AP WORLD HISTORY:

TRADE ROUTES and TECHNOLOGY:

Analyzing and Recreating Networks of Communication and Exchange, 300 B.C.E. - 1450 C.E.

Curriculum Alignment Standards:

- ❏ APWH Key Concept Standards: 2.3.IA; 2.3.IIA & B; 2.3.IIIA, B, & C
- ❏ AP Historical Thinking Skills Standards: C1, C2, C3, C4, C5, C6
- ❏ California CCSS: CCSS.RH.9-10.2, 9-10.6, 9-10.7, 9-10.9; CCSS.SL.9-10.1, 9-10.4, 9-10.5
- ❏ ISO (Integral Student Outcomes): 2a-c, 3a-c
- ❏ ISTE Student Standards: 3a-d, 4a, 4c, 6a-d

Rationale: This lesson provides Grades 9-12 with the opportunity to examine and explore, through both guided and independent inquiry, the complex cultural exchanges that emerge from new technologies—both present and in antiquity. Through practicing the Historical Thinking Skills and learning the relevant Key Concepts, students will demonstrate their understanding through the creation of both a maker interactive map and a video that explains the ideas associated with the maker artifact. Interacting with the reading and analysis of source material in small groups and sharing that information with their peers will produce the best results for achieving the above standards. Also, students creation of both the maker interactive map and the analysis video will provide an opportunity for the students to problem-solve and embrace their own guided inquiry with their peers (O'Donnel, 63). These will serve as their summative assessments (Wanner, 355). The focus of this assignment is not the course textbook, but rather the students' inquiry and research. This approach will provide students with ample "voice and choice" aspects demonstrate their own learning (Basham, 133).

MATERIALS AND TOOLS

1. iPad (smart device)
2. The 30 White LED Circuit Stickers
3. pack copper foil tape with Conductive adhesive
4. Conductive fabric tape
5. Sharpy
6. X-Acto or Utility knife
7. Cardstock paper
8. Tape
9. Flat Battery

TIMEFRAME

Two period of 45 minutes
or
90 minute class period

Learning Outcomes:

Lesson Objectives

Upon completion of the assigned reading and class projects, students will be able to

1. read secondary sources and data tables to mine for usable information.
2. research and hypothesize in small groups and independently
3. synthesize information with peers into actionable tasks
4. creatively re-purpose materials for larger projects (in this case, an interactive map)
5. create basic circuits
6. address, explain, and defend an argument by citing supporting information
7. create, edit, and share a short video project

AP Thematic Content Objectives

Upon completion of the assigned reading and class projects, students will be able to

1. **ENV-1** Explain how different types of societies have adapted to and affected their environments.
2. **ENV-2** Explain how environmental factors, disease, and technology affected patterns of human migration and settlement over time.
3. **ENV-3** Evaluate the extent to which migration, population, and urbanization affected the environment over time.
4. **ENV-5** Evaluate the extent to which the development of diverse technologies, industrialization, transportation methods, and exchange and communication networks have affected the environment over time.
5. **CUL-1** Explain how religions, belief systems, philosophies, and ideologies originated, developed, and spread as a result of expanding communication and exchange networks.
6. **CUL-3** Explain how cross-cultural interactions resulted in the diffusion of culture, technologies, and scientific knowledge.
7. **SB-3** Explain how and why economic, social, cultural, and geographical factors have influenced the processes of state building, expansion, and dissolution.
8. **SB-6** Explain the political and economic interactions between states and non-state actors over time.
9. **ECON-2** Explain the causes and effects of economic strategies of different types of communities, states, and empires.
10. **ECON-6** Explain how economic systems and the development of ideologies, values, and institutions have influenced each other.
11. **ECON-7** Explain how local, regional, and global economic systems and exchange networks have influenced and impacted each other over time.

Focus Questions:

- ❏ How did the Silk Road come into being and help to link the east and west?
- ❏ How did the trade system of the Indian Ocean develop, and what was its impact?
- ❏ How did trade routes develop across the Sahara?
- ❏ How did expanding trade routes serve as conduits of ideas?
- ❏ How did geography affect the trade patterns of Africa and of Asia during the period of time covered in this chapter?
- ❏ How does trade foster innovation in, and the dissemination of, technology?
- ❏ **Extension Question:** To what extent does today's technology foster a similar exchange of goods, ideas, culture, etc. Examples?

Class Procedure and Activities:

Day 1

- ❏ Students will start class with a warm-up watching a short clip on the modern "Silk Road" and the Dark Web.
- ❏ Students will engage in a quick class discussion on the idea of trade and exchange of material and non-material goods via new technologies.
- ❏ Students will take a quick pre-assessment using Likert Scale Questions via a digital platform (SurveyMonkey, Google form, Socrative, etc.) on their pre-knowledge concerning trade routes.
- ❏ The teacher will give a quick overview and class discussion on trade in general, what factors contribute to the rise of routes, and what sorts of material and non-material goods are exchanged
- ❏ Students will be divided into Collaborative Learning Teams (CLTs) of 3-4 and will be assigned one of the following trade routes: (1) **Silk Road**, (2) **Indian Ocean Maritime System**, (3) **Trans-Saharan Caravan Routes**, (4) **Pacific Ocean**, and (5) **Atlantic Ocean** (300 B.C.E. - 1450 C.E.)
- ❏ Each CLT will be given a primary source, secondary source, and a data set to read and explain to each other.
- ❏ The teacher will explain the interactive map component, finding re-purpose materials (optional—maps will be provided by the teacher), and the research homework.
- ❏ If time permits, students may begin making a plan on their Interactive Maps

Day 2

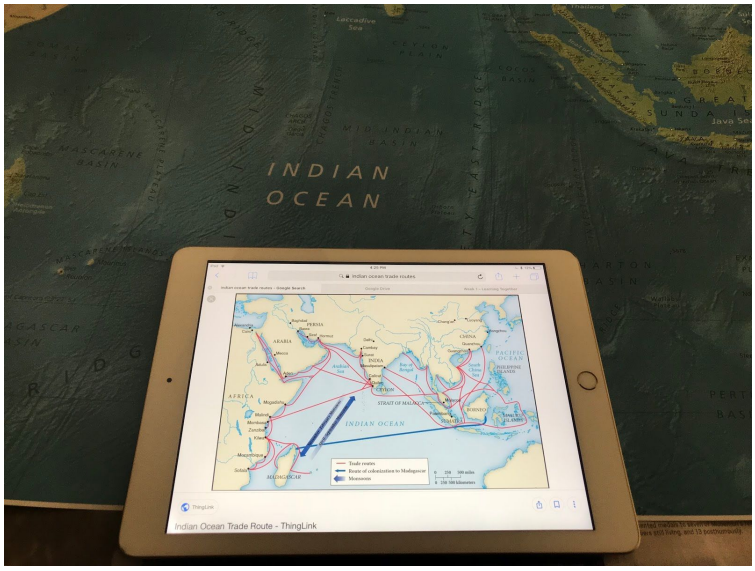
- ❏ Students will break into their CLTs and begin immediately on discussing their research with their team
- ❏ Students will determine **two** key ports or trade hubs for their trade route that they will want to discuss

- ❏ Students will use found or provided materials and begin preliminary setup of their map for the paper circuits
- ❏ Students will be provided the material to create the circuits and create an interactive map (see how-to below) that illuminates the two determined trade centers.
- ❏ As this project has unfolded, one of the CLT members should have documented through photo and video the process of the activity.
- ❏ In an informal fashion, students will discuss on video the following questions in relation to their map and research: What trade route did you research and recreate? What local trade hubs or cities did you choose and why? What geographical role do you believe shaped the importance of this location? What material culture (technology, food, art, etc) was exchanged? What non-material culture (language, ideas, etc) was exchanged? How does this interactive map help explain some of the above questions?
- ❏ Students will post this short (1-2 minute) video to the class Canvas LMS discussion page. This video is a summative assessment serving as an opportunity for students to demonstrate the extent of their learning (see the rationale and summative assessment expectations below)
- ❏ As an extension of the class assignment at home, students are asked to watch the other videos and make at least ONE comment on a peer's video project.

How-To: Paper Circuit and Interactive Map Step-by-Step (for detailed images and videos, see this blog post)

- ❏ **Step 1:** Find an old map or some other repurposed object that you don't mind cutting into.

- **Step 2:** Find a helpful and reliable map of the trade networks online

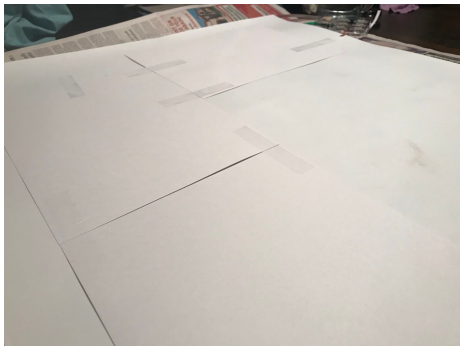


- **Step 3:** Using the map online, mark all the trade ports—making particular note of large trade cities. You can use any marker, but I found that the Sharpie King Size Professional works best. This marker has different angles on the tip but is large enough to handle a large map. The size needed will depend on the map you are using. *Pro tip: to avoid marker bleed-through, lay down some newspaper—just in case.

- **Step 4:** Carefully connect the dots in the manner already illustrated on the map. This is harder than it looks, but it is actually a rather insightful process because one begins to wonder why ships took particular routes or why they went around specific islands and not others.

- ❏ **Step 5:** Use a knife, preferably an X-Acto or utility knife (I learned the hard way) to cut some holes in the major ports. I only did nine of the major ports, but there are many, and depending on time and materials, you could have them do less or more. It is through these holes that the LED lights will shine through, so precision in cutting and removing excess material is best.

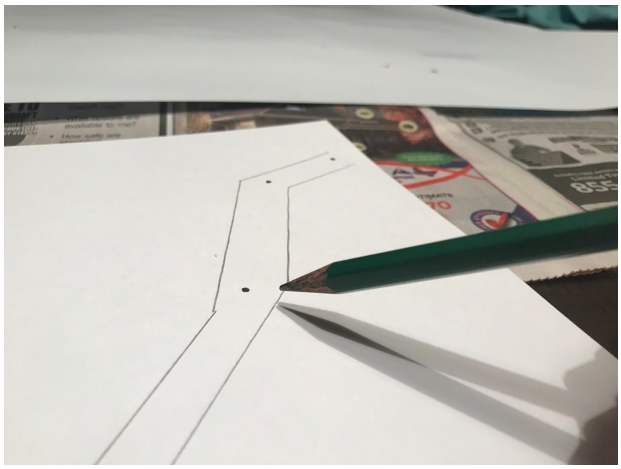
- ❏ **Step 6:** Flip the map over and lay down cardstock paper—the thicker the better—over the holes in such a way that the papers overlap and can be taped together. After they are taped together, tape the paper to the actual map so that when you flip the map over, it won't move out of place. *Pro tip: Don't overdo the tape to prevent damage to the map.



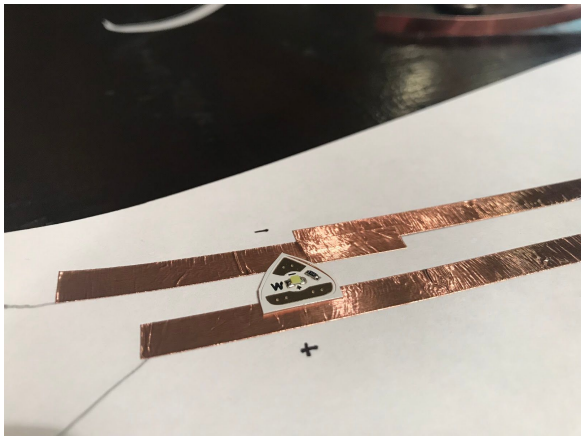
- ❑ **Step 7:** Flip the map over again and use a smaller sharpie to make a dot through the hole in the map onto the paper that is taped to the back.

- ❑ **Step 8:** Flip the map over again and gently cut the paper free from the map. Be sure to leave the papers themselves taped to each other. This will make it easier to work during the proceeding steps. Only remove it from the back of the map itself. *Pro tip: mark the orientation on the back of the paper relative to the map itself. When we try to put it back, it will help to know which is the top and which is the bottom. We are only going to see copper tape and lights for a while so this orientation will be helpful in the end.

- **Step 9:** After removing the papers taped together, draw out a path that the copper tape will follow with a pencil. No one will ever see this part, so feel free to make mistakes or redraw what doesn't seem to work.

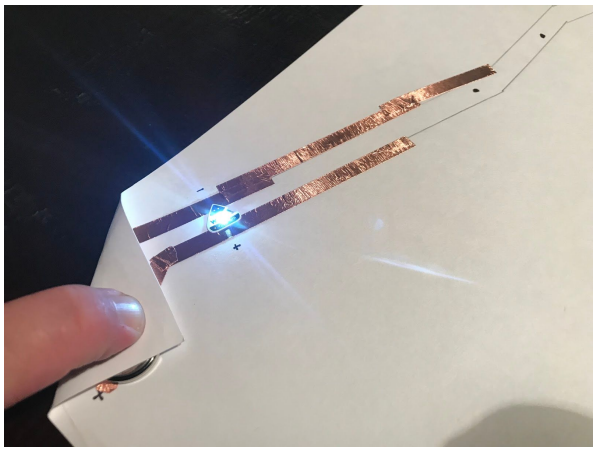


- **Step 10:** Lay down your first row of copper tape. Make sure that your copper tape is conductive on both the top and the adhesive side. If the copper is not conducive on the adhesive side, you will have weak and unreliable connections each time you overlap the copper tape. *Pro Tip: It is helpful to mark which side of the two lines of tape will be negative or positive. Make sure that the gap between the two lines of copper is not so far apart. The negative and positive sides of the LED Stickers need to make contact with each side of the copper.

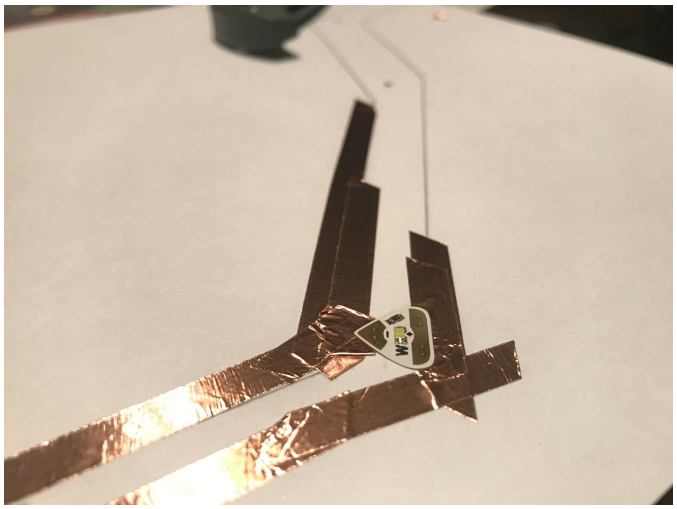


- **Step 11:** Make sure both copper lines spread apart at the edge of the paper where you will have the battery attached. Make sure you use a flat battery. The specific sort is not essential. The one I used is a 3V Lithium 2032. The important point is that the top of the battery is a positive charge and the bottom is a negative. Make sure that the orientation of the battery aligns with the desired positive and negative copper lines, which in turn determines the direction of the LED sticker lights. Make sure the positive is on the positive and the same for the negative. Make sure that the when the paper corner is folded over, the positive is touching the top and the negative is touching the bottom. *Pro Tip: if

you are using double adhesive copper tape, make a double-sided tape loop to secure the battery to the bottom copper line. That way, when the top paper corner is pushed down onto the battery, the circuit is completed and will turn on the lights. This can be turned into a button of sorts later.



- ❏ **Step 12:** As you build each line, lay down an LED and test for connectivity. This is important because if there is a weak connection, the light will not turn on. When an LED does not turn on, remove the sticker (this will likely damage the sticker beyond repair—I know, I messed-up several times myself) and lay some new copper tape and reconnect the light. Sometimes it requires a little fiddling and finesse to get a finicky connection to be less so.



- ❏ **Step 13:** After the desired lines are created, and the LED lights are in place, be sure to test the entire line. It is critical that the power connection is secure and works well. Otherwise, flickering lights and a poor connection will persist.
  Check out the LED light test via the Chibitronics paper circuit by watching the video here.
- ❏ **Step 14 (Optional):** If you used more than one paper across which copper tape cross, use the Conductive Fabric Tape from Chibitronics to make more secure conductive hinges. If

the thin copper breaks between these pieces of paper, the proceeding LED lights will not turn on.

- ❏ **Step 15:** This is a tricky one, but it is the final step! Align the LED lights on the back of the map such that the light will shine through the previously made holes. When this is secure, you will have completed this rudimentary interactive map!
  Check out the prototype by watching the video here.

Assessment Types:

- ❏ *Pre-assessment:* Likert Scale Questions on already possessed knowledge **(Day 1)**
- ❏ *Formative:* Random Checks for Understanding **(Day 1-2)**
- ❏ *Summative:* (a.) Physical Interactive Map (b.) Submitted Video explaining the content and analysis of the map **(Day 2)**

Summative Assessments Expectations:

The most successful student will address and engage the following questions in their video:

- ❏ What trade route did you research and recreate?
- ❏ What local trade hubs or cities did you choose and why?
- ❏ What geographical role do you believe shaped the importance of this location?
- ❏ What material culture (technology, food, art, etc) was exchanged?
- ❏ What non-material culture (language, ideas, etc) was exchanged?
- ❏ How does this interactive map help explain some of the above questions?
- ❏ BONUS: Share some examples of how today's technology fosters a similar exchange of goods, ideas, culture, etc.

Homework:

Day 1

- ❏ Reflect on what you learned, identifying what you know and what you don't know.
- ❏ Read your assigned section of text: Silk Road (Bulliet, 224-227), Indian Ocean Maritime System (Bulliet, 227-231), Trans-Saharan Caravan Routes (Bulliet, 231-234), *Pacific Ocean (Bulliet, 391), *Atlantic Ocean (Bulliet, 392-393)
- ❏ Research your assigned trade routes for additional information beyond the text
- ❏ Find and Bring re-purpose materials for interactive map

Day 2

- ❏ Reflect on what you learned, identifying what you know and what you don't know.
- ❏ Comment on at least one team's video project posted in Canvas LMS, asking clarifying questions or discussing *additional* **useful** information and analysis.

*While all students are asked to research topics, these specific locations will require more outside research relative to the other students.

References

Basham, J. D., Hall, T. E., Carter, R. A. , & Stahl, W. M. (2016). An operationalized understanding of personalized learning. Journal of Special Education Technology, 31 (3), 126-136.

Bulliet, R. W., Crossley, P. K., Headrick, D. R., Hirsch, S. W., Johnson, L. L., Northrup, D. (2014) The earth and its peoples: a global history, sixth edition. Stamford, CT: Cengage Learning.

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