# Curriculum Mapping Overview
# LEGO® Education SPIKE Essential Lessons

**Grade 1–2**
**UNIT 1 / LEARNING PROMISE:**

This unit introduces your students to computational thinking. They'll begin to understand what a sequence is, be able to follow instructions to create a sequence, and describe the sequence to their peers. They'll learn how to break problems down into smaller parts, identify cause and effect, and understand simple loops. Finally, they'll explore the process of testing and debugging programs to ensure that their programs work as intended.

Your students find ways of helping the main characters, and practice recounting an experience using relevant details. This will help to develop their collaborative conversation skills.

| GREAT ADVENTURES: CREATING INTERACTIVE STORIES | | | | | | |
|---|---|---|---|---|---|---|
| **BOAT TRIP** | **ARCTIC RIDE** | **CAVE CAR** | **ANIMAL ALARM** | **UNDERWATER QUEST** | **TREEHOUSE CAMP** | **THE GREAT DESERT ADVENTURE** |
| CSTA 1A-AP-08 NGSS K-2 ETS 1–1 ISTE 5A CCSS.ELA-LITERACY.SL.1.1 CCSS.MATH. CONTENT. 1.G.A.3 | CSTA 1A-AP-11 NGSS K-2-ETS1–2 ISTE 5D CCSS.ELA-LITERACY.SL.1.1 CCSS.MATH.CONTENT. 1.OA.C.5 | CSTA 1A-AP-12 NGSS 1-PS4–2 ISTE 5D CCSS.ELA-LITERACY.SL.1.1 | CSTA 1A-AP-10 NGSS 1-PS4–4 ISTE 5D CCSS.ELA-LITERACY.SL.1.1 | CSTA 1A-AP-10 NGSS K-2-ETS1–2 ISTE 5A CCSS.ELA-LITERACY.SL.1.1 | CSTA 1A-AP-14 NGSS K-2-ETS1–2 STE 5C CCSS.ELA-LITERACY.SL.1.1 | ALL PREVIOUSLY LISTED |
| Extension: CCSS.ELA-LITERACY.W.1.3 | Extension: CCSS.ELA-LITERACY.W.1.7 | Extension: CCSS.ELA-LITERACY.W.1.2 | Extension: CCSS.ELA-LITERACY.W.1.2 | Extension: CCSS.ELA-LITERACY.W.1.8 | Extension: CCSS.ELA-LITERACY.SL.1.5 | Extension: CCSS.ELA-LITERACY.W.1.3 |

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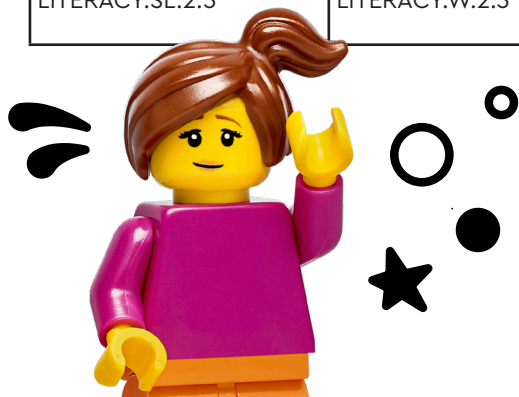# LEGO® Education SPIKE Essential Lessons

**Grade 1–2**
**UNIT 2 / LEARNING PROMISE:**

This unit introduces your students to engineering design skills. They'll learn about the steps that are involved in defining a problem, brainstorming solutions, and testing and refining prototypes to improve their ideas. They'll learn observation skills by gathering information about a problem and modifying a solution to meet the needs of others.

Your students will help a story character by recounting experiences using relevant facts and descriptive details. This will help to develop their collaborative conversation skills.

| AMAZING AMUSEMENT PARK: ENGINEERING A FUN DAY OUT | | | | | | |
|---|---|---|---|---|---|---|
| **THE FAST LANE** | **CLASSIC CAROUSEL** | **THE PERFECT SWING** | **SNACK STAND** | **TWIRLING TEACUPS** | **THE SPINNING FERRIS WHEEL** | **THE MOST AMAZING AMUSEMENT PARK** |
| CSTA 1A-AP-10 NGSS K-2 ETS 1–1 ISTE 4A CCSS.ELA-LITERACY.SL.2.2 | CSTA 1A-AP-12 NGSS K-2 ETS 1–1 ISTE 4C CCSS.ELA-LITERACY.SL.2.2 | CSTA 1A-AP-10 NGSS K-2 ETS 1–2 ISTE 4C CCSS.ELA-LITERACY.SL.2.2 | CSTA 1A-DA-11 NGSS K-2 ETS 1–3 ISTE 4C CCSS.ELA-LITERACY.SL.2.2 | CSTA 1A-AP-08 NGSS K-2 ETS 1–1 ISTE 4D CCSS.ELA-LITERACY.SL.2.2 | CSTA 1A-AP-14 NGSS K-2 ETS 1–3 ISTE 4A CCSS.ELA-LITERACY.SL2.2 CCSS.MATH.CONTENT.2.G.A.3 | ALL PREVIOUSLY LISTED |
| Extension: CCSS.ELA-LITERACY.SL.2.5 | Extension: CCSS.ELA-LITERACY.W.2.3 | Extension: CCSS.ELA-LITERACY.L.2.1 | Extension: CCSS.MATH.CONTENT.2.MD.D.10 | Extension: CCSS.ELA-LITERACY.W.2.7 | Extension: CCSS.MATH.CONTENT.2.G.A.3 | Extension: CCSS.ELA-LITERACY.W.2.3 |

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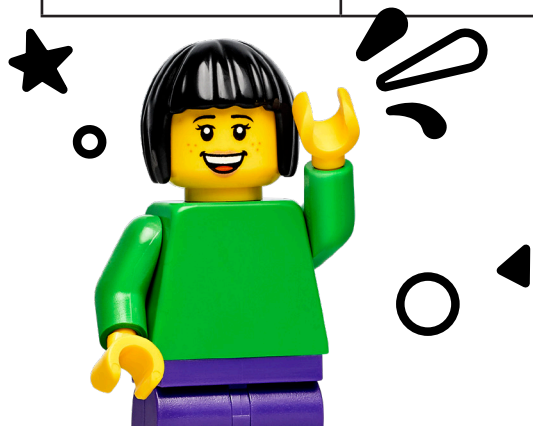
**Grade 3–5**
**UNIT 3 / LEARNING PROMISE:**

This unit will develop your students' understanding of computer science as they create sequences and loops, decompose problems, and improve programs to meet specific needs. They'll investigate ways of accurately describing the decisions they've made when creating a program, carry out fair tests, and develop their ability to generate and debug multiple solutions.

Your students will recount experiences using relevant facts and descriptive details. This will help them to improve their communication skills.

| HAPPY TRAVELER: PROGRAMMING YOUR WAY AROUND TOWN | | | | | | |
|---|---|---|---|---|---|---|
| **RIVER FERRY** | **TAXI! TAXI!** | **HOVERING HELICOPTER** | **SWAMP BOAT** | **CABLE CAR** | **BIG BUS** | **GET AROUND TOWN** |
| CSTA 1B-AP-11 NGSS 3–5 ETS 1–1 ISTE 5D CCSS.ELA-LITERACY.SL.3.4 | CSTA 1B-AP-15 NGSS 3–5-ETS 1–2 ISTE 5C CCSS.ELA-LITERACY.SL.3.4 | CSTA 1B-AP-17 NGSS 3–5-ETS 1–3 ISTE 5B CCSS.ELA-LITERACY.SL.3.4 | CSTA 1B-AP-12 NGSS 3–5-ETS 1–3 ISTE 5D CCSS.ELA-LITERACY.SL.3.4 | CSTA 1A-AP-08 NGSS K-2 ETS 1–1 ISTE 4D CCSS.ELA-LITERACY.SL.2.2 | CSTA 1B-AP-13 NGSS 3–5-ETS 1–2 ISTE 5A CCSS.ELA-LITERACY.SL.3.4 | ALL PREVIOUSLY LISTED |
| Extension: CCSS.MATH.CONTENT. 3.MD.A.1 | Extension: CCSS.MATH.COTENT. 3.MD.D.8 | Extension: CCSS.ELA-LITERACY.W.3.3.B | Extension: CCSS.MATH.CONTENT. 3.MD.B.3 | Extension: CCSS.ELA-LITERACY.W.2.7 | Extension: CCSS.MATH.CONTENT. 2.G.A.3 | Extension: CCSS.ELA-LITERACY.W.3.3.B |

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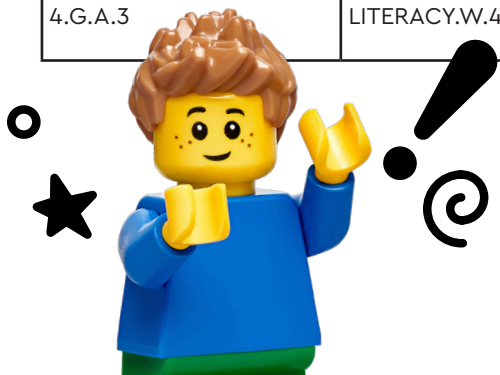
**Grade 3–5**
**UNIT 4 / LEARNING PROMISE:**

This unit will develop your students' understanding of energy, energy transfer, and collision. They'll explore ways of using observation skills as they anticipate the outcomes of changes in energy during a collision, describe the relationship between energy and speed, and predict how energy moves from place to place. They'll also broaden their understanding of energy conversion (potential and kinetic) by investigating a solution that converts energy from one form to another, testing the solution to improve and refine its function.

Your students will improve their communication skills as they engage in a range of collaborative discussions about energy, energy transfer, and collision.

| CRAZY CARNIVAL GAMES: PLAYING WITH ENERGY TRANSFER AND COLLISION | | | | | | |
|---|---|---|---|---|---|---|
| **MINI MINI GOLF** | **BOWLING FUN** | **HIGH STICK HOCKEY** | **A-MAZE-ING** | **AVOID THE EDGE** | **JUNIOR PINBALL** | **CRAZY CARNIVAL GAME** |
| CSTA 1B-DA-07 NGSS 4-PS3–1 ISTE 3D CCSS.ELA-LITERACY.SL.4.1 CCSS.MATH.CONTENT.4.MD.C.5<br><br>Extension: CCSS.MATH.CONTENT.4.G.A.3 | CSTA 1B-AP-12 NGSS 4-PS3–3 ISTE 3D CCSS.ELA-LITERACY.SL.4.1 CCSS.MATH.CONTENT.4.MD.C.5<br><br>Extension: CCSS.ELA-LITERACY.W.4.7 | CSTA 1B-AP-10 NGSS 4-PS3–2 ISTE 3D CCSS.ELA-LITERACY.SL.4.1 CCSS.MATH.CONTENT.4.MD.C.5<br><br>Extension: CCSS.MATH.CONTENT.4.NF.C.6 | CSTA 1B-DA-07 NGSS 4-PS3–2 ISTE 3D CCSS.ELA-LITERACY.SL.4.1<br><br>Extension: CCSS.MATH.CONTENT.4.NF.C.7 | CSTA 1B-AP-08 NGSS 4-PS3–4 ISTE 3D CCSS.ELA-LITERACY.SL.4.1 CCSS.MATH.CONTENT.4.MD.B.4<br><br>Extension: CCSS.ELA-LITERACY.W.4.2 | CSTA 1B-AP-12 NGSS 4-PS3–4 ISTE 3D CCSS.ELA-LITERACY.SL.4.1 CCSS.MATH.CONTENT.4.G.A.1<br><br>Extension: CCSS.ELA-LITERACY.W.4.2.D | ALL PREVIOUSLY LISTED<br><br>Extension: CCSS.ELA-LITERACY.W.4.2 |

# LEGO® Education SPIKE Essential Lessons

**Grade 3–5**
**UNIT 5 / LEARNING PROMISE:**

This unit will develop your students' engineering design skills as they investigate ways of defining problems, brainstorming solutions, and testing and refining prototypes. They'll refine their problem-solving skills as they create a solution to a problem that has constraints and improve on others' ideas. All while honing their ability to identify failure points and success criteria when comparing, modifying, and evaluating a solution.

Your students will improve their communication skills as they engage in a range of collaborative discussions about their solutions.

| QUIRKY CREATIONS: ENGINGEERING COOL SCHOOL HACKS | | | | | | |
|---|---|---|---|---|---|---|
| **GOOD MORNING MACHINE** | **BIG LITTLE HELPER** | **HIGH TECH PLAYGROUND** | **TRASH MONSTER MACHINE** | **WINNING GOAL** | **LITERARY RANDOMIZER** | **YOUR SCHOOL CREATION** |
| CSTA 1B-AP-17 NGSS 3–5 ETS1–1 ISTE 4A CCSS.ELA-LITERACY.SL.5.1<br><br>Extension: CCSS.ELA-LITERACY.W.5.7 | CSTA 1B-AP-08 NGSS 3–5 ETS1–2 ISTE 4C CCSS.ELA-LITERACY.SL.5.1<br><br>Extension: CCSS.MATH.CONTENT.5.G.A.1 | CSTA 1B-AP-12 NGSS 3–5 ETS1–2 ISTE 4C CCSS.ELA-LITERACY.SL.5.1<br><br>Extension: CCSS.ELA-LITERACY.W.5.1 | CSTA 1B-AP-13 NGSS 3–5 ETS1–1 ISTE 5D CCSS.ELA-LITERACY.SL.5.1<br><br>Extension: CCSS.ELA-LITERACY.W.5.9.B | CSTA 1B-AP-11 NGSS 3–5 ETS1–3 ISTE 4D CCSS.ELA-LITERACY.SL.5.1<br><br>Extension: CCSS.ELA-LITERACY.W.5.4 | CSTA 1B-AP-10 NGSS 3–5 ETS1–2 ISTE 4A CCSS.ELA-LITERACY.SL.5.1<br><br>Extension: CCSS.ELA-LITERACY.W.5.3 | ALL PREVIOUSLY LISTED<br><br>Extension: CCSS.ELA-LITERACY.W.5.7 |