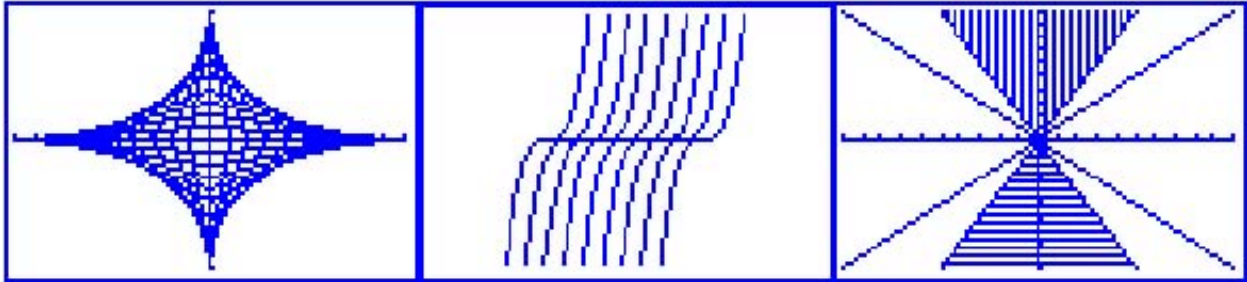


Art of Equations

An Interdisciplinary Activity for (9th-10th Grade) Algebra 1 and Art Classes
Designed by David E. Haines hainesd@wcschools.com May 2002



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Introduction During this activity, you will work within a small group to create a design on the graphing calculator that illustrates the changes in graphs of basic equations that occur when coefficients and/or constants of the corresponding equations are changed. Prior to this activity, students from Ms. Susan Pardue's art class will use the designs of basic equations to create patterns that you will duplicate using a graphing calculator. You will copy your designs to a Word document and create a PowerPoint presentation to illustrate the designs.

Tasks After watching the following presentation: [Transformations of Graphs of Equations.pdf](#). (Note: select full screen under Browse to watch the presentation.)

1. Create patterns on the graphing calculator that will duplicate the patterns created by the art students. Take your calculator to the teacher to save the pattern to a Word document. Create a Word document similar to the following: [Sample Word Document Task 1.pdf](#). Then save the Word document and print a copy to turn in to the teacher.
2. Design your own patterns on the graphing calculator by manipulating equations. If needed add interest to your design by using the Line Art program or the Draw feature. Take your calculator to the teacher to save the pattern to a word file. Create a Word document similar to the following: [Sample Word Document Task 2.pdf](#). Then save the Word document and print a copy to turn in to the teacher. **(Continued on next Page)**

3. Create a PowerPoint presentation that illustrates the patterns created on the graphing calculator. Be sure to identify the names of the students in your group and the names of the art students who created the design you used in Task 1. Save the PowerPoint file to as directed by the teacher.

Evaluation: for Art of Equations. Each member of the group will receive the grade assigned to the group. ([Back to the Top](#))

TASK	Beginning 1	Developing 2	Accomplished 3	Exemplary 4
Create patterns on the graphing calculator that will duplicate the patterns created by the art students	<p>Equations are manipulated on the graphing calculator by changing coefficients and/or constants to create patterns that are similar to those created by students in the art class.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p>	<p>Equations are manipulated on the graphing calculator by changing coefficients and/or constants to create patterns that approximate those created by students in the art class.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p> <p>The pattern used illustrates transformations of the graphs of equations.</p>	<p>Equations are manipulated on the graphing calculator by changing coefficients and/or constants to create patterns that approximate those created by students in the art class.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p> <p>The pattern used is interesting and illustrates transformations of the graphs of equations.</p>	<p>Equations are manipulated on the graphing calculator by changing coefficients and/or constants to create patterns that closely match those created by students in the art class.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p> <p>The pattern used is challenging to create and illustrates transformations of the graphs of equations.</p>
	0-20 Points	0-20 Points	0-20 Points	0-20 Points
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TASK	Beginning 1	Developing 2	Accomplished 3	Exemplary 4
<p>Design your own patterns on the graphing calculator by manipulating equations. If needed, add interest to your design by using the Line Art program or the Draw feature.</p>	<p>At least one basic equation is used to create the pattern. The pattern involves the use of transformations to create the design, not just using the Line art program. The equations used are recorded. The procedures used to create the pattern, such as using the Draw feature or Line art program is described on the Word Document and saved to a file.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p> <p>0-20 Points</p>	<p>At least one basic equation is used to create the pattern. The pattern involves the use of transformations to create the design, not just using the Line art program. The equations used are recorded. The procedures used to create the pattern, such as using the Draw feature or Line art program is described on the Word Document and saved to a file.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p> <p>0-20 Points</p>	<p>At least one basic equation is used to create the pattern. The pattern involves the use of transformations to create the design, not just using the Line art program. The equations used are recorded. The procedures used to create the pattern, such as using the Draw feature or Line art program is described on the Word Document and saved to a file.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p> <p>0-20 Points</p>	<p>At least one basic equation is used to create the pattern. The pattern involves the use of transformations to create the design, not just using the Line art program. The equations used are recorded. The procedures used to create the pattern, such as using the Draw feature or Line art program is described on the Word Document and saved to a file.</p> <p>Both the screen containing the equations used and the screen containing the pattern are saved to a Word Document file.</p> <p>0-20 Points</p>
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TASK	Beginning 1	Developing 2	Accomplished 3	Exemplary 4
Create a PowerPoint presentation that illustrates the patterns created on the graphing calculator.	<p>The presentation includes the names of the algebra students and the art students involved in creating the pattern.</p> <p>The presentation identifies the basic equation shapes that are used to create the pattern.</p>	<p>The presentation includes the names of the algebra students and the art students involved in creating the pattern.</p> <p>The presentation identifies the basic equation shapes that are used to create the pattern. The PowerPoint presentation includes appropriate color schemes, transitions, sounds, or animations.</p>	<p>The presentation includes the names of the algebra students and the art students involved in creating the pattern.</p> <p>The presentation identifies the basic equation shapes that are used to create the pattern. The PowerPoint presentation includes appropriate color schemes, transitions, sounds, or animations.</p> <p>The presentation reflects creativity and is interesting.</p>	<p>The presentation includes the names of the algebra students and the art students involved in creating the pattern.</p> <p>The presentation identifies the basic equation shapes that are used to create the pattern. The PowerPoint presentation includes appropriate color schemes, transitions, sounds, or animations.</p> <p>The presentation reflects creativity and is interesting.</p>
	0-30 points	0-45 points	0-55 points	0-60 points
Total Possible Score	0-70 Points	0-85 Points	0-95 points	0-100 points

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