

OzoBlockly Editor—**Recognizing Shapes Challenge**—Teacher’s Guide

Grades 6 – 12

by Richard Born, Associate Professor Emeritus, Northern Illinois University

If you haven’t already done so, you should read the *Recognizing Shapes Challenge Student Guide*. Doing so will familiarize you with the challenge details expected from the student. The author’s OzoBlockly Editor solution, with detailed comments, is shown in the figure on the next page. The share code for this solution is **2faeqab**.

The solution to the *Square Spiral Challenge* involves the use of several computer science programming concepts:

- The use of variables to hold the values of program constants
- Subroutines to break up code into logical segments
- The use of loops to handle tasks that must be repeated several times
- The use of conditionals, as needed, to control the flow of logic
- Subroutine and variable names that support self-documentation
- Nesting of structures
- The use of LLM (Large Language Models)

Applicable CSTA (Computer Science Teachers Association) Standards

2-CS-02	Design projects that combine hardware and software components to collect and exchange data.
2-AP-11	Create clearly named variables that represent different data types and perform operations on their values.
2-AP-12	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
2-AP-13	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.
2-AP-19	Document programs in order to make them easier to follow, test, and debug.
3A-DA-11	Create interactive data visualizations using software tools to help others better understand real-world phenomena.
3A-AP-17	Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.
3B-CS-02	Illustrate ways computing systems implement logic, input, and output through hardware components.
3B-AP-08	Describe how artificial intelligence drives many software and physical systems

3B-AP-14 Construct solutions to problems using student-created components, such as procedures, modules and/or objects.

