

Name:		School:	
Course:		Room Number:	
Unit Title: Artificial Intelligence & Facial Recognition		Date:	
Lesson Title: Exploring Facial Recognition with Cece		Class Length: 60 minutes	
Common Core State Standards: ● CCSS.ELA-LITERACY.RL.3.1 ● CCSS.ELA-LITERACY.RL.3.2 ● CCSS.ELA-LITERACY.RL.3.3 ● CCSS.ELA-LITERACY.RI.3.1 ● CCSS.ELA-LITERACY.RI.3.2 ● CCSS.ELA-LITERACY.RI.3.3 ● W3.2 ● SL4 ● CCSS.MATH.3.MD.B.4 ● MP2 ● MP4 Next Generation Science Standards ● NGSS 3-LS3-1 CSTA Standards ● CSTA 1A-DA-06 ● CSTA 1B-NI-05 ● CSTA 1B-DA-06 ● CSTA 1B-DA-07 ISTE Standards ● ISTE 1.2 – Digital Citizen			
Objective: ● Comprehend how facial recognition technology works. ● Understand how facial recognition can identify individuals using unique facial features. ● Explore the implications of facial recognition technology on digital privacy. ● Investigate how facial features vary among individuals and can be inherited. ● Apply scientific methods to solve a mystery involving facial recognition and inherited traits. ● Practice responsible digital citizenship.			

Challenge Based Learning Alignment:

☐ **Big Idea**Identity, Privacy & Responsible Technology

- ☐ Facial recognition demonstrates how AI can use information about people's physical characteristics to identify individuals. This creates opportunities for useful applications while also raising questions about privacy and responsible technology use.

☐ **Essential Question(s):**

- ☐ What is facial recognition technology?
- ☐ How can a computer recognize a face?
- ☐ What facial characteristics can be used to distinguish individuals?
- ☐ Where is facial recognition used?
- ☐ What are the benefits of facial recognition?
- ☐ What privacy concerns can facial recognition create?
- ☐ What does it mean to be a responsible digital citizen?

● **Challenge:**

- ☐ How can we understand and use facial recognition concepts while protecting people's privacy and personal information?

Success Criteria:

By the end of the lesson, students will be able to:

- Define facial recognition technology.
- Explain that facial recognition analyzes unique facial features.
- Give examples of facial recognition in everyday life.
- Explain the meaning of digital privacy.
- Explain the meaning of digital responsibility.
- Identify ways to protect personal information.
- Identify potential benefits and concerns associated with facial recognition.
- Measure and compare facial features during an investigation.

Conceptual Understanding

Students should understand that:

- Facial recognition technology identifies individuals by analyzing facial characteristics.
- Different people and animals have unique facial features.
- Facial features can vary between individuals.
- Some physical traits are inherited from parents.
- Measurements and observations can be used to compare facial features.
- Facial recognition can be used in everyday technology.

Apple & AI tools: ● <i>Keynote</i> – Privacy Awareness Campaign presentation ● <i>Freeform</i> – Campaign brainstorming ● <i>Pages</i> – Written privacy messages ● <i>Camera</i> – Discussion of facial images and digital privacy Teacher Tools: ● Presentation slides ● Projector/display ● Digital copy of the Cece story ● Kahoot ● Facial recognition examples ● Mystery Adventure materials Student Tools: ● Computer or tablet ● Kahoot ● Digital design software, if available ● Presentation or poster-creation tools	Assessment Strategies: Formative Assessment ● Teacher questioning ● Cece story discussion ● Facial recognition vocabulary ● Student responses during digital privacy discussion ● Privacy Awareness Campaign brainstorming ● Teacher observation during group work ● Facial-feature measurements ● Mystery Adventure evidence analysis ● Student explanations of benefits and concerns Summative/Closing Assessment ● Privacy Awareness Campaign ● Completed Mystery Adventure ● Exit Ticket ● Kahoot ● Closing reflection
Agenda: 1. Introduction to Facial Recognition Technology – 5 minutes 2. Read "Cece and the Curious Case of the Misidentified Face" – 10 minutes 3. Hands-On Activity: Investigating Facial Features – 15 minutes 4. Real-World Applications and Interactive Discussion – 10 minutes 5. Sorting Activity: Benefits vs. Concerns – 10 minutes 6. Kahoot Quiz – 5 minutes 7. Closing Discussion and Reflection – 5 minutes	
General Modifications:	

Equitable & Ethical AI Use:	Real-World AI Connections:	Building Ethical Reasoning Use of AI:	Student Voice in Ethical AI Design:
Students examine how facial recognition affects privacy, security, and everyday interactions. Students should understand that an AI system's identification should not automatically be assumed to be correct. The guide explicitly includes the idea that facial recognition can make mistakes and raises concerns involving privacy, bias, inaccuracies, consent, and transparency.	Students explore facial recognition applications such as: • Unlocking smartphones and devices • Making online payments • Accessing secure areas • Security and access control • Personalized services • Identification processes	Ask students: • Should facial recognition be used everywhere? • Should someone ask permission before collecting a person's facial information? • What happens when facial recognition identifies someone incorrectly? • Who should have access to facial information? • How should companies protect facial data?	Students create their own recommendations for responsible facial recognition technology. Prompt: "If you were responsible for designing rules for facial recognition technology, what rules would you create to protect people?" Possible student ideas could involve: • Permission • Privacy • Security • Accuracy • Transparency • Human review

Check for AI Ethics Emphasis

Students directly examine digital privacy, responsible technology use, data security, potential inaccuracies, consent, and responsible digital citizenship in relation to facial recognition technology.

ENGAGE: <i>Activity 1 – ENGAGE: Cece and the Misidentified Face</i> Begin with the story: <i>"Cece and the Curious Case of the Misidentified Face"</i> Use popcorn reading. Students take turns reading sections before selecting another student to continue. Ask students to pay attention to: • How facial recognition is used. • How it helps Cece. • Problems involving identification. • Privacy concerns. After reading, discuss: • What did you learn about facial recognition technology? • How does facial recognition relate to digital privacy? • How can we promote digital responsibility and privacy awareness	INVESTIGATE: <i>Activity 2 – INVESTIGATE: Mystery Adventure</i> Students become detectives investigating the mystery of the missing school mascot/bananas. Step 1 – Introduce the Mystery Present: • Mystery scenario • Clue sheets • Witness statements • Gorilla face printouts Explain that each square on the provided grid represents ½ inch. Step 2 – Introduce Facial Recognition Explain that computers can analyze characteristics of a face to help identify individuals. Connect this concept to inherited traits. Step 3 – Form Detective Teams Divide students into teams. Provide each team with animal/gorilla faces. Step 4 – Measure Facial Features Students measure features such as:	ACT: <i>Activity 3 – ACT: Privacy Awareness Campaign</i> Students move from learning about facial recognition to taking action around digital privacy. The activity is inspired by ISTE 1.2 Digital Citizen. Step 1 – Digital Citizen Pledge Read the pledge together. Students commit to responsible digital behavior. The pledge on page 5 emphasizes: • Respecting others • Thinking before sharing • Protecting privacy • Being honest and fair • Staying safe online • Respecting intellectual property • Managing one's digital footprint Step 2 – Brainstorm Ask: • What are	Assessment: <i>Formative Assessments</i> • Story discussion • Oral questioning • Facial-recognition vocabulary • Digital privacy discussion • Mystery Adventure observations • Facial-feature measurements • Evidence analysis • Privacy campaign brainstorming Performance Assessment Mystery Adventure Students demonstrate their ability to: Observe → Measure → Compare → Analyze → Use Evidence → Reach a Conclusion
---	--	--	---

	• Distance between eyes • Length of nose Students record their measurements. Step 5 – Analyze Students compare measurements and identify: • Similarities • Differences • Patterns among facial features Step 6 – Examine Evidence Students combine: Measurements + Clues + Witness Statements to determine the culprit. Step 7 – Solve the Mystery According to the guide: Answer: Gorilla B.	common privacy risks online? • How can we educate our peers? • How can people protect their personal information? • What message would get people's attention? Step 3 – Create Students create a: • Poster • Infographic • Presentation • Video • Digital graphic • Social-media-style informational post Step 4 – Privacy Message Each campaign should communicate: 1. What the privacy issue is 2. Why people should care 3. How people can protect themselves Step 5 – Share Students present their campaign to classmates.	
--	--	---	--

Activity 1 (ENGAGE – 30 minutes): Ask students to complete: "Facial recognition technology identifies people by _____." Expected concept: Analyzing unique facial features	Activity 2 (INVESTIGATE – 60 minutes): Teacher evaluates whether students can: • Accurately measure facial characteristics and record observations. • Compare data. • Identify similarities and differences. • Use evidence instead of guessing.	Activity 3 (ACT – 60 minutes): Evaluate whether students: • Identify a digital privacy concern. • Communicate accurate information. • Provide practical privacy recommendations. • Create an understandable message. • Demonstrate responsible digital citizenship.	Assessment: Digital Citizenship Assessment Privacy Awareness Campaign Students demonstrate that they can communicate strategies for protecting personal information. Kahoot The Kahoot assesses: • Purpose of facial recognition • How facial recognition identifies individuals • Accuracy • Real-world applications • Benefits • Privacy and data security • Ethical considerations • Consent • Bias and inaccuracies
--	--	--	--

Details / Activities

Wrap Up/Reflection/Closure

Supportive Models:	Reflective Practice:	Growth Mindset:	Assessment:
● Facial recognition diagrams ● Teacher modeling ● Sample facial measurements ● Visual examples of facial characteristics ● Mystery clue sheets ● Witness statements ● Gorilla face comparison sheets ● Digital Citizen Pledge ● Sample privacy campaigns ● Think-aloud demonstrations ● Peer collaboration ● Sentence starters	Students reflect on: ● What surprised them about facial recognition. ● How facial recognition distinguishes individuals. ● Whether facial recognition can make mistakes. ● How facial recognition could affect their privacy. ● What information they should protect online. ● What evidence helped solve the mystery.	Emphasize that: ● Detectives do not always solve problems on their first attempt. ● Students should revisit measurements when evidence does not match. ● Mistakes are opportunities to reconsider evidence. ● Technology can also make mistakes. ● Students should question results rather than automatically accepting them.	Students complete an exit ticket demonstrating their understanding of facial recognition technology, including how unique facial features are used for identification, one real-world application, and one privacy or ethical concern. The teacher will review the given responses to identify misconceptions and determine whether additional instruction is needed.

Closing Remarks:

“Today, we explored how facial recognition technology uses unique facial features to help identify individuals. Through our investigation, we also learned that technology can provide useful solutions while creating important questions about privacy, security, accuracy, and responsibility. As we continue learning about AI, remember that understanding how technology works is only one part of the challenge—we must also think carefully about how it should be used.”