



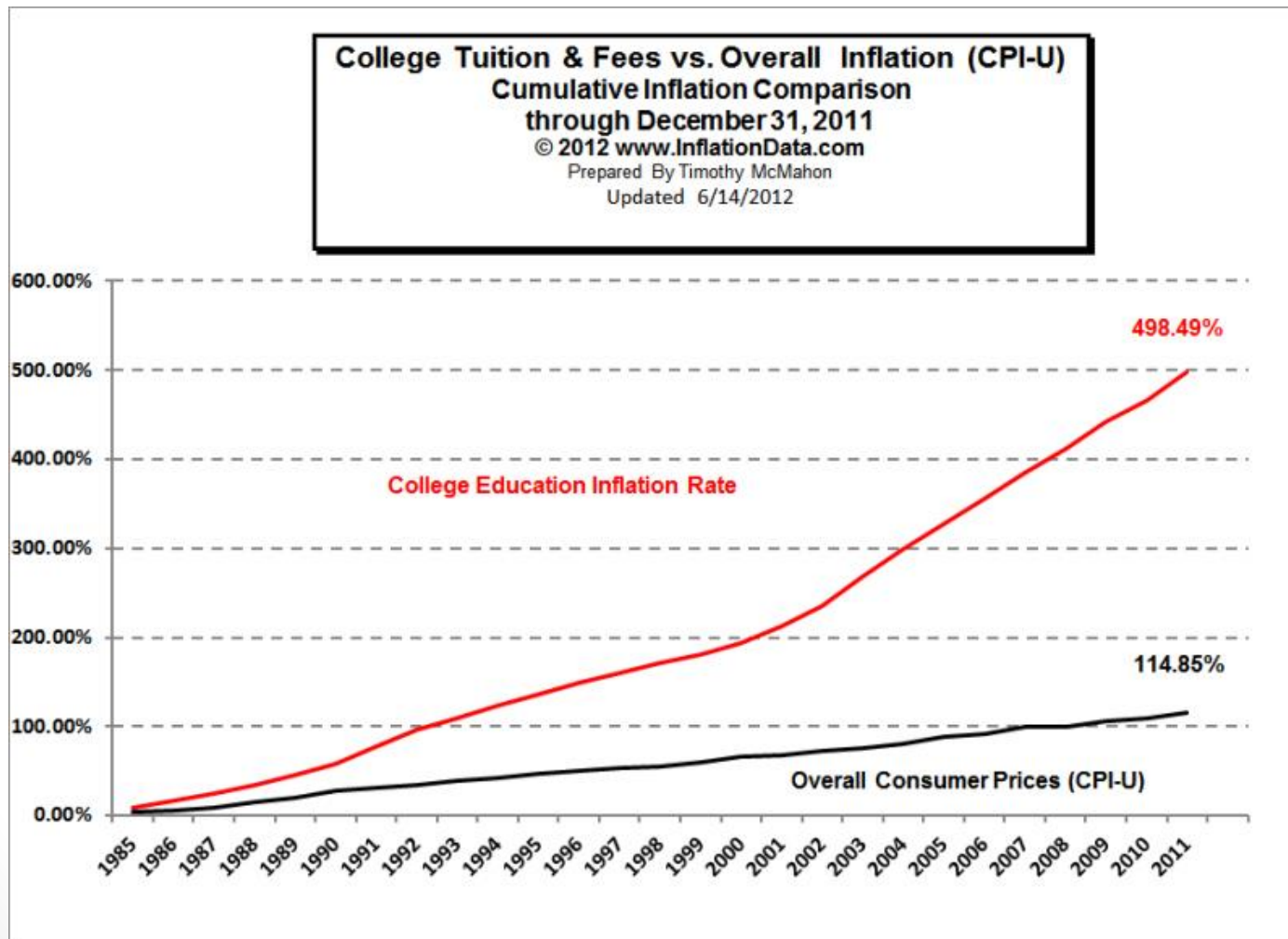
Using Open Source Materials to Infuse Project-Based Learning into General Education Courses

- Peggy Brickman, Biology, University of Georgia
- Eddie Watson, UGA Center for Teaching and Learning
- Montgomery Wolf, History, UGA

Objectives

- Provide a case for the use of Open Education Resources (OERs) in higher education
- Describe UGA's exemplar implementations of OERs along with our rationale and course selection processes
- Provide opportunities for Q&A with those who are teaching with OERs at UGA

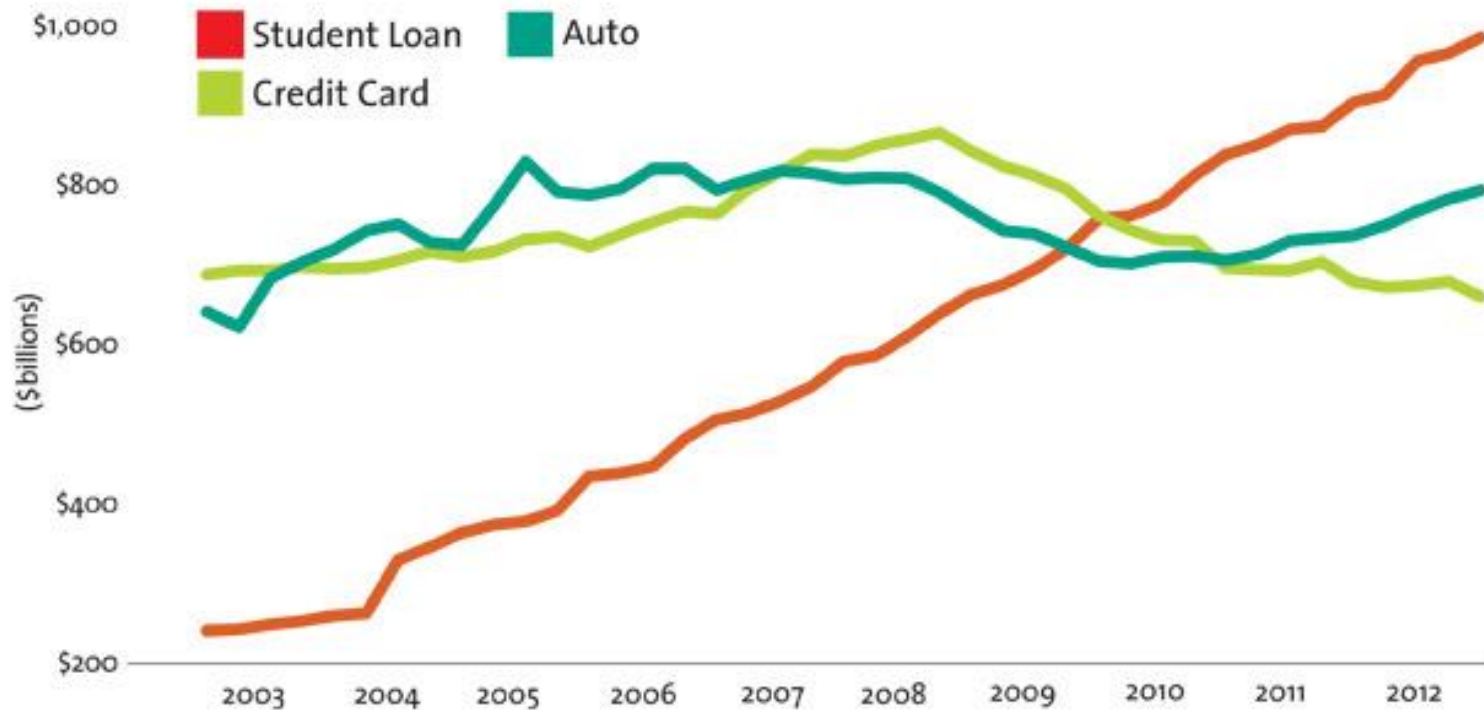
Tuition vs. Inflation



Student Debt Trends

Maxed Out

Total debt held by borrowers



Source: Federal Reserve Bank of New York

Mother Jones

The Georgia Context

- National Survey of Student Engagement (NSSE – 2011) – one-third of UGA students had unmet financial needs
- Financial needs contribute to attrition and extended graduation rates
- Textbooks are a major contributor to financial needs - \$900 to \$1,200 annually (Wiley, Green & Soares, 2012)
- Complete College Georgia Initiative seeks to address work force needs and college matriculation and completion rates
 - Launched “Incubator Grant” RFP last Spring
 - Funding up to \$25,000

Our Idea Was Simple

- Decrease the cost of higher education by fostering faculty adoption of free, online textbooks
- Maximize cost savings by working with faculty who
 - **Teach large enrollment courses**
 - **Currently uses an expensive textbook**
- Economies of scale emerge with such targeting

Grant Funding and Approach

- Received \$25,000 in both FY13 and FY14 from USG
 - Funded graduate assistant; doctoral candidate in instructional design
 - Small summer stipends for faculty member
- Selected faculty member
 - Based on class size
 - Expensive textbook
 - Opinion leadership of faculty member
- Approach was a partnership between faculty and the CTL
 - Graduate student worked closely with the faculty member
 - CTL team provides specific expertise at key points in project (data collection, evaluation, learning technologies, pedagogy, etc.)

**OPEN EDUCATIONAL
RESOURCES
FACULTY PERSPECTIVE**

PEGGY BRICKMAN
PROFESSOR OF PLANT BIOLOGY
FRANKLIN COLLEGE
UNIVERSITY OF GEORGIA



BIOLOGY 1103: 300+ ENROLLMENT GEN ED

Course structure: Content tied to engaging questions about biological issues relevant to students. In addition to tests and quizzes, students working on collaborative group projects, that challenge them to evaluate sources of information and communicate their understanding of scientific claims in writing.



BIOLOGY 1103: 300+ ENROLLMENT GEN ED

- **Average textbook cost ~\$100-\$200**
- **Students not purchasing the book**
- **Students not reading the book they purchased**
- **Made inquiry activities in class a challenge**



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CONCEPTS OF BIOLOGY

Concepts of Biology is designed for the introductory biology course for nonmajors taught at most two- and four-year colleges. The scope, sequence, and level of the program are designed to match typical course syllabi in the market. *Concepts of Biology* includes interesting applications, features a rich art program, and conveys the major themes of biology.

Senior Contributors:

Samantha Fowler, Clayton State University

Rebecca Roush, Sandhills Community College

James Wise, Hampton University

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Preface

Unit 1. The Cellular Foundation of Life [\[+\]](#)Unit 2. Cell Division and Genetics [\[+\]](#)Unit 3. Molecular Biology and Biotechnology [\[+\]](#)[GET THIS BOOK >](#)[MORE RESOURCES >](#)

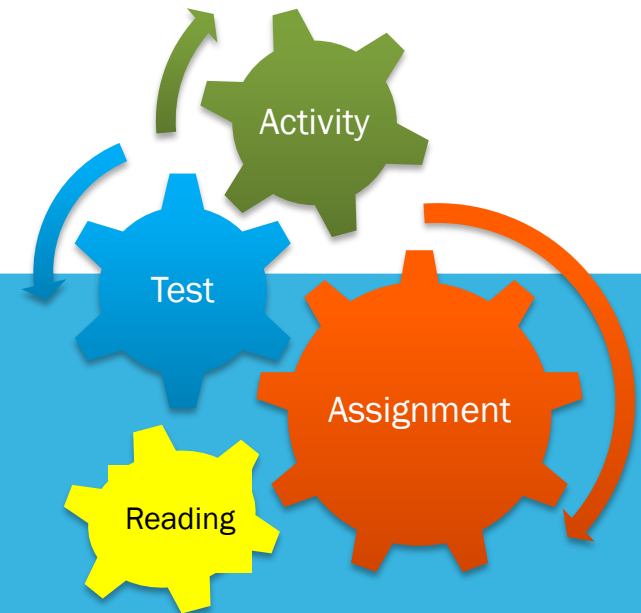
ASK US

OPENSTAX COLLEGE

SUPPORTED BY WILLIAM & FLORA HEWLETT FOUNDATION, BILL & MELINDA GATES FOUNDATION, 20 MILLION MINDS FOUNDATION, MAXFIELD FOUNDATION, OPEN SOCIETY FOUNDATIONS, AND RICE UNIVERSITY.

CHALLENGES

- Organization
- Engaging students with readings from several different topics not traditionally found in the same chapter in a textbook
- Usability



Checklists

New Checklist

More Actions ▾

Checklists

Getting Started ▾

Unit 1: Alcohol Metabolism ▾

Unit 2: Gene Expression ▾

Unit 3: Genetic Testing ▾

Unit 4: Diseases and Immunity ▾

Unit 5: Global cycling ▾

Topic 2: Genes and Genomes [Class S

i. Learning Objectives

- Describe basic features of the gene
- Explain how genes and non-coding
- Explain the difference between alle
- Describe what is similar and what i

ii. Pre-Class Material (GenesAndGeno

1. Review: The Structure of DNA: <http://www.23a>
2. What are Genes? <https://www.23a>
3. What is a chromosome? <http://lear>
4. GenesAndChromosomes <http://ww>

iii. Pre-Class Self-Quiz - Genes And G

Due at 10:10 AM on Friday, October 24, 2
Unit 4.2 Pre-class quiz - Genes and Genom

iv. Lecture Slides

v. Post-class Practice Exam Question

Due at 11:00 AM on Friday, October 24, 2
Post-Class - Genes and Genomes Practice

The Structure of RNA

Reading

There is a second nucleic acid in all cells called ribonucleic acid, or RNA. Like DNA, RNA is a polymer of nucleotides. Each of the nucleotides in RNA is made up of a nitrogenous base, a five-carbon sugar, and a phosphate group. In the case of RNA, the five-carbon sugar is ribose, not deoxyribose. Ribose has a hydroxyl group at the 2' carbon, unlike deoxyribose, which has only a hydrogen atom (Figure).

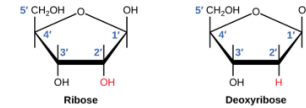


Figure 4. The difference between the ribose found in RNA and the deoxyribose found in DNA is that ribose has a hydroxyl group at the 2' carbon.

RNA nucleotides contain the nitrogenous bases adenine, cytosine, and guanine. However, they do not contain thymine, which is instead replaced by uracil, symbolized by a "U." RNA exists as a single-stranded molecule rather than a double-stranded helix. Molecular biologists have named several kinds of RNA on the basis of their function. These include messenger RNA (mRNA), transfer RNA (tRNA), and ribosomal RNA (rRNA)—molecules that are involved in the production of proteins from the DNA code.

How DNA Is Arranged in the Cell

DNA is a working molecule; it must be replicated when a cell is ready to divide, and it must be "read" to produce the molecules, such as proteins, to carry out the functions of the cell. For this reason, the DNA is protected and packaged in very specific ways. In addition, DNA molecules can be very long. Stretched end-to-end, the DNA molecules in a single human cell would come to a length of about 2 meters. Thus, the DNA for a cell must be packaged in a very ordered way to fit and function within a structure (the cell) that is not visible to the naked eye. The chromosomes of prokaryotes are much simpler than those of eukaryotes in many of their features (Figure). Most prokaryotes contain a single, circular chromosome that is found in an area in the cytoplasm called the nucleoid.

Calendar | ▾

Friday, October 17, 2014

Upcoming events

- | | | |
|--------|----------|---|
| OCT 17 | 11:59 PM | vii. Mid-semester STEAM formative peer evaluation - Due |
| OCT 20 | 10:10 AM | i. Test 3: Individual and Group - Due |
| OCT 22 | 11:59 PM | ii. Unit 3 Group Assignment: Final analysis of Endocrine Disruptors - Due |
| OCT 22 | 11:59 PM | Unit 3: Group Dropbox Assignment Endocrine Disruptors - Due |
| OCT 24 | 10:10 AM | iii. Pre-Class Self-Quiz - Genes And Genomes - Due |
| OCT 24 | 11:00 AM | v. Post-class Practice Exam Question - Due |

* Unit → Topic → [reading + quiz + lecture + classroom activities + assignment +test]

TEAM:

C. Eddie Watson, Ph.D. Director for UGA's Center for Teaching & Learning wrote and received funding from the Board of Regents to support faculty to utilize OER resources

So Mi Kim: Graduate student in Learning Design who assisted in the instructional design help and accessibility

Denise P. Domizi, Ph.D. Coordinator of the Scholarship of Teaching and Learning, UGA's *Center for Teaching and Learning*

Erin Dolan, Ph.D and Zack Lewis, Ph.D. co-instructors in the course

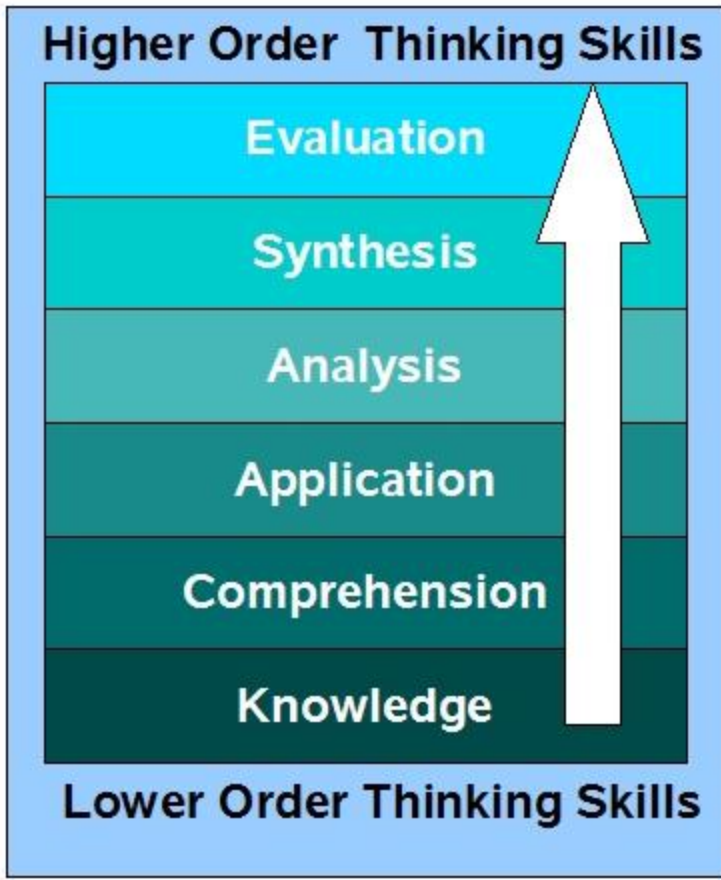


A Flipped Classroom: U.S. History Survey

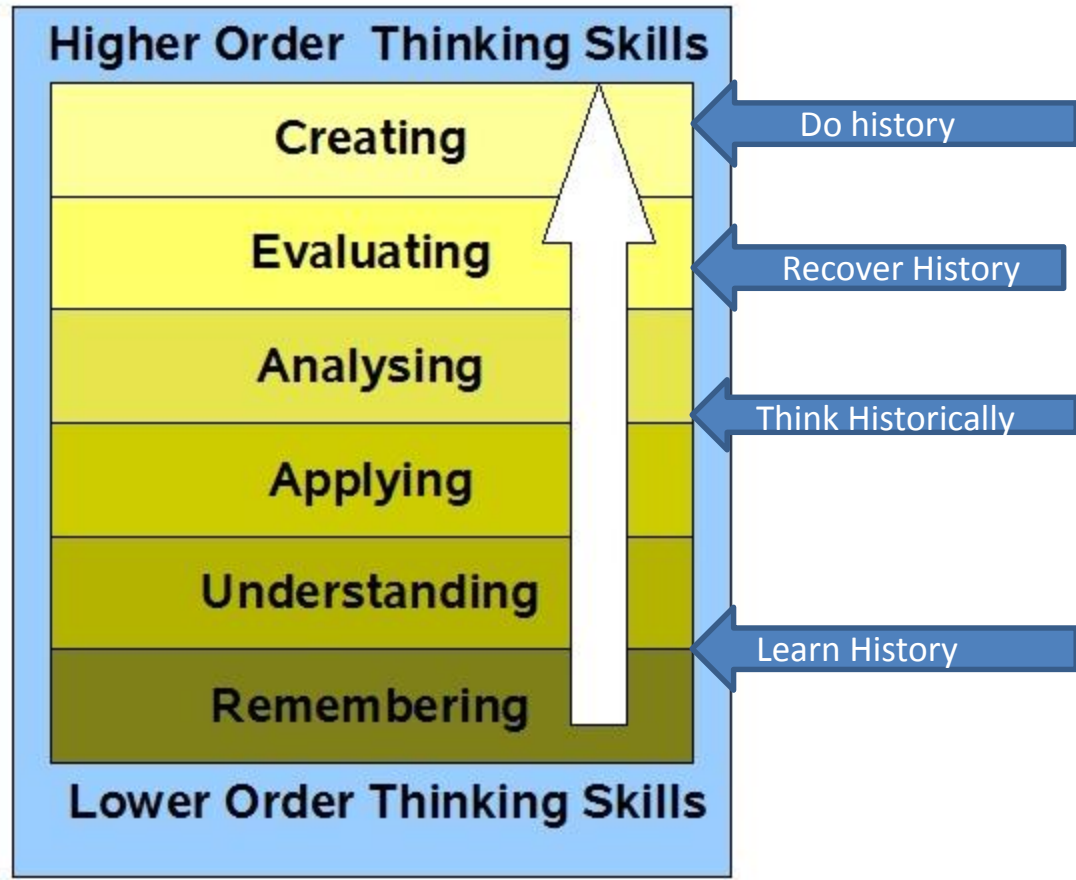
Montgomery Wolf

Course Goals:

- 1. Learn History:** By acquiring knowledge of the basic facts and events of U.S. history to 1865, we will be able to identify the significant questions about the period: For example, why did Europeans settle North America? What happened when European, African, and Native American worlds collided? How did Americans define and understand the role of government? How did the American political system develop over time? How did economic development affect religion, culture, and politics? How was it that the United States entered Civil War?
- 2. Think Historically:** By learning to ask HOW and WHY as well as who, what, where, and when, we will gain an understanding of historical change, of how historians think and interpret the past through the lens of the present.
- 3. Retrieve/Recover History:** Through an exposure to a wide variety of historical sources and practices, we will learn how historians go about "recovering" (interpreting) the past. We will analyze a variety of secondary sources (writings by historians, including the textbook) and primary sources (autobiography, cartoons, political speeches, etc.), learn to assess their reliability, and produce our own interpretation of them.
- 4. Do History:** After learning some of the historian's tools, we will employ these tools in producing history in a variety of ways, including essays and a curated exhibit.



Original



Revised

Catherine Locks, et al., History in the Making: A
History of the People of the United States of
America to 1877 (University Press of North
Georgia, 2013).

Political Cartoon: Expansion of Slavery into the Territories

'Progress'



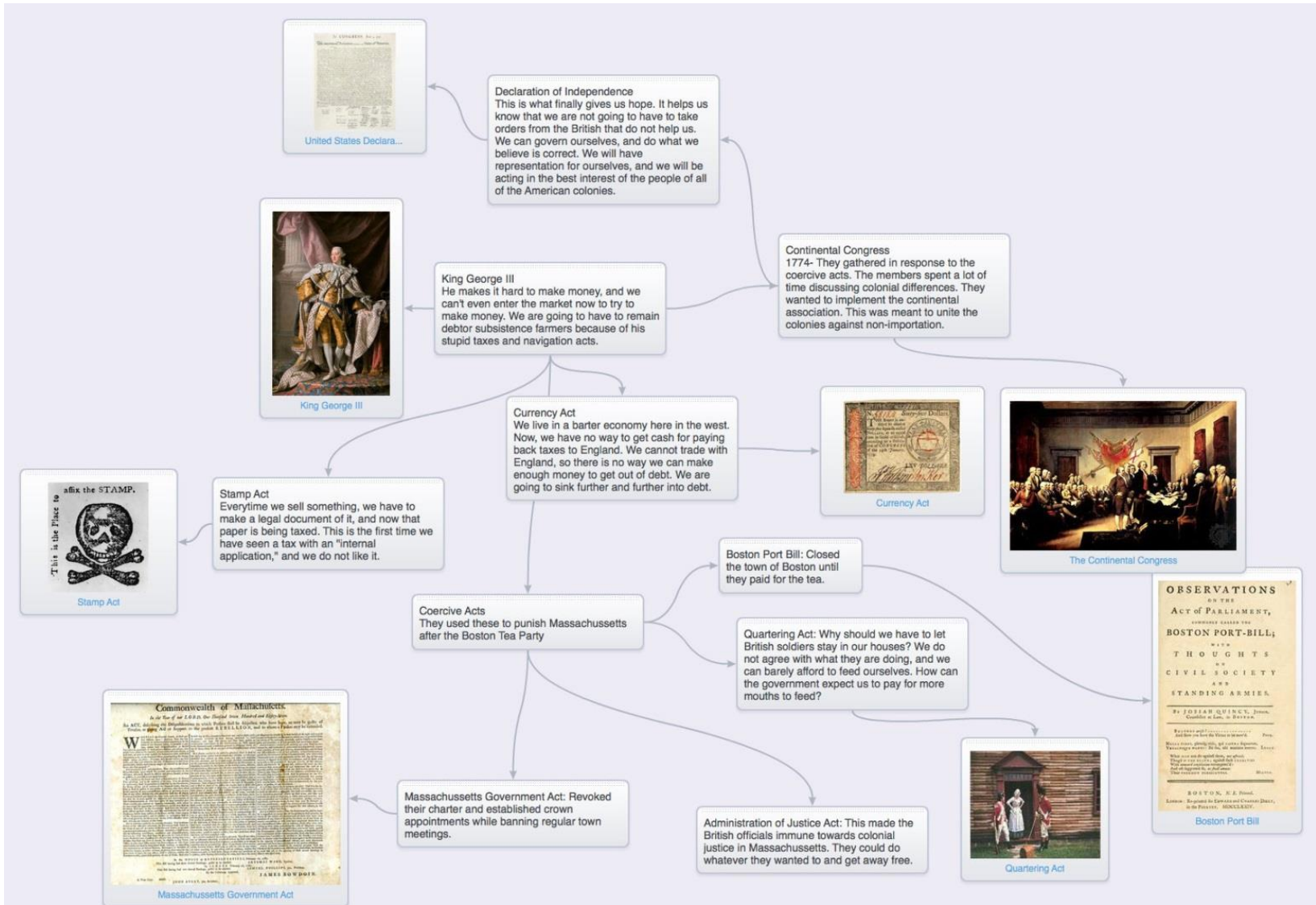
From the perspective of white southerners.

John Gast, "American Progress" (1874)



Concept map:

Describe the relationships between these concepts, from the perspective of a western PA farmer



“Team-Based Learning”

- In-class group work
- Final project: Online exhibit
 - Archives
 - Video
 - Material Culture