students (19 out of 24) were not aware of the course's digital content before they registered. The students primarily utilized their laptop or tablet to access the materials (18 out of 24).

Compared to traditional print textbooks the students evaluated the following characteristics of the OER materials as either much better or somewhat better:

- Good search capabilities (22/24)
- High quality visuals (21/24)
- Engaging and interesting writing (20/24)
- Understandable and clear writing (20/24)
- Helpful and useful study aids (17/24)
- Relevant content (20/24)
- Current content (19/24)
- Comfort while using (14/24)
- Good value for the price paid (23/24)

Compared to traditional print textbooks the students evaluated the following characteristics of the OER materials as either much easier or somewhat easier:

- To access whenever needed (19/24)
- To find and get started on the correct assignments in time (20/24)
- To read and understand the material (21/24)
- To shut out other distractions while studying (13/24)
- To take useful notes on the material (18/24)
- To complete assignments on time (19/24)
- To review and remember the material (20/24)
- To be prepared for class activities or discussions (20/24)
- To collaborate with fellow students (19/24)

The students preferred course resource format is varied. 5 prefer ebooks. 5 prefer online text, 7 prefer videos, 6 prefer print books, and 1 prefers videos with accompanying text. I think this validates the variety of OER materials that I incorporated in Math 3301. There was not dependence on any one of these formats – all were interwoven into the course.

If given a choice between a course with OER resources and a course with traditional textbooks, 22 students would opt to take the course with reduced-cost online materials. The remaining 2 students said they would have no preference.

Comments from students:

I really liked that everything was online because I always had access to the material wherever I was and didn't have to carry around heavy books

Ebooks are helpful

I really liked the abundance of different hands on materials and different types of resources available.

Please continue to make low or reduced cost classes.

I was super engaged throughout the semester. There was a variety of learning material, from videos to chapters of textbooks to printed notes to activities. Inclusive and open to all types of learning.

Thanks for the initiative. I did not know about it.

I really appreciate classes that have the free resources for students. Helps out a lot and very easy to use.

The low-cost and availability of materials for this course was amazing and made the acquisition of knowledge painless because information was presented in a wide variety of formats that were easy to access. I would highly recommend this format of classes and be interested in taking more courses that follow this format.

I ended up renting a book that was not used in the course at all because it was suggested by the bookstore. I appreciate the use of free and low-cost materials and hope that there will not be a mix up next time

From my perspective, the implementation was a win-win. In past semesters of teaching Math 3301, I had great instructor guilt about using textbook that had been selected by the Mathematics Department. On the one hand, I teach my courses in a very active-learning style, so I often utilize resources that are outside of the textbook. Moreover, I was not a fan of the two textbooks that were assigned to the course. But on the other hand, since the students were required to purchase the textbook, I felt obligated to utilize the textbook so that the students felt they “got their money’s worth.”

Moving to OER fit both my teaching style and the learning needs of the Math 3301 students. With the flexible OER resources, the students were able to engage with cutting edge video visualizations representing higher dimensions and hyperbolic planes, while still having access to good foundational prose which they could reference.

Sustainability:

In Spring 2019, Math 3301 was taught by Dr. Glenda Mitchell. Dr. Mitchell utilized all the OER resources that I compiled, together with the Daily Agenda that I created in the prior semester. The students had zero textbook expenses, and Dr. Mitchell said that teaching the course with the OER materials was a very positive experience for her.

I will be teaching Math 3301 in Fall 2020 again, and I will continue to refine the OER resources that we use for the course.

Sample course materials adapted for MATH 3301 OER follow.

1. Syllabus
2. 5-con triangle activity
3. Discussion guide for Flatland

MATH 3301: Foundations of Geometry
Fall 2018**Instructor:** Dr. Theresa Jorgensen**Office Number:** PKH 434**Office Telephone Number:** 817-272-1321**Email Address:** jorgensen@uta.edu**Preferred Office Hours:**

Monday 2:30-3:15pm, Thursday 1-2pm, or by appointment

Section Information: MATH 3301-001**Time and Place of Class Meetings:** Monday & Wednesday, 1:00-2:20pm, PKH 311**Description of Course Content:**

This course will develop a foundation for geometry, including Euclidean and Non-Euclidean geometries. Course activities will emphasize problem solving in geometry as well as reading, writing, and communicating mathematical arguments in the context of geometry.

Student Learning Outcomes:

- (1) Describe and apply foundational concepts from geometries such as Euclidean geometry, Non-Euclidean geometry, and Transformational geometry.
- (2) Describe connections among geometric concepts.
- (3) Use technology to explore geometric concepts
- (4) Explain geometric concepts using clear mathematical arguments and proofs.
- (5) Apply problem-solving skills to problem situations in geometry.
- (6) Clearly communicate geometric concepts through writing and speaking.

Required Textbook (all are OER – open educational resources [free]):

Art of Mathematics:Geometry by Julian F. Fleron and Volker Ecke (<http://www.artofmathematics.org>)
Geometry with an Introduction to Cosmic Topology by Michael P. Hitchman
(mphitchman.com/download.html)

Dimensions by Jos Leys, Etienne Ghys, and Aurelien Alvarez (http://www.dimensions-math.org/Dim_E.htm)

Additional materials will be provided in class and through UTA Blackboard (elearn.uta.edu).

Blackboard will also be used for course communication and assignments (elearn.uta.edu). For assistance with Blackboard, please contact the UTA Helpdesk at the Office of Information Technology.

Course Schedule (Tentative):

Topics	Date	Events to note
Fold and Cut Theorem	W Aug 22	
Navigating Between Dimensions	M Aug 27	
	W Aug 29	
	M Sept 3	NO CLASS Labor Day
	W Sept 5	Homework 1
	M Sept 10	Quiz 1
Visualizing Between Dimensions	W Sept 12	
	M Sept 17	
	W Sept 19	Homework 2
	M Sept 24	Quiz 2
Higher Dimensions	W Sept 26	
	M Oct 1	
	W Oct 3	Homework 3
	M Oct 8	
	W Oct 10	Midterm Exam
Inbetween the Dimensions - Fractals:	M Oct 15	
	W Oct 17	
	M Oct 22	Homework 4
	W Oct 24	Quiz 3
Elliptic and Hyperbolic Geometry	M Oct 29	
	W Oct 31	
	M Nov 5	Quiz 4
	W Nov 7	
	M Nov 12	
	W Nov 14	Quiz 5
	M Nov 19	
	W Nov 21	NO CLASS Thanksgiving
	M Nov 26	Homework 5
	W Nov 28	Project Papers & Project Presentations
	M Dec 3	Project Presentations
Wednesday, December 12 11:00am – 1:30pm		Final Exam

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Theresa Jorgensen

Grading:

Homework sets	150 points
Quizzes	150 points
Participation	60 points
Group Project	140 points
Mid-term Exam	200 points
<u>Final Exam</u>	<u>300 points</u>
Total	1000 points

A	≥ 900 points
B	800 – 899 points
C	700 – 799 points
D	600 – 699 points
F	< 600 points

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see “Student Support Services,” below.

Course Assignments, Examinations, and Expectations:**Homework:**

Five homework sets will be assigned. Only selected problems will be graded, and these will be announced when homework is assigned. Some problems will be explored in class and others will be completed entirely outside of class. You may work in groups on homework problems; however, the final copy of your homework must reflect your own thinking and be written without assistance. The act of copying a solution from another student, textbook, the internet, or as dictated by a tutor (etc.) constitutes academic misconduct. (See *Academic Integrity* section.) Late homework is not accepted. The top 4 scores out of your 5 homework assignments will count towards your course grade.

Quizzes:

Five quizzes will be given in the course. Generally, the quizzes will be given in the first 15 minutes of class. Material on the quiz will be announced in advance. There will be no make-ups for missed quizzes for any reason. The 4 top scores out of your 5 quizzes will count towards your course grade.

Exams:

One mid-term exam and one final exam will be given in the course. Material on the exams will be announced in advance. The final exam will be comprehensive. No makeup examinations will be allowed except for documented emergencies. (See the UTA Student Handbook.) In the case of documented emergency, a request for a make-up exam MUST be submitted to the instructor in writing, with the supported documents. It is imperative that you contact your instructor as soon as possible (do **NOT** wait until you return to class!), and include a way that you can be reached.

Project:

You will complete a course project in groups of 1-4 students. All requirements for the project are the same, regardless of the number of people in the group. The project topic should extend the geometry concepts covered in the course and must contain a typed report (5 pages minimum) and a 15-minute oral presentation to the class. Suggested topics will be provided. Your project topic must be approved by the instructor. Additional guidance and a rubric for the project will be provided after the first exam. Late projects will not be accepted.

Attendance and Participation:

Because this course relies heavily on group participation and material that supplements the textbook, attendance is mandatory. You must attend 26 of the 28 classes to receive full credit for attendance. Arriving late or leaving early will count as half a class absence. Students are responsible to notify the instructor if they are missing class and for what reason. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent.

Learning is both more effective and more satisfying when you can be an active participant in the process. You are expected to attend every class meeting and to come prepared to discuss the readings as well as your solutions and questions to the homework problems. You are expected to actively participate in and stay on task during classroom activities and discussions. You are encouraged to offer suggestions and conjectures even if you aren't sure of the answers. In addition, you are expected to work with others, respect others' ideas, and celebrate others' successes. Students with lack of or inappropriate participation will be required to meet with the instructor to develop an action plan.

Expectations for Out-of-Class Study:

Mathematics is best learned by investing TIME. Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading, completing assignments, and preparing for exams.

University Policies and Information:

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

Attendance Policy: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I have established the attendance policy outlined in the expectations above. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session.

The last day to drop classes is November 2.

It is the student's responsibility to officially withdraw if they do not plan to attend after registering.

Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a **letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Non-Discrimination Policy: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.*

Title IX Policy: The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.*

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](#), [major-based learning centers](#), developmental education, [advising and mentoring](#), personal counseling, and [federally funded programs](#). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

The IDEAS Center (2nd Floor of Central Library) offers **free** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. <http://library.uta.edu/academic-plaza>

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, [which is located in the stairwell to the right when you exit the classroom](#). When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

You are encouraged to subscribe to the MavAlert system that will send information in case of an emergency. Anyone can subscribe at <https://mavalert.uta.edu/> or <https://mavalert.uta.edu/register.php>

Emergency Phone Numbers:

In case of an on-campus emergency, call the UT Arlington Police Department at

817-272-3003 (non-campus phone)
2-3003 (campus phone)

You may also dial 911.

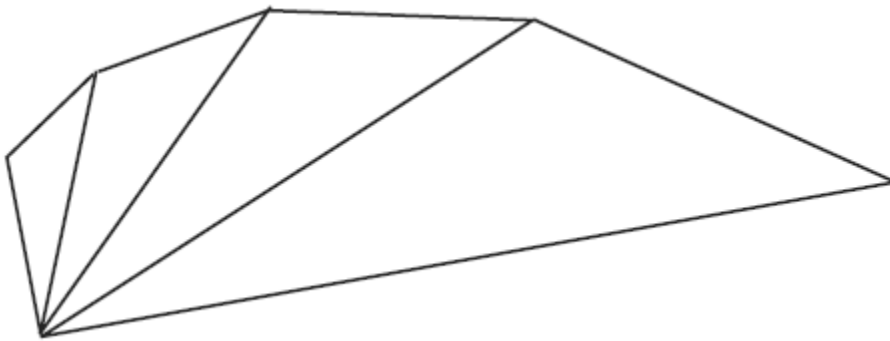
Non-emergency number 817-272-3381

What is the maximum number of pairs of congruent elements that two non-congruent triangles could have?

Triangle Spirals

In the following drawing there are 4 triangles arranged in a spiral shape. You also have a transparent sheet onto which you can copy the drawing. You are asked to investigate the special properties of this spiral, find connections between the triangles that constitute it, and finally continue the spiral by adding two triangles to it.

Try to use the transparent sheet for comparing measures of the different elements of the triangles.



Look at your peers and compare: Did you continue the spiral in the same way?

Consider the limitation of the accuracy of the drawing and your measuring tools: How might they affect your conjectures and conclusions?

In your investigation you probably found that each pair of adjacent triangles has exactly 5 congruent elements, yet they are not congruent. Such triangles are called 5-con triangles. Can you construct other pairs of 5-con triangles that are not part of the given spiral?

Discussion guide for Flatland, Part One: This World

1—Of the Nature of Flatland

- Who is the narrator of Flatland?
- Since Flatland is a plane, all shapes must appear as what?
- How many dimensions does Flatland have? Using shapes drawn and cut from paper, demonstrate how residents of Flatland appear to each other.

2—Of the Climate and Houses of Flatland

- The houses were what shape? Why?
- What helps Flatlanders determine direction?

3—Concerning the inhabitants of Flatland

- How long were most inhabitants?
- What was the shape and ranking of women?
- What are the various shapes and ranks of the men?
- Abbott depicts social class as visible by physical form in Lineland (chapter 13). In what way is social class physically visible in Spaceland (or our world)?
- How did male children differ from their fathers? What was the significance of this?

Additional Information:

Abbott's description of a circle as a polygon of so many sides that it can't be distinguished from a circle is an example of Abbott using exemplary math. A regular n -gon with n very large is approximately a circle, but the radius r of that circle depends on the length of side d of the polygon.

$$r = (d/2) \operatorname{cosec}(\pi/n).$$

In order to approximate a given circle by a series of regular n -gons, for increasing n , the sides must shrink as n increases. For a circle of radius r , the side of the polygon must get closer and closer to

$$2 \pi r/n.$$

(Abbott/Stewart, p. 44)

Darwinian influence was shaking up Victorian England in the late 1800s. Many in Victorian society accepted a misreading of Darwin, allowing for the worst kind of "Social Darwinism"—it's OK to ignore the poor because it will lead to an improved human species. (However, Abbott's school, the City of London School, was actually quite progressive and egalitarian.)

(Abbott/Stewart, p.45)

4—Concerning the Women

- Why do women have a separate entrance?
- What must women do when walking in public places?
- Describe the characteristics of Flatland women. What does this satirical writing say about the Victorian view of women?

5—Of Our Method of Recognizing One Another and 6—Of Recognition by Sight

- What are the three methods Flatlanders use to recognize one another? What are the advantages and disadvantages of each?

7—Concerning Irregular Figures

This chapter makes a case for regularity or symmetry. Although stressing symmetry, Abbott is mathematically careful when he states that “If our sides were unequal our angles might be unequal.” He is obviously aware that there are exceptions.

- Give an example of a polygon with unequal sides, but with equal angles.
- Give an example of a polygon with equal sides, but with unequal angles.

Rigid Victorian England had little tolerance for irregularity or lack of conformity. Abbott’s satire is particularly biting here, as he explains that Flatlanders propose “painlessly and mercifully” consuming irregular offspring. This is very much like Swift’s *A Modest Proposal for Preventing the Children of the Poor People in Ireland from being a Burden to their Parents or Country and for Making Them Beneficial to the Public* (1729):

I have been assured by a very knowing American of my acquaintance in London, that a young, healthy child, well-nursed, is at a year old a most delicious, nourishing and wholesome food, whether stewed, roasted, baked, or boiled, and I make no doubt that it will equally serve in a fricassee, or a ragout.
(Swift as quoted by Abbott/Stewart, p. 78)

- Discuss possible effects of statements such as Abbott’s or Swift’s. What are the pros and cons of using irony or satire to make a point? Is this approach likely to be effective in changing attitudes? Will members of Victorian society “get it” and reconsider their own behaviors and attitudes? Or will the extremeness of the satire cause them to be outraged and feel morally superior? Give your opinion and explain why you have that opinion.
- How do you think Victorians would deal with people with special needs such as physical or mental challenges? What would their view be of special education? What might Victorians have done with Einstein (who was a very poor student in school)?

8—Of the Ancient Practice of Painting and 9—Of the Universal Colour Bill

- The Victorians worried about the destructive influence of popular culture on the classics—“dumbing down” the culture. In Abbott’s story, they worried about the reduction of the Art of Sight Recognition because it was less needed with the addition of color. Give an example of this worry about “dumbing down” the culture today.

- Explain how the coloring of women and priests could cause women to be mistaken for priests? Demonstrate this with paper circles and lines.
- In the passage on mistaking women for priests 0 in Flatland, how does this discussion imply more intelligence in women than earlier passages in Flatland?

10—Of the Suppression of the Chromatic Sedition

During the Victorian era, the English social system was struggling toward greater equality —first for the common man and then for women, noble or common. (Oddly enough, it was the conservative views of Queen Victoria—a woman, obviously—who discouraged universal rights.)

- Discuss how the Color Sedition demoralized the Circles and brought about the suppression of color.
- Color came to be allowed only for illustrating some mathematical properties. How is color used today to illustrate math?

11—Concerning our Priests and 12—Of the Doctrine of Our Priests

- Explain the Flatland version of “gene therapy”?
- In Flatland and in Victorian England, social pedigree outweighs everything else. What is the discussion about “invisible” irregularities in women saying about Victorian society?
- Although A. Square makes an appeal for educating women, what reason does he give? Why do you think Abbott uses this kind of reasoning?