MinecraftEDU Civilization Project

Participant Name:	**Abby Leonard**
District:	**Plattsburgh City School District**
Grade Level:	**11th**
Subject/Course:	**Computer Science / World Languages**
Cross-curricular Link:	**Spanish**
Approximate Time (IN MINUTES):	**160-180 minutes (3-5 Class Periods) 45 min**

CONTENT AND SKILLS

Learning Objectives:

- Explain key features of the Aztec or Inca civilization (location, agriculture, architecture, government) using academic vocabulary.
- Create a Minecraft world that represents an ancient civilization using basic coding and computational thinking.
- Collaborate and communicate ideas using digital tools while demonstrating responsible technology use.
- Students apply Grade 11 NYS CSDF vocabulary by designing algorithms, sequencing code, using loops for efficiency, and debugging their Minecraft builds to create accurate digital representations of Aztec or Inca civilizations.

Essential Questions (optional):

- How did geography and environment shape the Aztec and Inca civilizations?
- How can coding and digital tools help us tell the story of a civilization?
- How does working together improve our ideas and designs?

Real-World Connections

- Coding as a tool for problem-solving
- Architecture influenced by geography
- Collaboration mirrors real design and engineering teams
- Digital storytelling used in museums and games

Students' I can statements . . .

- I can describe important parts of the Aztec or Inca civilization.
- I can use Minecraft and coding to build and explain my ideas.
- I can work with others and use technology responsibly.
- I can review and expand on these vocabulary terms while integrating Computer Science:

Algorithm: A precise, step-by-step process designed to solve a problem or complete a task, often used to automate actions in a digital environment.
Sequence: The intentional ordering of steps in an algorithm so that a task is completed accurately and efficiently.
Code: A set of written instructions created using a programming language that tells a computer or digital tool what actions to perform.
Loop: A programming structure that repeats a set of instructions multiple times to improve efficiency and reduce redundancy.
Debug: The process of identifying, analyzing, and correcting errors in code to improve functionality and performance.

How will you meet the needs of SWD and ELL/MLL students?

- Visual supports (images, labeled diagrams, anchor charts)
- Sentence frames and word banks
- Chunked instructions with modeling
- Choice of verbal, written, or recorded explanations
- Peer collaboration and assigned roles
- Option to use speech-to-text or audio recordings

NYS COMPUTER SCIENCE AND DIGITAL FLUENCY STANDARDS

List all standards that authentically align (e.g., K-1.CT.4)

- 9–12.CT.4 Implement a program using a combination of student-defined and third-party functions to organize the computation.
- 9–12.CT.8 Develop a program that effectively uses control structures in order to create a computer program for practical intent, personal expression, or to address a societal issue.
- 9–12.CT.9 Systematically test and refine programs using a range of test cases, based on anticipating common errors and user behavior.
- 9–12.CT.10 Collaboratively design and develop a program or computational artifact for a specific audience and create documentation outlining implementation features to inform collaborators and users.
- 9–12.DL.2 Communicate and work collaboratively with others using digital tools to support individual learning and contribute to the learning of others.
- 9–12.DL.4 Independently select advanced digital tools and resources to create, revise, and publish complex digital artifacts or collection of artifacts.
- 9–12.DL.5 Transfer knowledge of technology in order to use new and emerging technologies on multiple platforms.

OTHER SPECIFIC STANDARDS (e.g., Content, SEL Benchmarks)

List all standards that authentically align

https://www.p12.nysed.gov/sss/documents/SELBenchmarks2022.pdf

- Self-Management: Perseverance and goal setting
- Social Awareness: Respecting different cultures and perspectives
- Relationship Skills: Collaboration and shared decision-making
- Responsible Decision-Making: Ethical use of technology

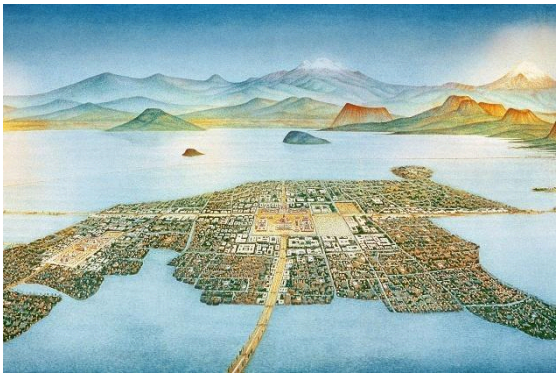
INSTRUCTIONAL PLAN

List the steps of the lesson, including instructions for the students.
Add and highlight Standard Indicator next to activity that aligns

Day 1 – Engage & Explore (45 minutes)

Hook (10 minutes):

- Show images or a short video of **Tenochtitlán** and **Machu Picchu**





- Say, “Think about our study of Aztec and Inca Civilizations.”
- Ask:
    - “What do you notice?”
    - “Why do you think these civilizations built this way?”

Mini-Lesson (15 minutes):

- Review Aztec and Inca attributes:

Attribute	Aztecs	Incas
Location	Mesoamerica	Andes Mountains
Capital	Tenochtitlan	Cusco
Language	Nahuatl	Quechua
Religion	Polytheistic	Polytheistic
Government	Monarchy	Monarchy
Architecture	Pyramids, temples	Stone structures
Agriculture	Maize, beans, squash	Potatoes, maize, quinoa
Trade	Extensive trade networks	Extensive trade networks
Writing System	Hieroglyphics	Quipu (knotted strings)
Warfare	Conquered neighboring tribes	Conquered neighboring tribes

- Explain that students will **build a civilization in Minecraft** to show understanding.

Minecraft Introduction (20 minutes):

- Demonstrate MinecraftEDU basics:
    - Moving, building, placing blocks
    - Introduction to the **Agent**
- Vocabulary introduced:

Foundational Term	Grade 11 Framing
Algorithm	Designing a multi-step process to automate building or simulation
Sequence	Ordering steps efficiently and logically
Loop	Using repetition to optimize time and resources
Code	Creating, modifying, and improving digital artifacts
Debug	Identifying errors, testing solutions, and refining outcomes

Day 2 – Plan & Code (45 minutes)

Planning (15 minutes):

- Students choose **Aztec or Inca**
- Complete a planning sheet:
    - What buildings will represent agriculture?
    - Where will people live?
    - How will geography be shown?

Students plan each feature before coding and building.

Coding Mini-Lesson (10 minutes):

- Show how to:
    - Use **MakeCode** to move the Agent

- Create a **simple sequence/automation** to place blocks, dig ditches, etc. as the agent moves (Conditional blocks being utilized)

Teach these vocabulary terms while in MinecraftEDU
Conditional (If/Then): A structure in code that allows different outcomes based on specific conditions
Computational Thinking: A problem-solving approach that includes decomposition, pattern recognition, abstraction, and algorithm design.
Automation: The use of technology or code to perform tasks automatically, reducing manual effort.

Build Time (20 minutes):

- Students begin building using:
  - Agent to place blocks in rows (farms)
  - Loops to repeat actions (Using loops instead of placing blocks one-by-one)

Teacher questions:

- "What steps does your Agent follow?"
- "How does this code save time?"

Day 3 – Build, Collaborate & Debug (45 minutes)
Build & Improve (30 minutes):

- Students refine their world
- Encourage debugging:
  - "What didn't work?"
  - "How can we fix it?"

Check-In Discussion (15 minutes):

- Small groups share:
  - What they built
  - What code they used

Day 4 – Share & Reflect (Optional)
Presentations (30 minutes):

- Students explain:
  - One structure
  - One coding choice
  - One fact about the civilization that is represented on MinecraftEDU

Reflection (15 minutes):

- Written or oral:
  - "How did coding help you show your learning?"
  - "What was challenging?"

SPECIFIC NEEDS: MATERIALS / RESOURCES / TECHNOLOGY

Add additional resources needed for this lesson such as instructional technology templates, images, videos, etc.

- Minecraft: Education License (downloaded on device)
- Student devices (1:1 or shared)
- Planning graphic organizer
- Vocabulary anchor chart
- Project rubric (CSDF + World Language)
- Panel / Projector