

## COURSE OUTLINE

### Developmental Skills Lab 026 Geometry IB

#### I. Catalog Statement

Developmental Skills Lab 026 is the second half of a one-year high school level geometry course. The course includes proportion and similarity, the Pythagorean Theorem, two and three dimensional figures, solid geometric figures, and lines and loci in space. This course is designed to meet the needs of students who wish to begin their study of geometry and to earn high school credit in math.

Units — 0.0

Total Laboratory Hours — 100.0

Recommended preparation: ESL 040 or equivalent  
DSL 025 or equivalent

Note: This is a self-paced course in an open-entry, open-exit lab environment. Successful completion of this course is worth 5 credits (.5 unit) towards a high school diploma.

#### II. Course Entry Expectations

Skills Level Ranges: Reading: 5; Writing: 4; Listening/Speaking: 4; and Math: 4.

#### III. Course Exit Standards

Upon successful completion of the required coursework, the student will be able to:

1. use proportions to find the missing values;
2. use the Pythagorean Theorem to determine the length of an unknown side of a right triangle;
3. explain and use formulas for finding the perimeters and areas of polygons;
4. explain and use formulas for determining the volume and surface area of solids;
5. construct and describe simple and compound loci.

#### IV. Course Content

- |    |                                    |          |
|----|------------------------------------|----------|
| A. | Proportion and Similarity          | 10 hours |
|    | 1. Similar figures and proportions |          |
|    | 2. Similar triangles               |          |

	3. Angle measure in regular polygons	
	4. Enlarging geometric figures	
	5. Shrinking geometric figures	
B.	The Pythagorean Theorem	15 hours
	1. Pythagorean triples and a proof	
	2. Pythagorean demonstration	
	3. Pythagorean Theorem and similar triangles	
	4. Converse of the Pythagorean Theorem	
C.	Perimeter and Area	15 hours
	1. Perimeters of polygons	
	2. Perimeters and diagonals	
	3. Area, squares, rectangles, parallelograms	
	4. Areas of trapezoids	
	5. Areas of triangles	
D.	Circles and Spheres	20 hours
	1. Definition of a circle	
	2. The ratio	
	3. Approximating the area of a circle	
	4. Area and probability	
	5. Formula for the area of a circle	
	6. Circles and their angles and sectors	
	7. Tangents, circumcircles, and incircles	
	8. Spheres	
E.	Solid Geometric Figures and Their Measures	20 hours
	1. Basic volume formulas	
	2. Volumes of pyramids and cones	
	3. Surface areas of prisms and cylinders	
	4. Surface areas of pyramids and cones	
	5. Measurements	
F.	Geometry and Imagination	20 hours
	1. Lines and planes in space	
	2. Loci in the coordinate plane	
	3. Compound loci	

#### V. Methods of Presentation

The following instructional methodologies may be used in the course:

1. independent study using worksheets and texts;
2. computer-aided instruction;
3. small group instruction;
4. video instruction.

#### VI. Assignments and Methods of Evaluation

1. Students must successfully complete the entire course contract.
2. Assessments at the end of each chapter.

3. Unit tests.
4. Final test.

**VII. Textbooks(s)**

Haenisch, Siegfried. Geometry.

Circle Pines: American Guidance Service, Inc., 2001

11<sup>th</sup> Grade Textbook Reading Level. ISBN 0-7854-2221-8

**VIII. Student Learning Outcome**

- demonstrate polygon similarity using proof involving proportions;
- map rotations, translations and dilations;
- use the Pythagorean Theorem to find the third side of a triangle and to prove that a triangle is a right triangle;
- find the circumference, perimeter, area, surface area. And volume of plane and solid geometric figures including circles and spheres.