

Unplugged K - 8 Computer Science Enrichment Activities

Week 9 | *Abstraction* | [K-2 Link to files](#) [3-8 Link to files](#)

Big Idea: Removing distracting details, or pulling out the most important ideas to manage complexity in a program is called **abstraction**. Abstraction is an important skill to understand in many disciplines. Computer scientists look for ways to abstract tasks in their programs so that one piece of code can solve multiple problems. In this activity students will experiment with abstraction to make a complicated image into a few simple shapes that communicates the same idea as the picture.

Instructions: Read the directions for your grade level. It explains how many minutes per day you should complete Computer Science work for your grade level, along with the suggested computer websites on Ms. Sisney’s class website. Click the **link to the files** above for your assignments. Make a copy of the files in order to type, write, or draw on the documents.

<p>K - 2</p> <p>Time: 30 - 45 minutes</p> <ul style="list-style-type: none"> • MWF 10 minutes per day • T/Th 15 minutes per day • 1-day 30 minute block <p>Modifications: Differentiate by having students can create abstractions that don't rely on shapes. Or, give students a new set of shapes to create a picture.</p>	<p>Standards:</p> <p>CSTA</p> <p>1A-AP-09 Model the way programs store and manipulate data by using numbers or other symbols to represent information.</p> <p>Common Core English Language Arts</p> <p>K <i>Goal 4</i> Key ideas and details.</p> <p>1 - 2 <i>CCSS.ELA-LITERACY.RL.1.1</i> Key ideas and details.</p>
<p>3 - 5</p> <p>Time: 60 - 75 minutes</p> <ul style="list-style-type: none"> • MWF 20 minutes per day • T/Th 30 minutes per day • 1-day 60 minute block <p>Modifications: Differentiate by changing the number of shapes a student needs to use. Give the students other animal abstract challenges.</p>	<p>Standards:</p> <p>CSTA</p> <p>2-AP-14 Create procedures with parameters to organize code and make it easier to reuse..</p> <p>Common Core English Language Arts</p> <p><i>CCSS.ELA-LITERACY.RL.4.2</i> Key ideas and details, summarize.</p>

6 - 8

Time: 90 minutes

- **MWF** | 30 minutes per day.
- **T/Th** | 45 minutes per day.
- **1-day** | 90 minute block

Modifications: Differentiate by changing the number of shapes a student needs to use. Give the students other animal abstract challenges.

Standards:

CSTA

2-AP-14| Create procedures with parameters to organize code and make it easier to reuse.

Common Core English Language Arts

CCSS.ELA-LITERACY.RL.6.2 | Key ideas and structure, summarization.