5

CS in Algebra | Lesson 5

Writing Contracts

Lesson time: 30-60 Minutes

LESSON OVERVIEW

Students will work their way through a number of new functions, first using each to solve a problem, and then writing a contract which describes it.

LESSON OBJECTIVES

Students will:

- Decompose existing functions.
- Write contracts that describe functions.
- Experiment with basic geometric transformations.

ANCHOR STANDARD

Common Core Math Standards

- **8.G.1**: Verify experimentally the properties of rotations, reflections, and translations:

Additional standards alignment can be found at the end of this lesson

TEACHING SUMMARY

Getting Started

1) Vocabulary
2) Introduction

Activity: Writing Contracts

3) Online Puzzles

TEACHING GUIDE

GETTING STARTED

1) Vocabulary

This lesson has three new and important words:

- **Rotate** - to turn a shape about a point.
- **Scale** - to increase the dimensions of a shape by the same factor in all directions. Also known as dilate.
- **Translate** - to move a shape from one location to another. The **offset** function performed this transformation.

2) Introduction

Review with students the purpose of a Contract:

- Describes three elements of a function
  - Name (what is the function called)
  - Domain (what inputs does it take)
  - Range (what does it output)
- As a class, describe the Contracts for some basic mathematical operators
  - Addition (name +, domain Number Number, range Number)
  - Subtraction (name -, domain Number Number, range Number)
  - Multiplication (name *, domain Number Number, range Number)
  - Power of two (name sqr, domain Number, range Number)

ACTIVITY: WRITING CONTRACTS

3) Online Puzzles

In this stage you'll be looking at some functions, some of which you've seen before and some which are brand new. For each function you'll first get a chance to use the function, and then you'll write a Contract for it. Make sure to document any new Contracts on your Contract Log. Head to CS in Algebra stage 5 in Code Studio to get started programming.

Derived from

BOOTSTRAP
www.bootstrapworld.org