



SEASON 3
EVALUATION
RUBRICS



TABLE OF CONTENTS

BOLT: Animal Behavior Rubric 3

littleBits Invent 4 Good: Animal Kingdom Rubric 5

indi: To The Zoo Rubric 9



BOLT: Animal Behavior Evaluation Rubric

	Developing	Improving	Accomplished	Exemplary
Mission Objective #1: BOLT on Safari	0-20 <i>Competition Field</i> not set up accurately; AND/OR <i>Mission Objective</i> not completed	21-50 <i>Competition Field</i> set up accurately; AND Both BOLT 1 and 2 have programs; BUT BOLT 2's program doesn't include a loop; AND/OR Either one of the BOLT programs runs for longer than 60 seconds	51-80 <i>Competition Field</i> is set up accurately; AND BOLT 2's program includes a loop; AND Both BOLTs complete their program in 60 seconds	81-100 Everything from the Accomplished category; AND BOLT 2 has creative elements (lights and sounds) to imitate an elephant; AND/OR BOLT 1 has creative elements through programming or decorations; AND/OR <i>Competition Field</i> has multiple creative elements to show the safari
Mission Objective #2: A Day and Night in the Life	0-20 <i>Competition Field</i> not set up accurately; AND/OR <i>Mission Objective</i> not completed	21-50 <i>Competition Field</i> set up accurately; BUT Program does not have endTime variable; AND/OR Program does not utilize a conditional statement using the ambient light sensor; AND/OR Program does not have a function that is called multiple times	51-80 <i>Competition Field</i> set up accurately; AND Program utilizes endTime variable; AND Program utilizes a conditional statement using the ambient light sensor; AND Program utilized a function that is called more than once	81-100 Everything from the Accomplished category; AND Creative elements are added to the <i>Competition Field</i> ; AND/OR Creative elements added to BOLT (decorations, lights, sounds, animations); AND/OR Second BOLT is utilized in <i>Mission Objective</i>
Mission Objective #3: Predator and Prey	0-20 <i>Competition Field</i> not set up accurately; AND/OR <i>Mission Objective</i> not completed	21-50 <i>Competition Field</i> set up accurately; AND BOLT 1 does not visit all four <i>Feeding Zones</i> ; AND/OR BOLT 1 does not end in the <i>Safe Zone</i> ; AND/OR BOLT 1 or 2 does not utilize the matrix for the entire program	51-80 <i>Competition Field</i> set up accurately; AND BOLT 1 visits all <i>Feeding Zones</i> and finishing in the <i>Safe Zone</i> ; AND BOLT 1 successfully sends a message that is received by BOLT 2; AND BOLT 1 evades BOLT 2 as the last command in the program	81-100 Everything from the Accomplished category; AND Creative elements are added to the <i>Competition Field</i> ; Program utilizes matrix lights and sound to creatively show predator and prey

<p>Mission Objective #4: BOLT Migration</p>	<p>0-20 <i>Competition Field</i> not set up accurately; AND/OR <i>Mission Objective</i> not completed</p>	<p>21-50 <i>Competition Field</i> is set up accurately; AND BOLT 1 misses any <i>Checkpoints</i>; AND/OR BOLT 2 moves from its starting position; AND/OR BOLT 1 does not display how many messages it has received</p>	<p>51-80 <i>Competition Field</i> is set up accurately; AND BOLT 1 hits all <i>Checkpoints</i>; AND BOLT 1 counts every message received on the matrix; AND BOLT 2 does not move from its starting position; AND BOLT 1 program is less than 60 seconds</p>	<p>81-100 Everything from the Accomplished category; AND Creative elements are added to the <i>Competition Field</i>; AND Light and sound is creatively used to show all messages sent and received</p>
<p>Mission Objective #5: Engineer a Rescue</p>	<p>0-20 <i>Competition Field</i> not set up accurately; AND/OR <i>Mission Objective</i> not completed</p>	<p>21-50 Ramp and Cage do not meet specifications in BOLT-M5-3; AND/OR Engineering budget is above \$45 or not calculated properly; AND/OR Program execution is longer than 60 seconds</p>	<p>51-80 Ramp and Cage meet specifications in the BOLT-M5-3; AND Engineering budget is at or below \$45; AND Program execution is at or below 60 seconds; AND BOLT 1 uses on collision or accelerometer reading to send message to BOLT 2</p>	<p>81-100 Everything from the Accomplished category; AND Creative elements are added to the <i>Competition Field</i>; AND Light and sound is creatively used to show all messages sent and received</p>
<p>Slide Presentation</p>	<p>Minimum Requirements: PASS / FAIL Video submitted in proper format: Y or N</p>			
	<p>0-20 Video submission missing one or more of the <i>Mission Objectives</i>; (3 for lower elementary, 5 for upper elementary); AND/OR Images of code, or other deliverables missing for any of the <i>Mission Objectives</i></p>	<p>21-50 All deliverables included for each <i>Mission Objective</i>; AND/OR Some deliverables are unclear or incomplete; AND/OR No reflection or evidence of using a design process to complete <i>Mission Objectives</i></p>	<p>51-80 All deliverables included for each <i>Mission Objective</i>; AND All deliverables are complete and clear; AND Reflection of one or more <i>Mission Objective</i> with evidence of using a design process</p>	<p>81-100 All deliverables included for each <i>Mission Objective</i>; AND All deliverables are complete and clear; AND Reflection of all <i>Mission Objective</i> with evidence of using a design process; AND Presentation includes creative elements beyond the original template</p>

TOTAL SCORE:

(out of 400 for *Elementary School Students* / out of 600 for *Middle School Students*)



littleBits Invent 4 Good: Animal Kingdom Evaluation Rubric

CREATE



Problem Definition: Is the problem clearly defined and is it suitable for littleBits Invent 4 Good?			
Developing	Improving	Accomplished	Exemplary
0-20 Not clearly defined; OR Not suitable for LBi4G	21-50 Somewhat defined; OR Somewhat suitable	51-80 Clearly defined; AND Suitable	81-100 Clearly defined; AND Shows clear explanation why team choose this topic
Analysis & Research: Is there documented analysis of the problem and research on existing and/or attempted solutions?			
Developing	Improving	Accomplished	Exemplary
0-20 No analysis; OR No research on existing / attempted solutions	21-50 Lightly documented analysis; OR Research	51-80 Well documented analysis; AND Research	81-100 Extensive documented analysis; AND Research on existing conditions, and current or potential conversation efforts



Minimum Requirements: Does the invention meet the minimum requirements?
 The invention uses a minimum of 1 Power Bit, 1 Input Bit, and 1 Output Bit: **Y** or **N**

Solution Effectiveness: How effective is the invention in solving the chosen problem?

Developing	Improving	Accomplished	Exemplary
0-40 Showcases animal / ecosystem in a basic way	41-100 Showcases animal / ecosystem in a thorough way	101-160 Showcases animal / ecosystem in a thorough and creative way	161-200 Showcases animal / ecosystem in a thorough, creative, interactive way

Aesthetic Appeal: Does the final invention have aesthetic and artistic appeal?

Developing	Improving	Accomplished	Exemplary
0-20 Minimal aesthetic and artistic appeal	21-50 Minimal to slight aesthetic and artistic appeal	51-80 Appropriate level of aesthetic and artistic appeal	81-100 Exceptionally beautiful work of art

Bit Creativity: Does the invention make creative use of Bits?

Developing	Improving	Accomplished	Exemplary
0-20 Use the minimum amount of bits	21-50 Uses 1-2 bits over the minimum	51-80 Uses 3-4 bits over the minimum	81-100 Uses 5 or more bits over the minimum



Solution Iterations: Has the team demonstrated and/or described various iterations leading up to the final iteration?			
Developing	Improving	Accomplished	Exemplary
0-20 Little to no description of iterations leading up to final solution	21-50 Some iterations leading up to final solution, but no description of failed iterations	51-80 Many iterations prior to final design; Failed iterations clearly improved the final invention	81-100 Iteration is a key part of the invention creation; Failed iterations celebrated and highlighted
Future Improvements: Has the team explained how they would improve their invention given more resources?			
Developing	Improving	Accomplished	Exemplary
0-20 Little to no future improvement suggestions	21-50 Some suggested improvements; Unclear if the suggestions will make intended improvements	51-80 Clear and concise suggestions for future improvement	81-100 Clear and concise suggestions for future improvement, including required resources to make improvements

SHARE



Minimum Requirements: Does the invention video and Slide Presentation meet the minimum requirements?
The invention Submission follows all submission rules: **Y** or **N**

Video Effectiveness: Does the video effectively communicate the Invention meets the criteria in Section 2 of the Rules?

Developing	Improving	Accomplished	Exemplary
0-20 No video submitted; OR Video is unclear regarding invention effectiveness	21-50 Video communicates most requirements, but not all; OR Is visually distracting/not appealing	51-80 Video communicates all requirements; AND Is not visually distracting	81-100 Video communicates all requirements; AND Is visually appealing and or entertaining

Infographic Effectiveness: Does the infographic effectively communicate the Invention meets the criteria in Section 2 of the Rules?

Developing	Improving	Accomplished	Exemplary
0-20 No Slide Presentation submitted; OR Is unclear regarding invention effectiveness	21-50 Slide Presentation communicates requirements, but not concisely; OR Is visually distracting	51-80 Slide Presentation communicates requirements concisely; AND Is not visually distracting	81-100 Slide Presentation communicates requirements concisely; AND Is visually striking

TOTAL SCORE:

(out of 1,000)



indi: To The Zoo Evaluation Rubric

	Developing	Improving	Accomplished	Exemplary
Mission Objective #1: Zoo Tour	0-20 <i>Mission Objective</i> not attempted or not completed	21-50 <i>Mission Objective</i> is complete; AND Zoo includes less than 4 exhibits; AND/OR indi 1 path doesn't meet all requirements per indi-M1-2	51-80 <i>Mission Objective</i> is complete; AND Zoo includes 4 exhibits; AND indi 1 path meets all requirements per indi-M1-2	81-100 Everything in Accomplished Category; AND Exhibits include multiple creative elements and zoo is visually appealing
Mission Objective #2: Animal Imitation	0-20 <i>Mission Objective</i> not attempted or not completed	21-50 <i>Mission Objective</i> is complete; AND indi 2 is not decorated; AND/OR indi 2 path doesn't meet all requirements per indi-M2-2	51-80 <i>Mission Objective</i> is complete; AND indi 2 is decorated to look like the chosen animal; AND indi 2 path meets all requirements per indi-M2-2	81-100 Everything in Accomplished Category; AND indi 2 exhibit include multiple creative elements and is visually appealing
Slide Presentation	Minimum Requirements Video Submitted in proper format: Y or N			
	0-20 Video submission missing one or you can not see both indi's; AND/OR Deliverables missing from either of the <i>Mission Objectives</i>	21-50 All deliverables included for each <i>Mission Objective</i> ; AND/OR Some deliverables are unclear, or incomplete; AND/OR No reflection or evidence of using a design process to complete <i>Mission Objectives</i>	51-80 All deliverables included for each <i>Mission Objective</i> ; AND All deliverables are complete and clear; AND Reflection on one or more <i>Mission Objective</i> with evidence of using a design process	81-100 All deliverables included for each <i>Mission Objective</i> ; AND All deliverables are complete and clear; AND Reflection of all <i>Mission Objectives</i> with evidence of using a design process; AND Presentation includes creative elements beyond the original template

TOTAL SCORE:

(out of 300)