TI STEM and Coding Resources: Getting Started and Beyond

TI-Nspire CXII Python using TI-Innovator Hub, TI-Rover, microbit, Tello Drone and more

See link

Getting Started with TI-Nspire CXII Python

- Overview of TI-Nspire CXII (video from Digital Mood Ring project) link
- Write your first Python program on TI-Nspire CXII (video) link
- **Meet the TI-Innovator Hub** link
- **Meet the Rover** link
- 10 Minutes of Code for Python link
    - Unit 1: Getting Started with Python
- 10 Minutes of Code for Python with TI-Innovator Hub and Rover link
    - Unit 1: Getting Started with Python and TI-Innovator Hub
    - Unit 4: Rover's Driving Features

- **Introduction to TI-Nspire Teacher Software (video)** link

TI-Rover Projects and Activities

- **Meet the Rover** link
- **Rover, Watch Out for Rover** link
- **On-Ramp to Robotics: Unit 1 Motion Mars Challenge** link
- **Math in Motion Lessons** link
    - Move the Cone
    - Navigate "Math-hattan" Challenge
    - Drive the Line Challenge
    - Driving Inequalities Challenge
- **Rover, Escape the room** link
- **10 Minutes of Code for Python with TI-Innovator Hub and Rover** link
    - Unit 4: Rover's Driving Features
    - Unit 5: Rover's Sensors
    - Unit 6: Coordinates with Rover
- **STEM Event TI-Innovator Hub and Rover activities** link

Note: See the project pages to download teacher background PDF's, student handouts, Teacher TI-Nspire files with example programs and student TI-Nspire files with scaffolding of the project.

Turtle Python Module (no additional equipment required)

- Overview of the Python Turtle module link
    - Includes Python module installation information
- 10 Minutes of Code for Python Modules: Turtle Graphics link

Mathematics and Computer Science Projects

- **Explorations with Coding (Math Projects)** link

Connectivity Software

- **TI-Nspire CXII Connect Chrome Browser Web app** (no installation necessary) to download and upload files, take screen snapshots and upgrade OS link

TI-Innovator Hub Projects and Activities

Smart System Projects

- **Digital Mood Ring** link
  - includes step-by-step student videos link
  - includes student and teacher TI-Nspire file and student handouts link
  - student assignment links and PDF's link
  - Mood Ring Project Versions
    - 1-Hour Quick version link
    - 4-Hour Coding Focused link
    - 6-Hour Science and Coding Focused link

- **Four-Chambered Heart** link
  - Download Heart Build Sheet PDF link

- **Smart Irrigation Project** link
  - Blog Post from US Teacher link
  - Demonstration video by TI STEM Team link
  - Video from High School in Portugal link

- **Pet Car Alarm Project** link
  - Demonstration video by TI STEM Team link

- **Some Like it Tepid** link

- **Coding the Sounds of Music** link
  - includes step-by-step student videos link
  - includes student and teacher TI-Nspire files downloads and student handouts link
  - student assignment links and PDF's link
  - Project Versions
    - 1.5 Hour Quick version link
    - 3-Hour Coding Focused link
      4-Hour Music and Science full version link

- **STEM Event TI-Innovator Hub and Rover activities** link

Microbit Resources

- Overview of the Microbit with TI Python link
  - Includes Python module installation information
  - Includes TI microbit Hex file information
- 10 Minutes of Code Python link
  - Micro:bit unit 6
- Microbit.org Python activities* link
  - *The TI-Nspire CXII microbit Python module supports these activities.

Tello Drone

- Overview of the Tello Drone module and equipment link
  - Includes Python module installation information
  - Includes equipment set up information
- 10 Minutes of Code for Python Modules: Tello Drone unit Coming Summer 2023
- Microbit.org Python activities* link
  - *The TI-Nspire CXII microbit Python module supports these activities.

Wonder Workshop Dash Robotic Vehicle

- Overview of the Dash with TI Python link
- Meet the Dash with TI-Nspire CXII Python link
- Rover, Watch out for Dash link

Other Resources

- **TI Codes Lessons and Resources** link
  - 10 Minutes of Code for Python link
  - 10 Minutes of Code for Python TI-Innovator and Rover link
    - RGB Array Unit 7
  - 10 Minutes of Code for Python Modules link
  - 10 Minutes of Code Teacher's Lounge link
    - Download student handouts
    - See curriculum alignments

- **Path to STEM Projects** link
  - TI-Innovator Hub and breadboard engineering and coding activities that explore analog and digital inputs and outputs, calibration and a feedback and control system

- **Science through Engineering Design** link
  - No coding required Middle School projects using the TI-Innovator Hub, motors and sensors
  - Exploring the depths with uniform motion link
  - One small bite for man link
  - One small leaf for mankind link

- **Learning to Code with Python Using TI-Nspire CXII Technology (On Demand Webinars)**
  - Part 1 link
  - Part 2 link
  - Part 3 link