



Personal Genetics Education Project

Ethical, Legal and Social Issues in Personal Genetics

SNAPSHOT

Ancestry and Identity in the Genomic Age

Adapted for PBS LearningMedia in partnership with WETA for use with

KEN BURNS PRESENTS
THE GENE
AN INTIMATE HISTORY

2020

Student Materials – pages 2-3

Teacher Guide – pages 4-6



HARVARD
MEDICAL SCHOOL

BLAVATNIK INSTITUTE
GENETICS

SEPA SCIENCE EDUCATION
PARTNERSHIP AWARD
Supported by the National Institutes of Health

pgEd acknowledges generous support from the Department of Genetics at Harvard Medical School, where we are based. This project was supported by the National Institute of General Medical Sciences, the National Institutes of Health under Award Number R25GM129172. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.



SNAPSHOT

Ancestry and Identity in the Genomic Age

Adapted for PBS LearningMedia in partnership with WETA for use with

KEN BURNS PRESENTS
THE GENE
AN INTIMATE HISTORY

Big Picture:

- How are new genetic tools providing a lens for examining human ancestry?
- What are the benefits and concerns for individuals, families and communities?

Advances in genetics have given researchers new tools for analyzing people's DNA. These technological developments are allowing scientists and doctors to better understand the connections between genes and human health with the goal of improving medical care. In addition, it is increasingly possible for individuals to learn about their genetic ancestry through low-cost DNA tests marketed to consumers. Ancestry tests are nuanced, and the results are subject to limitations. Still, these tests can yield results that are warmly welcomed or fill in missing pieces of a family story. They may also provide results that cause people to feel upset or worried, and the results may conflict with an individual's personal and cultural identities.

Watch the following videos and answer the questions on the student worksheet.

- [PBS Learning Media: Ancestry Testing in the Genomic Age](#)
- [Ancestry and Identity in the Genomic Age](#)

Ancestry and Identity in the Genomic Age

TEACHER'S GUIDE

Related pgEd lesson plans

- This module was adapted from pgEd's lesson, [Introduction to Personal Genetics](#).
- pgEd has a companion lesson on the science of ancestry testing, [How Does Ancestry Testing Work?](#) that is suitable for in-class use as well as distance learning.

Four Corners Activity

The statements provided on the student worksheet can be adapted for an in-person setting as a so called 'Four Corners Activity'. For this activity, students can read the statements and consider their own thoughts and reactions as to where they fall on a continuum between "strongly agree", "agree", "disagree", and "strongly disagree". Students can then move to labeled corners of the room based on the degree to which they agree or disagree with each statement.

If this activity is being used in a distance learning setting, teachers may wish to use these statements as writing prompts or use live polling in synchronous classes. Participants will share and discuss their opinions with the class.

Ancestry and Identity in the Genomic Age

STUDENT WORKSHEET: TEACHER NOTES

I would like to take a genetic test to learn more about the history of my biological family.

This statement and those that follow bring discussion about the possibility of surprises resulting from DNA ancestry testing. Students are being asked to consider the likely benefits and risks, as well as their personal tolerance for surprises - surprises related to family connections, ethnic and cultural identity, and the (sometimes painful) histories of one's ancestors. For some, new information from an ancestry test could help fill in gaps and answer long-held questions; others may find themselves upset to learn unwelcome or uncomfortable information.

Read more:

- According to the Pew Research Center, roughly 15% of Americans have taken an at-home genetic test for ancestry, with close to 40% reporting learning something unexpected: "[Mail in DNA Test Results Bring Surprises about Family History for Many Users](#)", by Nikki Graf, August 2019, *Pew Research Center*.
- This article highlights the work of Dr. Rick Kittles to build tools that help African Americans and others rebuild family histories: "[How African Americans Use DNA Testing to Connect with Their Past](#)", by Ed Yong, June 2017, *The Atlantic*.
- This article follows the personal stories of several people who learned something different from their family stories, and describes the various ways people might respond to such information: "[They Considered Themselves White, But DNA Told a More Complex Story](#)", by Tara Bahrapour, February 2018, *Washington Post*.

People should talk to their relatives before doing a genetic ancestry test.

An important consideration when deciding whether to do a genetic ancestry test is that, as with genetic testing for medical reasons, results can have meaning for the person taking the test as well as their relatives. There are no laws that require someone doing an ancestry test to seek permission, or even consult, family members. Still, there are psychological considerations related to learning about new family relationships, particularly for people who are conceived via donor eggs or donor sperm, as explored in this article from the American Psychological Association: "[Genetic Testing and Family Secrets](#)", by Stephanie Pappas, June 2018.

Read more: This article highlights the power and limits of genetic ancestry testing, and some of the emotional dimensions this experience may bring: "[For African Americans, DNA Tests Reveal Just A Small Part of A Complicated Ancestry](#)", by Eli Chen, April 2019, *NPR*.

I would be willing to contribute my DNA to efforts to help create knowledge about human ancestry.

Research shows Americans are divided about at least one dimension of privacy concerns related to ancestry testing: the possibility that their genetic data could be shared with law enforcement.

Read more: "[About Half of Americans are Ok with DNA Testing Companies Sharing User Data with Law Enforcement](#)", by Andrew Perrin, February 2020, *Pew Research Center*.

Contributing to the genetic lens on human ancestry can mean very different things to different people. For some, this is an exciting new pathway. However, prominent Indigenous leaders and scholars have voiced concern about a growing perception that genetic testing could encourage people to claim tribal affiliation or identity. The underrepresentation of many Indigenous groups in genetic testing databases can decrease the accuracy of the analysis – but that is just one problem. Many Indigenous groups state that, regardless what a person's DNA might indicate, a person doesn't get to call themselves a member of an Indigenous nation or tribe without practicing their culture or being considered a member by the rest of the nation or tribe.

Read more: "[Genetic Testing and Tribal Identity](#)", by Rose Eveleth, January 2015, *The Atlantic*.