



Transistor Amplifier and Waveform Exploration Board

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April 21, 2005

The transistor amplifier and waveform exploration board can be a very flexible instructional resource for teachers and ham radio instructors. The utility of this activity board goes beyond its intended purpose; introduce students to fundamental waveforms and allow students to explore the transistor as an amplifier. Some of the lesson suggestions for this board include:

- Wave types and what they are used for.
- Sine, square, and triangle/saw tooth wave demonstration.
- How a transistor works.
- Determining a transistor characteristic curve.
- The transistor as a switch.
- The transistor as an amplifier.
- Determining amount of amplification.
- What is bias?
- Bias variation and amplifier performance (including overdrive).

The board kit includes the board, parts to populate the board, and CD-ROM with construction manual and lesson suggestions. A Volt Ohm Meter (VOM) and oscilloscope are required to take full advantage of the board.

The circuit can easily be duplicated and hand wired on a prototyping board. The components are not critical and can be obtained from electronic parts suppliers. A parts list is included in the board documentation.

Schools and teachers can obtain board kits (while supply lasts) by submitting a letter of request on school letterhead to the Education Services Department.

All hams are encouraged to duplicate this project and add the board to their learning/instructional portfolio. The following links allow download of relevant files:

- [Circuit Diagram](#)
- [Parts List](#)
- [Lesson Plans](#)

If you have difficulty downloading the files, contact the ARRL Education Services office, etp@arrl.org.

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