

# Introduction to Exploring Bionics



## Career Exploration

The **Exploring Bionics** teacher resources offer learners a hands-on, interdisciplinary introduction to how biological systems inspire technological innovations. Through interactive models and digital resources, students explore how natural mechanisms—from chameleon tongues to fish fins—can inform design and engineering solutions. This course emphasizes systems thinking, problem solving, and real-world relevance while strengthening STEM literacy through experiential learning. These lesson plans do not lead to an industry certification but introduce students to an array of concepts that can be applied in future certifications.

### Industry Recognized Certification Topics

- Introduction to Bionics and Bioinspiration
- Functional Analysis of Biological Systems
- Technical Translation of Natural Phenomena
- Sensor-Actuator Learning through the Bionic Flower
- Electromagnetic Spectrum and Light Absorption in Plants
- Folding Structures and Force Distribution in Nature
- Use of Light, Color, and LED Technology in Smart Devices
- Programming and System Control of Autonomous Bionic Systems

### Industry Recognized Certification Competencies

- Understanding the Foundations of Bionics
- Functional & Structural Biology Analysis
- Hands-On Technical Application
- Sensor and Actuator Integration
- Light and Color in Natural and Engineered Systems
- Engineering Design and Material Properties
- Programming and Automation of Bionic Systems
- STEM Integration and Career Awareness

Units - 10 / Labs - 8

