

# Project Justification

After you complete the graphic organizer below, use this project justification document to explain how you used computational thinking in your project.

**Problem Identification.** For each iteration of your problem, please explain how you arrived at your identified problem.

**Decomposition.** For each iteration where you decomposed an identified problem, please explain how this decomposition helped you solve your identified problem.

**Pattern Recognition.** For each iteration where you recognized patterns in data, please explain how these patterns helped you solve your identified problem.

**Abstraction.** For each iteration where you abstracted information, please explain how abstraction allowed you to solve your identified problem.

# Iteration 1

Problem Identification

To set up your  
identified problem

Decomposition (How would you break down your problem into sub-problems?)

Pattern Recognition (Are there related solutions to draw on?)

Abstraction (How would you abstract this problem?)

## Graphic Organizer



# Iteration 2

Problem Identification

To set up your  
identified problem

Decomposition (How would you break down your problem into sub-problems?)

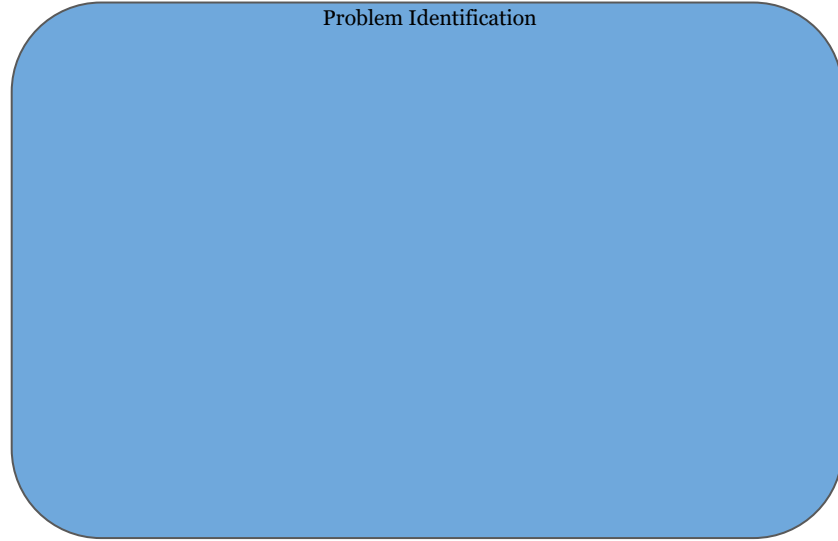
Pattern Recognition (Are there related solutions to draw on?)

Abstraction (How would you abstract this problem?)

## Graphic Organizer



# Iteration 3



To set up your  
identified problem

A dotted line with an arrowhead pointing from the right side of the "Problem Identification" box to the three boxes on the right. The text "To set up your identified problem" is placed along this dotted line.

Decomposition (How would you break down your problem into sub-problems?)

A light blue rounded rectangle with a dark blue border. The text is centered at the top of the box.

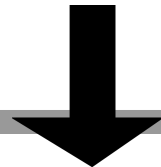
Pattern Recognition (Are there related solutions to draw on?)

A light blue rounded rectangle with a dark blue border. The text is centered at the top of the box.

Abstraction (How would you abstract this problem?)

A light blue rounded rectangle with a dark blue border. The text is centered at the top of the box.

## Graphic Organizer



# Iteration 4

Problem Identification

To set up your  
identified problem

Decomposition (How would you break down your problem into sub-problems?)

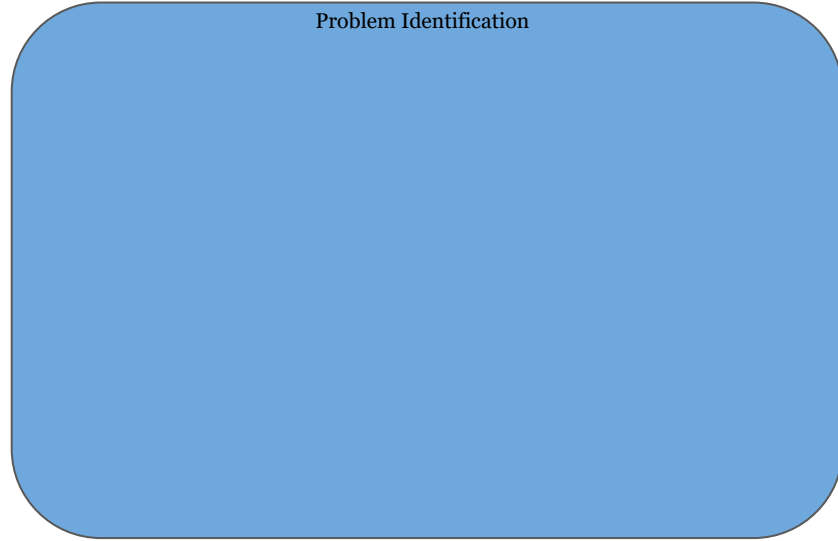
Pattern Recognition (Are there related solutions to draw on?)

Abstraction (How would you abstract this problem?)

## Graphic Organizer



# Iteration 5



To set up your  
identified problem

Two dotted arrows originate from the right side of the "Problem Identification" box. One arrow points to the "Decomposition" box, and the other points to the "Abstraction" box. The text "To set up your identified problem" is positioned between these two arrows.

Decomposition (How would you break down your problem into sub-problems?)

A light blue rounded rectangle containing this text.

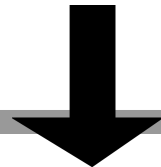
Pattern Recognition (Are there related solutions to draw on?)

A light blue rounded rectangle containing this text.

Abstraction (How would you abstract this problem?)

A light blue rounded rectangle containing this text.

## Graphic Organizer



# Iteration 6

Problem Identification

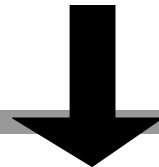
To set up your  
identified problem

Decomposition (How would you break down your problem into sub-problems?)

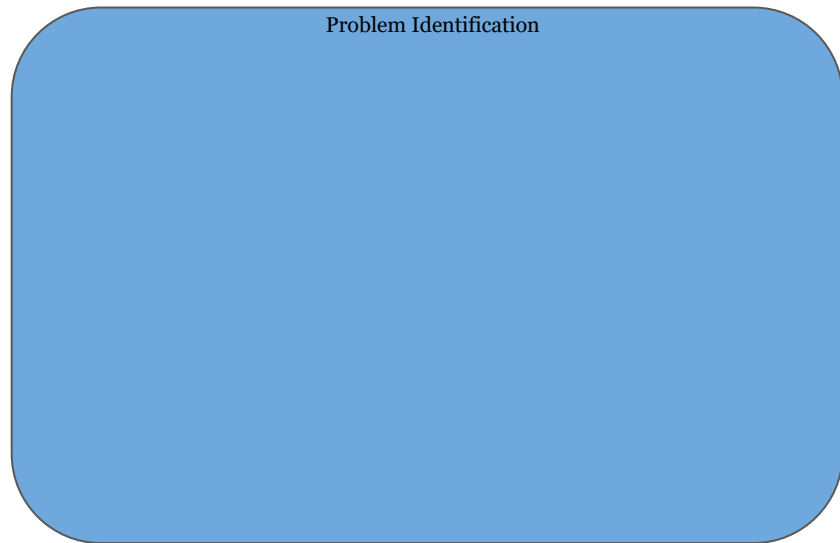
Pattern Recognition (Are there related solutions to draw on?)

Abstraction (How would you abstract this problem?)

## Graphic Organizer



# Iteration 7



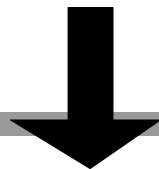
To set up your  
identified problem

Decomposition (How would you break down your problem into sub-problems?)

Pattern Recognition (Are there related solutions to draw on?)

Abstraction (How would you abstract this problem?)

## Graphic Organizer





# Iteration 8

Problem Identification

To set up your  
identified problem

Decomposition (How would you break down your problem into sub-problems?)

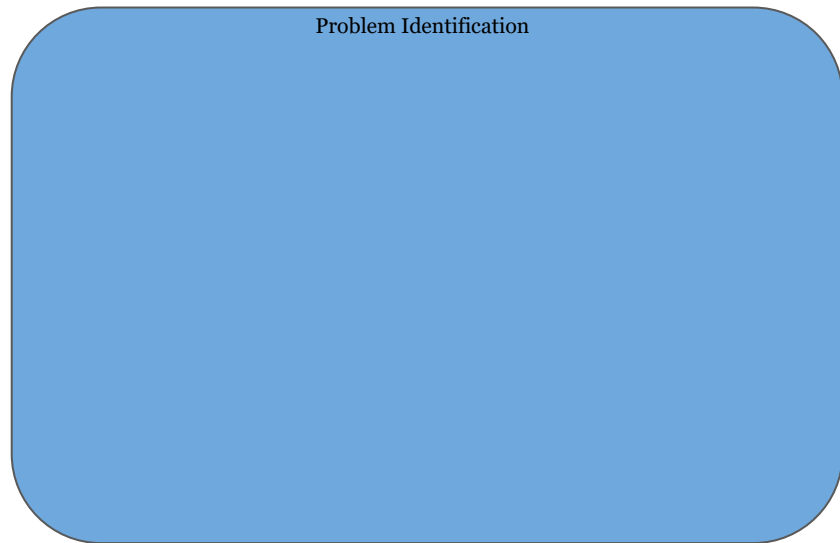
Pattern Recognition (Are there related solutions to draw on?)

Abstraction (How would you abstract this problem?)

## Graphic Organizer



# Iteration 9



To set up your  
identified problem

Two dotted arrows originate from this text. One arrow points to the top-right box (Decomposition) and the other points to the bottom-right box (Abstraction).

Decomposition (How would you break down your problem into sub-problems?)

A light blue rounded rectangle with a dark blue border, intended for writing the decomposition of the problem.

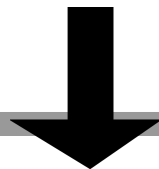
Pattern Recognition (Are there related solutions to draw on?)

A light blue rounded rectangle with a dark blue border, intended for writing pattern recognition.

Abstraction (How would you abstract this problem?)

A light blue rounded rectangle with a dark blue border, intended for writing the abstraction of the problem.

## Graphic Organizer



# Iteration 10



To set up your  
identified problem

Two dotted arrows originate from the right side of the 'Problem Identification' box. One arrow points to the 'Decomposition' box, and the other points to the 'Abstraction' box. A third dotted arrow points from the 'Problem Identification' box to the 'Pattern Recognition' box. The text 'To set up your identified problem' is positioned between the arrows pointing to the 'Decomposition' and 'Abstraction' boxes.

Decomposition (How would you break down your problem into sub-problems?)

A yellow rounded rectangle with a thin black border, intended for writing the decomposition of the problem.

Pattern Recognition (Are there related solutions to draw on?)

A yellow rounded rectangle with a thin black border, intended for writing pattern recognition.

Abstraction (How would you abstract this problem?)

A yellow rounded rectangle with a thin black border, intended for writing the abstraction of the problem.

## Graphic Organizer