

TI STEM and Coding Resources: Getting Started and Beyond

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

See link https://resources.tistemprojects.com/tistemprojects-home?resource_id=3555

Getting Started with TI-Nspire CXII Python

- **Overview of TI-Nspire CXII (video)** <https://www.youtube.com/watch?v=nSiCl9g4fNM>
- **Write your first Python program on TI-Nspire CXII (video)** <https://www.youtube.com/watch?v=eodjfpGQjpY>
- **10 Minutes of Code for Python Unit 1: Getting Started with Python** <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii/10-minutes-ti-nspire>
- **Meet the Rover** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3485
- **10 Minutes of Code for Python with Hub and Rover do unit 1:Hub and 4:Rover** <https://education.ti.com/en/activities/ti-codes/python/nspire/10-minutes-innovator>

TI-Innovator Hub Projects and Activities

Smart System Projects

- **Digital Mood Ring** <https://education.ti.com/en/activities/stem-projects/digital-mood-ring-python>
 - includes step-by-step student videos <https://education.ti.com/en/activities/stem-projects/digital-mood-ring-python/videos?category-2>
 - includes student and teacher TI-Nspire file and student handouts <https://education.ti.com/en/activities/stem-projects/digital-mood-ring-python/downloads>
 - student assignment links and PDF's <https://education.ti.com/en/activities/stem-projects/digital-mood-ring-python/assignments>
 - Mood Ring Project Versions
 - 1-Hour Quick version <https://education.ti.com/en/activities/stem-projects/digital-mood-ring-python/videos?category-3>
 - 4-Hour Coding Focused <https://education.ti.com/en/activities/stem-projects/digital-mood-ring-python/videos?category-2>
 - 6-Hour Science and Coding Focused <https://education.ti.com/en/activities/stem-projects/digital-mood-ring-python/videos?category-1>
- **Four-Chambered Heart** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3480
 - Download Heart Build Sheet PDF https://education.ti.com/en/~media/5c8e40a17dab454bb039f4cd563bed71_ashx?h=16&thn=1&w=16&rev=e526f9bc-e985-4454-9ce6-ed2a52a838d3
- **Smart Irrigation Project** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3385
 - Blog Post from US Teacher <https://education.ti.com/en/bulletinboard/2022/smartwater>
 - Demonstration video by TI STEM Team https://www.youtube.com/watch?v=U3Nf_9xvWEs
 - Video from High School in Portugal <https://www.youtube.com/watch?v=afvYR8WNTbl>
- **Pet Car Alarm Project** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3477
 - Demonstration video by TI STEM Team <https://youtu.be/0EguJwSzcDQ>
- **Some Like it Tepid** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3413
- **Coding the Sounds of Music** <https://education.ti.com/en/activities/stem-projects/making-music-with-code>
 - includes step-by-step student videos <https://education.ti.com/en/activities/stem-projects/making-music-with-code/videos>
 - includes student and teacher TI-Nspire files downloads and student handouts <https://education.ti.com/en/activities/stem-projects/making-music-with-code/downloads>
 - student assignment links and PDF's <https://education.ti.com/en/activities/stem-projects/making-music-with-code/assignments>
 - Project Versions
 - 1.5 Hour Quick version <https://education.ti.com/en/activities/stem-projects/making-music-with-code/videos?category-3>
 - 3-Hour Coding Focused <https://education.ti.com/en/activities/stem-projects/making-music-with-code/videos?category-2>
 - 4-Hour Music and Science full version <https://education.ti.com/en/activities/stem-projects/making-music-with-code/videos?category-1>
- **STEM Event TI-Innovator Hub and Rover activities** https://resources.tistemprojects.com/tistemprojects-home/?resource_id=2986

TI-Rover Projects and Activities

- **Meet the Rover** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3485
- **Rover, Watch Out for Rover** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3296
- **On-Ramp to Robotics: Unit 1 Motion Mars Challenge** https://resources.tistemprojects.com/tistemprojects-home?resource_id=3382
- **Math in Motion Lessons** <https://education.ti.com/en/activities/innovator/math>
- **STEM Event TI-Innovator Hub and Rover activities** https://resources.tistemprojects.com/tistemprojects-home/?resource_id=2986

See TI-Innovator and Rover STEM Projects at www.TIstemProjects.com

Contact the TI STEM Team at stem-team@ti.com

April 24, 2022

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.

Microbit Resources

- Learn about the Microbit with TI Python <https://education.ti.com/en/teachers/microbit>
 - Includes Python module installation information
 - Includes TI microbit Hex file information
- 10 Minutes of Code Python Unit 6: microbit <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii/10-minutes-ti-nspire>
- Microbit.org Python activities* <https://microbit.org/projects/make-it-code-it/?filters=python>
 - *The TI-Nspire CXII microbit Python module supports these activities.

Turtle Python Module

- Learn about the Python Turtle module <https://education.ti.com/en/product-resources/turtle-module/nspire-python>
 - Includes Python module installation information
- 10 Minutes of Code for Python Modules: Turtle Graphics <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii/python-modules>

Connectivity to handhelds

- **TI-Nspire CXII Connect Chrome Browser Web app** (no installation necessary) to download and upload files, take screen snapshots and upgrade OS <https://nspireconnect.ti.com/#/>

Other Resources

- **TI Codes Lessons and Resources** <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii>
 - 10 Minutes of Code for Python <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii/10-minutes-ti-nspire>
 - 10 Minutes of Code for Python TI-Innovator and Rover <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii/10-minutes-innovator>
 - RGB Array Unit 7
 - 10 Minutes of Code for Python Modules <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii/python-modules>
 - 10 Minutes of Code Teacher's Lounge <https://education.ti.com/en/activities/ti-codes/python/ti-nspire-cx-ii/teacher-lounge>
 - Download student handouts
 - See curriculum alignments
- **Explorations with Coding (Math Projects)** <https://education.ti.com/en/timathnspired/us/explorations-with-coding/coding-with-python>
- **Path to STEM Projects**, TI-Innovator Hub and breadboard engineering and coding activities that explore analog and digital inputs and outputs, calibration and a feedback and control system. <https://education.ti.com/en/activities/stem/path-to-stem/nspire-cx>
- **Science through Engineering Design**, No coding required Middle School projects using the TI-Innovator Hub, motors and sensors <https://education.ti.com/en/tiscienspired/us/stem>
 - Exploring the depths with uniform motion <https://education.ti.com/en/tiscienspired/us/detail?id=A10A67CC44644D5D92DC397D53FC0446&t=B268ACA7F7784C21A85AB3F7166C933A>
 - One small bite for man <https://education.ti.com/en/tiscienspired/us/detail?id=3B474B653CEA4CB7A623D8246BB856E0&t=B268ACA7F7784C21A85AB3F7166C933A>
 - One small leaf for mankind <https://education.ti.com/en/tiscienspired/us/detail?id=0CD8F1BF343142319047B3A54488D239&t=B268ACA7F7784C21A85AB3F7166C933A>
- **Learning to Code with Python Using TI-Nspire CXII Technology (On Demand Webinars)**
 - Part 1 <https://education.ti.com/en/professional-development/for-teachers-and-teams/online-learning/on-demand-webinars/2021/mar-24-2021-learning-to-code-with-python-nspire-1>
 - Part 2 <https://education.ti.com/en/professional-development/for-teachers-and-teams/online-learning/on-demand-webinars/2021/may-19-2021-learning-to-code-with-python-nspire-2>
 - Part 3 <https://education.ti.com/en/professional-development/for-teachers-and-teams/online-learning/on-demand-webinars/2021/july-14-2021-learning-to-code-with-python-nspire-3>