

**Pennsylvania Governor's Institute  
for Mathematics Educators  
2004**

**Names of Group Members:**

Chris Mason  
Leah Briggs  
Donna Hosler  
Russ Bishop

**Topic/Theme:**

Transformations

**Level:**

Algebra 2

**Time Element:**

2 Periods or 1 block

**NCTM Standards Addressed:**

Algebra  
Connections  
Representation

**PA Math Standards Addressed:**

**2.2** Computation and Estimation  
**2.4** Reasoning and Connections  
**2.5** Problem Solving and Communication  
**2.8** Algebra and Functions

**Math Assessment Anchors Addressed:**

**M11.D.3**

Analyze change in various contexts.

**M11.D.4**

Describe or use models to represent quantitative relationships.

**Reading Assessment Anchors Addressed:**

**R11.A.2**

Demonstrate the ability to understand and interpret nonfiction text, including informational, editorials, public documents, autobiography, biography, and essay appropriate to grade level.

**Objectives:**

Students will explore patterns of transformation of functions using multiple representations

**Instructional Strategies and Plan (include strategies used to help different types of learners, i.e. auditory, visual, etc.):**

1. Review graphing of functions and pre-teach vocabulary
  - a. 2004 Sunrise Times for Pittsburgh, PA
  - b. Transformations Vocabulary List
  - c. Transformations Graphic Organizer
2. Model graphing functions using the graphing calculator
3. Discovery activity using guided worksheets and graphing calculator
  - a. Transformations Discovery Activity
4. Summarize results
5. Homework Assignment
  - a. Transformations Homework

**Materials/Resources:**

Worksheets as noted

Graphing Calculator with Viewscreen

Additional Materials for Correctives/Remediation:

Masking tape or Chalk

Large Floor Space

**Interdisciplinary Connections:**

- **Reading** : Identification of vocabulary
- **Technology**: Graph functions using TI 83+ calculator and explore transformations
- **Other**: Science: Sunrise times

**Assessment Strategies:**

- **Formative Evaluation (checking student understanding during the lesson):**

Teacher will observe and question students as they graph the equations
- **Summative Evaluation (how will it be determined that the objectives were achieved?):**

Teacher will conduct a summary discussion of findings  
Teacher will evaluate students' homework

**Correctives/Remediation:**

Conduct a function walk to explore transformations  
(Function Walk sheet)

**Extensions/Enrichment:**

Use sunrise times to determine transformations on the sine curve with presentation of findings to the class  
(Transformations Extension/Enrichment Exercise)

**Special Accommodations (special needs students)**

- **Description of the Special Needs Student Selected:**

Margaret:

1. Three years below grade level
2. Receiving learning support for language arts and math
3. Difficulty following directions
4. Instructions need to be broken down and accompanied by modeling
5. Difficulty with basic math facts and problems involving multiple steps

- **Accommodations to Use with this Student:**

1. Preteach vocabulary related to the activity
2. Model the procedure for graphing a function on the graphing calculator for the class
3. Provide colored pencils or multiple grids for her to show her transformations step-by-step (summary and homework)