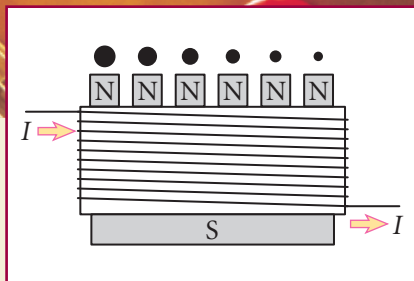


Electromagnetic Induction



The vibrations of the strings in an electric guitar change the magnetic field near a coil of wire called the pickup. In turn, this induces an electric current in the coil, which is then amplified to create the unique sound of an electric guitar.

WHAT TO EXPECT

In this chapter, you will learn how induction produces and changes alternating currents. You will also explore electromagnetic waves and the electromagnetic spectrum.

Why it Matters

Electric guitars have many different types of pickups, but all generate electric current by the process of induction. An understanding of the induction of electromagnetic fields is essential to the good design of an electric guitar.

CHAPTER PREVIEW

- 1 Electricity from Magnetism**
 - Electromagnetic Induction
 - Characteristics of Induced Current
- 2 Generators, Motors, and Mutual Inductance**
 - Generators and Alternating Current
 - Motors
 - Mutual Inductance
- 3 AC Circuits and Transformers**
 - Effective Current
 - Transformers
- 4 Electromagnetic Waves**
 - Propagation of Electromagnetic Waves
 - The Electromagnetic Spectrum