Unit 1-4C Technology in a Global Society

Content Area: **Technology**
Course(s): **Technology 6**
Time Period: **MP1-4**
Length: **Once per week**
Status: **Published**

Essential Questions

- How does the use of technological devices affect our lives, community, and the world?
- How can I use technology to make the world a better place?
- How can we be responsible users of technology?
- What's the difference between the Internet and the World Wide Web?
- What are blogs and wikis and why can they be useful tools?
- What are the risks of giving too much information on Facebook or similar social networking sites?
- How does culture, social, economic, and politics affect technology?
- What role does society play in the development and use of technology?
- How has technology influenced history?
- How can I use the design process to create a product or solve a problem?

Big Ideas

- The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes.
- Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.
- Technology advances through the processes of innovation and invention which relies upon the imaginative and inventive nature of people.
- Sometimes a technology developed for one purpose is adapted to serve other purposes.
- Engineers use a systematic process of creating or modifying technologies that is fueled and constrained by physical laws, cultural norms, and economic resources.
- Scientists use systematic investigation to understand the natural world.
- Computer models can be used to simulate events, examine theories and inferences, or make predictions.
- Advancements in computing technology can change individuals' behaviors. Society is faced with trade-offs due to the increasing globalization and automation that computing brings.

Enduring Understandings

- 8.2.8.ITH.2: Compare how technologies have influenced society over time.
- 8.2.8.ITH.3: Evaluate the impact of sustainability on the development of a designed product or system.
- 8.2.8.ITH.4: Identify technologies that have been designed to reduce the negative consequences of other technologies and explain the change in impact.
- 8.2.8.ITH.5: Compare the impacts of a given technology on different societies, noting factors that may

make a technology appropriate and sustainable in one society but not in another.
- 8.2.8.NT.4: Explain how a product designed for a specific demand was modified to meet a new demand and lead to a new product.
- 8.1.8.DA.6: Analyze climate change computational models and propose refinements.
- 8.1.8.IC.2: Describe issues of bias and accessibility in the design of existing technologies.

Cross-Curricular Integration

English Language Arts

- RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks
- RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
- RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).
- RST.6-8.10 By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
- SL.6.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- SL.6.2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

Science

- MS-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

Career Readiness, Life Literacies and Key Skills Integration

Performance Expectations

- 9.4.8.CI.3: Examine challenges that may exist in the adoption of new ideas (e.g., 2.1.8.SSH, 6.1.8.CivicsPD.2).
- 9.4.8.CI.4: Explore the role of creativity and innovation in career pathways and industries.
- 9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to

determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1)

- 9.4.8.DC.3: Describe tradeoffs between allowing information to be public (e.g., within online games) versus keeping information private and secure.
- 9.4.8.DC.4: Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences.
- 9.4.8.DC.5: Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
- 9.4.8.DC.6: Analyze online information to distinguish whether it is helpful or harmful to reputation.
- 9.4.8.GCA.1: Model how to navigate cultural differences with sensitivity and respect (e.g., 1.5.8.C1a).
- 9.4.8.GCA.2: Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
- 9.4.8.IML.1: Critically curate multiple resources to assess the credibility of sources when searching for information.
- 9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b)
- 9.4.8.IML.7: Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a, 1.4.8.CR2a, 2.1.8.CHSS/IV.8.AI.1, W.5.8, 6.1.8.GeoSV.3.a, 6.1.8.CivicsDP.4.b, 7.1.NH. IPRET.8).
- 9.4.8.IML.12: Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.
- 9.4.8.TL.2: Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).
- 9.4.8.TL.3: Select appropriate tools to organize and present information digitally.
- 9.4.8.TL.4: Synthesize and publish information about a local or global issue or event (e.g., MSLS4-5, 6.1.8.CivicsPI.3).
- 9.4.8.TL.6: Collaborate to develop and publish work that provides perspectives on a real-world problem.

Practices

- Act as a responsible and contributing community member and employee.
- Consider the environmental, social and economic impacts of decisions.
- Demonstrate creativity and innovation
- Utilize critical thinking to make sense of problems and persevere in solving them

- Model integrity, ethical leadership and effective management.
- Plan education and career paths aligned to personal goals
- Use technology to enhance productivity, increase collaboration and communicate effectively.
- Work productively in teams while using cultural/global competence.

Activities and Assessments

- *(Current Events)* Technology and a Product's history/sustainability; presentation to class
- *(Current Events)* Technology and Ethics; presentation to class
- Activity Resources: National Institute of Environmental Health Sciences: http://kids.niehs.gov/index.htm

Additional Resources

- Glacier in a fridge: Student scientists at work on climate change: https://newsela.com/read/student-climate-scientists-pt-3/id/2001015327/ **(Climate Change)**
- The Intelligent Robot | Curious: https://ny.pbslearningmedia.org/resource/vtl07.la.ws.research.intelrobot/the-intelligent-robot/
- Technology Over Time: https://ny.pbslearningmedia.org/resource/ate10.sci.engin.design.techovertime/technology-over-time/
- Technology in WildLife Medicine: https://ny.pbslearningmedia.org/resource/technology-in-wildlife-medicine-video/untamed-the-wildlife-center-of-virginia/
- Cyber Bullying Text Set: https://newsela.com/subject/other/2000450526 **(Holocaust Law/SEL)**
- NOVA scienceNOW: What Will the Future Be Like? | Wearable Robots: https://ny.pbslearningmedia.org/resource/nsn12.sci.engin.design.robots/wearable-robots/