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| Citizen Science and Ethics |
| Introduction |
| This lesson introduces students to the prominent ethical dilemmas faced by Citizen Science. It is designed to help students critically evaluate citizen science projects and build an understanding of the challenges it faces in the scientific community. The lesson plan offers students the opportunity to engage in the larger discussion of filing the ethical gap within citizen science projects. |
| Objectives |
| After this lesson students will be able to:   1. Discuss some of the ethical dilemmas faced in CS research. 2. Propose solutions to the ethical issues faced by CS. 3. Critically understand biases, integrity and other ethical concerns in CS research. |
| Information for Classroom Use |
| Approximate Duration for Task: 1 to 2 Classroom periods (depends on time assigned for discussions).  Assumptions:  Students should know or be familiar with:   * Ethical challenges in research context. * Citizen science methodology and data collection methods.   Teachers should know or be familiar with:   * Ethics in research contexts. * Ethical dilemmas of citizen science and the controversy around its methodology.   Materials Needed:   * Papers and Pencils * Projector or large screen for video display. * Access to computers and the internet.   Some Helpful Resources:  <https://www.americanforests.org/blog/the-importance-of-citizen-scientists/>  <https://theoryandpractice.citizenscienceassociation.org/collections/special/ethical-issues-in-citizen-science/> |
| Classroom Task |
| Context:  As citizen science projects increase and continue to largely benefit the scientific communities, issues with the relatively new scientific practice arise. Questions about quality control and ethical dilemmas challenge Citizen Science projects and constantly pushes it to prove its robust scientific methodology. In addition, this scientific practice is getting more popular and widely accepted that we anticipate the need for citizen awareness of all of these ethical concerns. Not only would this awareness push towards the best ethical practices by researchers and citizens, it would also allow for critical examination of research, intentions, and the personal responsibility in society.  This lesson plan will encourage students to critically evaluate citizen science projects, and understand ethical challenges and concerns within this practice. It is done through posing forward situations and questions that challenge some of the norms and open the eye to potential ethical dilemmas.  Task Components:  Engage:   * Students should read the attached article prior to class. * Begin the class with the Defining and understanding citizen science, methodology, ethical concerns in research. * Watch the 5 Mins trailer about crowdsourcing and address the questions on the handout.   Explore:   * Students will research opinions about scenario #3 prior to debate. Alternatively this could be given as homework after dividing class into groups and assigning roles.   Explain:   * Use the Handout to explain the activities to the students and clarify the discussion and debate protocols.   Elaborate:   * Students will elaborate through arguing and supporting their assigned roles and positions in the debate.   Evaluate:   * Students will share and exchange ideas with their classmates and groups. You could also evaluate their created lists and group work. |