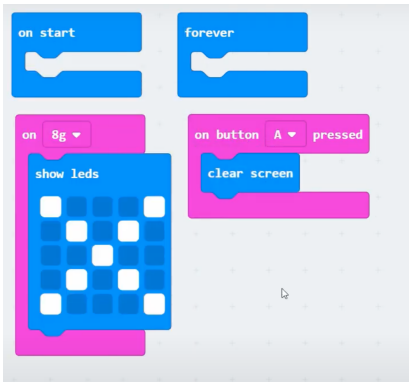
3-5-ETS1-2 Engineering Design Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3 Engineering Design Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 4-PS3-1 Energy Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-3 Energy Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4 Energy Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. 3-5-ETS1-1 Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. 3-5 ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. CCC: Cause & Effect, Energy and Matter SEP:Asking Questions and Defining Problems, Planning and Carrying Out Investigations, Constructing Explanations and Obtaining, Evaluating, and Communicating Information	An egg raised above the ground has potential energy due to the force of gravity. When dropped, the egg's potential energy is converted into the kinetic energy of motion. On landing, the egg must come to a stop without experiencing a stress (stress = force / unit of area) strong enough to break the shell from the transfer of energy in the moving object to the ground which is not moving. Creating a protection contraption to protect the egg will minimize the impact and hopefully save the egg shell from cracking. The drop will be X meters from the top to the bottom. Students will plan, reflect/revise, and replan as needed.	Design and plan a contraption to keep their egg safe and protected from the fall.
Coding	Egg Drop Press A to reset the Micro:Bit	

<table>
<tr><td></td><td colspan="2"> 
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<tr><td>STEM:
Materials Available
• Toothpicks
• String
• Paperclips
• Straws
• Cotton Balls
• Pipe Cleaners
• Rubber Bands
• Paper
• Cotton
• Newspaper
• Balloons
• Plastic Sheet</td><td>Background Knowledge:
Egg drop devices simulate parachutes and other similar features seen in nature, such as the helicopter seeds that are dropped from some trees. The process of slowing descent to resist the force of gravity has been used in a number of instances in history, and continues to be an important science – especially currently around emergency aid and transportation of goods to inaccessible areas.</td><td>Build and test a contraption to keep your “egg” safe during a drop. If the X displays on the Micro:Bit, your “egg” has broken. Be creative and think about what would make a safe descent.</td></tr>
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