Ranger: The Secret Code

Introduction

The *Ranger: The Secret Code* Curriculum is divided into an Introduction, 7 Units, a total of 21 Missions, and the Secret Code Challenge. Each of the Units use the 5Es (Engage, Explore, Explain, Elaborate, Evaluate) model for teaching. Included at the end of each lesson slide deck are Rubrics for students to demonstrate learning outcomes. Additionally, Post-assessments and/or Handouts can be given to expand on topics discussed in the lesson. Activities are based on "Hands-On Minds-On" and discovery-problem based learning. Inquiry, curiosity, and understanding are the guiding force behind the overall structure.

The goal is to build 21st Century skills and an excitement for STEM. The expectations are an increase in the use of Computational Thinking applications for logical sequences, reasoning, and problem solving; Universal Skills for Discovery, Learning, and Innovation.

Teacher Resources

Instructor Guide ➜

The Intructor Guide includes:

- An overview of the Course
- A description of each Unit using the 5E model
- Objectives, Materials, Vocabulary, and Standards
- Troubleshooting Tips

Evaluation Forms ➜

We value your feedback. In an effort to continously improve our services to better fit your needs, we have included an Evaluation form for each Unit to give you the opportunity to provide your feedback regarding your experience while implementing this course.

Unit	Time	Description	Lesson	Key Concepts	Resources
1	3 - 6 hrs	*What do we need to meet the mission?* Mission 1 - Assemble the mBot Ranger	Unit 1	Engineering Notebook Teamwork	Handout Student Assessment Student Pre-Survey
2	4 - 6 hrs	*How do we control Ranger?* Mission 2 - Communicate with Ranger Mission 3 - Coding for Motion Mission 4 - Complete a Map Test Run	Unit 2	Coding Movement Sequencing Rates of Change	Handout Simulation Worksheet Student Assessment
3	4 - 6 hrs	*What will your map look like?* Mission 5 - Create the Playing Field Mission 6 - Drive the Ranger Autonomously	Unit 3	Engineering Design Process Coordinate Grid	Handout Engineering Design Student Assessment
4	4 - 7 hrs	*How can we communicate with Beta?* Mission 7 - How can we communicate with Lights? Mission 8 - Sending messages with sound Mission 9 - Creating Emergency signals	Unit 4	if/esle Statements Morse Code Music Sheets	Simulation Worksheet Student Assessment
5	3 - 6 hrs	*What sensors does Ranger have?* Mission 10 - Finding and Following Sources of Light Mission 11 - Testing the Temperature Sensor	Unit 5	Sensors Variables	Handout Student Assessment
6	4 - 7 hrs	*How can we get Ranger safely to Beta?* Mission 12 - Navigating Uneven Surfaces Mission 13 - Going to Coordinates	Unit 6	Compass Directions Angles XY Coordinates Functions	Student Assessment
7	4 - 8 hrs	*How can we detect a hazard while blindfolded?* Mission 14 - Investigate Ultrasonic sensor Mission 15 - Detect a Hazard Mission 16 - Investigate IR Sensor Mission 17 - Following a Line	Unit 7	Autonomous Navigation Movement Control Function Parameters	Student Assessment
8	3 - 7 hrs	*How can we find the Secret Code?* Mission 18 - Test each Challenge Mission 19 - Test Run Integrating activities Mission 20 - Debug, Refine, Improve Mission 21 - Find The Secret Code	Unit 8	Engineering Design Algorithms	Student Assessment Student Post-Survey

Contact us for Technical Support: Call **760-650-2687** or Email **support@edfortech.com**