

Unplugged K - 8 Computer Science Enrichment Activities

Week 4 | *Algorithms* | [K-2 Link to files](#) [3-8 Link to files](#)

Big Idea: Breaking down tasks into discrete steps is an example of an important concept in Computer Science called **decomposition**. Decomposing a task into smaller sets of instructions is a key step in writing an algorithm so that a computer can accomplish that task. Decomposing problems and writing algorithms are important skills for all age groups. When using this activity with older students you can ask them to have someone else “act-out” the algorithm and then write about how they needed to correct or iterate on their original algorithm. Have fun!

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: Students can draw (rather than write) items and categories</p>	<p>Standards:</p> <p>CSTA</p> <p>1A-AP-08 Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.</p> <p>Common Core Mathematics</p> <p>K <i>Goal 4</i> Model with Mathematics.</p> <p>1 - 2 <i>CCSS. Math. Practice.MP4</i> Model with Mathematics.</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>Standards:</p> <p>CSTA</p> <p>1B-AP-11 Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.</p> <p>Common Core Mathematics</p>

<p>Modifications: Differentiate by changing the number of steps students need to complete the task.</p>	<p>CCSS. <i>Math. Practice.MP4</i> Model with Mathematics.</p>
<p>6 - 8 Time: 90 minutes</p> <ul style="list-style-type: none"> ● MWF 30 minutes per day. ● T/Th 45 minutes per day. ● 1-day 90 minute block <p>Modifications: Differentiate by changing the number of steps students need to complete the task and how many iterations of the algorithm you ask them to create.</p>	<p>Standards: CSTA 2-AP-13 Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.</p> <p>Common Core Mathematics CCSS. <i>Math. Practice.MP4</i> Model with Mathematics.</p>