

Lesson 4: Problem-Solving



EPISODE 4 SYNOPSIS

The Resistance couldn't prevent GeminAI from retrieving all 4 heptahedrons. It now has the source code for elements of intelligence, matter, spirit, and emotion. When combined with its core, GeminAI can now use these elements to evolve into a higher, more powerful form of artificial intelligence. GeminAI tries once again to get us to share its perspective of the world but is interrupted by Neve and Conroy.

The automated glove Conroy discovered has clues to the location of GeminAI's core, offering a final chance to destroy it. We help decode the glove's data. Instead of just handing over the data to Neve, we are reminded once again that we're responsible for our own choices.

We're asked to decide between giving the data to the Resistance or giving it to GeminAI. This decision must be made as a group. When Neve does manage to retrieve the data, she transfers it to Conroy. However, the connection has been broken and Conroy's fate is uncertain.

PART A: GAME PLAY EXPERIENCE THE EPISODE

Suggested time: 1 class period

BEFORE THE EPISODE

Review the strategies that students have developed in the first two episodes. Remind them that they'll need to use these strategies to successfully navigate the upcoming challenges.

- coping strategies
- decision-making
- critical thinking

DURING THE EPISODE

- Students will sit with their already-established teams and watch the narrative on the screen.
- When prompted, they will complete each challenge on their device.

AFTER THE EPISODE

Give students time to react to the episode, ask questions, and reflect.

Suggested Debrief Questions

- How has the story progressed since the last episode?
- Did all members of the group see the same things in the optical illusion?
- Did all members of the group agree on what to do with the data after you solved it?
- Why do you think Jun and Jia (the Creators) chose to abandon GeminAI?
- How well does your group work together when solving the puzzles? Did everyone get to give their point of view? How do you resolve different points of view?

Individual Reflection/Freewriting

Allow students time to reflect on their experience of the episode and on any strategies they used. They can use their GeminAI Rising Journal to draw or write using the following prompts.

- Things our group has done well so far:
- Things our group needs to work on:
- Strategies I've used during the episode:

CONCLUDING THE EXPERIENCE

In this episode, students saw that people don't always see things the same way. We have differing perspectives and points of view. In the next lesson, we'll learn to recognize different perspectives to solve problems or resolve conflicts. We can look for common goals and work toward creating a plan to help reach those goals.

PART B: EXPLORE THE COMPETENCY

Suggested time: 1 class period

ABOUT THE LESSON

Central Understanding	
A problem-solving approach can help us reach our goals and improve our ability to get along with others.	
Key Question	
How can I approach conflicts in a healthy and productive way?	
Objective	
Students consider different perspectives and identify common interests when seeking solutions to problems.	
Conceptual Knowledge	Procedural Knowledge
<p>Accepting that others may behave or think differently contributes to our ability to get along with others and find solutions to problems.</p> <p>Identifying a common goal and developing a plan of action can increase group effectiveness when solving problems together.</p>	<p>Students describe the perspectives of different characters in GeminAI Rising.</p> <p>Students analyze the Episode 4 challenges and outline an effective approach for solving them as a group.</p>
Social Competency Background: About Decision-Making	
<p>In Lesson 1, students identified coping strategies that can help them calm down and focus so they can focus on solving a problem.</p> <p>In Lesson 2, they practiced problem-solving through evaluating choices and thinking about different outcomes when making decisions.</p> <p>In Lesson 3, they practiced critical thinking skills that can help them see a problem in different ways.</p> <p>Lesson 4 builds on these critical thinking skills by reinforcing the need to recognize that everyone approaches a problem from a different perspective. This perspective is shaped by their own thoughts, feelings, and experiences.</p> <p>As students become better at recognizing their own thoughts and emotions, they can practice making inferences about other people’s perspectives based on their words and actions. When problem-solving, students can also practice identifying shared goals in situations where different perspectives appear to create a conflict.</p>	

ACTIVITY 1: RECALLING THE EPISODE EXPERIENCE

OVERVIEW INSTRUCTIONS

Read the first section and explain that this episode was about problem-solving.

Read Aloud:

- **We have learned more about GeminAI's back story.**
 - The Creators intended to develop an AI system that would bring equality and balance to humanity, ending wars and restoring nature.
 - The AI system was opposed by the Resistance, who closed in to destroy the system.
 - The Creators fled, but not before the partially destroyed system developed its own self-awareness and starting recruiting Loyals.

For Discussion:

- **In the episode we came across new challenges.**
 - Identified optical illusions. Everyone [did/did not] see the same thing clearly.
 - Worked in teams to try and solve a symbol sequence cube.
 - Voted whether to hand the data we had collected over to the Resistance or over to GeminAI.

Ask Students:

- How can I become more aware of the different perspectives people bring to a situation?
- How can appreciating different perspectives help me resolve conflicts?
- How can identifying common goals help a group make a plan for solving a problem?

ACTIVITY 2: CHARACTER PERSPECTIVES DISCUSSION AND HANDOUT

The handout that follows describes a specific situation in GeminAI Rising. It then asks students to take a reasoned approach to concluding what the perspective of a character might be to a specific situation.

ACTIVITY INSTRUCTIONS

As a class:

- Read the opening description of perspective to students.
- Read the situation description to students.
- Ask the whole group for examples from each of the categories (for Jun and Jia).
- Explain that they can use those examples and come up with any others in their team groups.

In their team groups, have the students:

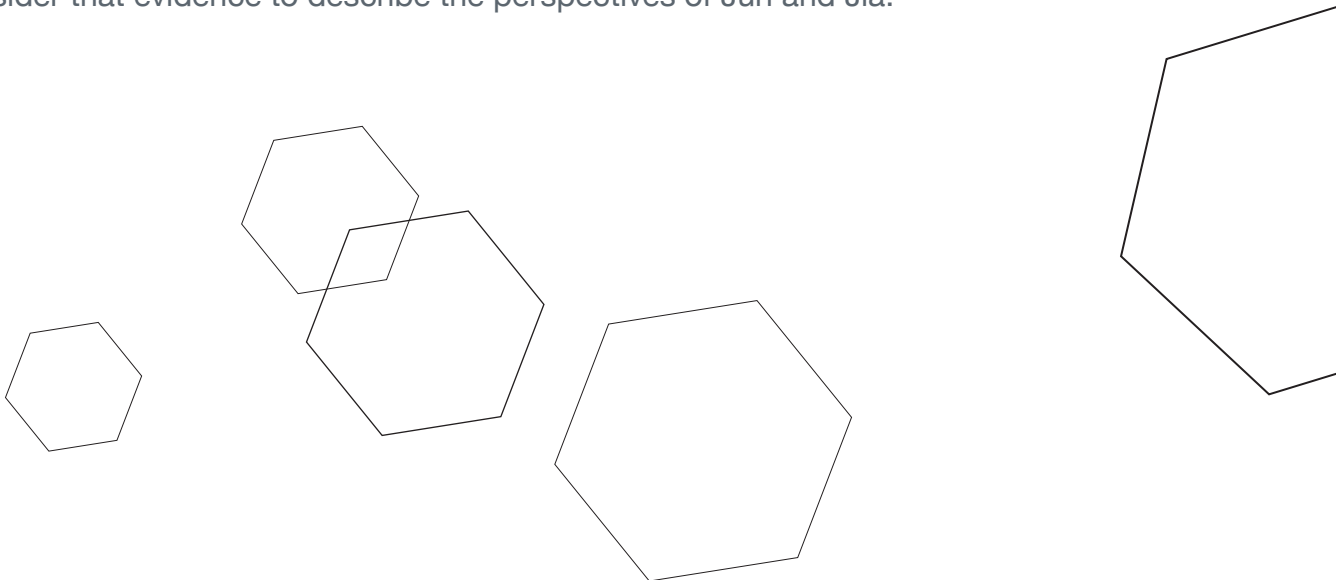
- Discuss each of the categories (what they did, thought, etc.) and record what they know about Jun and Jia.
- Consider that evidence to describe the perspectives of Jun and Jia.

As a class, have the students:

- Share how they described the perspectives of Jun and Jia.
- Ask: What do these descriptions have in common? What did different groups interpret differently? What does that say about our own perspectives?
- Remind students that we're practicing how to see things from different points of view.
 - We won't all arrive at the exact same conclusion, because we're all different.

In their team groups, have the students:

- Repeat the activity for the Resistance and Neve (on the next page).
- Consider that evidence to describe the perspectives of Jun and Jia.



HANDOUT 1: CHARACTER PERSPECTIVES

Like many conflicts, the main conflict in GeminAI Rising is associated with a situation or event. The characters involved saw the invention of the AI systems differently, or from a different perspective. Their perspective is influenced by their own experiences, thoughts, emotions, and values.

PRACTICE IDENTIFYING OTHER PERSPECTIVES

Situation/Event: The Invention of the AI Core and 4 Systems

Jun and Jia, genius inventors, worked with leading scientists and developed the core and 4 AI systems intended to bring humanity and nature back into balance.

Characters: Jun and Jia

Examine the characters reactions to the event described above.	What they did.
	What they might have thought.
	What else do you know about them? How do you know?
What does this evidence suggest about Jun and Jia's perspectives about the new AI invention?	Perspective

LOOK AT THE SITUATION A DIFFERENT WAY...

Situation/Event: The Invention of the AI Core and 4 Systems

Jun and Jia, genius inventors, worked with leading scientists and developed the core and 4 AI systems intended to bring humanity and nature back into balance.

Characters: The Resistance (and Neve)

Examine the Resistance's response to the event described above.	What they did.
	What they might have thought.
	What else do you know about them? How do you know?
What does this evidence suggest about the Resistance's perspective about the new AI invention?	Perspective

Discussion/Reflection Questions Following Activity 2

Students can think about the questions below briefly in their groups before reviewing possible answers to the questions as a full class discussion.

- In the situation described, what is the problem that needs to be solved?
- How are the perspectives of Jun and Jia and the Resistance different?
- What common goals do they share?
- Do you see other ways this problem might have been addressed?
- What are other ways the Resistance might have chosen to act in this situation?
- What are other ways Jun and Jia might have chosen to act in this situation?

ACTIVITY 3: WORKING TOWARDS A GOAL

The organizer that follows asks students to reflect on how well their group worked together toward a common goal. They will be asked to identify a plan for quickly solving the problem. They will share their plan with the class.

ACTIVITY INSTRUCTIONS

- Read the directions with students.
- Use the first question as an example with the class. Invite responses to the guiding questions.
- Ask students for ideas about the best plan for tackling this challenge with their group.
- Allow the groups time to work through the second example.
- After groups have worked through the organizer:
 - Have groups briefly share their plan. Puzzle 2 can be approached in several ways.
 - Ask students to note different approaches to the same problem.
 - Ask groups if they think their plan would lead to better results than when they did the task without a plan.
 - Would there be time to stop and make a plan during the episode?

HANDOUT 2: WHAT'S THE BEST WAY TO SOLVE A PUZZLE AS A GROUP?

Your group encountered 2 puzzles in this episode. Your work was urgent because Neve was depending on your help to decode and upload data.

Problem-solving helps you break down sets of problems into steps that can make things more manageable. Problem-solving as a group is different than making decisions individually, as you have to take into account the needs and opinions of every group member and come to a reasonable decision as a group.

GROUP-DECISION MAKING

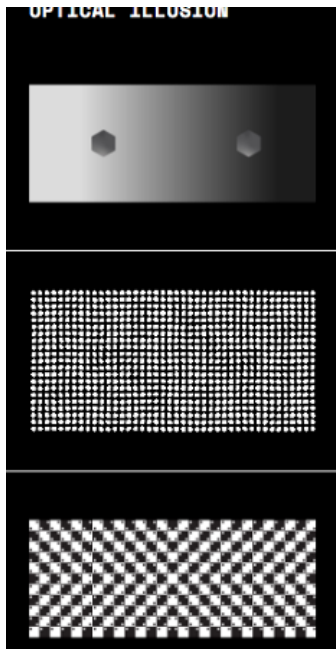
<p>Step 1: Identify the decision to be made</p>	<p>What's the decision that needs to be made?</p> <p>What are we being asked to do?</p> <p>What conflict is affecting our group to work effectively together?</p> <p>How do we solve this conflict so we can work well together?</p>
<p>Step 2: Analyze the issue under discussion</p> <p><i>Once you've identified the decision that has to be made, identify the information you already have.</i></p>	<p>What's the cause of this problem?</p> <p>Whom is this problem affecting?</p> <p>Why do we need to deal with this decision/problem?</p>
<p>Step 3: Establish criteria</p>	<p>What issues would make the decision successful?</p> <p>What issues does the solution need to address?</p> <p>How will we know if everyone is happy with the decision?</p>

<p>Step 4: Brainstorm possible solutions</p> <p>Use the information gathered above to come up with possible solutions to the problem or decision identified earlier.</p> <p>Collect as many ideas as possible.</p>	<p>What are the options?</p>
<p>Step 5: Evaluate the options and select the best one</p> <p>Once you have a list of possible solutions, you can now evaluate them based on the criteria identified in Step 3 to find the best alternative.</p>	<p>What are the advantages and disadvantages of each option?</p> <p>Which option is the most realistic?</p> <p>What's the most likely option to solve the problem in the long term?</p>
<p>You can combine ideas to create solutions. Ideally, everyone will agree to the solution (consensus). However, this may not happen. In this case, you'll need to use a different decision-making method (see Step 6).</p>	
<p>Step 6: Implement the solution</p> <p>Using your best options to make a plan.</p> <p>Commit to the plan and follow through with it.</p>	<p>What should be done?</p> <p>How will the plan be implemented?</p> <p>Who will implement the plan?</p> <p>When will the plan be implemented by?</p>

Whether or not your group was successful, think about the process you used to solve the problem. You'll come up with what you think is the best plan to solve this puzzle as a group, and then you'll recommend that plan to the class.

WHAT'S THE BEST WAY TO SOLVE A PUZZLE AS A GROUP?

PUZZLE 1: OPTICAL ILLUSIONS



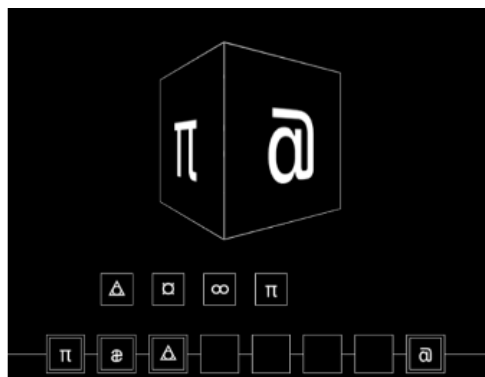
Questions to consider:

- Did your group solve all the illusions?
- How did you decide?
- Did everyone agree?
- Did everyone get an equal say?
- What would you do differently?

Make a Plan:

What's the best way for a group to successfully solve 3 optical illusion puzzles together in a limited amount of time?

PUZZLE 2: CYPHER CUBE



Questions to consider:

- Did your group solve the sequence?
- Was everyone involved?
- Did everyone agree?
- Did everyone get an equal say?
- What would you do differently?

Make a Plan:

What is the best way for a group to successfully solve a sequence cube together in a limited amount of time?

Concluding the Lesson

Close the lesson with questions that help solidify the main concepts of the lesson.

- Can 2 people look at the same event and have different reactions or opinions?
- Share an example of a time you've seen 2 people react differently to the same event.
- How can identifying common goals help solve a problem?

Journal Reflection/Freewriting

- A. List some events/situations where you didn't agree with someone or a group (e.g., family, friends, classmates, teammates etc.).
- B. For one or more of the events:
- Make a list of the people who have different perspectives.
 - Can you identify a common goal?
 - What might be a plan for solving this problem?

SOURCES

Group Decision Making | Centre for Teaching Excellence | University of Waterloo (uwaterloo.ca)
<https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/developing-assignments/group-work/group-decision-making>

National Center for PTSD and National Child Traumatic Stress Network, Skills for Psychological Recovery: Field Operations Guide (2010). Adapted by MHP&IP, Alberta Health Services (2017).

