Year	Development	Grade	Overview
2009	Area and Geometric Probability	Grades 6-12	Students will examine and expand on applications involving area of rectangles, parallelograms, triangles, trapezoids, and circle through use of, but not limited to, manipulatives, technology, and instruction.
2009	Critter Constructions	Grades 9-12	This Concept Development Unit focuses on constructions in Geometry. This unit will work best with students who are sitting in cooperative learning groups. The CDU will begin a pre–assessment evaluating the students' knowledge of essential Geometry definitions. The unit will then introduce the basic geometric constructions using patty paper that will lead the students to be able to find the points of concurrency. The unit has a project–based assessments consisting of three parts: individual display, individual oral presentation and group constructed responses to application questions.
2009	Reasoning and Proof: A Logical Way of Thinking	Grades 9-12	In this three day unit, students will develop informal proofs. Further, students will master how to write three types of conditional statements (converse, inverse, and contrapositive) and be able to use them to describe real life situations. In combination, these concepts will lead to formal proofs later on.
2009	Room for Every Bird	Grade 6	In this activity, students will research birds indigenous to their area. Next, they will choose a birdhouse kit from the recommended website. The students will use area formulas and calculations to find the surface area of their birdhouse and create a scale drawing of the pieces of their birdhouse. The final product will be a written summary of their calculations, drawings and an estimate of paint needed to cover all the birdhouses in the class.
2007	Exploring Transformations	Grades 6-8	Students will explore representations of transformational geometry on a four quadrant coordinate plane. Emphasis is placed on patterns among coordinates as shapes are translated, reflected, and rotated.
2007	CSI: Circleville	Grades 9-12	Students will learn the properties of the measures of the angles of a circle and their arcs. Students will use these properties and put together clues to solve the mystery of the kidnapped Euclidean Cucumber.
2007	The Right Stuff	HS Geometry	In this unit, students will discover how to classify a triangle as acute, right, or obtuse using the lengths of the sides of the triangle and algebraic properties. The student will also use the Pythagorean Theorem to find missing sides of right triangles, and solve real-world application problems. An extension project provides students the opportuinty to research the history of the Pythagorean Theorem.

Year	Development	Grade	Overview
2006	Monkeying Around with Similar and Congruent Figures | Part II | Part III	Grade 7	In this unit, students will investigate the properties of congruent and similar two and three–dimensional figures. Students will apply their geometry and measurement skills through hands–on activities connected to area, perimeter, and volume. Note: It is assumed that various concepts such as scale factor, proportions, and volume have been previously taught. It may be necessary to supplement/modify the lessons in order to meet the needs of students.
2006	Go With The Flow!	Grades 9-12	In this three-lesson unit, students will be introduced to flow chart proofs. Students will become familiar with the flow chart format by using them to organize real life scenarios, and then use what they have learned to prove triangle congruence. The methods within the lessons stress logically sequencing definitions, postulates and theorems, as well as finding the essential elements necessary to lead into one of the triangle congruence postulates. It is assumed that students have experience with SSS, SAS, AAS, ASA and HL postulates.
2006	Similarity	Grades 9-10	This unit develops the concept of similarity of polygons. It begins with an informal definition of similarity, defining them as figures with the same shape. Then, through exploring relationships among corresponding parts of similar figures, students are lead to a formal definition of similar polygons. This definition can be applied to analyzing similar triangles in different configurations. Students will test, through inductive reasoning, the three ways to prove triangles similar. Students will build a pantograph and apply their knowledge of similar triangles to calculate the scale factor of images they magnify with it.
2005	Discovering Geometry	Grades 6-8	This unit provides an interactive look at geometric concepts, specifically, perimeter, area, surface area, and volume. Students begin by investigating the relationship between perimeter and area. They explore and create the area formulas for quadrilaterals, triangles, and circles. They are introduced to 3-dimensional geometric solids and investigate these solids to develop formulas for surface area and volume. Throughout this unit, these concepts are reinforced with problem-solving activities. At the conclusion of the unit, students will have a deeper understanding of perimeter, area, surface area, and volume, while making connections to the world around them.

Year	Development	Grade	Overview
2005	Pack it Up	Grades 6-8	Pack It Up! consists of three lessons designed to address aspects of the NCTM geometry standard for grades 6-8. In the first lesson, the students will analyze different solids and investigate their nets. The second lesson is designed to have students discover how to find the surface area and volume of rectangular prisms. In the third lesson, the students will apply their knowledge of these concepts to solve a real world problem involving package design. These particular lessons would be the first in a series of lessons on geometric solids.
2005	Investigating Special Right Triangles and Area of a Regular Polygon	HS Geometry	This learning unit is designed for students to investigate special right triangle properties (for both 30°– 60°– 90° and 45°– 45°– 90° triangles). Students will develop the general formula for the area of any regular polygon using Geometer's Sketchpad and apply special right triangle properties to find the area of equilateral triangles, squares, and hexagons.
2005	A Trigonometric Path into the Land of Regular Pentagons	Grades 9-12	The students will use trigonometric functions to find the area of a regular pentagon. An extension will be using the results to find the area of any regular polygon.
2005	With Poly-gon, Who is Left to March?	Grades 10-12	Students will use Geometer's Sketchpad to discover and represent the linear relationship between the number of sides and the sum of the angle measures of a polygon through graphing. An extension will be using the results to find the area of any regular polygon.
2004	Breaking the Area-Space Barrier	Grades 6-8	Students will discover the relationship between the area and volume of prisms and cylinders.
2004	Proportional Geometry	Grades 6-8	This unit will allow students to investigate the difference between similar and congruent figures, to apply proportional reasoning to similar figures, and to use the proportional relationship to construct similar figures.
2004	Pythagoras Wasn't Just a Square!	Grades 9-11	While most students are familiar with the Pythagorean Theorem ($a^2 + b^2 = c^2$), many don't realize why or how it works. With knowledge of similar figures, students can explore how the areas of any similar figures drawn on right triangles can be used to find a missing side. Using Geometer's Sketchpad software and the resource materials contained in this unit, the teacher can take Geometry students through some interesting applications of the Pythagorean Theorem.

Year	Development	Grade	Overview
2004	Quadrilaterals Aren't Just Squares	Grades 8-12	This is a collection of the first three lessons in a series of seven lessons studying characteristics of quadrilaterals, including trapezoids, parallelograms, rhombi, rectangles, squares, kites and mid-point quadrilaterals. Students will investigate the characteristics of each group of quadrilaterals using compass and straight edge, Geometer's Sketchpad software, and other optional hand-held learning tools.
2004	Quadrilaterals Still Aren't Just Squares! - Part II - The Sequel	Grades 8-12	This is Part II in a seven lesson series studying quadrilaterals, including trapezoids, parallelograms, rhombi, rectangles, squares, kites and mid-point quadrilaterals.
2003	What's Your Coordinate?	Grades 6-8	"What's Your Coordinate?" is a Concept Development Unit focusing on the coordinate plane. The unit begins with an introduction to the characteristics of the coordinate plane and identification of quadrants. This is followed by a lesson on plotting ordered pairs on the coordinate plane. Incorporated into this lesson is an optional extension lesson utilizing graphing calculators (TI-73). The final lesson focuses on translations of points in the coordinate plane. Throughout this Concept Development Unit, a variety of activities are implemented that not only enhance student knowledge of the coordinate plane but also demonstrate relevancy to everyday life.
2003	Detective Slope	Grades 9-12, Geometry and Algebra I	This learning unit is designed for students to investigate the definition of slope and slopes of parallel and perpendicular lines. Students will be introduced to special parallelograms by applying the concept of slope using Geometer's Sketchpad.
2003	Parallel Lines	HS Geometry	In this set of three lessons students will use Geometer's Sketchpad to explore relationships between parallel lines and transversals. Topics will include identifying angles formed by the lines and transversals, applying relationships to determine whether lines are parallel or non-parallel, and solving problems through application of the relationships. Discoveries made will be used to lead students through postulates and theorems related to parallel lines. Lesson three in the series places emphasis on application of the relationships, theorems and postulates discussed earlier to solve geometric problems. Construction exercises are included as extension activities in the lessons.
2003	Tangents, Secants, and Chords...OH MY!	HS Geometry	Using Geometer's Sketchpad, students will discover and prove proportions involving intersecting chords, secant segments and tangent segments. These lessons are primarily self-guided by the student.

Year	Development	Grade	Overview
2002	At The Circus	Grades 9-12	Students will investigate a real world problem using technology. They will use Geometer's Sketchpad to construct and measure segments and to discover relationships between various lengths. The unit assessment will reflect an understanding of the concept of ratios and systems of linear equations. Several alternative methods for solving the problem will be developed.
2002	Pythagorean Puzzle	Grades 9-12	Students will use the Geometer's Sketchpad to construct a right triangle and discover a geometric proof of the Pythagorean Theorem. Students will test the geometric proof with acute and obtuse triangles.
2002	Regular Pentagons, "Star Polygons", and The Golden Ratio	Grades 9-12	This learning unit is designed for students to explore the golden ratio, golden rectangles, and find the golden ratio in regular pentagons. Students will also have the opportunity to use Geometer's Sketchpad to rotate, translate, and dilate various points and line segments as well as solving problems.
2001	Creating Your Dream Home	Grades 6-8	This activity is designed to allow students to apply real-life information to create their dream home within a budget. Students will use area formulas and mathematical calculations to put flooring, paint, and/or wallpaper in their homes. The final product will then be communicated to their classmates and teacher.
2001	Go Fly a Kite!	Grades 6-8	Students will learn the history of kites using various sources (reading materials and Internet) as determined by the teacher. Students will work in groups of two to four. They will use dot paper / grid paper to create drawings of a diamond, hexagonal, and shield shaped kite that will each have the same area.
2001	QUILTING - Let's Finish the Pattern	Grades 5-8	This unit explores the mathematical explanations for patterns that repeat, tessellate, or transform to create designs used in various art forms, especially the American art of quilting.
2001	As the World Turns	Grades 9-12	The students will be able to reflect, rotate and translate a point, triangle, and a rectangle using the Geometer's Sketchpad. The students will be able to define each motion. The students will be able apply geometric motions to solve a real-life situation.
2001	Banneker Park	Grades 9-12	Students will construct and analyze circles, discovering and investigate the formulas for arc length and area of the sector of a circle. The unit assessment will reflect applications of arcs related to a traffic round-about. The students will use Geometer's Sketchpad, TI-92 plus calculators (with Geometer's Sketchpad) to create the constructions and solve problems.

Year	Development	Grade	Overview
2001	Estimating the Dimension of a Coastline	Grades 8-11	Students will learn the relationship between the size of the measuring unit and the measure of one, two, and three-dimensional figures. They will then extend this concept to non-integral dimension of an ideal mathematical fractal. Students will use this idea to estimate the dimension of a coastline.
2001	Midsegments and Beyond	Grades 9-12	Students will use the TI-92 PLUS with Geometer's Sketchpad to explore the properties of the midsegments of a triangle and coordinate geometry connections. NOTE: This lesson may be adapted to use with any version of Geometer's Sketchpad.
2000	Maximize Your Serving Size	Grades 7-8	This activity will guide students to discover differences between the volume of cylinders and cones. Students will design and create an ice cream holder model with given specifications.
2000	What About Medians?	Grades 9-10	The students will be able to draw a triangle and the three medians of a triangle using Geometer's Sketchpad. The students will be able to identify and measure the medians and the segments of the median formed by the vertices to the centroid and the centroid to the midpoint of the opposite side using Geometer's Sketchpad. The students will be able to draw an important conclusion about the relationships among those segments.
1999	Music Mania	Grades 7-8	Students will demonstrate their abilities to organize and interpret data about their classmates' music preferences and their willingness to pay for a concert. With a given budget, the students will use a scale drawing to show how they would remodel a concert hall including the area of the stage and seating arrangements chosen. The results of the survey given will be represented graphically. They will provide written support for a stage style, and a seating arrangement will accompany the finished project.
1999	Show Me the Volume!	Grade 7	In this learning unit the student will predict the formula for the volume of a pyramid by visually exploring the contents of a pyramid and a cube. The student will then test his/her formula by measuring the contents of the pyramid and cube. Once the student comes up with the correct formula, he/she will compile the actual dimensions of several pyramids by using an Internet site and then compute the volumes of the respective pyramids.

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1999	There's No Place Like Home...	Grade 7	In this learning unit, students will be instructed in the process of organizing, calculating and creating scale drawings. Once these skills are mastered, they will then be responsible for creating their own scale drawing. Students will be given a specific amount of funds with which they will have to construct a home of their own design using a variety of materials and pricing lists.
1999	Math and Art	Grades 6-10	Students will have an opportunity, in groups, to discover the mathematical relationship between the number of sides in a regular polygon and the measure of its interior angles. Students will learn the construction techniques of geometry and use these techniques to create art that resembles the art of various cultures.
1999	Patterns, Patterns, Everywhere!	Grades 9-12, Advanced Geometry, Algebra II, Pre-Calculus, Calculus, Discrete Mathematics, and Statistics	The students will write and analyze equations of certain functions from generating tables, observing patterns, and using regression analysis on the TI-83 calculator. They will find the sum of the interior angles of a convex polygon, discover the number of distinct handshakes given a set number of people, and determine the number of shaded triangles at certain stages of the Sierpinski Gasket.
1999	Squareston -- The Use of Coordinate Geometry	Grades 8-10, Activities 1 - 3, Grades 10-12, Activity 4	This unit is for use with other subject matter in a geometry, computer science, or integrated mathematics course. It includes four closely related activities designed to familiarize the student with coordinate geometry while reviewing mean, median, and the x-y coordinate system. The activities use well defined, easy to understand problems that progress from a very simple problem in Activity 1 to relatively complex problems requiring computer support in Activity 4.
1999	Stop This Runaway Truck, Please!	Grades 8-12, Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus	This unit will examine relationships between the slope of a ramp and the distance a moving object travels up the ramp.
1999	Swimming Pool Construction	Grades 9-10, Geometry	This learning unit deals with students developing a model that will confirm their understanding and use of volume. Students will state a hypothesis of how much water their model swimming pool will hold, and at the end, the students will test their hypothesis.

Year	Development	Grade	Overview
1999	Well Babe	Grades 9-12, Geometry	This unit is a means of studying and comparing the points of concurrency using Geometer's Sketchpad or CABRI. Students will use technology to find four points of concurrency in a triangle. The students will then decide which point is in the best position for a well that will serve three farms.
1999	What's Your Angle?	Grades 8-12, Algebra and Geometry	Students will learn the basic draw and measure features of Geometer's Sketchpad using precise, step by step instructions. The students will use Sketchpad to draw and measure the angles of polygons and calculate the sum of their interior angles. The students will then complete an activity that relates the number of triangles drawn from one vertex of a polygon with the sum of its interior angles.
1998	Building a Moon Colony	Grades 7-8	The students will be able to draw a scale model of a living quarters. Each group will be given a budget, choice of building site, and choice of building materials. The ultimate goal is to build a safe, comfortable, and affordable scientific compound under a time constraint.
1998	Let's Spruce It Up	Grades 6-8	The students will apply measuring and geometry skills in order to determine area by partitioning a room using appropriate units and tools.
1998	Moving Daze	Grade 6	In this unit students will work independently as they plan a new bedroom. They will calculate, arrange, and justify their new room.
1998	Zipping on the Hypotenuse!	Grade 7-8	Students will apply their knowledge of the Pythagorean theorem to a real world situation. They will make a simulation of a potential piece of playground equipment called a "Zipper." Then they will test three different slopes of the Zipper's line to investigate the relationship of the slope of the line to the time it takes an object to slide down the line. They will choose the most appropriate measure of central tendency which will reflect their data. They will graph their data. Finally, they will write a letter to a company informing them of how much line they will need in order to complete the construction of the Zipper.
1998	A Pen for Penny	Grades 8-12, Pre-Algebra, Algebra I, Geometry	This unit is a reinforcement of the concepts of area and perimeter of rectangles. Methods for maximizing area while perimeter remains the same are also included. The storyline gives a real-world problem while allowing students to use mathematics to perform the given task. Conclusively, the students will determine the best method for maximizing area, make a written conclusion regarding maximizing area, and be assessed.

Year	Development	Grade	Overview
1998	Geometric Giants	Grades 8-12, Geometry, Algebra	The unit introduces the ideas of ratios and similarity using body size. The students will measure people, calculate ratios, and make predictions. The graphing calculator will be used to extrapolate data. Geometric relationships involving areas and volumes of similar figures will help answer the question: Can there be giants?
1998	Surface Area and Volume Ratios in Cells	Grades 9-12	This unit is an integration of important geometry, biology, and technology skills. The students will be using spreadsheet programs to solve problems relating surface area to volume ratios. Students will use cell models to observe the effect of increasing surface area to volume ratios on cell growth and functioning.
1998	...Dead Reckoning Air Navigation Problem	Grades 9-12	We will complete a dead reckoning navigation problem following certain steps. Dead reckoning means flying a compass heading from a check point for a predetermined period of time. The basic steps of dead reckoning are: • Draw a straight line between the check points selected. • Find the true course: Measure the angle between true north and the course line drawn. • Convert the true course to a compass heading that we can fly using cockpit instruments, e.g. the magnetic compass. We do this by correcting for wind drift, magnetic variation(the difference between true north and magnetic north), and compass deviation. • Determine the speed we will make good over the ground and the time the flight will take.
1997	A Year in Review	Grades 6-8	Students will design a layout for a yearbook page to represent their team or class. They will justify their layout based upon cost analysis and geometric measurement in a letter to the chairperson of the yearbook committee.
1997	Mall Madness!	Grades 6-7	Students will take on the role of architects as each group designs a state-of-the-art store for a major shopping mall. They will be focusing on major mathematical concepts including measurement, scale factors, ratio and proportion, and area and perimeter.
1997	Geometric Mean Made Friendly	Grades 8-12	Using the TI-92, this lesson will demonstrate the geometric mean between two positive numbers using several methods.
1997	Going In, Out, and Around with Polygons	Grades 9-12	Students will construct, inscribe, and circumscribe polygons ranging from three to eight sides. Using area and perimeter measurements they will reach conclusions that will lead to the meaning of a limit.

Year	Development	Grade	Overview
1997	Isometries: Walkin' & Talkin', ...	Grades 9-12, Geometry	Students will use graphing calculators and CBL's with the motion detector probes to explore isometric transformations. First, they will create an initial curve and illustrate the four isometries by collecting data while walking. Next, using a right scalene triangle, they will investigate isometries in coordinate geometry.
1997	Points of Curcurrency in a Triangle	Grades 8-12	This unit allows the student to discover the points of concurrency of a triangle using the TI-92 and Cabri. The student is guided to form conjectures about the properties of these points.
1997	What's the Point? - A TI-92 Investigation	Grades 9-12, Geometry	This learning unit investigates the properties of perpendicular bisectors of chords and their relationship to the center of the circle. Follow up and extension exercises relate this concept to that of inscribed polygons.
1996	Build a Block	Grades 6-8	Given a set of parameters students will design a city block. They will write responses to explain and justify their reasons for their design choices.
1996	Measurement Menagerie	Grades 6-8	Students will learn how to apply knowledge of area, proportions, and scale drawing to real-world situations. In the assessment, they will use this knowledge to plan the layout of a small town business district.
1996	What Does It Take to Field a Soccer Team?	Grades 7-8	Students will determine the costs of materials and equipment needed to field a soccer team and write a budget. Students will use concepts of linear and area measurement to determine whether a given region can contain the field. Students will create a scale drawing using ratio and proportion. Students will write a proposal containing a scale drawing and budget to be presented to the School Board.
1996	Angle-Arc Relationships in the Circle	Grades 9-10, Geometry	Students will use The Geometer's Sketchpad and the instructional activity sheets to explore the relationships between the measures of angles related to the circle and their intercepted arcs. This knowledge will be used to form hypotheses about the relationships and develop the formulas that describe each of the relationships.
1996	Darcy's Cove	Grades 9-12, Geometry	Why does the position(angle) on the beach help Darcy find her grandmother? Where will be the best spots from which to look? Does the arc formed by the cove affect her ability to search for her grandmother? These questions and others will be explored by the students in this unit. The students will collect data and develop formulas to find the angles related to a circle - the central angle, the inscribed angles, and the angle formed by two secants, the angle formed by a tangent and a chord, and the angle formed by two tangents.

Year	Development	Grade	Overview
1996	Exploring the Altitude Drawn... Right Triangle	Grades 9-12, Geometry	Using Geometer's Sketchpad, students will be able to demonstrate their understanding of the theorem: "If the altitude is drawn to the hypotenuse of a right triangle, then the two triangles formed are similar to the original and to each other." They will apply previously learned concepts which include translations, reflections, rotations, and vectors. They will also review vocabulary used with a right triangle.
1996	Inscribed Angles, Central Angles, ...Arcs	Grades 9-12	Many students have difficulty in visualizing the relationships between inscribed arcs, central angles, and the resulting arcs. In this activity, the students will use the TI-92 to discover that the measure of an inscribed angle in a circle is equal to one-half the measure of its intercepted arc, angles inscribed in the same arc are congruent, and that every angle inscribed in a semi-circle is a right angle.
1996	ParameTRICKS	Grades 9-12	This lesson is primarily a graphing activity in which students will manipulate equations of a circle in order to translate the center to another point. They will also manipulate the T-step to obtain different polygons, and by changing the value of T in the equation they will rotate the polygon.
1996	Pythagorean Modernized!	Grades 8-12	The TI-92 will be used to demonstrate the Pythagorean Theorem.
1996	Pythagorean Theorem and Its Converse	Grades 9-12, Geometry	The formula for the Pythagorean Theorem is $a^2 + b^2 = c^2$. This lesson is designed to enable students to prove the theorem and its converse geometrically and to solve problems involving right triangles.
1996	Surfing the Web for Crystals and Polyhedra	Grades 9-12, Geometry	This unit is designed to be an introductory unit for geometry. Through a variety of hands-on activities and the interactive viewing of a video, the students are introduced to polyhedra. The lesson then connects the polyhedra with the crystal structures of minerals. Students will investigate and retrieve information on polyhedra and crystal structures using the Internet. Students will create an Internet Scavenger Hunt and exchange the hunt via e-mail. The use of the Internet embellishes the curriculum allowing students to access information far beyond what is provided by available school resources.
1996	Tessellating with Triangles	Grades 9-12 Geometry	Any of the theorems that we use in Geometry can be proved strictly with figures; not involving numbers. The most important of these figures is the triangle. This exercise will lead the student to discover several of the common theorems, properties, and postulates using tessellating triangles.

Year	Development	Grade	Overview
1996	The Zit Theorem: Changing ... Trapezoids	Grades 9-12, Geometry	In this unit students will use computers to: 1) investigate and explain relationships involving lengths of bases and the median of a trapezoid, 2) use angle measures to determine whether or not the median is parallel to the base, and 3) discover the connection between a trapezoid median and a triangle midline.
1996	With Due Reflection	Grades 9-12, Algebra and Geometry	This lesson investigates reflections done on a coordinate plane. In it, students will measure lengths and angles on preimage and images to see that distances and angle measures are preserved. Students will use the TI-92 calculator to reflect triangles over the x-axis, the y-axis, and the line, y = x. Students will explore patterns and develop rules that describe these reflections.
1995	The Beauty of Symmetry	Grades 6-7	This is a lesson dealing with the concepts of symmetry and reflection. The use of manipulatives and cooperative learning are necessary for the success of this project.
1995	Polygons and Polyhedrons	Grades 6-10	In this unit, students define and recognize relationships between the sides and angles of regular polygons, and develop a formula. Students make predictions and extensions based on their discoveries, and define and develop relationships between vertices, edges, and faces of polyhedra. Development occurs via the use of manipulatives, group discussion, class discussion, and directed discovery. The lesson ends by making and flying a tetrahedral kite.

Year	Development	Grade	Overview
1995	The Balancing Act	Grades 9-12, Geometry	This activity consists of four parts. However, it is not necessary to do all parts. In Part 1, students will become proficient using The Geometer's Sketchpad by constructing different types of triangles and quadrilaterals. Note that students must be familiar with the definitions of different types of quadrilaterals to complete Part 1 of the learning unit. However, Part 1 can be presented either before or after students have formally studied the properties of quadrilaterals. Presenting it after the properties of the quadrilaterals are studied gives students more options in their ability to use The Geometer's Sketchpad to do the required constructions. In Part 2, students will examine various triangles to determine the "balance point" for each. They will use hands-on physical models of triangles and Sketchpad. The balance point will be determined by using both a physical model and geometric properties. Students will state a general description for how to determine the balance point for any triangle In Part 3, students will experiment to address the more open-ended question "Is there a balance point for any given quadrilateral and how can it be found?" In Part 4, students will investigate relationships between perimeters and areas of triangles formed by using medians of various triangles and the perimeters and areas of the triangles themselves.
1995	Can You Can a Can?	Grades 8-12, Geometry - Calculus	Why is a Campbell's soup can shaped as it is? Why not pack soup in a tuna can? In this lesson, the student will investigate volume and surface area of a can to determine the dimensions of the "perfect" can - i.e., a can which requires the least amount of material for a given volume. Data will be collected to compare several sizes of cans - is the can a "perfect can?" If not, why?
1995	Concurrent Events	Grades 9-12, Geometry	This lesson is designed to enhance student knowledge of how to effectively use the Geometer's Sketchpad™ to apply geometric concepts to problems that previously would have taken much longer to cover using hand-held tools; specifically, to do constructions involving the points of concurrency. Students will be able to locate the in-center, circumcenter, centroid, and ortho-center for any triangle. Students will be able to construct triangles on the sketchpad. By altering the type of the triangle, students will discover the effects of this change upon the points of concurrency. Extensions are offered in both mathematical theory and real-life applications.
1995	Polygon-Tessellation Exploration	Grades 9-12 Geometry	In this unit students will use computers and hands-on activities to: 1) investigate and explain relationships involving angles of polygons and 2) develop a basic understanding of tessellations. Students will then apply this knowledge to construct a tessellation.

Year	Development	Grade	Overview
1995	Regular Polygons: Computing the Area	Grades 9-12, Geometry	The formula for finding the area of a regular polygon is A= 1/2 aP, where a is the apothem and P is the perimeter.
1995	Surf'n Turf within Geometry	Grades 9-12, Geometry	Students will receive information by using electronic mail to discuss plot dimensions and garden requirements. Students will then use the properties of polygons, area, perimeter, and similarity to design an appropriate garden. They will make a detailed plan including types and number of plants, mulch, or other landscaping trim. The plan will be complete with cost estimates simulating a professional landscape service. All designs will be sent (via regular U.S. mail) to the client class. The receiving group will select a final proposal, and then, it could construct a garden using the final proposal. A biology or other appropriate class could assist with aspects of the project.
1995	Where Is the Treasure?	Grades 9-12, Geometry and Algebra	In cooperative groups students will investigate the solution of the problem — finding the buried treasure — by various strategies including use of the Pythagorean Theorem, similar triangles, linear systems, and coordinate geometry. All students will eventually explore the problem using The Geometer's Sketchpad™.