## MOTIVATION

In this unit, we shift our focus to software. As creators of software, we provide the computer with a set of instructions. These instructions might, for example, tell the computer how to store or display information. Some of the most exciting sets of instructions tell the computer how to solve a problem. When we create a step-by-step procedure to perform a type of calculation or solve a category of problems, we are making an algorithm.

We'll start by writing algorithms to solve puzzles. Then we'll learn about algorithms to sort information in lists and search these lists for useful information.

## OBJECTIVES

Students will be able to:

* Think about computer science as problem-solving.
* Define the word "algorithm."
* Understand, explain, and carry out different search and sorting algorithms.

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## SECTIONS AND RESOURCES

**Introduction to Algorithms**

Lesson Plan ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/What_is_an_Algorithm_Lesson_Plan.docx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/What_is_an_Algorithm_Lesson_Plan.pdf) )

Activity: Mazes ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Solving_Mazes.pptx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/Solving_Mazes.pdf) )

Activity: Solving Puzzles ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Solving_Puzzles_and_Making_Algorithms.pptx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/Solving_Puzzles_and_Making_Algorithms.pdf) )

Solving Puzzles Activity Solution ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Solving_Puzzles_and_Making_Algorithms_SOLUTIONS.pptx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/Solving_Puzzles_and_Making_Algorithms_SOLUTIONS.pdf) )

**Searching**

Lesson Plan: Linear Searching ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Linear_Searching_Lesson_Plan.docx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/PDF_Linear_Searching_Lesson_Plan.pdf) )

Activity: Linear Searching ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Linear_Searching_Activity.pptx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/PDF_Linear_Searching_Activity.pdf) )

Lesson Plan: Binary Searching ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Binary_Searching_Lesson_Plan.docx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/PDF_Binary_Searching_Lesson_Plan.pdf) )

Activity: Binary Searching ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Binary_Search_Activity.pptx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/PDF_Binary_Search_Activity.pdf) )

**Sorting**

Lesson Plan: Sorting Algorithms ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Sorting_Algorithms_Lesson_Plan.docx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/Sorting_Algorithms_Lesson_Plan.pdf) )

Activity: Card Sorting ( [Source](http://www.muddx.com/c4x/HMC/MyCS/asset/Card_Sorting_Activity_Handout.pptx) / [PDF](http://www.muddx.com/c4x/HMC/MyCS/asset/Card_Sorting_Activity_Handout.pdf) )