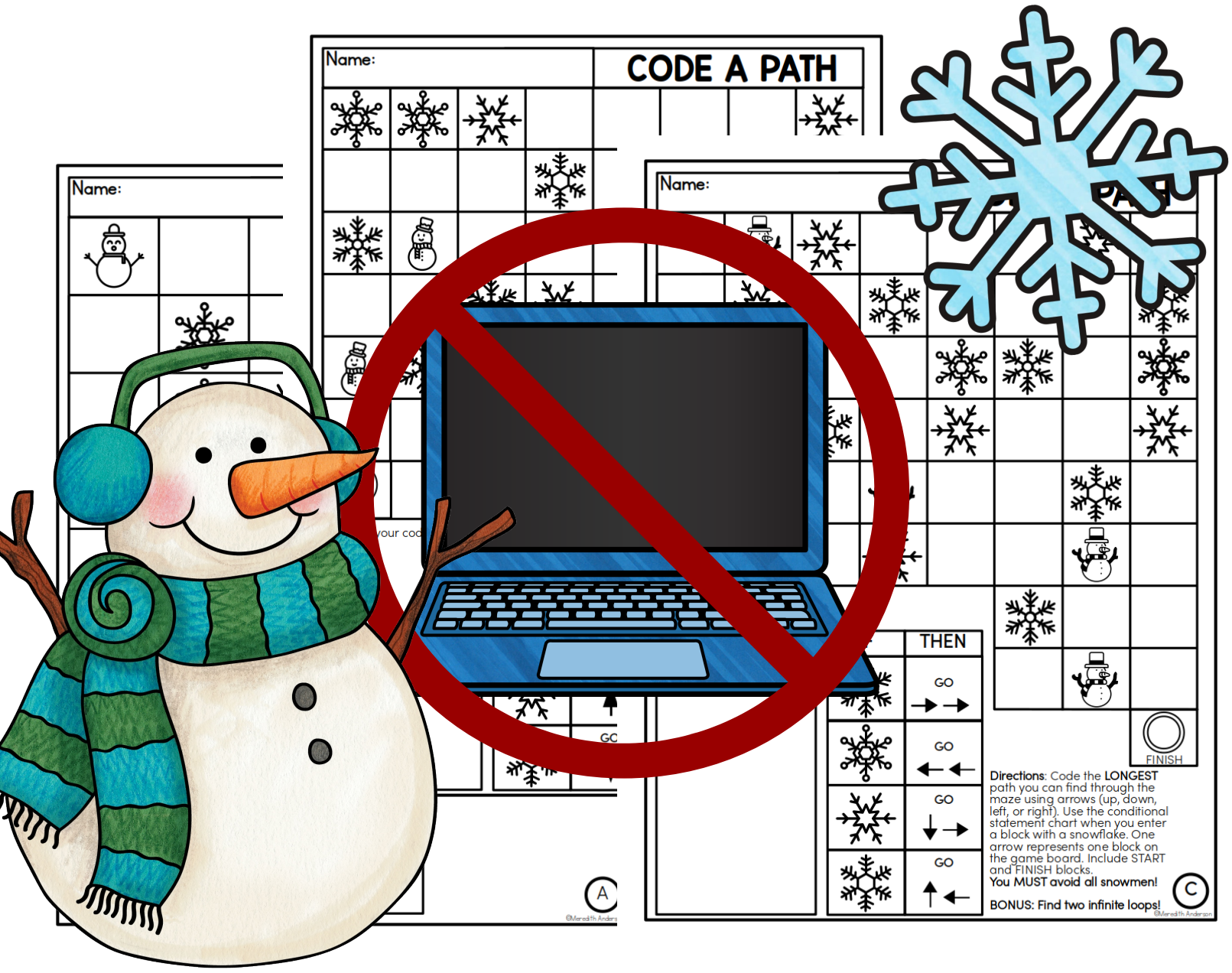
UNPLUGGED CODING



CREATED BY MEREDITH ANDERSON

Unplugged Coding Activities

When you don't have access to tech or when your kids aren't quite ready for coding with tech, use these coding activities! There are three different maze puzzles to code, plus a "make your own" option.

How to Use the Coding Puzzles

Puzzles/activities are labeled A, B, C in the bottom right corner (increasing in difficulty). Students must **stay on the game board.**

1) The first puzzle has students simply draw a safe path following the rules of the game. Students **must use the conditional statement chart** and follow what it says (for example, if they see a snowflake with a 12-pointed star in the center, they must go left out of that block).

Challenge ideas:

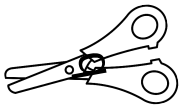
- Have students count out how many steps their path takes.
- Have students find the one block on the puzzle they can **never** reach.

2) The second puzzle is very similar to the first puzzle but students will need to code their path with arrows.

- Have students identify a "trap" - safe blocks they are unable to travel to because they would get stuck there, or a block they could travel to but have to back out of.

3) The third puzzle is the most challenging, as all of the conditional statements include **two steps** and students should try to find the **longest path they can.** That means students will need to plan ahead and may need to try out several codes!

There are multiple locations where students could get "stuck" in an infinite loop. These have been marked on the solution/key. No, getting caught in an infinite loop does **NOT** make their path the longest, because they need to get to FINISH.



Students Make Their Own Coding Puzzle (or you can!)

This activity is best for students that need a challenge and are able to cut and glue the pieces onto the board. They can lay out their puzzle first, using the snowflakes and snowmen as desired. Ideas other than simple direction or arrows moves:

- If you land on a snowman, you have to move to/encounter a particular snowflake next.
- If you land on a particular snowflake or snowman, you can "teleport" to another object like it.
- If you land on a certain snowman, you need to jump ALL THE WAY to the top row, but in the same column.

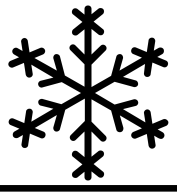
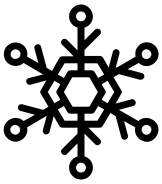
Once students have finalized their game board, they should check it or have another student check it (but not write on it yet!). If you are able, copy them and then you will have multiple puzzles for students to complete! You can even create your own this way.

Name:

CODE A PATH

START

FINISH

IF	THEN
	GO →
	GO ←
	GO ↑

Directions: Draw a path through the maze. Use the conditional statement chart when you enter a block with a snowflake.

You MUST avoid all snowmen!

A

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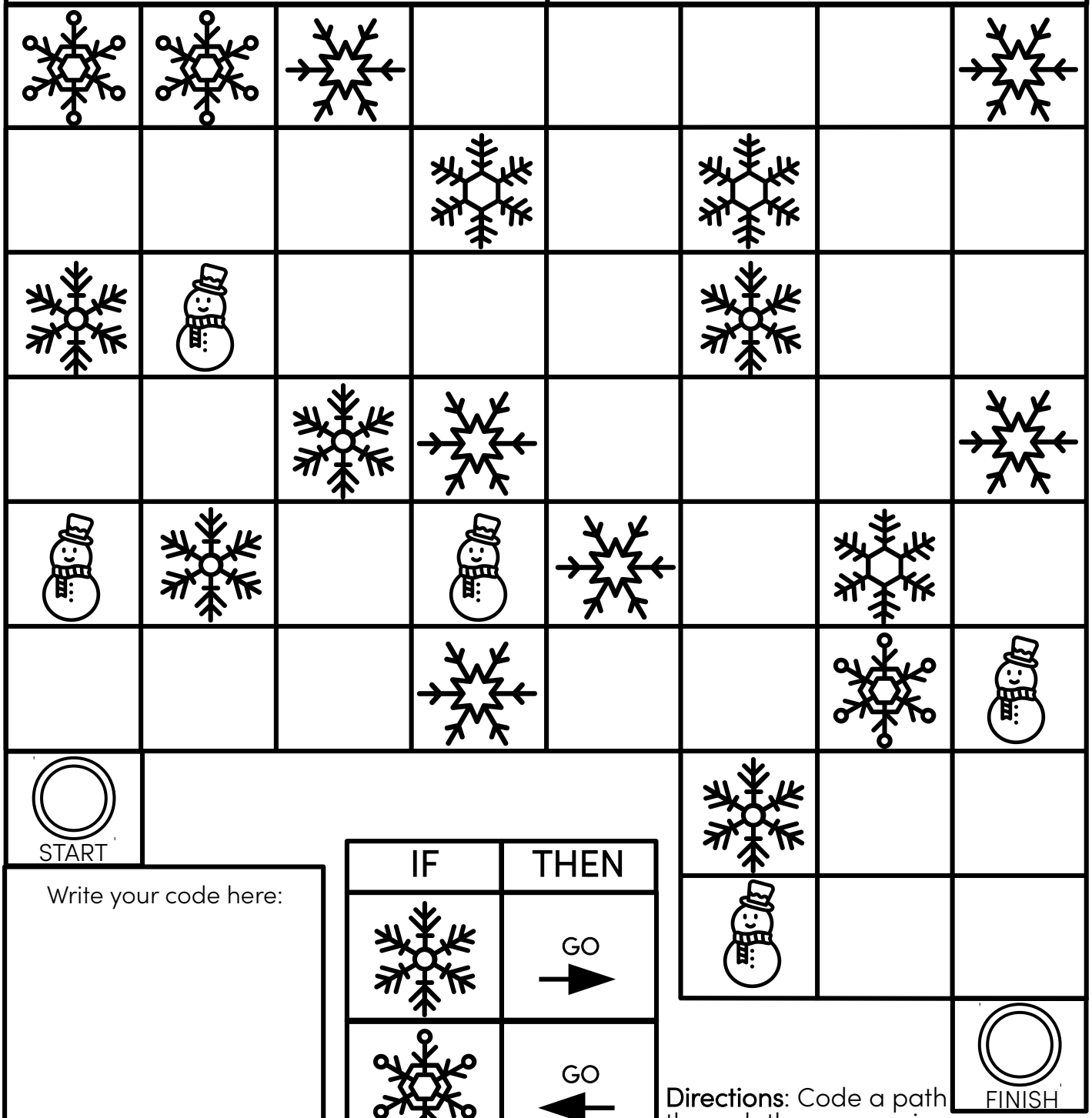
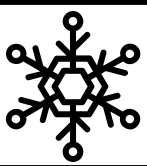
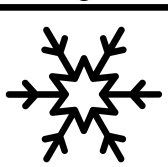
Name:

CODE A PATH



Write your code here:

IF	THEN
	GO →
	GO ←
	GO ↑
	GO ↓

Directions: Code a path through the maze using arrows (up, down, left, or right) from START to FINISH. Use the conditional statement chart when you enter a block with a snowflake. One arrow represents one block on the game board.

You MUST avoid all snowmen!

B

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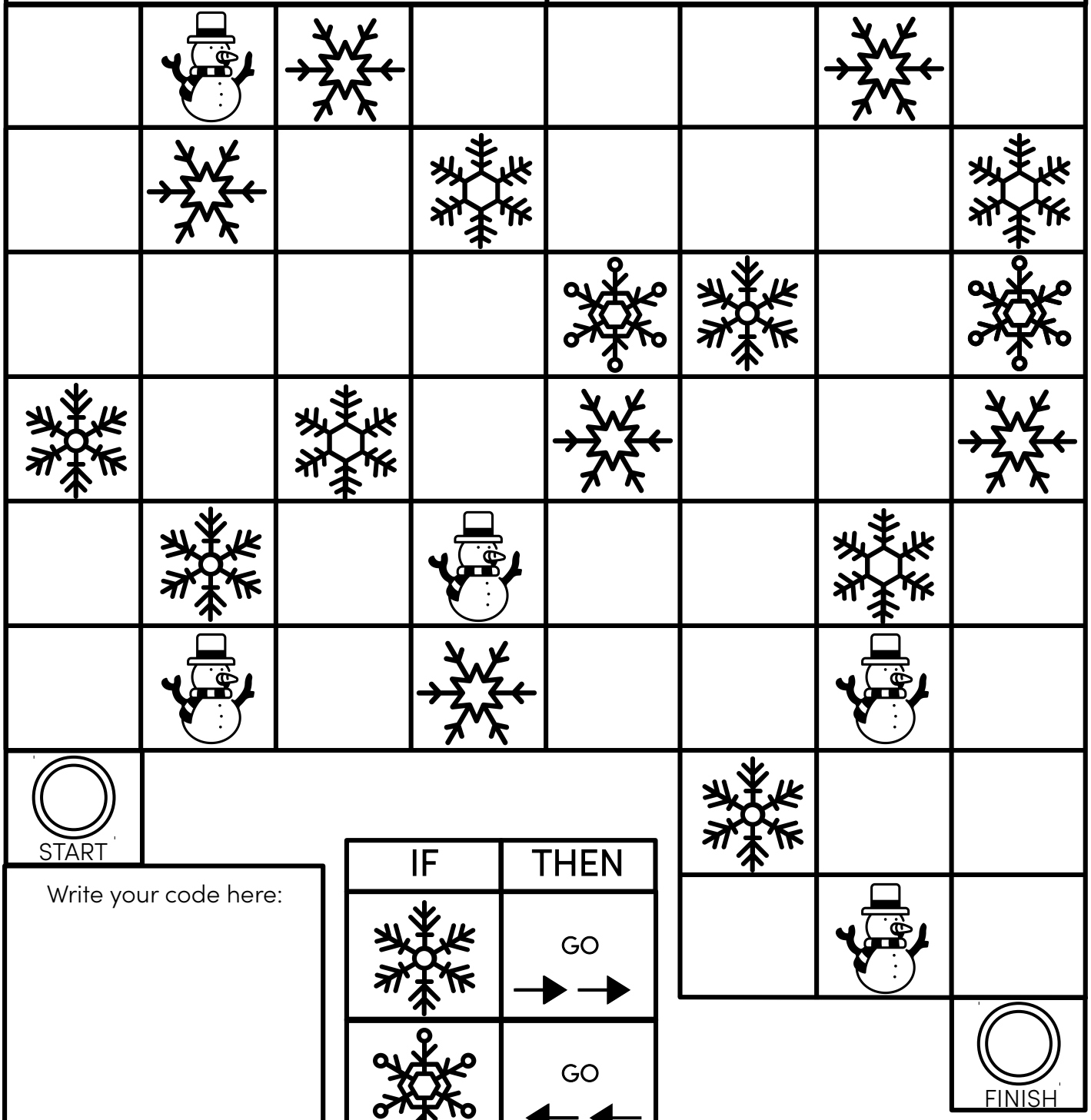
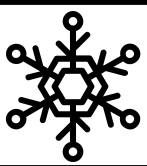
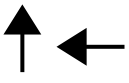
Name:

CODE A PATH



Write your code here:

IF	THEN
	GO
	GO
	GO
	GO 

Directions: Code the **LONGEST** path you can find through the maze using arrows (up, down, left, or right) from START to FINISH. Use the conditional statement chart when you enter a block with a snowflake. One arrow represents one block on the game board.
You MUST avoid all snowmen!

BONUS: Find two infinite loops!

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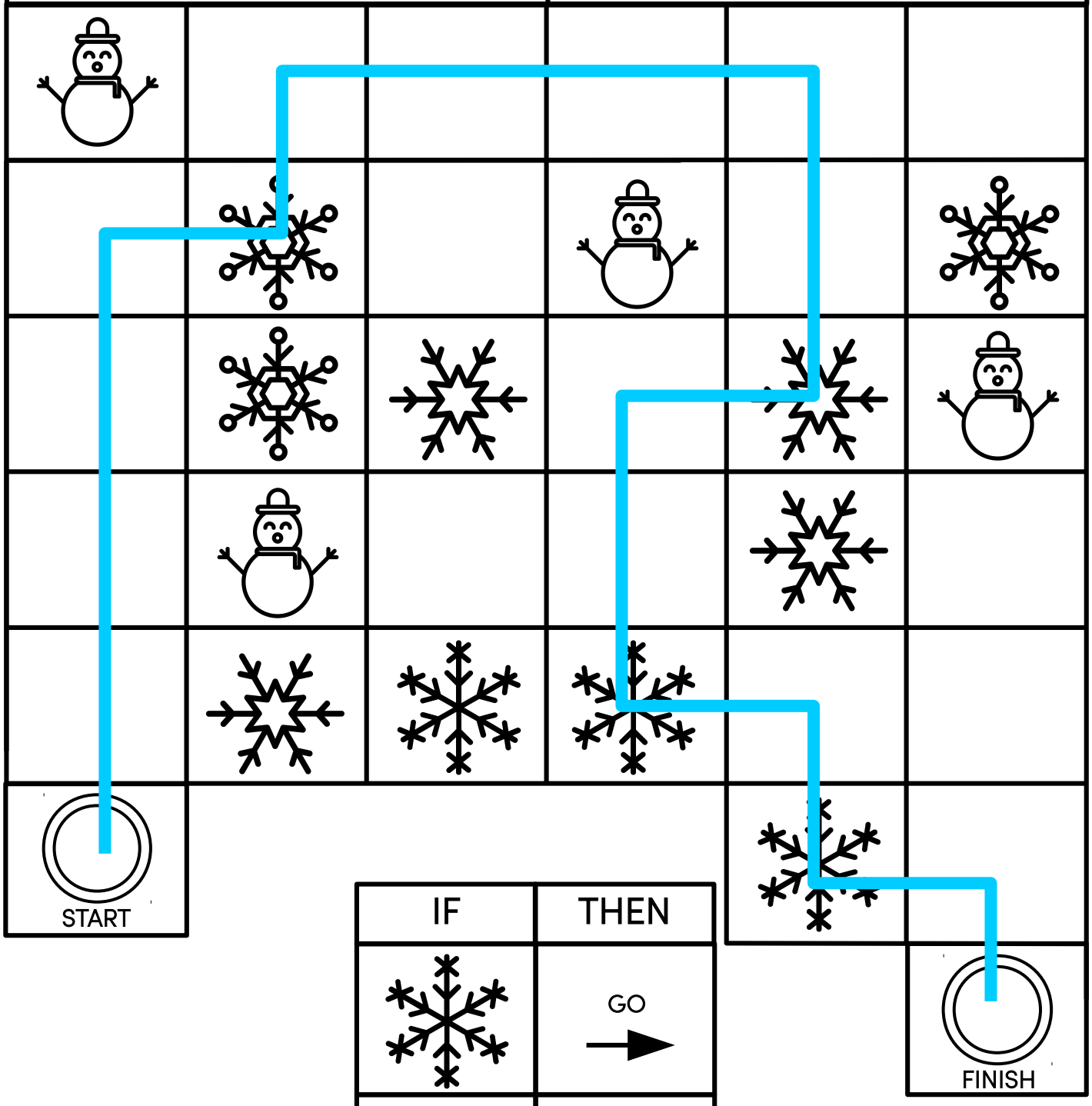
Possible Solutions

Name:

CODE A PATH



IF	THEN
❄	GO →
❄	GO ←
❄	GO ↑

Directions: Draw a path through the maze. Use the conditional statement chart when you enter a block with a snowflake.

You MUST avoid all snowmen!

A

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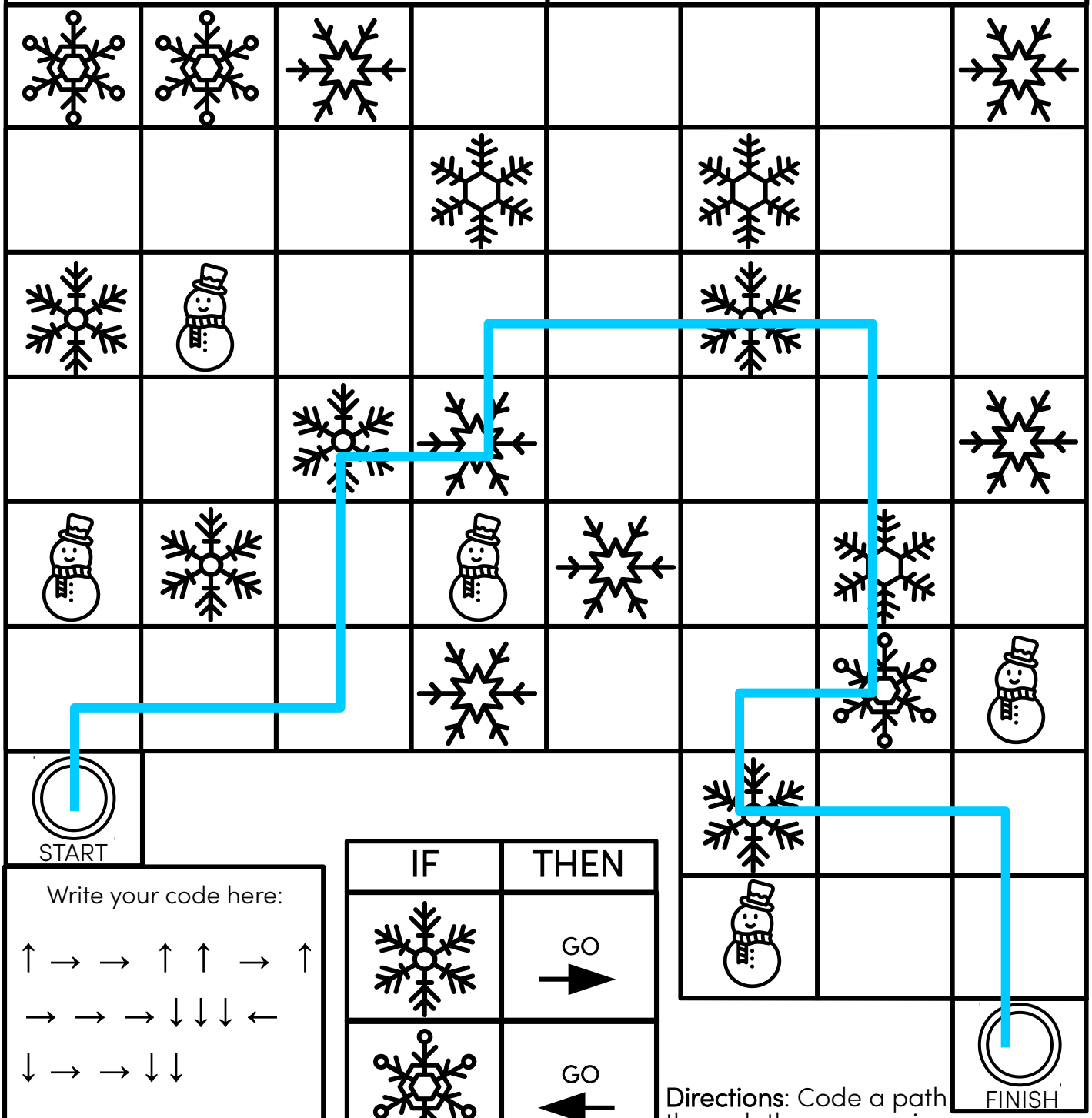
Name:

CODE A PATH



Write your code here:

↑ → → ↑ ↑ → ↑

→ → → ↓ ↓ ↓ ←

↓ → → ↓ ↓

This is just one possible solution!

IF	THEN
❄	GO →
❄	GO ←
❄	GO ↑
❄	GO ↓

Directions: Code a path through the maze using arrows (up, down, left, or right) from START to FINISH. Use the conditional statement chart when you enter a block with a snowflake. One arrow represents one block on the game board.

You MUST avoid all snowmen!

B

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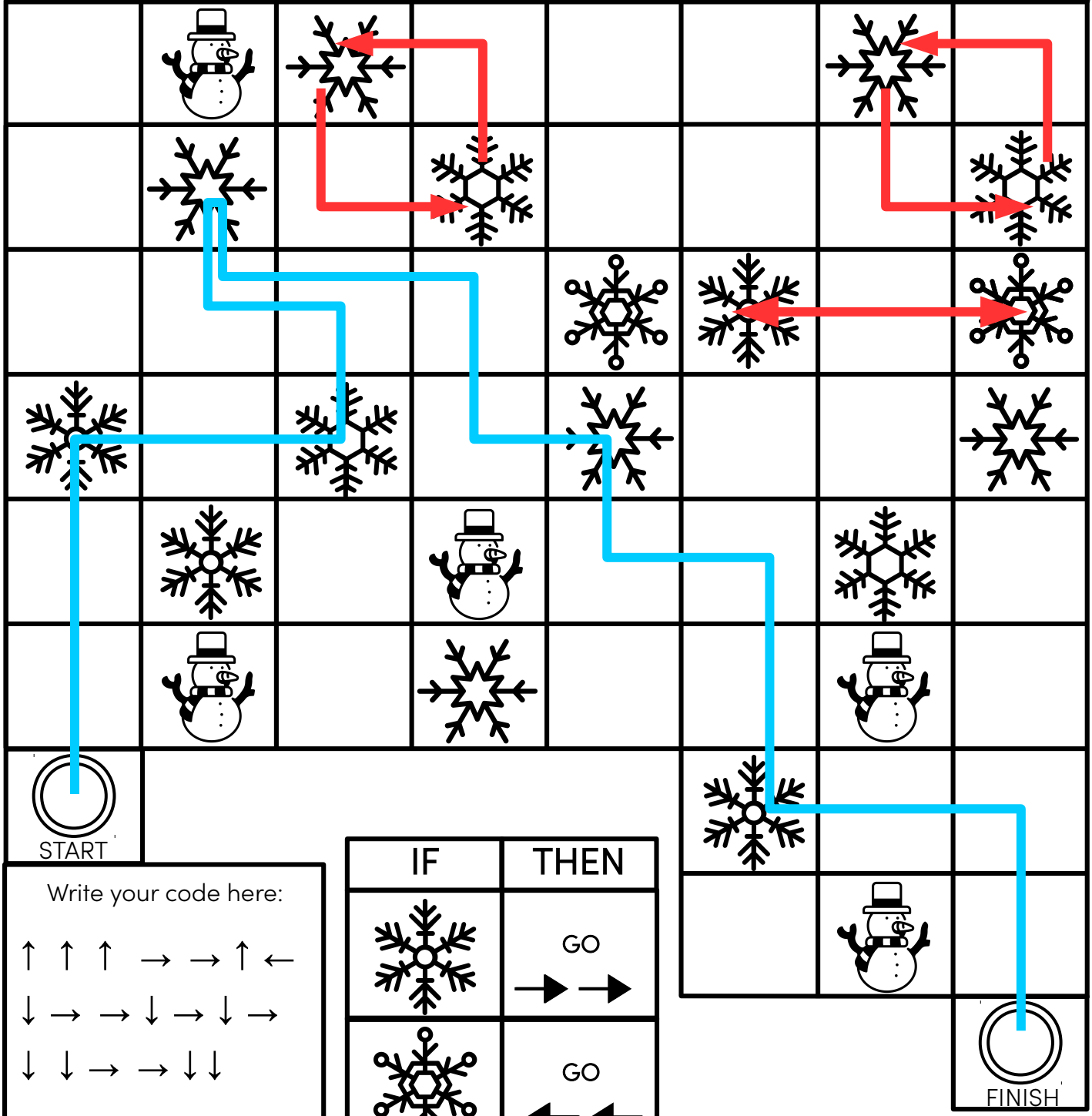
Name:

CODE A PATH



Write your code here:

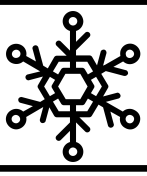
↑ ↑ ↑ → → ↑ ←

↓ → → ↓ → ↓ →

↓ ↓ → → ↓ ↓

This is just one possible solution, NOT the longest possible solution! Students may end up with 50+ steps/ arrows!

Infinite loops are shown in red.

IF	THEN
	GO → →
	GO ← ←
	GO ↓ →
	GO ↑ ←

Directions: Code the **LONGEST** path you can find through the maze using arrows (up, down, left, or right) from START to FINISH. Use the conditional statement chart when you enter a block with a snowflake. One arrow represents one block on the game board.
You MUST avoid all snowmen!

BONUS: Find two infinite loops!

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Make Your Own

Name:

CODE A PATH

START

FINISH

Write your code here:

IF	THEN

Directions: Make your own coding board. Create at least two conditional statements in the chart.

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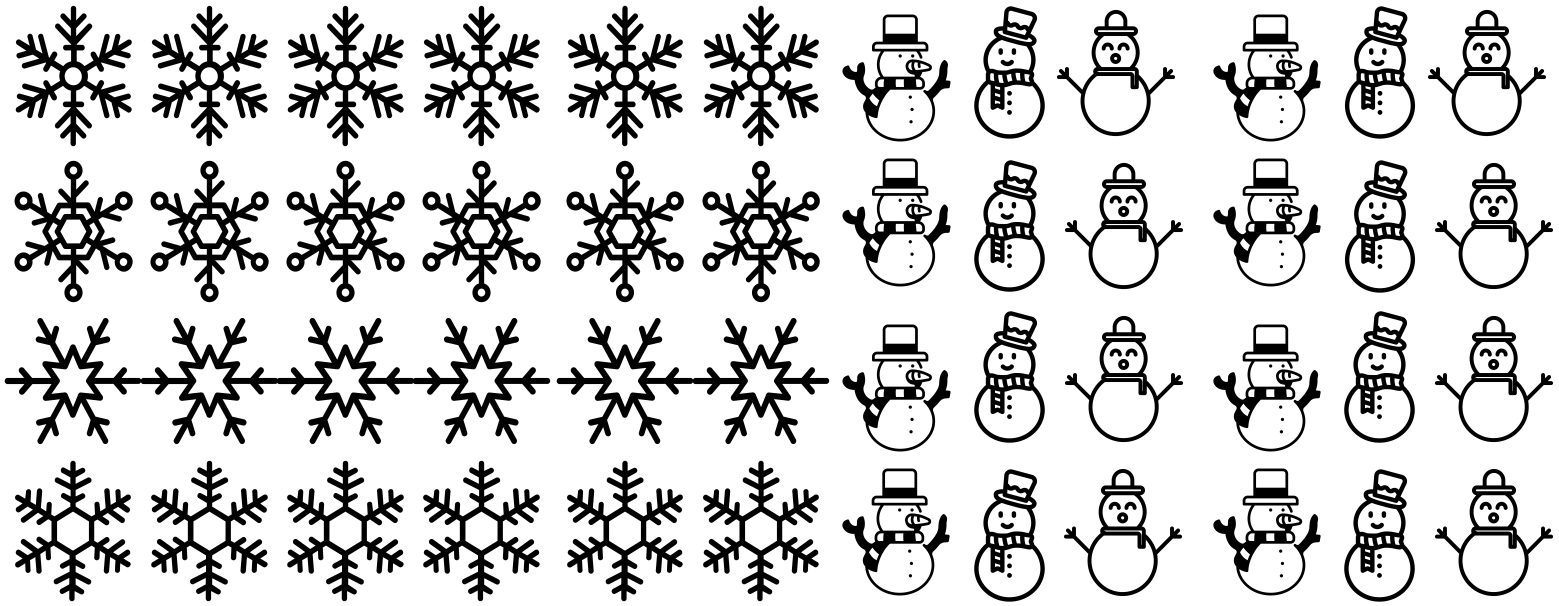

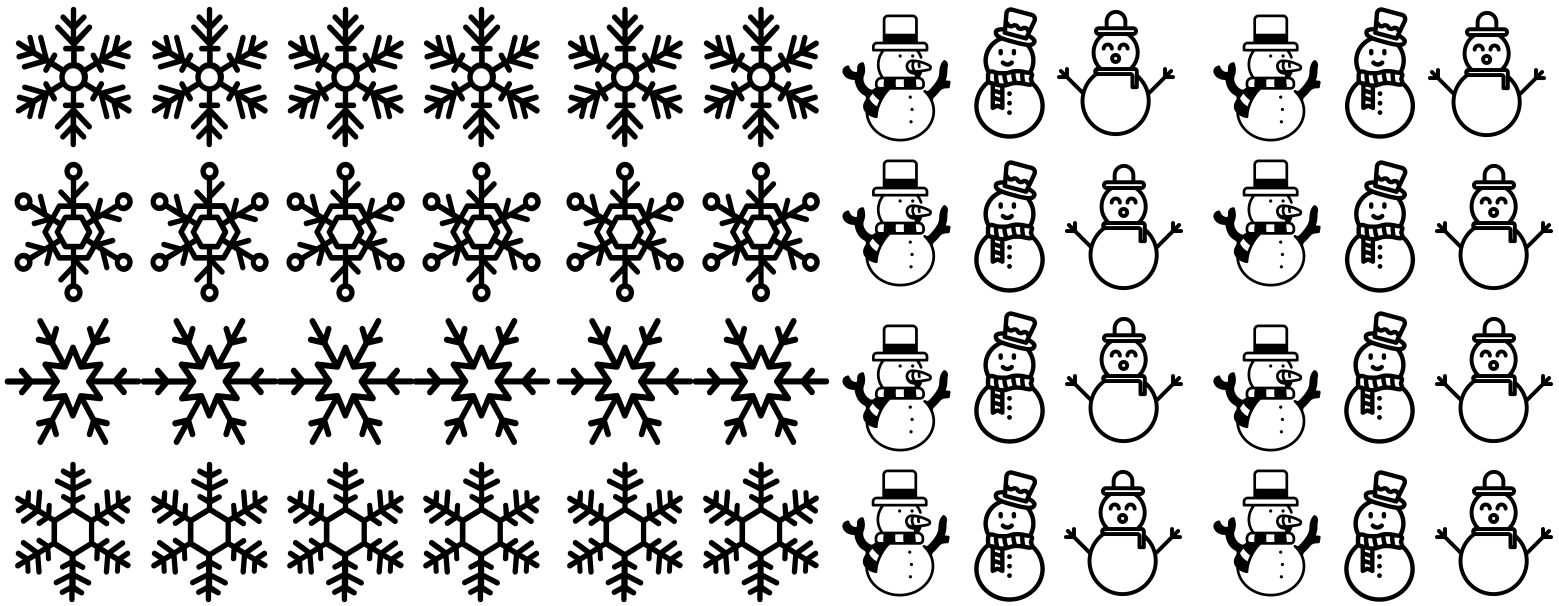

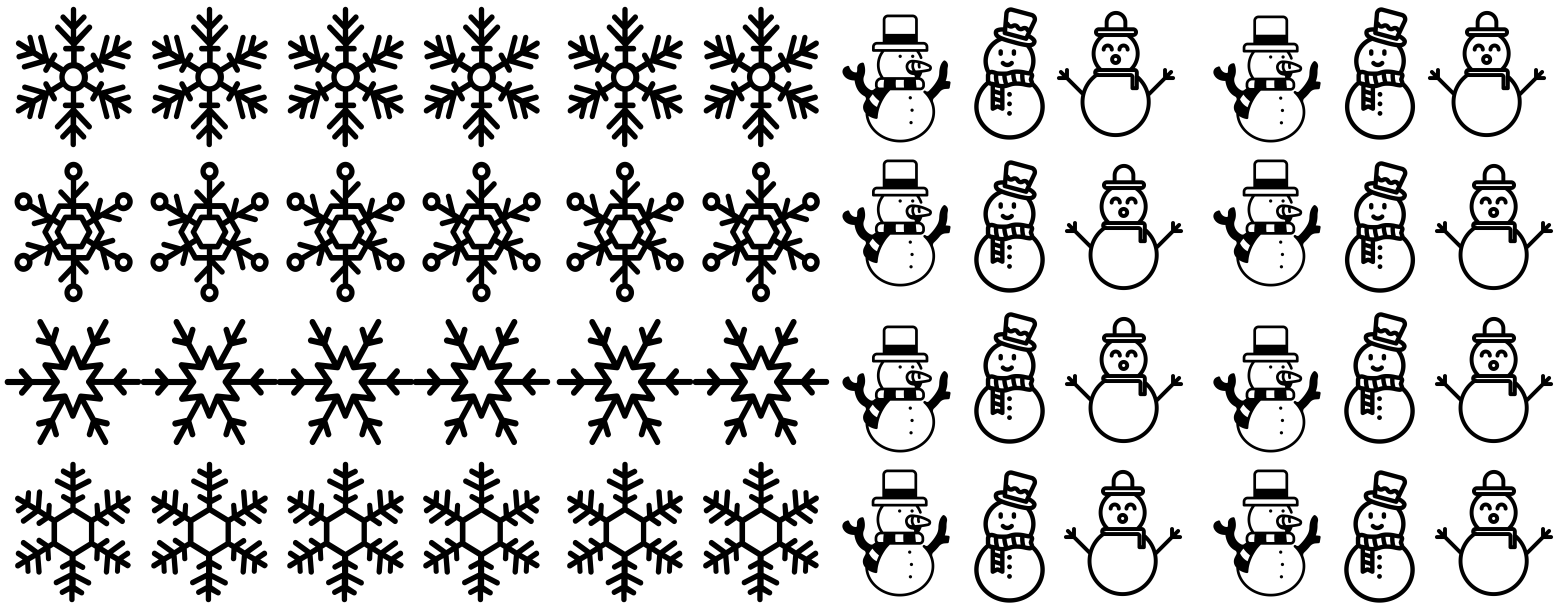

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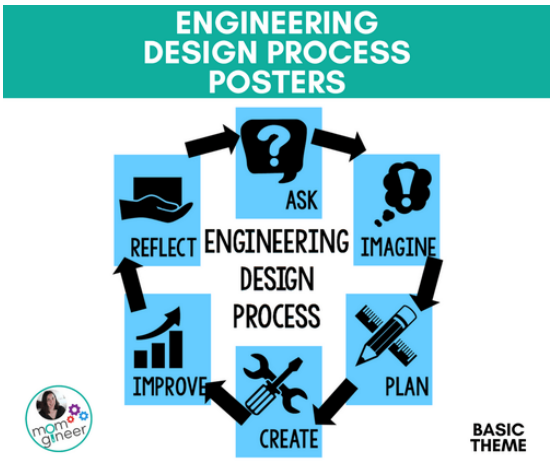

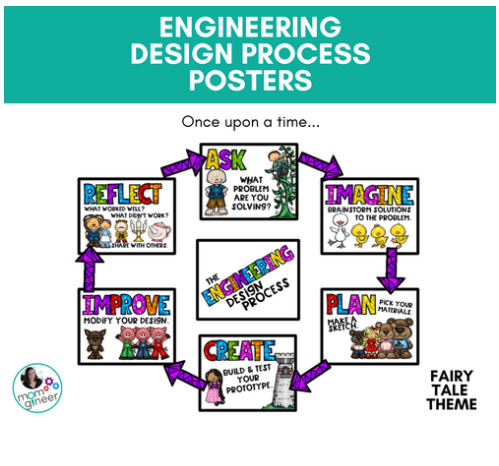

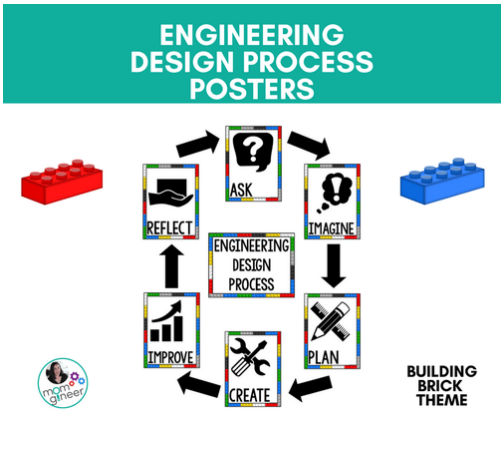

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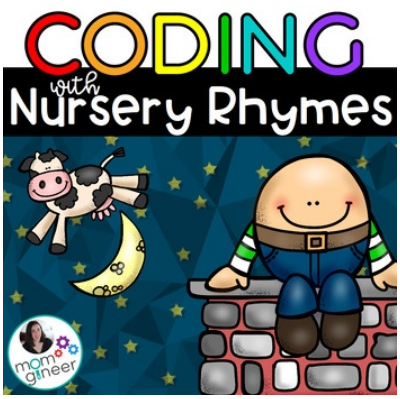

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