

## May the (Electromagnetic) Force Be with You

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**Abstract.** A mystery to the ancients and a marvel to Einstein, electromagnetism is inextricably linked to the operation of motors and generators, the functioning of radio, television and computers, and our understanding of the universe. From the Greeks, who may have been the first to study electricity to Einstein who, as a child, was captivated by the mysterious properties of magnets, humankind's fascination with the electromagnetic force has never stopped. Your students are certain to feel the same sense of mystery and wonder as they probe this fundamental force of nature.

The strengths of hands-on, inquiry-based education are that a student's own curiosity and questions drive the learning. With that in mind, the activities presented in this program are meant to serve as examples of ways to engage students in the investigation of electromagnetism.

**Keywords.** Electricity, Electromagnetism, Generator, Hands-on Learning, Induction, Motor, Magnetism.

### References

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## Discovering Light. Introducing Interference and Diffraction

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**Abstract.** Light plays a fundamental role in our lives and optics and photonics have a huge and ever increasing importance in a wide range of industries and impact in our modern societies. It is therefore essential that a solid knowledge on this subject is acquired as early as possible, right from primary school or even at kindergarten, in a process of active and participated discovery by the pupils themselves who naturally have an empathy, interest and special curiosity for this Light and Optics subject as it directly relates to vision, one of our major senses. We will briefly explore in a very basic and introductory way two important phenomena on physical optics: diffraction and interference. Simple demonstrations and hands-on experiments will be explored.

**Keywords.** Hands-on Optics, Interference, Diffraction, Elementary Optics, Teacher Training.