

Physics as Moral

Education



Physics as Moral Education

Our mission is to be an exemplary learning community—enriched by differences, informed through inquiry, global in reach.

Why engage in Moral Education as part of a Physics course?

1. In their colleges and careers, students will make choices in which they need a moral compass
2. Students do not have many other opportunities to engage in Moral Education
3. Physics provides many opportunities to explore morality
4. Discussions of moral significance can engage students who may otherwise not be engaged
5. Moral education is already implicit in your classroom and students will benefit from discussing it explicitly

Choices being made at the highest levels of business and government are moral issues

(some examples related to careers your physics students may pursue are below)

Moral issue: What algorithms should driverless cars use when it senses it will be involved in a fatal crash?

Moral issue: Facebook allows posts that deny the holocaust

Moral issue: Google shuts down their artificial intelligence program after it makes its own language

Moral issue: US government prioritizes government spending on updating the nuclear arsenal over funding education across the states

Moral issue: EPA denies human role in global warming

Moral issue: Volkswagen cheats on emissions tests because it doesn't think it will get caught

Choices being made at universities are moral issues

(some examples related to decisions your physics students may face are below)

Moral issue: Cheating. What constitutes cheating on an exam? Is it only cheating if you get caught?

Moral issue: Self-care. For example: how many caffeine pills is too much?

Moral issue: Public Safety. What is the line between snitching and keeping a friend safe?

Moral issue: Social Media. What part of a lab, your work, a peer's work, a professor's work do you need to handle with care when posting on social media?

What are the presiding laws concerning religion in schools?

Separation of Church and State – First Amendment

1. Establishment Clause used to challenge governmental advancement of religion
2. Free Exercise Clause used to challenge governmental restrictions on the practice of religious belief.

1971 – *Lemon v. Kurtzman* led to the “Lemon test”: It is unlawful for government actions, therefore public schools, to have a religious purpose, advance or impede religion, and create excessive government entanglement with religion.

1993 – *Lamb’s Chapel v. Ctr. Moriches Union Free Sch. Dist.*: It is unlawful for schools to have a purpose or effect endorsing or disapproving religion.

1992 – *Lee v. Weisman*: It is unlawful for schools to have coercion on individuals to profess a faith.

In response, schools shy away from explicit Moral and Religious teachings

Character Education Manifesto

Principle 1: Education is an Inescapable Moral Enterprise

Education in its fullest sense is inescapably a moral enterprise – a continuous and conscious effort to guide students to know and pursue what is good and what is worthwhile.

Principle 2: Parents

We strongly affirm parents as the primary moral educators of their children and believe schools should build a partnership with the home. Consequently, all schools have the obligation to foster in their students personal and civic virtues such as integrity, courage, responsibility, diligence, service, and respect for the dignity of all persons.

Opportunities to discuss morality in Physics:

Leys (1952): “The fact that a scientist spends a good deal of his time in studies from which he tries to exclude moral judgments...does not mean that the scientist and his activity will not be subject to moral judgment.”

1. Scientists in the Manhattan project discuss the difference between “we can” and “we should”.
2. Who owns physics knowledge and how should it be shared or guarded?
3. How much evidence do we need before we know something?
4. What is the difference between knowledge and faith?
5. In what ways have technological advancements changed the way we live – for the better and for worse?
6. When is it okay to fabricate or ignore data in a lab?
7. What is considered cheating in your class – where is the line between cheating and collaboration?
8. Who gets credit for publication of scientific discoveries?

ASME Mechanical Engineer's Code of Ethics:

The Fundamental Principles Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

- I. using their knowledge and skill for the enhancement of human welfare;
- II. being honest and impartial, and serving with fidelity their clients (including their employers) and the public; and
- III. striving to increase the competence and prestige of the engineering profession.

<https://www.asme.org/wwwasmeorg/media/ResourceFiles/AboutASME/Get%20Involved/Advocacy/Policy-Publications/P-15-7-Ethics.pdf>

ASCE Civil Engineer's Code of Ethics:

Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties.

<http://www.asce.org/code-of-ethics/>

AMA Code of Medical Ethics:

Principles of medical ethics

- I. A physician shall be dedicated to providing competent medical care, with compassion and respect for human dignity and rights.
- II. A physician shall uphold the standards of professionalism, be honest in all professional interactions, and strive to report physicians deficient in character or competence, or engaging in fraud or deception, to appropriate entities.
- III. A physician shall respect the law and also recognize a responsibility to seek changes in those requirements which are contrary to the best interests of the patient.
- IV. A physician shall respect the rights of patients, colleagues, and other health professionals, and shall safeguard patient confidences and privacy within the constraints of the law.

<https://www.ama-assn.org/sites/default/files/media-browser/principles-of-medical-ethics.pdf>

What is Morality?

At a basic level, it's the ability to perceive acts in or states of the world along a dimension of "right" or "wrong"

- Jesse Marczyk <https://www.psychologytoday.com/us/blog/pop-psych/201408/is-morality-all-about-being-fair>

Difference between Morals and Ethics

Encyclopedia Britannica states that, in general, there is no distinction between these words. Some communities use them interchangeably, some communities make slight distinctions. Some use "Morals" to mean a more personal decision-making process whereas "Ethics" has to do more with the law.

Both have to do with "good and bad" or "right and wrong"

<https://www.britannica.com/story/whats-the-difference-between-morality-and-ethics>

Is Morality a Social Construct or are there transcendent principles?

Morality is implicit in the classroom rules and procedures

All I Really Need to Know I Learned in Kindergarten

By Robert Fulghum

...

Share everything.

Play fair.

Don't hit people.

Put things back where you found them.

Clean up your own mess.

Don't take things that aren't yours.

Say you're sorry when you hurt somebody.

Wash your hands before you eat.

Flush.

Warm cookies and cold milk are good for you.

Live a balanced life.

...

(Full poem at http://www.kalimunro.com/learned_in_kindergarten.html)

Resources:

New York Times – Relevant news stories that discuss Moral Issues

Fulghum, Robert. “All I Really Need to Know I Learned in Kindergarten.” http://www.kalimunro.com/learned_in_kindergarten.html

Grannan, Cydney. “What’s the Difference between Morality and Ethics?” <https://www.britannica.com/story/whats-the-difference-between-morality-and-ethics>

Leys, Wayne. “The Scientist’s Code of Ethics.” *Physics Today*, March, 1952

Marczyk, Jesse. “Is Morality all About Being Fair?”, *Psychology Today*, August 2014,
<https://www.psychologytoday.com/us/blog/pop-psych/201408/is-morality-all-about-being-fair>

Ryan, Bohlin, and Thayer. “Character Education Manifesto.” <https://www.bu.edu/ccsr/about-us/partnerships/character-education-manifesto/>

ASME Code of Ethics. <https://www.asme.org/wwwasmeorg/media/ResourceFiles/AboutASME/Get%20Involved/Advocacy/Policy-Publications/P-15-7-Ethics.pdf>

ASCE Code of Ethics. <http://www.asce.org/code-of-ethics/>

AMA Code of Ethics. <https://www.ama-assn.org/sites/default/files/media-browser/principles-of-medical-ethics.pdf>