Snap Circuits 300R

Mid-Valley
STEM-CTE HUB

www.midvalleystem.org
midvalleystemctehub@linnbenton.edu
Linn-Benton Community College
Albany Campus - CC-212

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Snap Circuits 300R

The Snap Circuits SC-300R Kit is an engaging and hands-on way to explore the fundamentals of electronics and circuitry. With over 60 components and the ability to build more than 300 projects—including light, sound, and motion circuits—students can explore topics such as resistors, capacitors, motors, transistors, and even radio communication. The kit includes a Student Guide and Teacher Guide to support structured learning, with clear explanations and review quizzes to reinforce understanding.

Grade Level

3rd - 12th

Group Size

1 - 3

Time Duration

20 - 60 minutes

Content of Kits

Components

- 1 kit - Snap Circuits 300R
  - 60+ snap-together pieces
  - 2 project books
  - Student guide
  - Teacher guide
  - Storage case with foam inserts

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Activity Guide

Beginner

Build a simple circuit using a battery, switch, and LED.

Observe what happens when components are connected in different orders or orientations.

Take notes and sketch your circuit in your notebook.

Intermediate

Construct a project that includes both a speaker and motor, such as a fan alarm system or sound-activated spinner.

Identify which components control sound vs. movement and explain how they interact.

Test the response of the system and adjust as needed.

Advanced

Use the radio component parts to build a working AM radio circuit.

Experiment with antenna placement and resistor values to improve reception.

Document how changes in component selection or positioning affect performance.

Extension Activities:

Students will be tasked with designing their own original Snap Circuit project that serves a real-world function (e.g., a motion-activated light, a simple sound-based alarm, or a fan-controlled heat sensor). After sketching their design, they will assemble the circuit, troubleshoot it, and write a short report describing its function, challenges they encountered, and how this circuit relates to real-world devices. Students will then present their invention to the class as if pitching it to a team of engineers.

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Learning Extensions

STEAM Connections: Engineering - Math - Science

Learning Objectives:

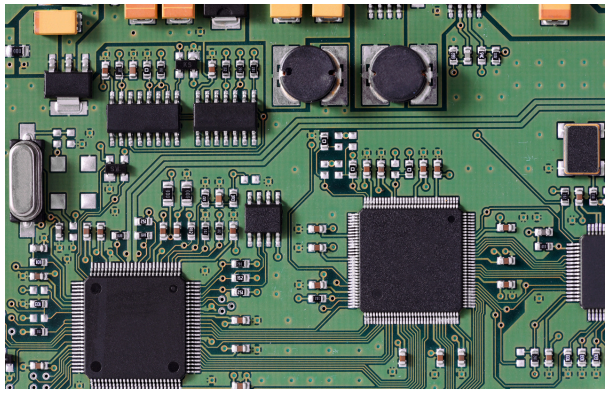
- **Understand Electrical Components -** Identify and explain how batteries, resistors, capacitors, and transistors function in a circuit.
- **Build & Test Circuits -** Construct working circuits and modify variables to observe outcomes in real-time.
- **Explore Electromagnetism & Sound -** Demonstrate how motors, speakers, and radio signals work using practical builds.
- **Develop Scientific Reasoning -** Make predictions, test hypotheses, and troubleshoot problems during hands-on circuit projects.

Career Connections:

- **Electrical Engineer –** Designs and tests circuitry used in everything from consumer tech to aerospace.
- **Radio Technician –** Works with communication systems using electromagnetic and radio frequency principles.
- **Computer Hardware Engineer –** Develops physical components like processors and circuit boards.
- **STEM Educator –** Teaches principles of science and engineering using interactive learning methods.
- **Robotics Technician –** Builds and maintains automated systems that rely on electrical and mechanical components.

Essential Employability Skills:

Analytical Thinking
Problem Solving
Collaboration
Digital Literacy



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Resources and Accessibility

Safety Guidelines

- **Battery Safety:** Always use fresh AA batteries; do not mix old and new. Avoid short-circuiting the battery pack.
- **Supervision Recommended:** Adult or educator supervision is advised, especially when introducing new components.
- **No Water Near Circuits:** Keep the work area dry and avoid using the kit near drinks or damp surfaces.
- **Proper Handling:** Do not force parts together; all components are designed to snap on and off easily.

Accessibility

- **Color-Coded & Labeled Components:** Large, color-coded pieces with clear labels help support visual learners and students with reading challenges.
- **No Tools Required:** Snap-on design requires no fine motor-intensive wiring, making it easier for students with motor skill differences.
- **Paced Learning with Guides:** The Student and Teacher Guides provide visual step-by-step instructions for scaffolded learning.
- **Flexible Roles:** Allow students to rotate between roles like builder, note-taker, and tester to accommodate diverse learning needs.
- **Hands-On & Visual:** Circuit building supports kinesthetic and spatial learners who benefit from physical manipulation and seeing cause and effect in real-time.

Library Catalog

Library Resources

Feedback

QR to feedback survey