## 1. ALGORITHMS - TANGRAMS (UNPLUGGED)

| ISTE                      | 1c. - Use models and simulations to explore complex systems and issues  
|                          | 2d. - Contribute to project teams to produce original works or solve problems  
|                          | 4b. - Plan and manage activities to develop a solution or complete a project  
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<th>4d. - Use multiple processes and diverse perspectives to explore alternative solutions</th>
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| CSTA                      | CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
|                          | CT.L1:6-02 - Develop a simple understanding of an algorithm using computer-free exercises  
|                          | CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out |
| NGSS                      | 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 |
| CC Math                   | Mathematical Practices:  
|                          | 1 - Make sense of problems and persevere in solving them  
|                          | 6 - Attend to precision |
| CC Math Standards:        | 3.G.A.1 - Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category  
|                          | 5.G.B.3 - Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category |
| CC ELA                    | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships.  
|                          | L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic.  
|                          | L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships. |
### 2. MAZE AND BEE

| ISTE | 1a. - Apply existing knowledge to generate new ideas, products, or processes  
1c. - Use models and simulation to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
6a. - Understand and use technology systems  
6c. - Troubleshoot systems and applications  
6d. - Transfer current knowledge to learning of new technologies |
|-------|----------------------------------------------------------------------------------------------------------------------------------|
| CSTA | CL.L1:3-02 - Work cooperatively and collaboratively with peers, teachers, and others using technology  
CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed.  
CT.L2-08 - Use visual representations of problem states, structures, and data.  
CT.L2-12 - Use abstraction to decompose a problem into sub problems.  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out.  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language.  
CPP.L2-05 - Implement problem solutions using a programming language including: Implement problem solutions using a programming language, including: looping behavior, conditional statements, logic, expressions, variables, and functions |
| NGSS | 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 |
| CC Math | Mathematical Practices:  
1 - Make sense of problems and persevere in solving them  
2 - Reason abstractly and quantitatively  
5 - Use appropriate tools strategically  
6 - Attend to precision  
7 - Look for and make use of structure  
8 - Look for and express regularity in repeated reasoning |
| CC Math Standards: | 3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities  
3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units) |
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- 1 - Make sense of problems and persevere in solving them
- 2 - Reason abstractly and quantitatively
- 4 - Model with mathematics
- 5 - Use appropriate tools strategically
- 6 - Attend to precision
- 7 - Look for and make use of structure
- 8 - Look for and express regularly in repeated reasoning

### CC Math Standards:
- 3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities
- 3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)
- 4.G.A.1 - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures
- 4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm
- 4.MD.C.5 - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement
- 5.NBT.B.5 - Fluently multiply multi-digit whole numbers using the standard algorithm

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### 4. ENVELOPE VARIABLES (UNPLUGGED)

#### ISTE
1c. - Use models and simulations to explore complex systems and issues
2d. - Contribute to project teams to produce original works or solve problems
4b. - Plan and manage activities to develop a solution or complete a project
6c. - Troubleshoot systems and applications

#### CSTA
CL.L2-03 - Collaborate with peers, experts, and others using collaborative practices such as pair programming, working in project teams, and participating in group active learning activities
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving
CT.L1:6-02 - Develop a simple understanding of an algorithm using computer-free exercises
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out

#### NGSS
3-5-ETS1-1 - Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost
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| 7. PLAY LAB: VARIABLES     | 1a. - Apply existing knowledge to generate new ideas, products, or processes  
1b. - Create original works as means of personal or group expression  
1c. - Use models and simulation to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
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| ISTE                      | CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-12 - Use abstraction to decompose a problem into sub-problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CPP.L1:3-03 - Create developmentally appropriate multimedia products with support from teachers, family, or student partners  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language  
CPP.L2-08 - Demonstrate dispositions amenable to open-ended problem solving and programming |
| CSTA                      | NGSS 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 |
**Mathematical Practices:**

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively.
3. Model with mathematics
4. Attend to precision
5. Look for and make use of structure
6. Look for and express regularity in repeated reasoning

**CC Math Standards:**

4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm

**ELA**

| L.3.6 | Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships |
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**FOR LOOP FUN (UNPLUGGED)**

| ISTE | 1c. - Use models and simulation to explore complex systems and issues  
|      | 2d. - Contribute to project teams to solve problems |
| CSTA | CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
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| **9. BEE: FOR LOOPS** | |

| **ISTE** | 1a. - Apply exiting knowledge to generate new ideas, products, or processes |
|          | 1c. - Use models and simulations to explore complex systems and issues |
|          | 4b. - Plan and manage activities to develop a solution or complete a project |
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<tbody>
<tr>
<td>NGSS</td>
<td>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</td>
</tr>
</tbody>
</table>
| CC Math | Mathematical Practices:  
1 - Make sense of problems and persevere in solving them  
2 - Reason abstractly and quantitatively  
4 - Model with mathematics  
6 - Attend to precision  
7 - Look for and make use of structure  
8 - Look for and express regularity in repeated reasoning |
| CC Math Standards | 3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities  
3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)  
4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm  
4.MD.C.5 - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement  
4.MD.C.7 - Recognize angle measure as additive  
4.G.A.1 - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines  
4.G.A.2 - Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size  
5.NBT.B.5 - Fluently multiply multi-digit whole numbers using the standard algorithm  
5.G.A.2 - Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation /p>
### 11. PLAY LAB: FOR LOOPS

**ISTE**
- 1a. - Apply existing knowledge to generate new ideas, products, or processes
- 1c. - Use models and simulation to explore complex systems and issues
- 6a. - Understand and use technology systems
- 6c. - Troubleshoot systems and applications
- 6d. - Transfer current knowledge to learning of new technologies

**CSTA**
- CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology
- CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems
- CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out
- CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language
- CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions
- CT.L2-06 - Describe and analyze a sequence of instructions being followed
- CT.L2-12 - Use abstraction to decompose a problem into sub-problems
- CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions
- CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms

**NGSS**
- 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

### CC ELA
- L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships
- L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic
- L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships

### CC Math
- **Mathematical Practices:**
  1. Make sense of problems and persevere in solving them
  2. Reason abstractly and quantitatively
  4. Model with mathematics
  6. Attend to precision
  7. Look for and make use of structure
  8. Look for and express regularity in repeated reasoning

- **CC Math Standards:**
  3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities
  4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm
| **CC ELA** | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships  
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic  
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships |
<table>
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<tbody>
<tr>
<td><strong>12. ARTIST: FUNCTIONS</strong></td>
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</tbody>
</table>
1a. - Apply existing knowledge to generate new ideas, products, or processes  
1b. - Create original works as means of personal or group expression  
1c. - Use models and simulation to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
6a. - Understand and use technology systems  
6c. - Troubleshoot systems and applications  
6d. - Transfer current knowledge to learning of new technologies |
| **ISTE** |  
CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-08 - Use visual representations of problem states, structures, and data  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-01 - Use predefined functions and parameter, classes and methods to divide a complex problem into simpler parts  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language  
CPP.L2-08 - Demonstrate dispositions amenable to open-ended problem solving and programming |
| **CSTA** |  
NGSS | 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 |
### Mathematical Practices:

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Model with mathematics
4. Use appropriate tools strategically
5. Attend to precision
6. Look for and make use of structure
7. Look for and express regularly in repeated reasoning

### CC Math Standards:

3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities
3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)
4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm
4.MD.C.5 - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement
4.MD.C.7 - Recognize angle measure as additive
4.G.A.1 - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines
4.G.A.2 - Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size
5.NBT.B.5 - Fluently multiply multi-digit whole numbers using the standard algorithm
5.G.A.2 - Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation

### CC ELA

L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships

### 13. SONGWRITING WITH PARAMETERS (UNPLUGGED)

<table>
<thead>
<tr>
<th>ISTE</th>
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</thead>
<tbody>
<tr>
<td>1a. - Apply existing knowledge to generate new ideas, products, or processes</td>
</tr>
<tr>
<td>1c. - Use models and simulation to explore complex systems and issues</td>
</tr>
<tr>
<td>2a. - Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media</td>
</tr>
<tr>
<td>2d. - Contribute to project teams to solve problems</td>
</tr>
<tr>
<td>4b. - Plan and manage activities to develop a solution or complete a project</td>
</tr>
<tr>
<td>4d. - Use multiple processes and diverse perspectives to explore alternative solutions</td>
</tr>
</tbody>
</table>
| CSTA                  | CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
|                      | CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
|                      | CT.L2-06 - Describe and analyze a sequence of instructions being followed  
|                      | CT.L2-07 - Represent data in a variety of ways: text, sounds, pictures, numbers  
|                      | CT.L2-08 - Use visual representations of problem states, structures, and data  
|                      | CT.L2-12 - Use abstraction to decompose a problem into sub problems  
|                      | CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
|                      | CT.L3A-01 - Use predefined functions and parameters, classes and methods to divide a complex problem into simpler parts  
|                      | CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
|                      | CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
| NGSS                 | 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  
| CC Math              | Mathematical Practices:  
|                      | 1 - Make sense of problems and persevere in solving them  
|                      | 2 - Reason abstractly and quantitatively  
|                      | 3 - Construct viable arguments and critique the reasoning of others  
|                      | 6 - Attend to precision  
|                      | 7 - Look for and make use of structure  
|                      | 8 - Look for and express regularity in repeated reasoning  
| CC ELA               | SL.3.1.D - Explain their own ideas and understanding in light of the discussion  
|                      | SL.3.3 - Ask and answer questions about information from a speaker, offering appropriate elaboration and detail  
|                      | RI.3.1 - Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers  
|                      | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships  
|                      | L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic  
|                      | L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships  

**14. ARTIST: FUNCTIONS WITH PARAMETERS**
| ISTE | 1a. - Apply existing knowledge to generate new ideas, products, or processes  
1b. - Create original works as means of personal or group expression  
1c. - Use models and simulation to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
6a. - Understand and use technology systems  
6c. - Troubleshoot systems and applications  
6d. - Transfer current knowledge to learning of new technologies |
| CSTA | CL.L1:3-02 - Work cooperatively and collaboratively with peers, teachers, and others using technology  
CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-07 - Represent data in a variety of ways: text, sounds, pictures, numbers  
CT.L2-08 - Use visual representations of problem states, structures, and data  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-01 - Use predefined functions and parameter, classes and methods to divide a complex problem into simpler parts  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language  
CPP.L2-08 - Demonstrate dispositions amenable to open-ended problem solving and programming |
| NGSS | 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 |
### Mathematical Practices:

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Model with mathematics
4. Use appropriate tools strategically
5. Attend to precision
6. Look for and make use of structure
7. Look for and express regularity in repeated reasoning

### CC Math Standards:

3.OA.3 - Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities
3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)
4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm
4.MD.A.3 - Apply the area and perimeter formulas for rectangles in real world and mathematical problems
4.MD.C.5 - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement
4.MD.C.7 - Recognize angle measure as additive
4.G.A.1 - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines
4.G.A.2 - Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size
5.NBT.B.5 - Fluently multiply multi-digit whole numbers using the standard algorithm
5.G.A.2 - Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation

### CC ELA

L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships

### 15. PLAY LAB: FUNCTIONS WITH PARAMETERS

1a. - Apply existing knowledge to generate new ideas, products, or processes
1b. - Create original works as means of personal or group expression
1c. - Use models and simulation to explore complex systems and issues
4b. - Plan and manage activities to develop a solution or complete a project
6a. - Understand and use technology systems
6c. - Troubleshoot systems and applications
6d. - Transfer current knowledge to learning of new technologies
| **CSTA** | CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-07 - Represent data in a variety of ways: text, sounds, pictures, numbers  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language  
CPP.L2-08 - Demonstrate dispositions amenable to open-ended problem solving and programming |
| **NGSS** | 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 |
| **CC Math** | Mathematical Practices:  
1 - Make sense of problems and persevere in solving them  
2 - Reason abstractly and quantitatively  
4 - Model with mathematics  
6 - Attend to precision  
7 - Look for and make use of structure  
8 - Look for and express regularity in repeated reasoning  
CC Math Standards:  
4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm |
| **CC ELA** | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships  
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic  
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships |

16. BEE: FUNCTIONS WITH PARAMETERS
| ISTE | 1a. - Apply exiting knowledge to generate new ideas, products, or processes  
1c. - Use models and simulations to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
6a. - Understand and use technology systems  
6c. - Troubleshoot systems and applications  
6d. - Transfer current knowledge to learning of new technologies |
|-----|--------------------------------------------------|
| CSTA | CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language |
| NGSS | 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 |
| CC Math | Mathematical Practices:  
1 - Make sense of problems and persevere in solving them  
2 - Reason abstractly and quantitatively  
4 - Model with mathematics  
6 - Attend to precision  
7 - Look for and make use of structure  
8 - Look for and express regularity in repeated reasoning |
| CC Math Standards | 4.OA.C.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself |
| CC ELA | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships  
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic  
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships |
# 17. BINARY (UNPLUGGED)

**ISTE**

1c. - Use models and simulations to explore complex systems and issues  
2d. - Contribute to project teams to produce original works or solve problems  
4b. - Plan and manage activities to develop a solution or complete a project  
4d. - Use multiple processes and diverse perspectives to explore alternative solutions  
6d. - Transfer current knowledge to learning new technologies

**CSTA**

- CL.L1:3-02 - Work cooperatively and collaboratively with peers, teachers, and others using technology  
- CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
- CL.L2-03 - Collaborate with peers, experts, and others using collaborative practices such as pair programming, working in project teams, and participating in group active learning activities  
- CT.L2-06 - Describe and analyze a sequence of instructions beginning followed  
- CT.L2-07 - Represent data in a variety of ways: text, sounds, pictures, numbers  
- CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
- CT.L3A-05 - Describe the relationship between binary and hexadecimal representations  
- CT.L3B-07 - Discuss the interpretation of binary sequences in a variety of forms  
- CT.L1:6-02 - Develop a simple understanding of an algorithm using computer-free exercises

**NGSS**

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

**CC Math**

Mathematical Practices:

1. - Make sense of problems and persevere in solving them  
2. - Reason abstractly and quantitatively  
4. - Model with mathematics  
6. - Attend to precision  
7. - Look for and make use of structure  
8. - Look for and express regularity in repeated reasoning

**CC Math Standards**:

- 4.OA.C.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself

**CC ELA**

- L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships  
- L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic  
- L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships
### 18. ARTIST BINARY

| ISTE | 1a. - Apply existing knowledge to generate new ideas, products, or processes  
1b. - Create original works as means of personal or group expression  
1c. - Use models and simulation to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
6a. - Understand and use technology systems  
6c. - Troubleshoot systems and applications  
6d. - Transfer current knowledge to learning of new technologies |
| --- | --- |
| CSTA | CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-07 - Represent data in a variety of ways: text, sounds, pictures, numbers  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CT.L3B-07 - Discuss the interpretation of binary sequences in a variety of forms  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language |
| NGSS | 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 |
| CC Math | Mathematical Practices:  
1 - Make sense of problems and persevere in solving them  
2 - Reason abstractly and quantitatively  
4 - Model with mathematics  
6 - Attend to precision  
7 - Look for and make use of structure  
8 - Look for and express regularity in repeated reasoning |
|  | CC Math Standards:  
4.OA.C.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself |
| CC ELA | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships  
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic  
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships |
| 19. SUPER CHALLENGE - VARIABLES |  
| ISTE | 1a. - Apply existing knowledge to generate new ideas, products, or processes  
1c. - Use models and simulation to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
6a. - Understand and use technology systems  
6c. - Troubleshoot systems and applications  
6d. - Transfer current knowledge to learning of new technologies |
| CSTA | CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language |
| NGSS | 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 |
### Mathematical Practices:

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Model with mathematics
4. Attend to precision
5. Look for and make use of structure
6. Look for and express regularity in repeated reasoning

### CC Math Standards:

3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)
4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm
4.OA.C.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself
4.MD.C.5 - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement
4.MD.C.7 - Recognize angle measure as additive
4.G.A.1 - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines

### CC ELA

L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships

### 20. SUPER CHALLENGE - FOR LOOPS

1a. - Apply existing knowledge to generate new ideas, products, or processes
1b. - Use models and simulation to explore complex systems and issues
4b. - Plan and manage activities to develop a solution or complete a project
6a. - Understand and use technology systems
6c. - Troubleshoot systems and applications
6d. - Transfer current knowledge to learning of new technologies
| CSTA | CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CT.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language |
| NGSS | 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 |
| CC Math | Mathematical Practices:  
1 - Make sense of problems and persevere in solving them  
2 - Reason abstractly and quantitatively  
4 - Model with mathematics  
6 - Attend to precision  
7 - Look for and make use of structure  
8 - Look for and express regularity in repeated reasoning  
3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)  
4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm  
4.OA.C.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself  
4.MD.C.5 - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement  
4.MD.C.7 - Recognize angle measure as additive  
4.G.A.1 - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines |
| CC ELA | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships  
L.4.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being and that are basic to a particular topic  
L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships |
## 21. SUPER CHALLENGE - FUNCTIONS AND PARAMETERS

| ISTE          | 1a. - Apply existing knowledge to generate new ideas, products, or processes  
|               | 1c. - Use models and simulation to explore complex systems and issues  
|               | 4b. - Plan and manage activities to develop a solution or complete a project  
|               | 6a. - Understand and use technology systems  
|               | 6c. - Troubleshoot systems and applications  
|               | 6d. - Transfer current knowledge to learning of new technologies  
| CSTA          | CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
|               | CL.L1:3-02 - Work cooperatively and collaboratively with peers, teachers, and others using technology  
|               | CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
|               | CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
|               | CT.L2-06 - Describe and analyze a sequence of instructions being followed  
|               | CT.L2-12 - Use abstraction to decompose a problem into sub problems  
|               | CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
|               | CT.L3A-03 - Explain how sequence, selection, iteration, and recursion are building blocks of algorithms  
|               | CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
|               | CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language  
| NGSS          | 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  
| CC Math       | Mathematical Practices:  
|               | 1 - Make sense of problems and persevere in solving them  
|               | 2 - Reason abstractly and quantitatively  
|               | 4 - Model with mathematics  
|               | 6 - Attend to precision  
|               | 7 - Look for and make use of structure  
|               | 8 - Look for and express regularity in repeated reasoning  
|               | CC Math Standards:  
|               | 3.MD.C.6 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units)  
|               | 4.NBT.B.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm  
|               | 4.OA.C.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself  
|               | 4.MD.C.5 - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement  
|               | 4.MD.C.7 - Recognize angle measure as additive  
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L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships |
|---|---|
| **22. EXTREME CHALLENGE - COMPREHENSIVE** | 1a. - Apply existing knowledge to generate new ideas, products, or processes  
1c. - Use models and simulation to explore complex systems and issues  
4b. - Plan and manage activities to develop a solution or complete a project  
6a. - Understand and use technology systems  
6c. - Troubleshoot systems and applications  
6d. - Transfer current knowledge to learning of new technologies |
| **ISTE** | CT.L1:3-01 - Use technology resources (e.g., puzzles, logical thinking programs) to solve age appropriate problems  
CL.L1:3-02 - Work cooperatively and collaboratively with peers teachers, and others using technology  
CT.L1:6-01 - Understand and use the basic steps in algorithmic problem-solving  
CT.L2-01 - Use the basic steps in algorithmic problem solving to design solutions  
CT.L2-06 - Describe and analyze a sequence of instructions being followed  
CT.L2-12 - Use abstraction to decompose a problem into sub problems  
CT.L2-14 - Examine connections between elements of mathematics and computer science including binary numbers, logic, sets, and functions  
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CPP.L1:6-05 - Construct a program as a set of step-by-step instructions to be acted out  
CPP.L1:6-06 - Implement problem solutions using a block-based visual programming language |
<p>| <strong>CSTA</strong> |  |
| <strong>NGSS</strong> | 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 |</p>
<table>
<thead>
<tr>
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CC Math Standards:

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| CC ELA | L.3.6 - Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships |
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|        | L.5.6 - Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships |

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