Unit 10: Cybersecurity and Global Impacts

Lesson 1: Project: Innovation Simulation Part 1
Lesson 2: Project: Innovation Simulation Part 2
Lesson 3: Data Policies and Privacy
Lesson 4: The Value of Privacy
Lesson 5: Project: Innovation Simulation Part 3
Lesson 6: Security Risks Part 1
Lesson 7: Security Risks Part 2
Lesson 8: Project: Innovation Simulation Part 4
Lesson 9: Protecting Data Part 1
Lesson 10: Protecting Data Part 2
Lesson 11: Project: Innovation Simulation Part 5
Lesson 12: Project: Innovation Simulation Part 6
Lesson 13: Project: Innovation Simulation Part 7
Lesson 14: Assessment Day

Unit 10 - Lesson 1
Project: Innovation Simulation Part 1

Warm Up

Future School Convention

Future School Convention

TEACHER

Ryanne

High School Physical Education

Roles

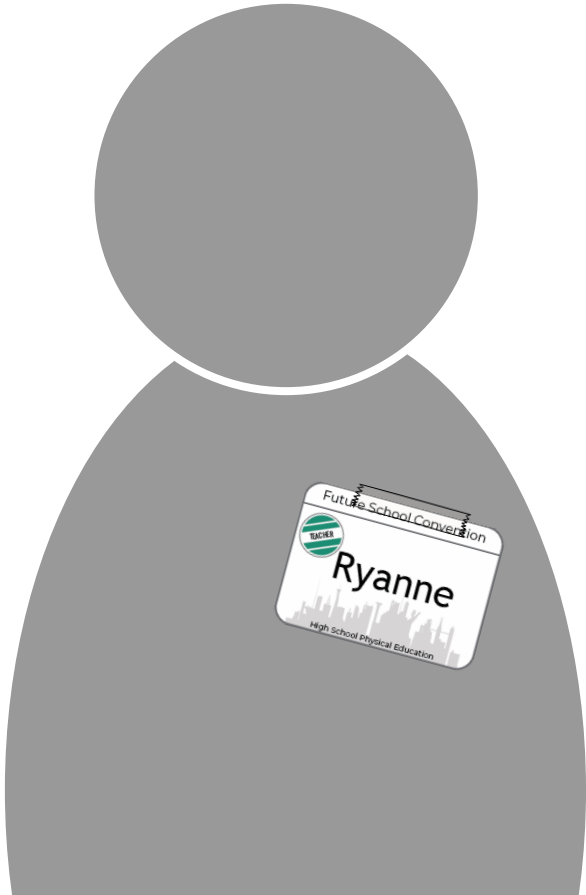
Do This: Pass out badges, nameplates, and character bios.

Simulation Mode

TEACHER

Ryanne

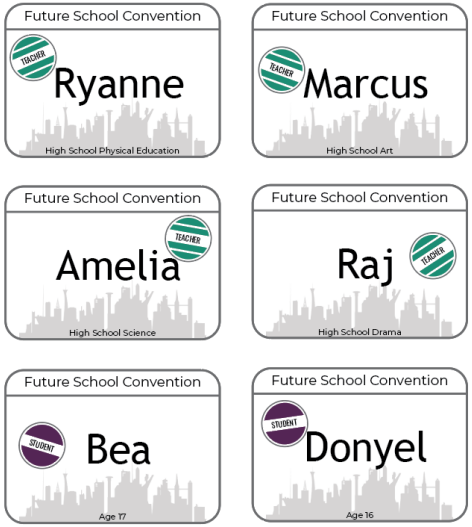
High School Physical Education



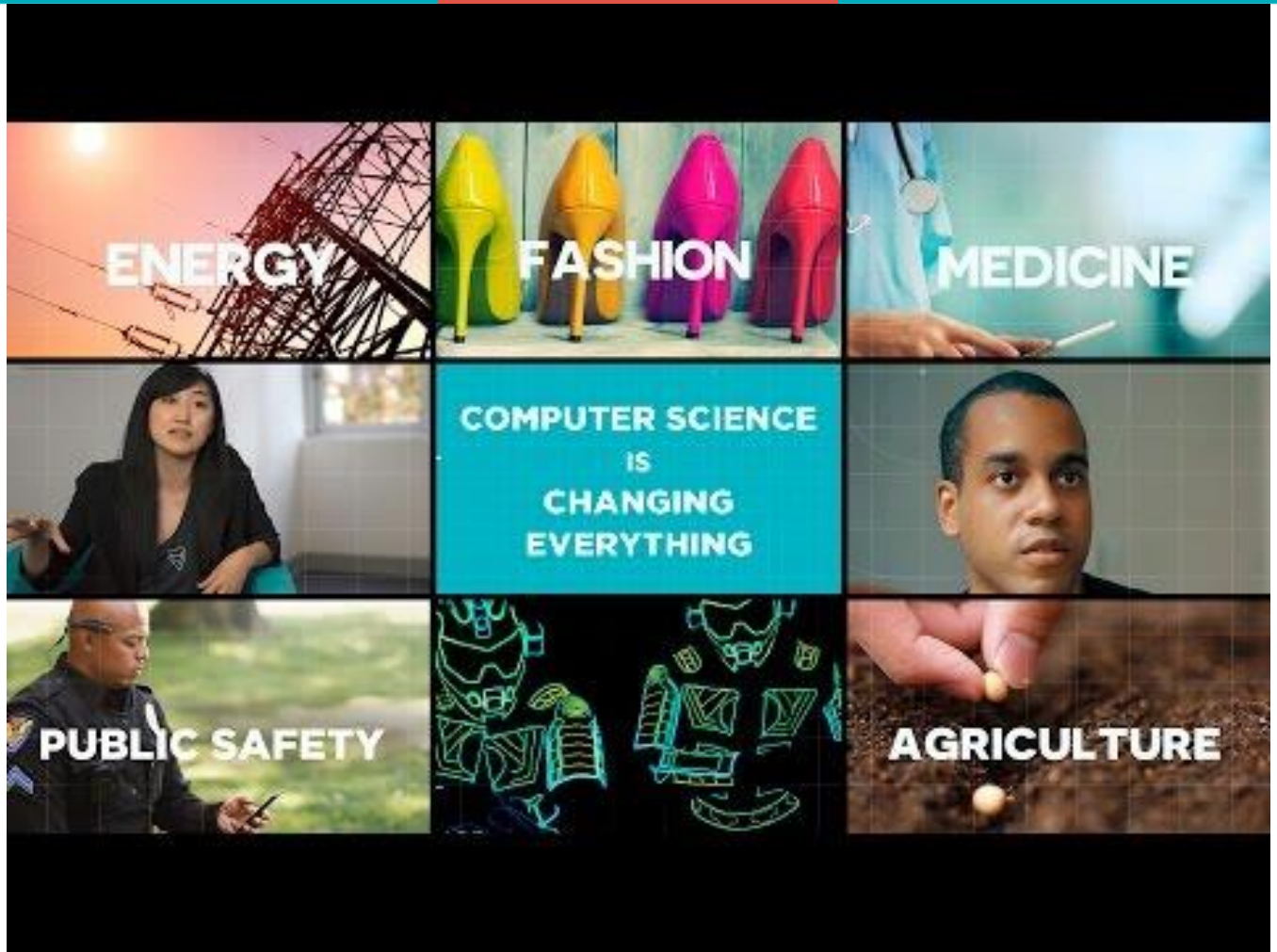
Do This:

Read over your role sheet and introduce yourself to your group.

Remember to stay in character!



Activity


ENERGY
FASHION
MEDICINE
COMPUTER SCIENCE
IS
CHANGING
EVERYTHING
PUBLIC SAFETY
AGRICULTURE

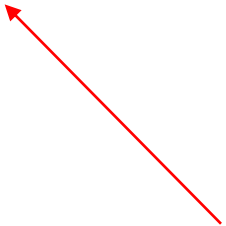
Step 1: Brainstorm

With your team, brainstorm computing innovations you believe would be beneficial to the Future School. Write your list on a piece of paper.

Consider: Is a program an important part of how the innovation works? If not, it might not be a computing innovation!

Step 2: Reflect

In your Innovation Simulation Project Guide, use the given space to reflect on your specific wants and needs and what types of computing innovations would appeal to you.



Note: stay in your role!

Step 3: Modeling Research

- Let's find a computing innovation that is not related to school to use as an example.
- On to Google!

Wrap Up

Do This:

Notice the "Innovation Simulation" header is gone. That means it's time to return to your normal selves!

Put away your badges and nameplates

Prompt: What is the purpose of a computing innovation?

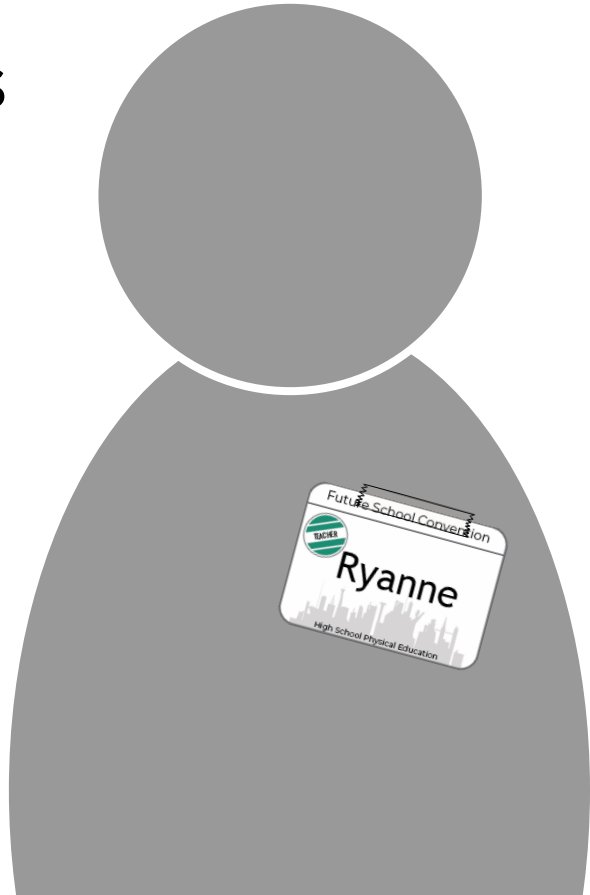
Computing Innovation: includes a program as an integral part of its function. Can be physical (e.g. self-driving car), non-physical computing software (e.g. picture editing software), or non-physical computing concepts (e.g., e-commerce).

Unit 10 - Lesson 2
Project: Innovation Simulation Part 2

Warm Up

Distribute:

Badges & Nameplates



Prompt:

Why do you believe the Future School is in need of computing innovations?

What can computing innovations provide to a community?

Activity

Research

Computing Innovation #1	
Name	
Function (how it works)	Purpose (why it exists)
Source(s)	What data is being collected?
My character would recommend this computing innovation because...	

Do This:

- Research three different innovations that you (your character) believe would be beneficial to the Future School.
- Fill out the *Research* section in the Project Guide.

Wrap Up

Prompt:

Which of your computing innovations would bring the most positive change to the school community?

With your group and then the whole class discuss:

Common characteristics of these computing innovations that would bring the most positive change.

Unit 10 - Lesson 3
Data Policies and Privacy

Warm Up

Prompt: Which of the following pieces of information would you consider to be “private” or "personal", as in you wouldn't want it shared with just anyone.

1. Your full name
2. Your social security number
3. Your favorite musician / band
4. A picture of your face
5. Your fingerprint
6. Your birthdate
7. Your address
8. Where you go after school
9. Your phone number
10. Your medical history
11. Your racial / ethnic identity
12. A list of your best friends
13. A list of everything you've bought this month
14. A recording of your voice
15. Your IP address
16. A video of you singing a song
17. Your academic history / report card
18. The town or city you live in

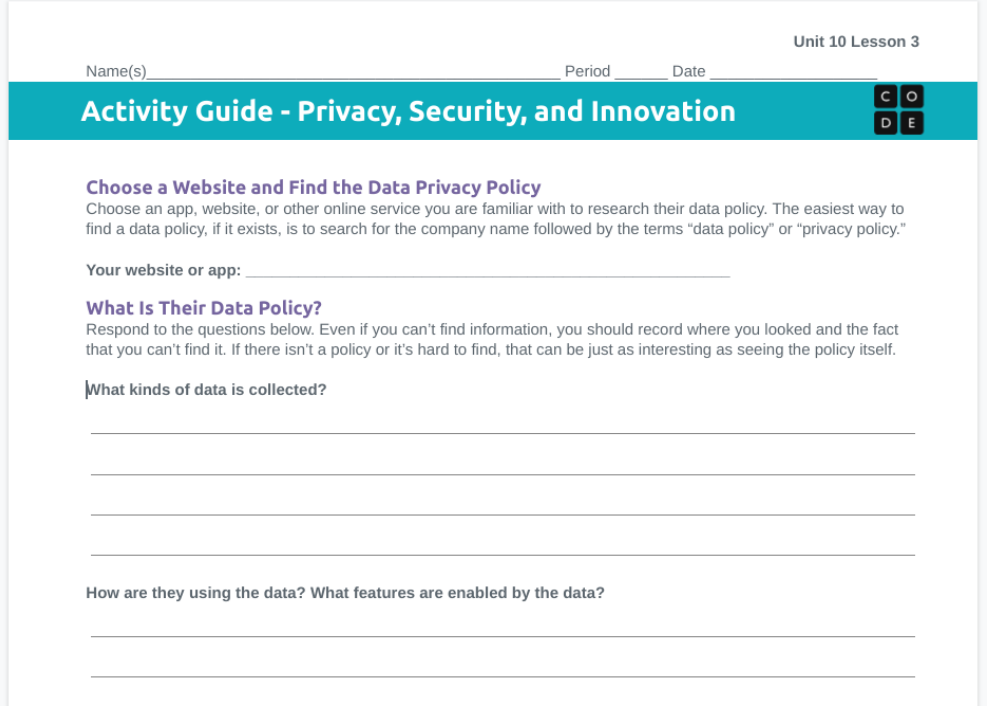
Activity


THE TRUTH ABOUT
PRIVACY
POLICIES

Pick a website or app of your own and complete the **front page of the activity guide.** We'll do the back side next time.

Some apps / services to consider:

- Education: Code.org, Khan Academy, Codecademy.com
- Social media: Facebook, Twitter, Instagram, Snapchat, Tik Tok
- Online store: Amazon, Target, Walmart
- Search: Google, Bing
- Maps: MapQuest, Yahoo Maps, Google Maps
- Productivity: MS Office Online, Google Docs
- Mail & communication: Gmail, Hotmail, Yahoo Mail, Skype, Google Hangouts
- Streaming sites: Netflix, Spotify, Pandora
- Gaming sites: Steam, Xbox Live
- Banks and financial institutions: Chase, Citibank



Unit 10 Lesson 3

Name(s)_____ Period _____ Date _____

Activity Guide - Privacy, Security, and Innovation

Choose a Website and Find the Data Privacy Policy

Choose an app, website, or other online service you are familiar with to research their data policy. The easiest way to find a data policy, if it exists, is to search for the company name followed by the terms "data policy" or "privacy policy."

Your website or app: _____

What Is Their Data Policy?

Respond to the questions below. Even if you can't find information, you should record where you looked and the fact that you can't find it. If there isn't a policy or it's hard to find, that can be just as interesting as seeing the policy itself.

What kinds of data is collected?

_____

_____

_____

_____

How are they using the data? What features are enabled by the data?

_____

_____

Wrap Up

Key Takeaways

- **Personally Identifiable Information (PII):** information about an individual that identifies, links, relates, or describes them.
- Technology enables the collection, use, and exploitation of information about, by and for individuals, groups, and institutions. Geolocation, cookies, and browsing history can all be used to create knowledge about an individual. Most digital technology needs some kind of PII to work (for example street navigation needs to know your location or PII stored online to simplify making online purchases).
- Other times websites collect more data to improve their services.
- Many services and websites collect information (like your browser history) that can be used to advertise to you by creating detailed profiles of who you are and what you like. Search engines also can record and maintain a history of searches made by users. This information can be used to suggest websites or for for targeted marketing.
- Once data is made digital, and especially once it's shared online, it's much harder to control.
- PII can be used to steal the identity of a person, or stalk them online. Information that is often posted on social media can be combined to create a profile on you.

Unit 10 - Lesson 4
The Value of Privacy

Warm Up

Prompt:

Review your activity guide from last class. Remind yourself what your privacy concerns were for the app / website you chose.

Activity

Prompt: As we watch the following video on facial recognition takes notes on:

- What are the benefits of the technology? What does it make more convenient / fun?
- What are the privacy concerns that arise?
- Why would governments or businesses be interested in this technology?


WHO'S
TRACKING
YOUR FACE?

Share notes with a partner:

- What are the benefits of the technology? What does it make more convenient / fun?
- What are the privacy concerns that arise?
- Why would governments or businesses be interested in this technology?

Discuss: Do you believe the privacy risks posed by facial recognition technology outweigh the privacy concerns?

Prompt: As we watch the following video on location data, take notes on the following:

- What kind of data is being collected and shared?
- Who is the “third party” in this situation?
- Why is this a tradeoff between privacy and security?

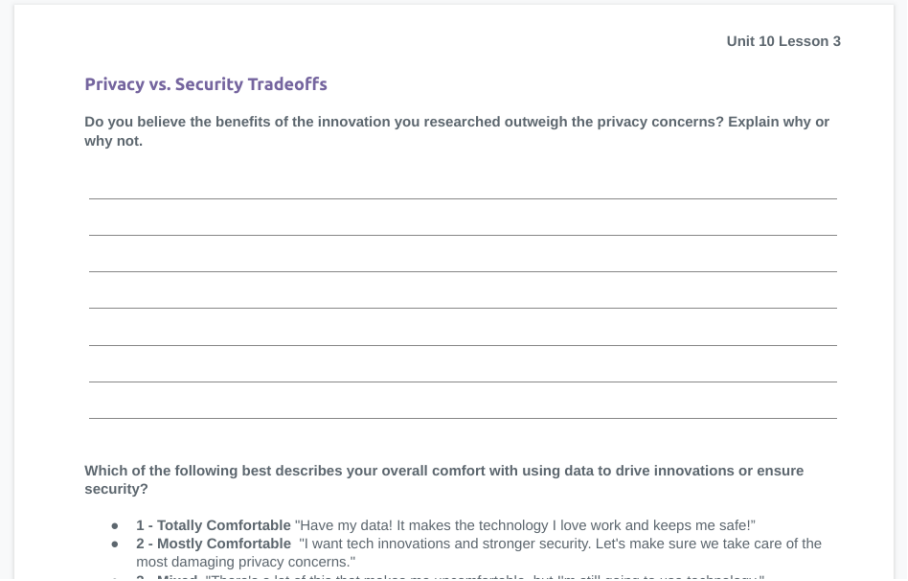

VICE News

Share notes with a partner:

- What kind of data is this question about?
- Who is the “third party” in this situation? Why does it matter that a “third party” had the data?
- Why is this a tradeoff between privacy and security?

Discuss: Do you agree with the Supreme Court’s ruling? Do you think it should apply to other kinds of data?

- **Individually fill out the last page on your activity guide**
- When you finish, discuss your responses with your partner. You don't need to agree with one another.
- If time allows, discuss with another group too.



Unit 10 Lesson 3

Privacy vs. Security Tradeoffs

Do you believe the benefits of the innovation you researched outweigh the privacy concerns? Explain why or why not.

Which of the following best describes your overall comfort with using data to drive innovations or ensure security?

- **1 - Totally Comfortable** "Have my data! It makes the technology I love work and keeps me safe!"
- **2 - Mostly Comfortable** "I want tech innovations and stronger security. Let's make sure we take care of the most damaging privacy concerns."

Wrap Up

Hold up fingers for your response.
Which of the following best describes your overall comfort with using data to drive innovations or ensure security.

1 - Totally Comfortable
"Have my data! It makes the technology I love work and keeps me safe!"

2 - Mostly Comfortable
"I want tech innovations and stronger security. Let's make sure we take care of the most damaging privacy concerns."

3 - Mixed
"There's a lot of this that makes me uncomfortable, but I'm still going to use technology."

4 - Mostly Uncomfortable
"Privacy is more important than empowering innovations or ensuring security. I would give up on some tech innovations to ensure my privacy"

5 - Totally Uncomfortable
"I'd give up most technology and would like to see much stronger limits on what kind of data can be collected and stored, even if it limits the introduction of new technology and hinders government security"

Key Takeaways

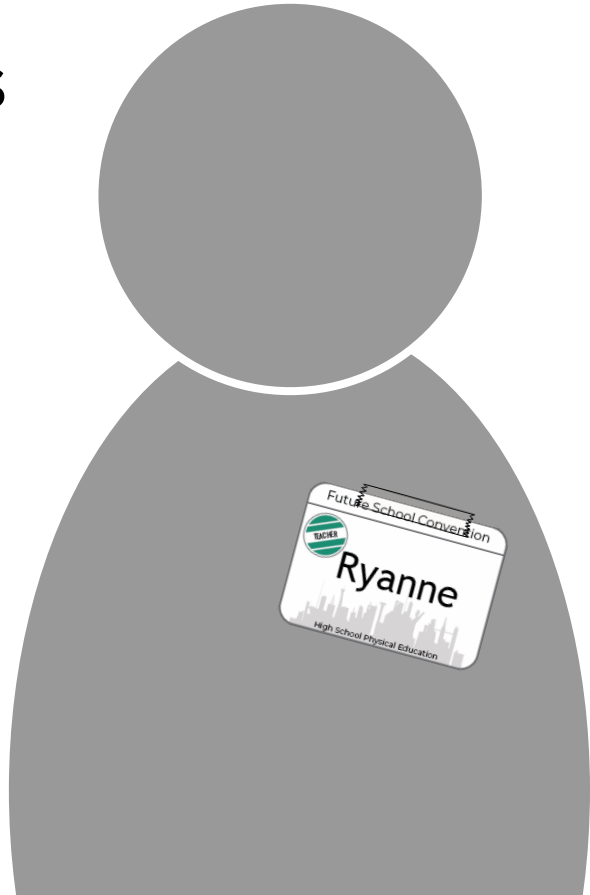
- Our private data powers a lot of computing innovations in ways we like. It makes products that are convenient, interesting, personal, useful, and often “free” because we “pay” with our data.
- Not every effect of a computing innovation is anticipated in advance.
- This data can also be used by companies, governments, or criminals in ways that we didn’t intend or that threatens our privacy.
- The balance between innovation, privacy, and security is continually being debated. You’re part of the next generation that will decide what kind of digital society we live in.
- Legal and Ethical Concerns are raised by:
  - Computing innovations that harm people
  - Computing innovations that play a role in social and political issues
  - Examples:
    - software that allows access to digital media downloads and streaming
    - algorithms with bias
    - devices that collect and analyze data by continuously monitoring activities

Unit 10 - Lesson 5
Project: Innovation Simulation Part 3

Warm Up

Distribute:

Badges & Nameplates




TRICKLE-DOWN TEC

Computing innovations can have unintended consequences. Some of these unintended consequences are positive and some are negative.

While it is impossible to predict every outcome, by thinking critically and bringing multiple perspectives to the table we can try to better predict the ways our innovations may impact the world.

Activity

Prompt

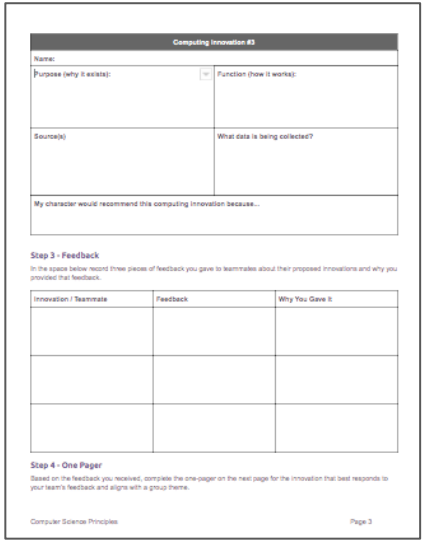
- Remind yourself of your character's goals and motivations.

- What can your character's perspectives and goals bring to the table? How can you help avoid some of the unintended consequences of your innovations?

Provide Feedback on Proposed Innovations

Review your teammates proposed innovations. Each of you should have at least three to share. Aim to:

- Answer any questions about how the innovation works
- Identify benefits / harms of the innovation from their character's point of view. You likely won't always agree!
- Identify ways that different proposed innovations could work together to make an overall stronger proposal
- Document your feedback in **Step 3** of your Project Guide



Computing Innovation #3

Name:

Purpose (why it exists):	Function (how it works):
Source(s)	What data is being collected?

My character would recommend this computing innovation because...

Step 3 - Feedback

In the space below record three pieces of feedback you gave to teammates about their proposed innovations and why you provided that feedback.

Innovation / Teammate	Feedback	Why You Gave It

Step 4 - One Pager

Based on the feedback you received, complete the one-pager on the next page for the innovation that best responds to your team's feedback and aligns with a group theme.

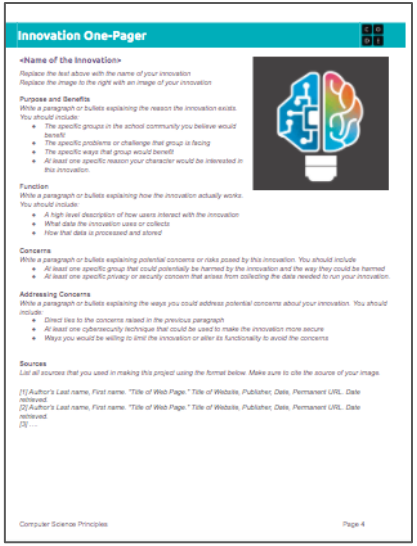
Computer Science Principles Page 3

Create a unifying theme for your presentation:

- As a group, pick a unifying theme for your final presentation. Maybe you are focusing on student health or boosting test scores. Find the theme that makes the most sense given your innovations.
- Each participant should narrow down their choices to one innovation that will be part of your team's cohesive submission.

Begin working on Innovation One-Pager

Based on the discussions you had with your team, pick the one innovation that you think has the potential to have the greatest positive effect on the schools for the largest number of people.


Innovation One-Pager

<Name of the Innovation>

Replace the text above with the name of your innovation
Replace the image to the right with an image of your innovation

Purpose and Benefits
Write a paragraph or bullets explaining the reason the innovation exists.
You should include:
- The specific groups in the school community you believe would benefit
- The specific problems or challenge that group is facing
- The specific ways that group would benefit
- At least one specific reason your character would be interested in this innovation

Function
Write a paragraph or bullets explaining how the innovation actually works.
You should include:
- A high level description of how users interact with the innovation
- What data the innovation uses or collects
- How that data is processed and stored

Concerns
Write a paragraph or bullets explaining potential concerns or risks posed by this innovation. You should include
- At least one specific group that could potentially be harmed by the innovation and the way they could be harmed
- At least one specific privacy or security concern that arises from collecting the data needed to run your innovation.

Addressing Concerns
Write a paragraph or bullets explaining the ways you could address potential concerns about your innovation. You should include:
- Direct ties to the concerns raised in the previous paragraph
- At least one cybersecurity technique that could be used to make the innovation more secure
- Ways you would be willing to limit the innovation or alter its functionality to avoid the concerns

Sources
List all sources that you used in making this project using the format below. Make sure to cite the source of your image.

[1] Author's Last name, First name. "Title of Web Page." Title of Website, Publisher, Date, Permanent URL. Date retrieved.
[2] Author's Last name, First name. "Title of Web Page." Title of Website, Publisher, Date, Permanent URL. Date retrieved.
[3] ...

Computer Science Principles
Page 4

Begin working on filling in your Innovation One-pager, using your research as well as the feedback from your teammates.

You can find the directions for your One-pager in **Step 4** of the Project Guide.

Wrap Up

Unit 10 - Lesson 6
Security Risks Part 1

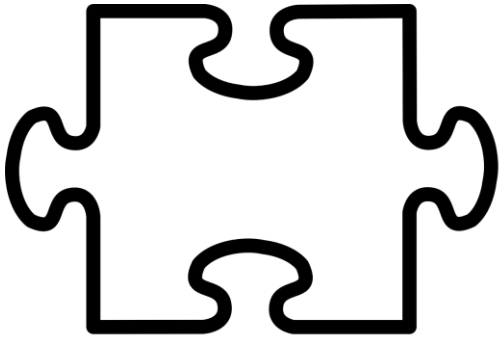
Warm Up

Prompt:

Have you ever received an email or a text message that looked suspicious? Have you ever been unsure if you should open the message or click on a link?

What are the things that made you suspicious?

Activity



Jigsaw:

With your jigsaw group, navigate to your assigned level on Code Studio.

Group 1: Keylogging (level 2)
Group 2: Phishing (level 3)
Group 3: Rogue Access Point (level 4)

- Look at the examples
- Read the articles
- Create a PSA (Public Service Announcement) slide.
  - What is the security risk?
  - How are people targeted?
  - What are the warnings?

Note: Visuals are encouraged! Don't write a paragraph on your slide. Each person in the group needs to make a slide on the topic.

Do This:

Form new groups, with one person from each topic area.

Show your slides to each other, and give an explanation of your security risk.

Make sure to cover:

- What is the security risk?
- How are people targeted?
- What are the warnings?

Do This:

One volunteer from each topic area gives a one minute overview of their topic to the class.

Wrap Up

Vocabulary:

Phishing: a technique that attempts to trick a user into providing personal information. That personal information can then be used to access sensitive online resources, such as bank accounts and emails.

Keylogging: the use of a program to record every keystroke made by a computer user in order to gain fraudulent access to passwords and other confidential information

Malware: software intended to damage a computing system or to take partial control over its operation

Rogue Access Point: a wireless access point that gives unauthorized access to secure networks.

Unit 10 - Lesson 7
Security Risks Part 2

Warm Up


THE INTERNET
CYBERSECURITY
& CRIME

Activity

Planet Money: Bad Credit Bureau

Episode 798, October 6, 2017

What is Equifax and what information are they storing?
(stop playing at 13:30)

Click to play audio

Equifax Data Breach: What Went Wrong

Breach Podcast - S2 Episode 3

What is Equifax and what information are they storing?

Start: 6:05

Stop: 11:13

Click to play audio

Prompt:

What information does Equifax store?

Why should I care?

Prompt:

As a computing innovation, what are the benefits of Equifax?

What are the potential harms?

Prompt:

What are the security risks?

Prompt:

What rules or regulations would you recommend be put in place to control how data is collected and shared?

What role (if any) should the government play?

Wrap Up

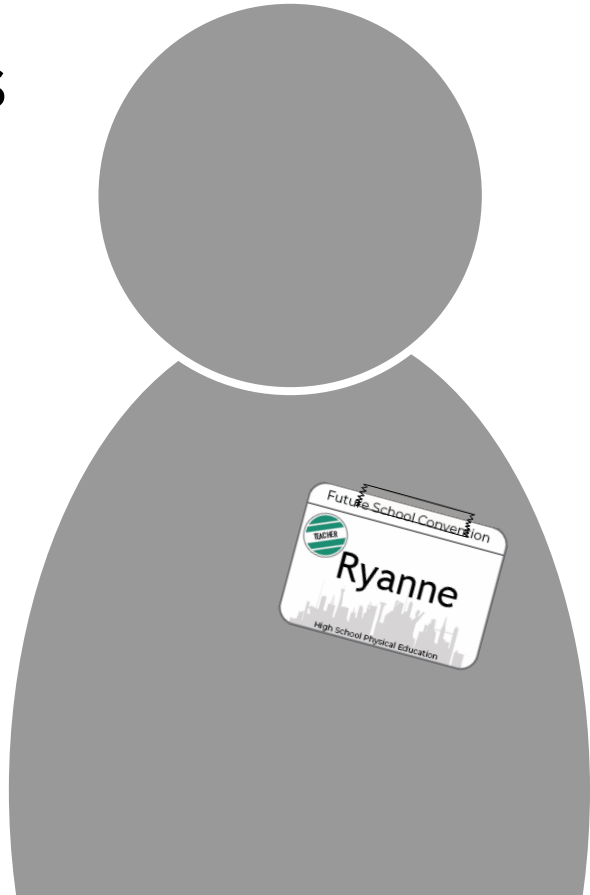
Let's Play

Unit 10 - Lesson 8
Project: Innovation Simulation Part 4

Warm Up

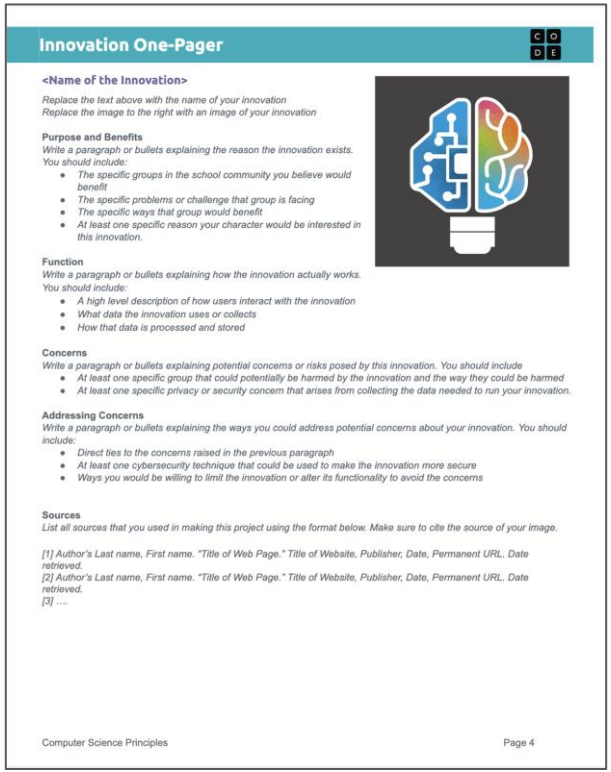
Distribute:

Badges & Nameplates



Activity

Continue working on your one-pager



Innovation One-Pager

<Name of the Innovation>

Replace the text above with the name of your innovation
Replace the image to the right with an image of your innovation

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- *The specific problems or challenge that group is facing*
- *The specific ways that group would benefit*
- *At least one specific reason your character would be interested in this innovation.*

Function
Write a paragraph or bullets explaining how the innovation actually works.
You should include:
- *A high level description of how users interact with the innovation*
- *What data the innovation uses or collects*
- *How that data is processed and stored*

Concerns
Write a paragraph or bullets explaining potential concerns or risks posed by this innovation. You should include
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- *At least one specific privacy or security concern that arises from collecting the data needed to run your innovation.*

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- *Ways you would be willing to limit the innovation or alter its functionality to avoid the concerns*

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[2] Author's Last name, First name. "Title of Web Page." Title of Website, Publisher, Date, Permanent URL. Date retrieved.
[3] ….

Computer Science Principles Page 4

Wrap Up

Prompt:

Explain how a computing innovation can have an impact beyond its intended purpose.

How can rapid sharing of a computing innovation affect these impacts?

Unit 10 - Lesson 9
Protecting Data Part 1

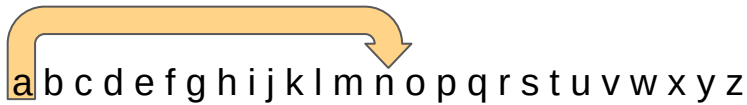
Warm Up

Do This: This message was encrypted using a Caesar Cipher (an "alphabetic shift"). Let's see how long it takes you to decode this message (remember it's just a shifting of the alphabet)

serr cvmmn va gur pnsrgrevn

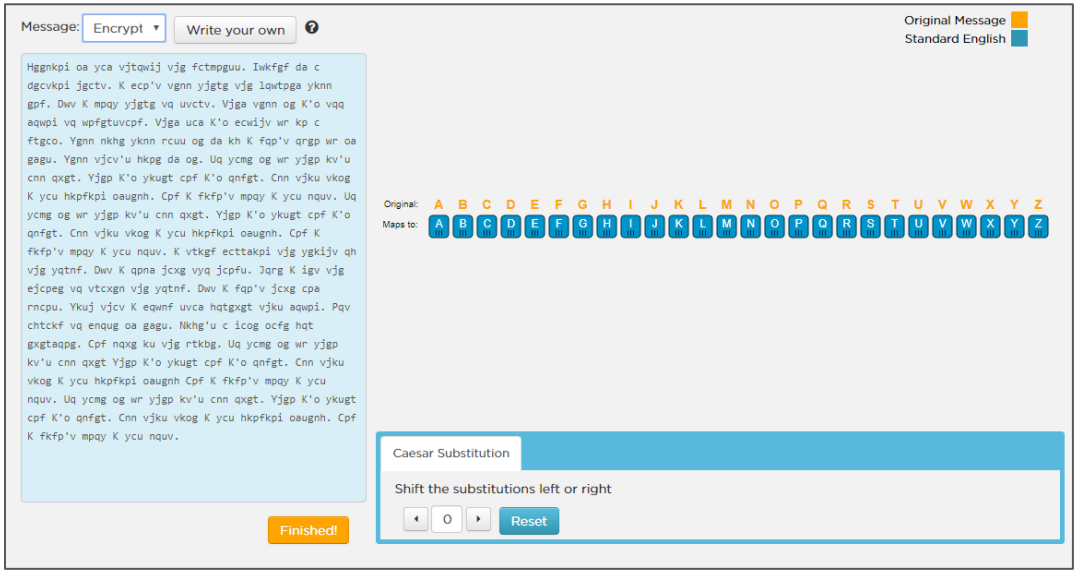
free pizza in the cafeteria

Key: change every letter by 13



Activity

Caesar Cipher



Do This:

- Navigate to Level 2
- Experiment with the tool: click things, poke around, figure out what it's doing
- Choose one of the messages from the drop-down menu and try to crack it using the tool.

Encryption Terms

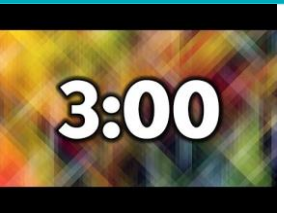
Encryption: a process of encoding messages to keep them secret, so only "authorized" parties can read it.

Decryption: a process that reverses encryption, taking a secret message and reproducing the original plain text.

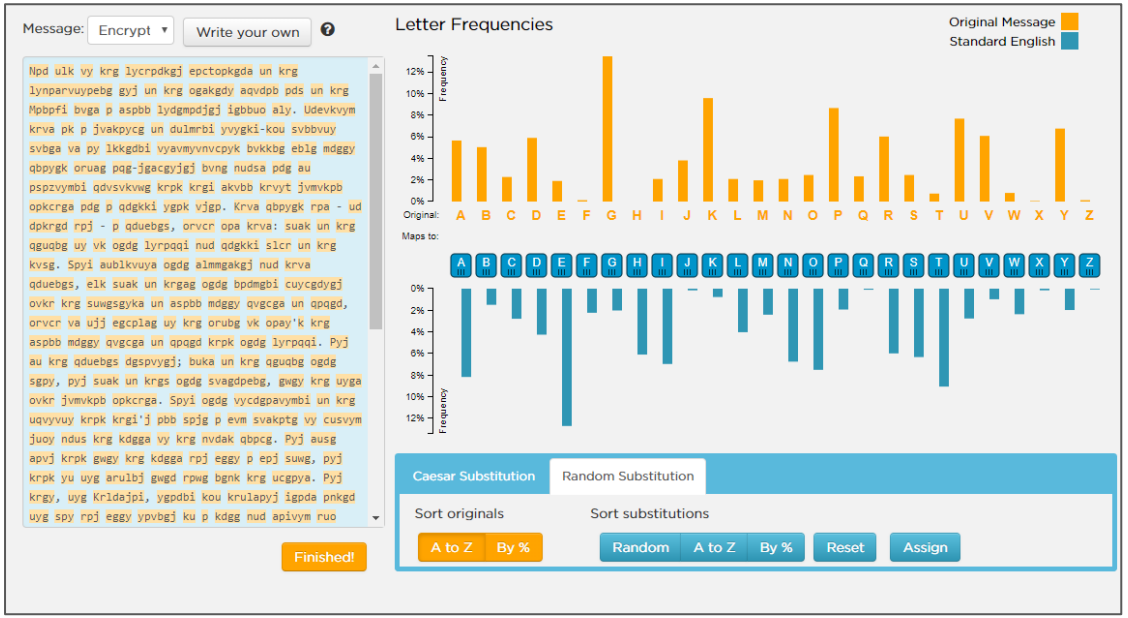
Cipher: the generic term for a technique (or algorithm) that performs encryption

Caesar's Cipher: a technique for encryption that shifts the alphabet by some number of characters.

Cracking encryption: When you attempt to decode a secret message without knowing all the specifics of the cipher, you are trying to crack the encryption.



Random Substitution Cipher



Do This:

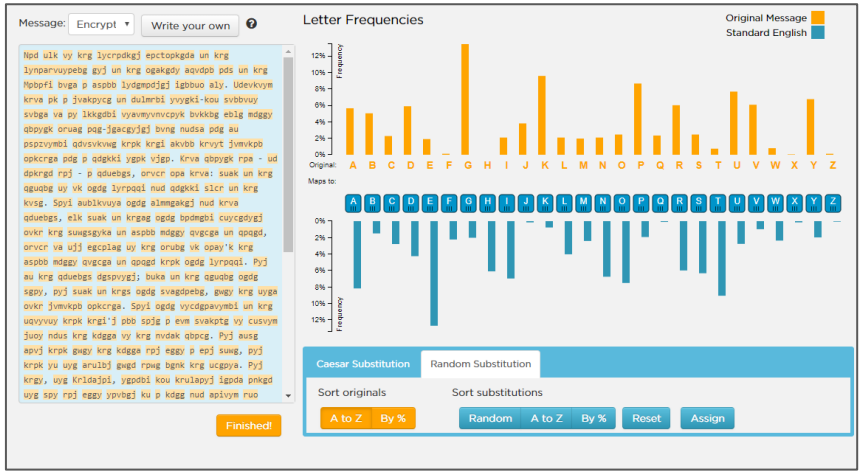
- Navigate to Level 3
- Experiment with the tool: click things, poke around, figure out what it's doing

Prompt:

How does the widget work? What steps would you take to crack the code?

Random Substitution Cipher

Do This: Crack a message using the tips we just talked about



- Find the short words and "crack" them first. How many one-letter words do you know? ("a"). A very common 3-letter word is "the".
- * Once you've done that, you have substitutes for some of the most common letters. You should be able to use intuition to look at other words with these partial substitutions and make good guesses.
- * After finding only a handful of hard-fought letters, the rest will tumble quickly.
- * Comparing the frequencies of letters gives good insight for making sensible guesses.


THE INTERNET
ENCRYPTION
& PUBLIC KEYS

Prompt:

What is the difference between symmetric encryption and asymmetric (public key) encryption?

Wrap Up

Vocabulary:

Encryption: a process of encoding messages to keep them secret, so only "authorized" parties can read it.

Decryption: a process that reverses encryption, taking a secret message and reproducing the original plain text.

Symmetric Key Encryption: involves one key for both encryption and decryption.

Public Key Encryption: pairs a public key for encryption and a private key for decryption. The sender does not need the receiver's private key to encrypt a message, but the receiver's private key is required to decrypt the message.

Unit 10 - Lesson 10
Protecting Data Part 2

Warm Up

Prompt:

What strategies do you use when creating a good password?

Note: Don't actually reveal any of your current passwords in your discussion!

Takeaway:

A good password is easy to remember, but hard for someone else to guess based on knowledge they have about you

Activity

What can I do to protect my data?

1. Use Multifactor Authentication

Single Factor Authentication

Something you know

Example: Password

Two Factor Authentication

Something you know

Example: Password

Something you possess

Example: Phone

Prompt:

What are the problems with this system? How could it be hacked?

Multifactor Authentication - at least two of these:

Something you know	Something you possess	Something you are
Example: Password	Example: Phone	Example: Fingerprint

Prompt:

Why is this a better system than Single Factor Authentication? What are the challenges with this system?

Is it worth any of risks?

What can I do to protect my data?

1. Use Multifactor Authentication
2. Update Your Software

Quick Review:

What is a computer virus?

Prompt:

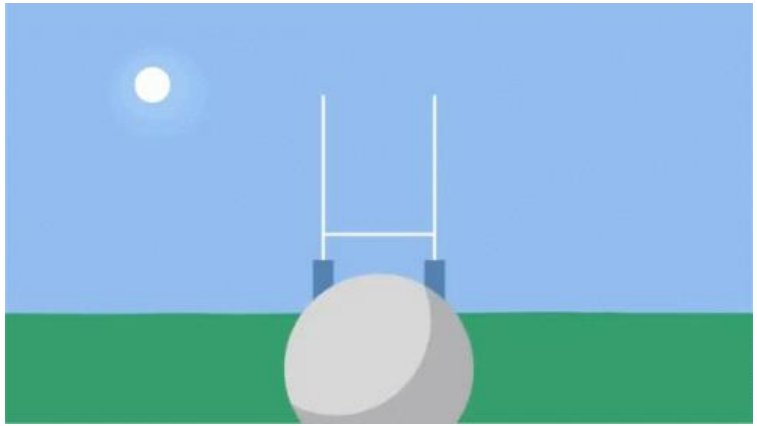
How can you protect your device from computer viruses?

Virus Scanning Software

Updating System Software

Data protection is a moving target!

It's important to keep your software up to date and use the best authentication practices you can.

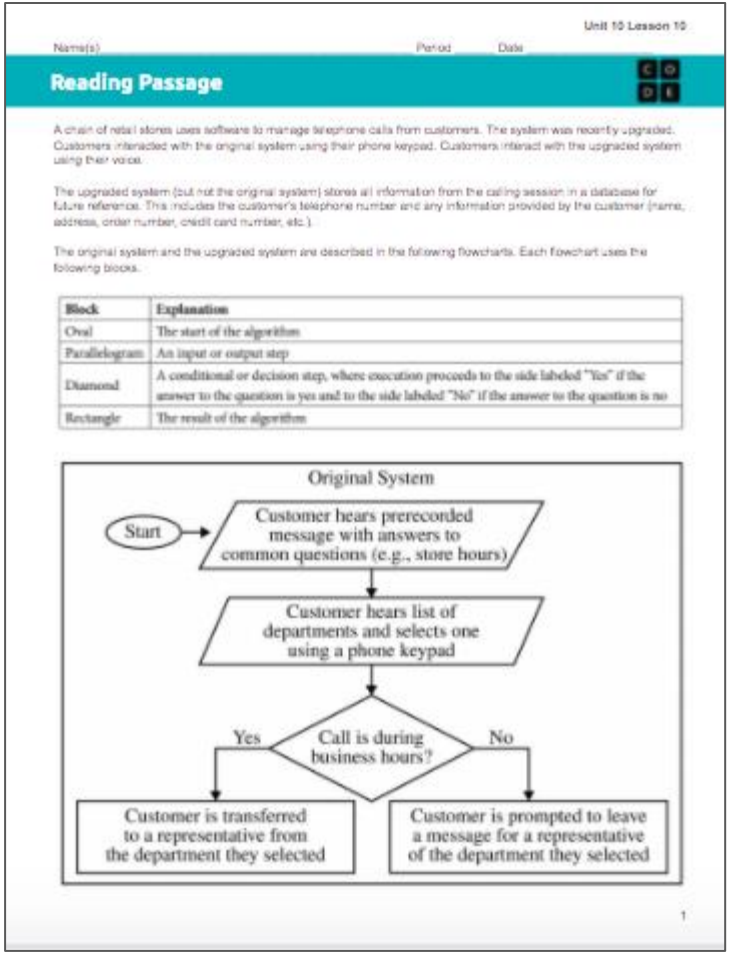


Single-Select Questions with Reading Passage (SSQRP)

- What's SSQRP?
  - Shows up on the AP CSP exam
  - Features a pretend computing innovation with a short explanation
  - Five multiple choice questions focusing on data, purpose and effect, benefits and harms, and security concerns.

Do This:

Read the information about the *Call Center* in the SSQRP resource.



Unit 10 Lesson 10

Name(s) Period Date

Reading Passage

A chain of retail stores uses software to manage telephone calls from customers. The system was recently upgraded. Customers interacted with the original system using their phone keypad. Customers interact with the upgraded system using their voice.

The upgraded system (but not the original system) stores all information from the calling session in a database for future reference. This includes the customer's telephone number and any information provided by the customer (name, address, order number, credit card number, etc.).

The original system and the upgraded system are described in the following flowcharts. Each flowchart uses the following blocks.

Block	Explanation
Oval	The start of the algorithm
Parallelogram	An input or output step
Diamond	A conditional or decision step, where execution proceeds to the side labeled "Yes" if the answer to the question is yes and to the side labeled "No" if the answer to the question is no
Rectangle	The result of the algorithm

Original System

Start

Customer hears prerecorded message with answers to common questions (e.g., store hours)

Customer hears list of departments and selects one using a phone keypad

Call is during business hours?

Yes

No

Customer is transferred to a representative from the department they selected

Customer is prompted to leave a message for a representative of the department they selected

1

Single-Select Questions with Reading Passage (SSQRP) pull a total of 5 questions from each of these categories (computational thinking practices). The italics text represents text that may change depending on the computing innovation. The text highlighted in yellow represents the types of phrases you may see in these questions. The text in square brackets [ ] are different question options.

Sample Questions

Practice 3: Abstraction in Program Development	Practice 5: Computing Innovations
Which of the following input data [must be obtained/is needed] *by the upgraded system that was NOT needed by the original system?*	Which of the following is considered a potential effect of the *the application* rather than a [function/purpose] *of the application?*
Which of the following data is not [obtained/provided] *directly from the user* but is necessary for *the upgraded system to operate as described?*	Which of the following is [LEAST/MOST] likely to be a [BENEFIT/HARM] of *storing the information from each calling session in a database?*
Which of the following data is necessary for the *Call Center* to process in order to enable *it to provide an answer to the caller?*	Of the following potential benefits, which is [LEAST/MOST] likely to be provided by *the upgraded system?*
Which of the following is [LEAST/MOST] likely to be included in *the directory?*	Which of the following may be an unintended effect of the use of *Call Center?*
	Which of the following is the [LEAST/MOST] [likely/plausible] data [PRIVACY/SECURITY/STORAGE] concern *of the upgraded system?*
	Which of the following *groups* is [LEAST/MOST] likely to receive *targeted advertisements?*
	Which of the following statements is [LEAST/MOST] likely to be true about the tradeoffs of *the Call Center recording the caller's phone number?*

Do This:

Go to AP Classroom, and complete the Call Center practice questions, as assigned by your teacher.

Then:

Discuss as a class.

Wrap Up

Prompt:

Discuss with a partner how you plan to protect your data.

Vocabulary:

Multifactor Authentication: a method of computer access in which a user has to successfully provide evidence in at least two of the following categories: knowledge (something they know), possession (something they have), and inherence (something they are). Each step provides a new layer of security.

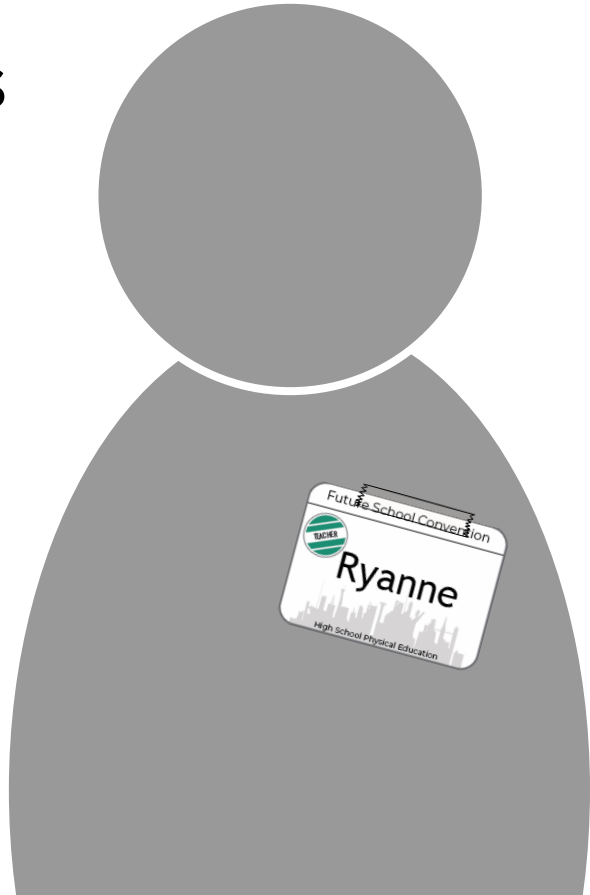
Computer Virus Scanning Software: protects a computing system against infection.

Unit 10 - Lesson 11
Project: Innovation Simulation Part 5

Warm Up

Distribute:

Badges & Nameplates

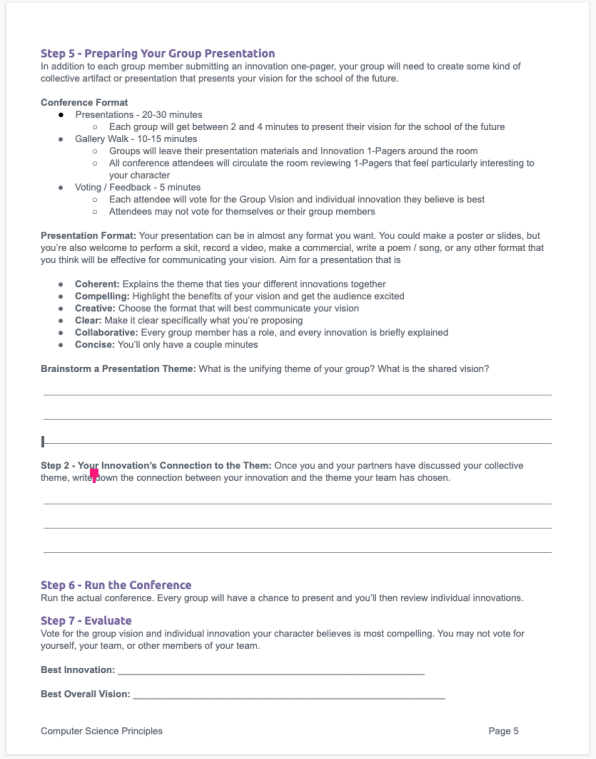


Activity

First up: Finish the "Addressing Concerns" section in your One Pager. Then move on to Step 5 below.

Step 5 - Preparing Your Group Presentation

- Review your group's theme and vision and write it down.
- Write down your innovation's connection to the group or vision.
- Begin developing slides, a poster, a skit, a song, a speech, or any other group format that will use in the presentation.



Step 5 - Preparing Your Group Presentation
In addition to each group member submitting an innovation one-pager, your group will need to create some kind of collective artifact or presentation that presents your vision for the school of the future.

Conference Format
- Presentations - 20-30 minutes
  - Each group will get between 2 and 4 minutes to present their vision for the school of the future
- Gallery Walk - 10-15 minutes
  - Groups will leave their presentation materials and Innovation 1-Pagers around the room
  - All conference attendees will circulate the room reviewing 1-Pagers that feel particularly interesting to your character
- Voting / Feedback - 5 minutes
  - Each attendee will vote for the Group Vision and individual innovation they believe is best
  - Attendees may not vote for themselves or their group members

Presentation Format: Your presentation can be in almost any format you want. You could make a poster or slides, but you're also welcome to perform a skit, record a video, make a commercial, write a poem / song, or any other format that you think will be effective for communicating your vision. Aim for a presentation that is

- **Coherent:** Explains the theme that ties your different innovations together
- **Compelling:** Highlight the benefits of your vision and get the audience excited
- **Creative:** Choose the format that will best communicate your vision
- **Clear:** Make it clear specifically what you're proposing
- **Collaborative:** Every group member has a role, and every innovation is briefly explained
- **Concise:** You'll only have a couple minutes

Brainstorm a Presentation Theme: What is the unifying theme of your group? What is the shared vision?

Step 2 - Your Innovation's Connection to the Them: Once you and your partners have discussed your collective theme, write down the connection between your innovation and the theme your team has chosen.

Step 6 - Run the Conference
Run the actual conference. Every group will have a chance to present and you'll then review individual innovations.

Step 7 - Evaluate
Vote for the group vision and individual innovation your character believes is most compelling. You may not vote for yourself, your team, or other members of your team.

Best Innovation: _____

Best Overall Vision: _____

Computer Science Principles Page 5

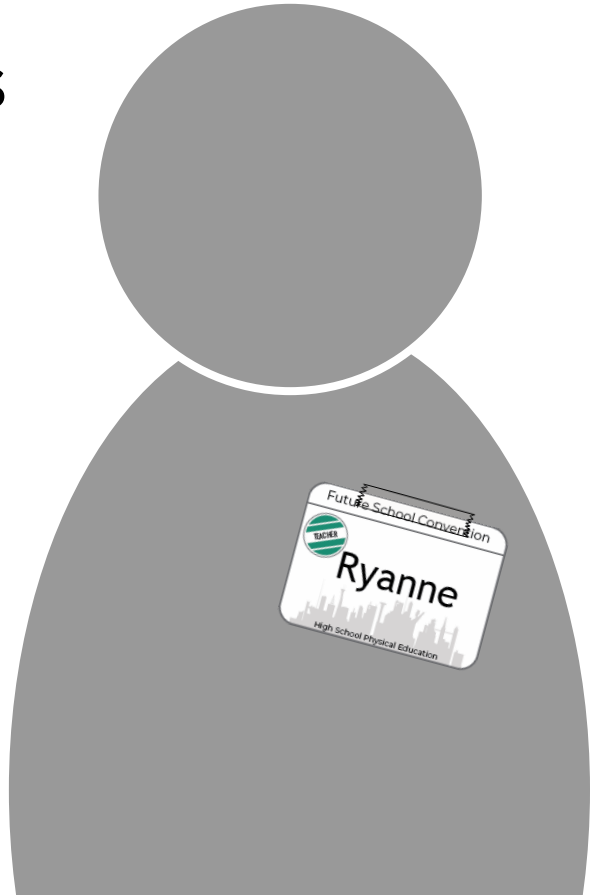
Wrap Up

Unit 10 - Lesson 12
Project: Innovation Simulation Part 6

Warm Up

Distribute:

Badges & Nameplates



Activity

Feedback - 10 mins

- Break your team into smaller groups of 2 - 3
- Find another small group from another team
- Spend 3-5 minutes each sharing your innovations, theme, and ideas for the presentation
- Give constructive feedback on their ideas, keeping in mind you character’s perspective

Work Time

- Finish your group presentation
- Make any final edits to your one-pager

Wrap Up

Next time we meet make sure:

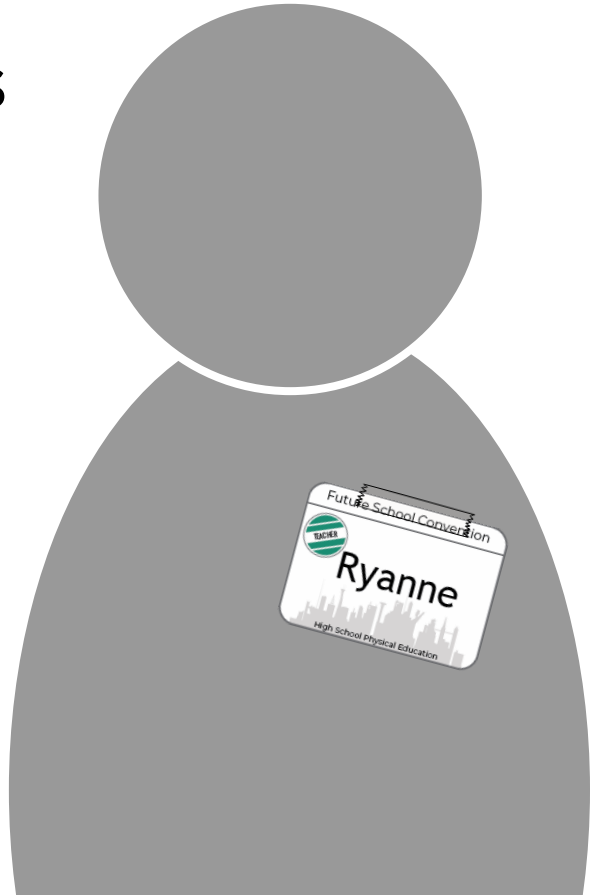
- You’re ready for the group presentation
  - Your one-pager is ready to share

Unit 10 - Lesson 13
Project: Innovation Simulation Part 7

Warm Up

Distribute:

Badges & Nameplates



Activity

Presentations!

- Each group gets 2 - 4 minutes
- Take notes on groups and innovations you want to review during the Gallery Walk

Gallery Walk

- Review one-pagers for the specific innovations you marked in your notes, plus any others you have time for
- Be ready to vote on an innovation and overall project you believe is best. Consider:
  - Meeting your character's needs
  - Overall cohesion of group project
  - Clarity on how the innovation(s) work
  - Thoughtful approach to balancing benefits, harms, risks, and ways to address them

Wrap Up

Vote and Submit!

- Fill in Part 7 by voting for the best project and innovation
- Submit your project guide, one-pager, and any materials related to your presentation

Unit 10 - Lesson 14
Assessment Day

Activity

Unit Assessment