### Find your Purpose
Why is it important to you that students learn using computer science and robotics?

**Examples:**
- **Innovation:** Students need experience in solving authentic problems in school so they can solve big problems that will face the world in the future.
- **Personal Joy and Agency:** Robotics is fun and engaging, and programming and building allows students to experience authentic success and express themselves.
- **Competencies:** Learning robotics promotes 21st century skills like critical thinking, creativity, collaboration, and communication.
- **Social Justice:** Technology literacy is a way to level the playing field for marginalized students.
- **Citizenship:** Being an informed citizen in the 21st century will require digital literacy.
- **Workforce:** Students need to know CS and robotics to participate in the modern workforce.

### Define your Essential Question
Define the question(s) or problem(s) that this project strives to solve. These will ultimately guide the creation and use of the robots.

**Examples:**
- **Science:** What are the relationships between muscles and bones? How do the cycles of the moon work?
- **Language Arts:** What happens in the climax of the story? What is the symbolism of this poem?
- **Math:** What are variables and why do they matter?
- **Social Studies:** How might you reenact a moment in history?

### Address Stereotypes and Bias
“We know that our current educational structures and systems have been unable to close opportunity gaps between marginalized populations (learners in poverty; learners of color; learners in rural areas; girls in STEM; and learners with exceptionalities) and their peers.” (Credit: Remake Learning Network)

- Where do you currently see opportunity gaps between marginalized students and their peers in your community?
- How will you target, include, or appeal to marginalized populations?
- How can you use this project to close opportunity gaps between marginalized populations and their peers?
**Integrate with your Curriculum**
- How does the project contribute to your subject area?
  - View Classroom Projects on our website to see how other teachers have integrated robotics into their curricula!
- What will your students know and be able to do as a result of this project?
- What attitudes, values, and behaviors will students learn by engaging in this project?
- How might this project support interdisciplinary learning or other school/district initiatives?
- Where in your curriculum will you be able to incorporate instruction and discussion about the field of robotics?

**Plan your Time**
- What is your projected timeline for this project? How many days, hours, lessons, etc?
- When do you envision this project occurring in your school year?

**Design your Instructional Strategies**
- How are you going to teach your classroom content?
- How are you going to teach students to use the Hummingbird Robotics kit?
  - Access our online Video Tutorials to learn the basics, and our First Hour of Robotics lesson plans for first day ideas!
- What learning activities will you implement in your class to accomplish your goals?
- How will you use strategies like group work, research, writing, storytelling, field trips, classroom discussion, presentations, student dialogue, review, etc.?
  - Access our Prototyping Activity to help students plan their projects!

**Gather your Resources**
- How will you measure your students’ skills and knowledge?
- What formative and/or summative assessment will you use?
  - Access our Assessment Guides for formative assessment ideas for Computational Thinking and Engineering Design.
- How will this project satisfy the assessment requirements of your learning community (district tests, community expectations, portfolios, PBL requirements, etc.)?

**Identify your Assessment Goals**
- What will you need to accomplish this project?
- Support from administration: What will you need in terms of planning time, instructional and technical support, transportation for field trips, etc.?
- Equipment and resources: What will you need in terms of robotics equipment, computers and software, craft materials, online resources, etc.?
Save, Document, and Share your Student Work

• How will you save or document activities and student robots? Is this important to you? Why?
• How will you share about your students’ learning (social media, district website, present at a conference, STEM night, etc.)?
• What will you need in order to make sharing possible (capturing photo/video, parental permission or waivers, planning an after-school event, etc.)?
• How will students communicate about their work to others (in person, online, social media, community showcases, etc.)?

VIEW PROJECTS
See how other educators introduced robotics across the curriculum with free standards-aligned projects

FIRST HOUR OF ROBOTICS
See full lesson plans to help you teach your first day of robotics

ONLINE VIDEO TUTORIALS
Grow your coding skills with Hummingbird using our online video tutorials

FORMATIVE ASSESSMENT GUIDE
See what to look for in your students when using the Hummingbird Robotics Kit

PROTOTYPING ACTIVITY
Use this activity to help students plan their projects