

## Algebra 1

Sturgis Charter Public School  
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### **Course Goals**

*Purpose:* The purpose of algebra is to explore relationships among quantities in various contexts—physics, biology, business, technology, social science, the arts, and more—and to represent those relationships with symbols, graphs, tables, and words; then to use those representations to solve problems, identify patterns, and explore other relationships.

*Beliefs:* The following beliefs are implicit in the purpose stated above: I believe that algebraic symbols mean something, and I believe that they can be manipulated independently of their meaning. I believe that a mathematical situation can be represented in many different ways. I believe that algebra is useful in solving problems. I believe that problem solving requires exploration and perseverance.

The *essential questions* that will drive this course are

- What are the different ways of looking at a mathematical relationship?
- In what ways do algebraic symbols represent the world around us?
- What rules govern the manipulation of algebraic symbols?

Some “*Areas of Knowledge*” questions we will address are

- Does algebra describe reality? If so, how well?
- What are the limitations of a mathematical model?

### **Objectives**

The topics being studied will include:

Proportional reasoning  
Linear relationships and solving linear equations and inequalities  
Statistics and probability  
Exponential relationships  
Quadratic relationships  
Connections between algebra and geometry

### **Teaching Strategies and Resources:**

Algebra 1 will be taught using a combination of methods including

- guided investigation (usually in groups),
- group and class discussion,
- teacher presentations and examples,
- student presentations and examples,
- learning logs, and
- practice of skills.

The textbook used will be *Discovering Algebra: An Investigative Approach*, 2<sup>nd</sup> edition, by Murdock, Kamischke, and Kamischke, published by Key Curriculum Press, 2007.

## Required Materials

You are responsible for bringing the following to class every day:

- Textbook (covered)
- Pencils (ALL WORK should be done in pencil)
- A graphing calculator (Texas Instruments TI-83 or TI-84)
- A 3-ring binder with
  - lined paper
  - graph paper
  - 5 section dividers

## Assessment

Your achievement in Algebra 1 will be measured in the following ways:

- *Tests*: Tests will normally be given at the end of each unit (chapter).
- *Quizzes*: Quizzes will be given throughout each unit.
- *Projects*: You will complete projects that require you to demonstrate your knowledge of algebra in an applied context. These will be based on the in-class investigations.
- *Homework*: Homework will be assigned regularly, and you will usually be given two school days to complete them. Some of the homework will be completed in class, and there will be opportunities to ask questions about homework in class. Homework grades will be given according to completeness and timeliness.
- *Binder*: It is essential that you be organized in order to be successful in Algebra 1. Therefore, you must keep a binder that I will check regularly.

## Evaluation Scheme

Your grade will be distributed in *approximately* the following way.

- 40% Tests
- 25% Quizzes
- 25% Projects and written work
- 10% Homework and participation

## Extra Help

Extra help is available most days at lunchtime or after school, either with me or with another Algebra 1 teacher. A schedule of extra help availability will be posted in the classroom.