Name: **Date:** **Class:**

Mindful Messages Worksheet

Identify the Need/Problem: _____

_____

Identify the Constraints	
Use the checklist to make sure you follow the criteria and constraints.	
Criteria: ☐ Functionality: The communication tool must effectively perform its intended function. ☐ Clarity: The message or signal should be clear and understandable. ☐ User-Friendliness: The design should be easy to use and interact with, requiring minimal instructions. ☐ Creativity: The solution should be innovative and demonstrate original thinking in addressing the communication problem. ☐ Reliability: The prototype should work consistently during tests, without frequent failures. ☐ Instructions: There must be detailed instructions for another person/group to read to be able to use your device. If you use a code, then that needs to be included as well.	Constraints: ☐ Must use a micro:bit. ☐ Materials: Any of the provided materials that fit within your budget. ☐ Time: You have ___ hours/minutes to complete the entire project. ☐ Budget: You have $___ to use on the provided materials. ☐ Group size: Must have at least 3 students, with a max of 5.

Research the Problem
You may Google or look up background information about your need/problem. You can look up what products or solutions already exist. You can look up what technology is already created that you can modify to fit your needs. You can also research micro:bits and see what code or tutorials are already available. Use this space to keep track of your research.

Name: **Date:** **Class:**

Imagine: Develop Possible Solutions
Brainstorm multiple solutions (at least three) to your problem. You will sketch your ideas and discuss the pros and cons of each solution.

Name: **Date:** **Class:**

Plan: Select a Promising Solution
Revisit your need, constraints, criteria, and research from the earlier steps, compare the best ideas, select ONE solution, and make a plan to move forward with it. Do not forget to write out what supplies and materials you will need to build it. You need to draw a diagram of your prototype and label it with what supplies will be used.

Create: Build a Prototype
Building a prototype makes your ideas real! These early versions of the design solution help your team verify whether the design meets the original challenge objectives. Push yourself for creativity, imagination, and excellence in design. There should be three parts to building the prototype. Check off each one once it is completed. ☐ Construction: Build your prototype using the micro:bit and other materials that you purchased for your design. ☐ Programming: Program the micro:bit to perform the necessary functions for your communication tool. ☐ Instructions: Create easy-to-understand instructions on how to use your prototype.

Name: **Date:** **Class:**

Test and Evaluate Prototype
Test your prototype to make sure it works and solves the need/problem. Have each person in the group test it and give their feedback on how it went. Talk as a group about what worked, what did not work, and what could be improved. Write your findings here.

Name: **Date:** **Class:**

Improve: Redesign as Needed
Make revisions. Draw new designs if needed. Try out other materials if the ones you originally had did not work. You may test and improve as many times as needed or until your time is up. Use the space below to draw or write as needed.