



Strategic Problem Solving

SPS Evaluation Guide Scoring Guide for Evaluators



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STRATEGIC PROBLEM SOLVING (SPS) EVALUATION MANUAL and GUIDELINES

Strategic Problem Solving (SPS) is a team event of the Governor's Cup Competition sponsored by the Kentucky Association for Academic Competition (KAAC).

Participation Requirements

KAAC requires that a team coach be trained in the Strategic Problem-Solving Process. The team coach can be a teacher, aide, administrator, parent, or other interested adult.

- a. SPS is a team event to be held in person, utilizing electronic devices to access a booklet hosted on the KAAC website. Devices must be provided by the student or the student's school.
- b. **The school SPS coach must be certified before the SPS team can participate in the District SPS competition.** If a school does not have a certified coach, the team cannot participate in District competition.
- c. **Each SPS team competing in District, Regional, or State Finals competition must provide a certified evaluator.**
- d. For District competition, each school must provide **two (2) different officials**: one (1) certified coach and one (1) certified evaluator. Except as provided in section (e), no coach, immediate relative, or guardian of an SPS team/team member may evaluate in their own District competition. That person could, however, fulfill the participation requirement by evaluating in another Governor's Cup District or grade level. In this scenario, the coach or relative could "swap" with a coach or evaluator from another District, or in another grade level (i.e., Middle Grades may evaluate for Elementary or High School).
- e. For districts with only one (1) SPS team competing, the coach may serve as the evaluator if they have received an evaluation certification.
- f. Each Governor's Cup SPS competition requires a coordinator who is certified in the SPS process.
- g. Coaches or immediate relatives may evaluate in the regional competition because the booklets are arranged so that evaluators do not evaluate their own team. An exception applies to a region comprising 3 or fewer SPS teams.
- h. Evaluators can not score for more than one team in the same competition.
- i. High school students may evaluate at the elementary grade level only.
- j. SPS proctors may NOT evaluate the SPS competition. If, before the awards ceremony, **it is discovered that a proctor served as an evaluator, the SPS team that evaluator represents is disqualified, and the evaluator's scores are disregarded.**
- k. Coaches or evaluators working exclusively with elementary students during the school year will not be permitted to evaluate at the State Finals.

SPS Competition Format

- a. Each member school may enter one team of four students in the SPS component of the Governor's Cup.
 - i. Four students must be present for the team to begin the competition. In the event of an emergency, a student may leave the competition, and the team may finish with three (3) students.
 - ii. Substitutions are permitted prior to the start of any competition as long as the substitutions **do not violate the four-event rule of the Governor's Cup (Reference Coaches Manual)**. All substitute names must be included in the District Entry Roster prior to the end of SPS Registration. No

names may be added after that time.

- iii. No substitutions may be made once the competition begins at any level.
- b. The exact start time for District and Regional Strategic Problem Solving is not determined by KAAC but is decided upon by the coaches attending the competition Planning Meeting.
 - i. Unless all participating schools agree to participate during the school day, the competition must be held after school hours to allow all teams a reasonable amount of time to travel.
 - ii. All SPS teams must compete simultaneously at their District, Region, and State sites.
- c. Several District sites can be combined at a single location and coordinated by a single individual. In this scenario involving the coordination of several Districts, evaluators could be exchanged or mixed. SPS coaches or relatives could evaluate in this situation because those assignments would be made to score for one of the other Districts, not their team's district. In all cases, the number of SPS evaluators **MUST** equal the number of SPS teams.
- d. SPS begins promptly at the prevailing local time agreed upon at the competition planning meeting. When District or Regional competitions span multiple time zones, the Central Time Zone will be used as the prevailing local time.
- e. No student or team is admitted late to SPS, nor is a team dismissed early. A team may submit the electronic booklet early, but once submitted, it cannot be reopened for additional edits.
- f. Teams must type their booklets via a web link on approved personal electronic devices. Four unique passwords, one assigned to each student, are linked to the booklet the students use during the competition. A link to a practice booklet is available on kaac.com via the coach login.
 - i. Teams may only type within the character limit listed in the booklet. No additional character may be used. (Scrap paper is provided.)
 - ii. Character Limit: 1000 for Concerns, Central Concern, and Solutions, 7500 for Strategic Plan
 - iii. Teams may bring an unopened package of sticky notes into the room. Highlighters and pencils are also permitted.
 - iv. If a team submits a booklet with cutting, pasting, or any other alterations from anywhere outside the kaac.com webpage on which the booklet is hosted, that team will be disqualified upon notification to KAAC.**
 - v. Research notes or any other notes are not allowed in the competition room.
 - vi. Time frames are 120 minutes for SPS teams in all divisions.
 - vii. A countdown clock is provided in the online booklet to assist students with time management; however, the official proctor will keep track of the absolute time of the competition.
- g. **If students identify themselves or their schools in their booklet, the team will be disqualified.** The Chief Official or their designee must obtain KAAC approval before such a disqualification is made. If a team submits a booklet with text that clearly identifies that school, a student of the team, or representative of the school, the SPS Coordinator shall notify KAAC. SPS Evaluators are to score all booklets as usual. Any notification of a disqualification will be handled by KAAC.
- h. Teams at all grade levels may use a dictionary and/or thesaurus during the competition.
 - i. Participating teams/schools provide their own dictionaries and/or thesauri. Combination encyclopedias/dictionaries and electronic copies are prohibited.
 - ii. Teams may not share a dictionary and/or thesaurus.
 - iii. The host school is **NOT** required to provide electronic devices or any other approved items.
- i. All teams or individuals in the same event receive the same predetermined Case Study.
- j. The Contest Manager shall not release sensitive competition materials until the awards ceremony on Saturday, or later if severe weather causes a delay anywhere within the state.
- k. Electronic copies of all SPS scoresheets and booklets will be available to the team's head coach after the awards ceremony. If the District or Regional SPS evaluation has been completed, and inclement weather or natural disaster causes the Saturday events to be postponed, the Contest Manager shall notify the SPS **teams advancing to the next level of competition by Monday** following the postponed

Saturday events. The teams are told whether they are advancing, not the exact order of finish. The exact order of finish is not announced until the SPS awards are presented at the awards ceremony. SPS teams can begin preparing for the next level of competition at that time.

- l. KAAC encourages host schools to place SPS teams in one large competition room, rather than in separate rooms. This is based on the availability of the host school and is set at the Planning Meeting.
- m. All teams must be proctored by an in-person proctor who will keep the official time and be available to address any technology issues during the competition.

Evaluation

Evaluation is feedback and scoring that helps coaches and students improve their skills as problem solvers.

- a. KAAC does not impose a set time for evaluation, but it is recommended. The Contest Manager sets evaluation times in consultation with evaluators at times that are reasonably convenient for both parties. This is finalized at the Planning Meeting.
- b. District and Region evaluation may occur at the designated times, but must be completed by noon Saturday morning.
- c. The number of evaluators used must always equal the number of SPS teams participating.
- d. Evaluation at State Finals shall take place in person. At all other competition levels, coaches at the Planning Meeting may agree that SPS scoring be conducted remotely using a videoconferencing platform in which the video conference camera remains on. Otherwise, scoring of SPS must take place at the host school. All existing constraints and rules regarding evaluation shall remain in place. Evaluation will be overseen by a certified SPS coordinator.
- e. All evaluations must be completed in one sitting.
- f. Evaluators **MUST** be in a room pre-designated for scoring. The room should have minimal distractions and should not divert attention from scoring.
- g. State Finals for Middle Grades and High School require a minimum of five booklets to be scored for the Governor's Cup. KAAC sets the times for scoring SPS booklets at the State Finals. Evaluation **MUST** be completed in one sitting.
- h. For Middle Grades and High School Region, Steps 2 and 4 will be prescored by state trainers. These pre-scores will not be available before noon on Wednesday (pending no delays in competition).
- i. Coaches may inquire about evaluations that they believe have violated the objective rules and guidelines of the SPS process. The inquiry form can be found at kaac.com.
- j. Third (3rd) place regional teams at the middle and high school levels may apply for the At-Large bid to advance to the state finals competition.
- k. The SPS Coordinator and Head Scorer, or other individual designated at the Competition Planning Meeting, examine SPS scoresheets to verify certification numbers, team codes, points awarded, and ranking. Valid certification numbers are available online at kaac.com

Case Study Review

Content: The **Case Study** is the foundation of the Strategic Problem-Solving Process. Teams will receive a write-up of a problematic situation. This write-up is called the **Case Study**. The **Case Study** will be based on the topic pre-selected for the competition at the beginning of the competition season.

Structure: Students should perform the following after receiving the **Case Study**.

1. Teams will begin breaking down the case study by identifying potential **concerns** (problems) related to the **Case Study**.
2. Students may highlight/underline portions of the **Case Study** to identify connections between the **Case Study** and their potential concerns.
3. Students should pay careful attention to the **directive** paragraph. This is the last paragraph where the main stakeholders from the **Case Study** request help from Strategic Problem Solving teams.
4. **Concerns** are not required to have a connection to the **directive**, but the **directive** will hold importance when deciding the **Central Concern** in Step 2.
5. Teams should identify the **Case Study** specifications of Year, Topic, and Location, as these specs must be included in the **Central Concern**.

Below is an example of a Case Study:

Example MG Extreme Weather Case Study

The digital dashboard on Marcus's wrist hummed – *June 12 2037 – Flooding Imminent – Move to higher ground* - its battery icon flashing a critical, uncharged red. Outside, the *thwack-thwack* of a hovering air-ambulance was the only sound cutting through the humid morning air.

It had been raining for weeks in the small town of Hillston, South Carolina, and the residents had become accustomed to the constant sound of rain against the windows.

Marcus leaned across the second-story balcony, looking down at the street. What used to be Elm Avenue was now a slow-moving, brown canal. Swirling currents carried plastic crates, waterlogged sofas, and a bloated, unrecognizable mass that Marcus forced himself to look away from. The air smelled thick and sweet—a nauseating mix of backed-up storm drains and stagnant heat.

"Marcus, you need to change your boots," his mother called out from the darkness of the living room. Her voice sounded flat, stripped of the energy she used to have before the rainy seasons began lasting all year. "And don't touch the walls downstairs. The gray fuzz is creeping up from the baseboards again."

Marcus didn't answer. He looked across the water at the high school. The lower level was completely submerged, muddy water licking the top of the first-floor windows. A makeshift sign made of a bedsheet hung from the roof: **REMAINING EXAMS CANCELLED. ASSIGNMENTS SUSPENDED UNTIL BROADBAND RESTORED**. It had been up for three weeks. He wondered if he'd ever actually finish his junior year, or if he'd just spend the rest of his youth watching the waterline rise.

A sudden *crack* echoed from the intersection. A few hundred yards away, a thick concrete pole leaned at a precarious forty-five-degree angle. Its thick black cables dipped directly into the swirling brown torrent, sending up a deadly hiss of bubbles where the copper met the water.

Down the block, the local community center—now draped in a massive, faded blue tarp—was a swarm of chaotic movement. A line of inflatable zodiac boats nudged up against the concrete steps, unloading families clutching trash bags stuffed with wet clothes. Children sat on the roof tiles, their eyes wide and vacant, staring at nothing.

Marcus watched an older woman being helped out of a boat. She was shivering despite the eighty-degree heat, her skin covered in red blotches that she wouldn't stop scratching. Two volunteers in heavy rubber hazmat suits lifted her toward the clinic entrance.

Through the open glass doors of the center, Marcus could see the lobby. The rows of plastic chairs had been pushed aside to make room for green canvas cots packed inches apart. A young man in medical scrubs stood near the doorway, holding a clipboard and a handful of red and yellow plastic tags. His eyes were bloodshot as he looked at a crowd of thirty people clamoring for attention, trying to decide who would be first to see the lone doctor.

Marcus's father stepped up to the window beside him, staring down at the water. He held an old paper ledger, his fingers tracing a column of numbers that had all been violently crossed out in red ink.

"The structural engineers sent the assessment via the emergency satellite link," said his father. "The foundations of the warehouse are compromised. The inventory in the basement is entirely ruined. The bank says the geographic risk assessment for our zip code was updated yesterday." "They are dropping our coverage."

With this Marcus logged into his digital dashboard and sent the following message to the Kentucky Strategic Problem Solvers.

Kentucky Strategic Problem Solvers,

We need your help. The increased frequency of flooding has caused major destruction throughout our town. Please use your 5-step problem solving process to identify concerns and develop a strategic plan that will address issues with flooding in Hillston, SC.

Step 1—Concerns

Content: A **Concern** is any issue, negative effect, or potential problem that may occur in the **Case Study**. Each **Concern** must be a logical cause or possible outcome of something described in the **Case Study**. Each **Concern** should show a clear connection to the competition **Case Study**.

Evaluating a Concern:

Relevancy: Are the Concerns relevant?

1. **Concerns** will first be evaluated for Relevancy.
2. A **Concern** is relevant if:
 - a. It answers the questions:
 - i. How does this connect to the **Case Study**?
 - ii. What is the concern?
 - iii. Why is this a concern? (The concern does more than simply restate an issue from the **Case Study**)
 - b. The **Concern** is a single issue.
 - c. The **Concern** shows a clear cause/effect relationship to the **Case Study**.
 - d. The **Concern** does not duplicate another concern.
 - e. The **Concern** does not offer a solution (explains how to solve a problem stated in the concern).
 - f. The **Concern** has a high likelihood of occurrence or is not too extreme to be plausible.
 - g. The **Concern** is stated in terms of possibility. (Such as may, might, could, etc.)
3. **Concerns** that are not relevant must receive feedback.

Relevant Concern Example:

According to the case study, "Swirling Currents carried plastic crates, waterlogged sofas, and a bloated unrecognizable mass..." Contaminated flood waters may be a problem. This may be a problem because contaminated flood waters may carry waterborne illnesses that may lead to negative physical health effects for exposed individuals.

Tie to the Case Study: According to the case study, "Swirling Currents carried plastic crates, waterlogged sofas, and a bloated unrecognizable mass..."

What the concern is: Contaminated flood waters may be a problem.

Why this is a concern: This may be a problem because contaminated flood waters may carry waterborne illnesses that may lead to negative physical health effects for exposed individuals.

Adaptability: How many categories are included in the concern?

1. ONLY RELEVANT **Concerns** will be evaluated for Adaptability.
2. Each relevant **Concern** may be awarded a maximum of 3 categories from the list below:

1. Arts & Aesthetics	10. Ethics & Religion
2. Basic Needs	11. Government
3. Commerce	12. Laws & Regulations
4. Communication	13. Mental Health
5. Culture	14. Physical Health
6. Defense	15. Recreation
7. Economics	16. Science & Technology
8. Education	17. Social Relationships
9. Environment	18. Transportation

Relevant Concern Example:

According to the case study, “Swirling Currents carried plastic crates, waterlogged sofas, and a bloated unrecognizable mass...” Contaminated flood waters may be a problem. This may be a problem because contaminated flood waters may carry waterborne illnesses that may lead to negative physical health effects for exposed individuals.

Categories Noted in the Concern: #14 – Physical Health

Clarity: Is the Concern clearly written?

1. ONLY RELEVANT **Concerns** will be evaluated for Clarity.
2. Clarity measures:
 - Readability - How easily a reader can understand the written **Concern**.
 - Coherence - Logical, clear, and consistent connection of ideas without unnecessary redundancy.

Relevant Concern with Clarity Example:

According to the case study, “Swirling Currents carried plastic crates, waterlogged sofas, and a bloated unrecognizable mass...” Contaminated flood waters may be a problem. This may be a problem because contaminated flood waters may carry waterborne illnesses that may lead to negative physical health effects for exposed individuals.

Clearly Written: The concern is already clearly written and easily understood. **Logical, clear, and consistent connection of ideas:** Because the water is contaminated, citizens of Hillston may contract waterborne illness.

Development: Does the concern demonstrate expertise or in-depth understanding of issues in the Case Study?

1. ONLY RELEVANT **Concerns** WITH CLARITY will be evaluated for Development.
2. Development measures **Concerns** that:
 - a. Offer thoughtful analysis
 - b. Show complexity of thought
 - c. Include supporting details

Relevant Concern with Clarity and Development Example:

According to the case study, “Swirling Currents carried plastic crates, waterlogged sofas, and a bloated unrecognizable mass...” Contaminated flood waters may be a pathway for waterborne pathogen proliferation and disease transmission. These contaminated waters may carry various enteric diseases such as cholera that could result in severe physical harm such as damage to the gastrointestinal system of those individuals that contract this illness.

Thoughtful analysis, complexity, and supporting details: This concern uses research such as “pathogen proliferation” vocabulary and explains the types of physical health effects that may occur – “enteric diseases, cholera, gastrointestinal illnesses.

Exceptionality: Does the Concern offer sophisticated, out-of-the-box thinking?

1. ONLY RELEVANT **CONCERNS** WITH CLARITY AND DEVELOPMENT will be evaluated for Exceptionality.
2. Evaluators may use their discretion to award Exceptionality points.
3. A maximum of 3 Exceptionality points may be awarded in Step 1.

Not Relevant Concern Examples:

1. The elderly woman being helped out of the boat was shivering despite the 80 degree heat. Elderly individuals may experience lower body temperatures due to being in the cold water for long periods of time. (Concern restates an issue already occurring in the CS)
2. According to the case study, "Swirling Currents carried plastic crates, waterlogged sofas, and a bloated unrecognizable mass..." Contaminated flood waters may be a problem. Citizens may begin using water purification tablets to overcome the contaminated waters. (Concern offers a solution)
3. An electric pole snapped and fell in the water. There was a hiss of bubbles where the cables met the flood waters. The electric lines being submerged by the flood waters may present danger to individuals who come into contact with water in this area. If individuals come into contact with electrified water they may experience negative physical health effects such as electrocution.
4. Individuals who come into contact with waters that have broken electric cables in them may experience negative physical health effects. These individuals may experience electrocution as a result of being in electrified waters. (Duplicate of #3)

Concerns Practice:

1. According to the case Study, "The bank says the geographic risk assessment for our zip code was updated yesterday." "They are dropping our coverage." This line may suggest that families who have lost their insurance coverage may have the financial responsibility of paying to replace all items damaged in the flood. This may force these individuals to obtain governmental loans to pay for the damage.
2. The doctor's eyes were bloodshot as he tried to decide who would be first to receive medical attention. The doctor working to treat patients may experience large levels of anxiety. If this stress persists he may experience secondary physical health issues.

Step 2 - Central Concern Selection

CONTENT: The **Central Concern** works to resolve a major issue in the **Case Study** by identifying an **Action** to be taken and the **Goal** of accomplishing that **Action**. The **Central Concern** must contain a substantive connection to the topic and **Case Study Directive**.

An effective Central Concern contains the following components:

1. **Rationale:** Provides context from the Case Study to set up the **Action** to be taken.
2. **Bridge:** Transition from Rationale to Action - These solutions will...
3. **Action:** Identifies the action that will be taken to solve the major issue in the **Case Study**.
4. **Goal:** Identifies the intended outcome of accomplishing the **Action**.
5. **Specifications:** Identifies the Year, Topic, and Location from the **Case Study**.

Evaluating The Central Concern:

Structure: Are all Central Concern parts present and correctly written?

Central Concern Part	Example	Requirements	Points
Rationale (R)	Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals,	Contains accurate information or a logical assumption from the Case Study and sets up the direction for the Action	6 of 6 Points
		Contains accurate information or a logical assumption from the Case Study but <i>does not set up</i> direction for the Action	4 of 6 Points
		Contains <i>inaccurate</i> information or is an <i>illogical</i> assumption from the Case Study	2 of 6 Points
		Rationale is missing	0 of 6 Points
Bridge (B)	These solutions will...	Present and must be stated as "These solutions will"	4 of 4 Points
		Inappropriate (e.g., <i>How can we</i> or <i>How might we the Strategic Problem Solvers, We may</i>)	2 of 4 Points
		Bridge is missing	0 of 4 Points
Action (A)	increase safeguards against flooding in Hillston	Present and contains a single action verb or verb phrase with only one object/modifier	6 of 6 Points
		Present but contains two or more objects or modifiers	4 of 6 Points
		Present but contains two or more verbs or verb phrases	2 of 6 Points
		Action is missing	0 of 6 Points
Goal (G)	In order to reduce the damage to infrastructure in 2037.	Present and contains a single focus with a logical relationship to the Action	6 of 6 Points
		Present but contains two or more objects or modifiers	4 of 6 Points

Specifications	Year = 2037 Topic= Extreme Weather Location = Hillston, SC	Present but contains two or more verbs or verb phrases or has no clear relationship to the Action	2 of 6 Points
		Goal is missing	0 of 6 Points
		All three Specifications of Year, Topic, and Location present	3 of 3 Points
		Only two Specifications present	2 of 3 Points
		Only one Specification present	1 of 3 Points
		No Specifications present	0 of 3 Points

Content: Is the Central Concern Impactful, Manageable, and Clear?

Central Concern Metrics	Explanation	Requirements	Points
Impact	Assesses the importance of the Central Concern to the Case Study and Directive.	Identifies an <i>important</i> issue with a wide-reaching, positive impact on <i>many</i> issues in the Case Study and addresses the Directive paragraph	18 or 20 Points
		Excellent Action that has a strong connection to a well-defined, clearly-written Goal	
		Identifies an <i>appropriate</i> issue with a positive impact on <i>some</i> issues in the Case Study and addresses the Directive paragraph	14 or 16 Points
		Effective Action that has a strong connection to an evident Goal	
		Identifies a <i>minor</i> issue with a positive impact on <i>few</i> issues in the Case Study and addresses the Directive paragraph	8, 10, or 12 Points
		Action has an adequate connection to a Goal	
		Misses <i>one Case Study Specification</i> (Topic, Location, or Year)	
		<i>Note: An Action or Goal with multiple modifiers or objects can score no higher than 12 points.</i>	
		Identifies a <i>trivial</i> issue with little impact on issues in the Case Study and addresses the Directive paragraph	4 or 6 Points
		Action has a weak connection to a Goal	

		<i>Note: An Action or Goal with multiple verbs/verb phrases can score no higher than 6 points.</i>	
		Identifies an <i>insignificant</i> issue with little impact on issues in the Case Study, or the Central Concern has a weak connection to the Directive. Action has no observable connection to the Goal Misses <i>two Case Study Specifications</i> (Topic, Location, or Year)	2 Points
		<u>Fundamental Flaw:</u> <i>Incomplete:</i> The Action or Goal is not present. <i>Restatement:</i> Of the Topic or Directive <i>Unrelated:</i> to Case Study or Directive <i>Absolute:</i> The Action contains an absolute main verb <i>Redundant:</i> Goal is the same as the Action <i>Missing:</i> All three Specifications are not present.	1 Point
Manageability	Measures the degree to which the Central Concern is focused	Addresses a singular course of action that is focused to impact many of the issues occurring in the Case Study positively. Addresses the Directive. Includes the correct topic, location, and year from the Case Study and addresses the correct stakeholders from the Case Study.	18 or 20 Points
		Addresses a singular course of action that is <i>less focused</i> and may have a limited positive impact on many of the issues in the Case Study. Addresses the Directive. Includes the correct topic, location, and year from the Case Study and addresses the correct stakeholders from the Case Study.	14 or 16 Points

		Addresses an action that is too narrow or too expansive, limiting the Central Concern's ability to impact many of the issues occurring in the Case Study positively. Addresses the Directive. Misses <i>one</i> Case Study Specification (Topic, Location, or Year) <i>Note: An Action or Goal with multiple modifiers or objects can score no higher than 12 points.</i>	8, 10, or 12 Points
		Addresses an action that is <i>much</i> too narrow or expansive, limiting the Central Concern's ability to impact the issues occurring in the Case Study positively. Addresses the Directive. Action has a weak connection to a Goal <i>Note: An Action or Goal with multiple verbs/verb phrases can score no higher than 6 points.</i>	4 or 6 Points
		Addresses an action that is too narrow or expansive to be impactful or the Central Concern has a weak connection to the Directive. Misses <i>two</i> Case Study Specifications (Topic, Location, or Year) Action has no observable connection to the Goal	2 Points

		<u>Fundamental Flaw:</u> <i>Incomplete:</i> The Action or Goal is not present. <i>Restatement:</i> Of the Topic or Directive <i>Unrelated:</i> to Case Study or Directive <i>Absolute:</i> The Action contains an absolute verb <i>Redundant:</i> Goal is the same as the Action <i>Missing:</i> All three Specifications are not present.	1 Point
Clarity	Examines effective communication of the Central Concern's intent and outcome	Identifies an <i>impactful</i> Central Concern that clearly and <i>effectively</i> communicates the importance of the Action and Goal. Addresses the Directive.	18 or 20 Points
		Identifies an <i>impactful</i> Central Concern and attempts to communicate the importance of the Action and Goal. Addresses the Directive.	14 or 16 Points
		Identifies a weak or vague Central Concern; or the Central Concern is awkwardly phrased Addresses the Directive. Misses <i>one</i> Case Study Specification (Topic, Location, or Year) <i>Note: An Action or Goal with multiple modifiers or objects can score no higher than 12 points.</i>	8, 10, or 12 Points
		Identifies a Central Concern that is <i>ambiguous</i> making it difficult to predict the Central Concern's impact on the Case Study. Addresses the Directive. Action has a weak connection to a Goal	4 or 6 Points

		<i>Note: An Action or Goal with multiple verbs/verb phrases can score no higher than 6 points.</i>	
		Identifies an <i>unclear</i> Central Concern creating an inability to predict the Central Concern's impact on the Case Study or the Central Concern has a weak connection to the Directive. Misses <i>two</i> Case Study Specifications (Topic, Location, or Year) Action has no observable connection to the Goal	2 Points
		<u>Fundamental Flaw:</u> <i>Incomplete:</i> The Action or Goal is not present. <i>Restatement:</i> Of the Topic or Directive <i>Unrelated:</i> to Case Study or Directive <i>Absolute:</i> The Action contains an absolute verb <i>Redundant:</i> Goal is the same as the Action <i>Missing:</i> All three Specifications are not present.	1 Point

FUNDAMENTAL FLAWS

Directive:

We need your help. The increased frequency in flooding has caused major destruction throughout our town. Please use your 5-step problem solving process to identify concerns and develop a strategic plan that will address issues with flooding in Hillston, SC.

Example Central Concern for Reference:

Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will increase safeguards against flooding in Hillston in order to reduce the damage to critical infrastructure in 2037.

Name	Explanation	Example	Scoring
Incomplete	Occurs when the Central Concern does not include an Action and/or Goal. <i>Note: No solutions can be scored Relevant if the Action and/or Goal is missing.</i>	Action Missing: <i>Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, in order to reduce the damage to critical infrastructure in 2037.</i> Goal Missing: <i>Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will increase safeguards against flooding in 2037.</i>	Step 2: Impact: 1 Manageability: 1 Clarity: 1 Step 3: Solutions: 0 Step 5: Impact: 1 Relevancy: 1 Clarity: 1

Restatement of Topic	Occurs when the Action and Goal are written so ambiguously about the Case Study, that the same Action and Goal could be applied to almost any other Case Study on this topic.	<i>Topic: Extreme Weather</i> <i>Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will reduce the negative effects of extreme weather in order to improve the conditions in Hillston, SC in 2037..</i>	Step 2: Impact: 1 Manageability: 1 Clarity: 1 Step 3: Solutions: 25% Maximum Step 5: Impact: 1 Relevancy: 1 Clarity: 1
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Restatement of the Directive	Uses an actionable phrase (word for word or a reordered combination of those words) from the Directive statement (Use the 5-step problem solving process...) as either their Action or Goal .	<i>Directive:</i> <i>Please use your 5-step problem solving process to identify concerns and develop a strategic <u>plan that will address issues of flooding in Hillston, SC.</u></i> <i>Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will address the negative effects of flooding in Hillston, SC in order to reduce the damage to the community in 2037.</i>	Step 2: <i>Impact: 1</i> <i>Manageability: 1</i> <i>Clarity: 1</i> Step 3: <i>Solutions: 25%</i> <i>Maximum</i> Step 5: <i>Impact: 1</i> <i>Relevancy: 1</i> <i>Clarity: 1</i>
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Unrelated to the Case Study	Ignores the facts of the Case Study , perhaps concentrating on some aspect of research of the topic, and moves outside the parameters of the Case Study .	<i>Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will improve the color of the flood waters so that the flooding will be more aesthetically pleasing to Hillston residents in 2037.</i>	Step 2: <i>Impact: 1</i> <i>Manageability: 1</i> <i>Clarity: 1</i> Step 3: <i>Solutions: 25%</i> <i>Maximum</i> Step 5: <i>Impact: 1</i> <i>Relevancy: 1</i> <i>Clarity: 1</i>
Absolute Verb in the Action	Uses absolute verbs in the Action that only have all or nothing outcomes. Absolute verbs such as prevent, eliminate, stop, guarantee, etc. offer no degree of measurability. <i>Note: The use of absolute verbs in the Goal IS NOT a fundamental flaw but students may have difficulty developing solutions that will solve the absolute Goal.</i>	<i>Action Example:</i> <i>Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will ensure safeguards against flooding in order to reduce the damage to critical infrastructure in 2037.</i>	Step 2: <i>Impact: 1</i> <i>Manageability: 1</i> <i>Clarity: 1</i> Step 3: <i>Solutions: 25%</i> <i>Maximum</i> Step 5: <i>Impact: 1</i> <i>Relevancy: 1</i> <i>Clarity: 1</i>

Redundant	Occurs when the Goal is effectively the same as the Action . This repetition may be contextually the same (verbatim) or a paraphrase carrying the same meaning.	<i>Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will increase safeguards against flooding in order to improve the safety of Hillston residents in 2037.</i>	Step 2: Impact: 1 Manageability: 1 Clarity: 1 Step 3: Solutions: 25% Maximum Step 5: Impact: 1 Relevancy: 1 Clarity: 1
Missing All Specifications	Occurs when the Topic, Location, and Year are missing in the Central Concern .	<i>Because the area is experiencing contaminated waters, disruptions to Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will increase safeguards in order to improve the safety of residents.</i>	Step 2: Impact: 1 Manageability: 1 Clarity: 1 Step 3: Solutions: 25% Maximum Step 5: Impact: 1 Relevancy: 1 Clarity: 1

Central Concern Practice

1. In 2037 extreme weather is causing residents to be placed in danger due to contaminated flood waters, broken electric poles, and potential mold creeping in houses. These solutions will reduce the damages caused by flooding in order to improve the health of Hillston residents.
2. Because roads throughout Hillston have been blocked by debris and flood waters and many students are unable to attend school, these solutions will reduce the damage to transportation infrastructure so that students may attend school and receive a quality education in the year 2037.

Step 3 — Solutions

Content: A **Solution** solves the **Action** and **Goal** of the Central Concern. Solutions must not contradict the **Case Study Directive**, or **Specifications** of **Topic**, **Location**, and **Year**. Solutions may reflect futuristic, creative thinking and are not bound by the time specification of the Case Study.

Evaluating a Solution:

Relevancy: Are the Solutions relevant?

1. **Solutions** will first be evaluated for Relevancy.
2. A **Solution** is Relevant if:
 - a. It answers the questions:
 - i. What is the **Solution** idea?
 - ii. Why does the **Solution** solve the **Action** from the **Central Concern**?
 - iii. Why does the **Solution** solve the **Goal** from the **Central Concern**?
 - b. The **Solution** is a singular idea.
 - c. The **Solution** does not duplicate another **Solution**.
 - d. The **Solution** is stated in definitive terms.
 - e. The **Solution** does not defy natural laws. (Not Magic)
3. Effects of Fundamental Flaw in Step 2:
 - a. Only a maximum of 25% of Solutions can be scored as Relevant, but all solutions must be scored.
 - b. If the Central Concern in Step 2 is missing the **Action** and/or **Goal**, **NO Solutions** will be scored as Relevant.
4. **Solutions** that are Not Relevant must receive feedback.

Central Concern from Step 2:

Because extreme weather such as flooding is causing contaminated waters, disruptions to the Hillston Education, overburdening of emergency response systems, and the dropping of insurance coverage for affected individuals, these solutions will increase safeguards against flooding in Hillston in order to reduce the damage to critical infrastructure in 2037.

Relevant solution Example:

To increase safeguards against flooding scientists will develop a smart pavement system. This system will remain hard and rigid when dry, but when rain begins, the pavement will undergo a change in which millions of small openings appear to allow water to drain into underground reservoirs. By reducing floodwater throughout the town, critical transportation and electrical infrastructures will be at less risk of being damaged.

What: Smart pavement system

Why it solves Action: Allow water to drain into underground reservoirs

Why it solves Goal: By reducing floodwater throughout the town, critical transportation and electrical infrastructures will be at less risk of being damaged.

Adaptability: How many categories are included in the Solution?

1. ONLY RELEVANT **Solutions** will be evaluated for Adaptability.
2. Each Relevant **Solution** may be awarded a maximum of 3 categories from the list below:

- | | |
|----------------------|--------------------------|
| 1. Arts & Aesthetics | 10. Ethics & Religion |
| 2. Basic Needs | 11. Government |
| 3. Commerce | 12. Laws & Regulations |
| 4. Communication | 13. Mental Health |
| 5. Culture | 14. Physical Health |
| 6. Defense | 15. Recreation |
| 7. Economics | 16. Science & Technology |
| 8. Education | 17. Social Relationships |
| 9. Environment | 18. Transportation |

Relevant solution Example:

To increase safeguards against flooding scientists will develop a smart pavement system. This system will remain hard and rigid when dry, but when rain begins, the pavement will undergo a change in which millions of small openings appear to allow water to drain into underground reservoirs. By reducing floodwater throughout the town, critical transportation and electrical infrastructures will be at less risk of being damaged.

Categories noted in solution: #16 Science & Technology, #18 Transportation

Clarity: Is the Solution clearly written?

1. ONLY RELEVANT **Solutions** will be evaluated for Clarity.
2. Clarity measures:
 - a. Readability - How easily a reader can understand the written **Solution**.
 - b. Coherence - Logical, clear, and consistent explanation of the idea without unnecessary redundancy.

Relevant solution with Clarity Example:

To increase safeguards against flooding scientists will develop a smart pavement system. This system will remain hard and rigid when dry, but when rain begins, the pavement will undergo a change in which millions of small openings appear to allow water to drain into underground reservoirs. By reducing floodwater throughout the town, critical transportation and electrical infrastructures will be at less risk of being damaged.

Development: Does the Solution idea demonstrate expertise or an in-depth explanation?

1. ONLY RELEVANT **Solutions** receiving the CLARITY point will be evaluated for **Development**.
2. **Development** measures **Solutions** that:
 - a. Offer thoughtful analysis
 - b. Show complexity of thought
 - c. Include additional supporting details:
 - i. **Who:** *Who will be generating/enacting the **Solution**?*
 - ii. **How:** *How does the **Solution** work or how will the **Solution** be carried out?*

Relevant Solution with Development Example:

Mechanical engineers will develop a Capillary-Action Permeable Matrix pavement system. Engineered with shape-memory elastomers, the pavement system remains sealed under dry conditions but when wet, the elastomers will undergo a conformational change that opens millions of micro-apertures, triggering capillary action that vacuums surface water down into the ground. As the pavement dries, it contracts back, applying upward pneumatic pressure that purges trapped sediments, preventing clogging. This system will improve the safety of residents by eliminating standing water that threatens the local infrastructure.

This solution shows a complexity of thought and thoroughly explains how the technology operates to accomplish the **Action** and **Goal**.

Who: Scientists

How the solution works/operates: Smart pavements system that allows flood waters to flow through micro openings when water contacts the pavement.

Exceptionality: Does the Solution offer sophisticated, out-of-the-box thinking?

1. ONLY RELEVANT **SOLUTIONS** WITH CLARITY AND DEVELOPMENT will be evaluated for **Exceptionality**.
2. Evaluators may use their discretion to award **Exceptionality** points.
3. A maximum of 3 **Exceptionality** points may be awarded in Step 3.

Not Relevant Solution Examples:

1. In order to reduce the damage to critical infrastructure throughout Hillston, engineers will begin building structures and the electrical grid out of carbon nanotubes in order to increase their strength. **Not Relevant - This solution does not solve the action and therefore is not relevant. This solution does not increase the safeguards of these structures.**
2. In order to improve the students' quality of education, pharmacists and chemists will create a small spongy device that will be ultra-absorbent. When the device is deployed, it will instantly soak up all flood waters in Hillston so that the water can no longer destroy critical infrastructures throughout the town. **Not Relevant -This seems like a magic solution.**
3. Programmers will create a holographic emergency management system using augmented reality. After flood waters have reached the town, automated display citizens will project holographic signs warning the citizens of potential hazards and emergency evacuation routes so that they can get to safety. This will improve safeguards against flooding and reduce the damage to critical infrastructures. **(Does not solve the Action or Goal) Not relevant.**

Solutions Practice:

1. Software engineers will develop a digital twin replica of Hillston, SC. The digital twin will be a forecasting simulation that will use historical weather trends and data to predict when flooding disasters may occur. The model will also account for the structural integrity of buildings and will be able to give structural engineers information on how to safeguard and protect people and structures.
2. In order to improve the safeguards against flooding, structural engineers will create hydraulic flood walls around the city of Hillston, SC. When heavy rains begin or when rivers and streams begin to rise, the engineers will activate the hydraulic flood walls to prevent the water from flooding the town and damaging critical infrastructures in Hillston.

Step 4 —Justifications

Content: Students will select two solution ideas from step 3 with the potential to be the Strategic Plan in step 5. Students will then generate five justification statements to compare the effectiveness of these two solution ideas.

Evaluating Justifications:

Is the Justification Correctly Written, Applicable, and Table Completed?

Justification	Requirements	Example	Scoring
Structure	Must be written as a statement and must be singular	This solution will improve educational outcomes.	1 Point per Justification
	Not Correctly Written	This solution will improve educational outcomes and improve students' lives.	0 Points per Justification
	Duplicate	This solution will increase student education. (Duplicate of first example)	0 Points per Justification
	Blank	Blank	0 Points per Justification
Applicability Justifications can only target the Directive, Rationale, Action, Goal, and Stakeholders one time. If the target is repeated the Justification is scored as General.	Targets Directive Paragraph	This solution will decrease the frequency of flooding.	5 Points per Justification
	Targets Rationale	This solution will not overwhelm the medical response team in Hillston.	
	Targets Action	This solution will increase safeguards against flooding.	
	Targets Goal	This solution will reduce the damage to critical infrastructure in Hillston.	
	Targets Stakeholders	This solution will allow citizens of Hillston to improve their mental health.	
	General	This solution is expensive.	2 Points Per Justification
	Not Applicable	This solution will be best for exploring space.	0 Points per Justification
Justification Table	Completed	See below - Both solution boxes for each Justification must be marked as yes or no.	1 Point per Justification

Justification	Proposed Solution 1 Name	Proposed Solution 2 Name
	Smart Pavement	Holo-Evacuations
This solution will decrease the frequency of flooding. <u>(Targets the Directive)</u>	YES NO ☐ ☐	YES NO ☐ ☐
This solution will not overwhelm the medical response team in Hillston. <u>(Targets the Rationale)</u>	YES NO ☐ ☐	YES NO ☐ ☐
This solution will increase safeguards against flooding. <u>(Targets the Action)</u>	YES NO ☐ ☐	YES NO ☐ ☐
This solution will reduce the damage to critical infrastructure in Hillston. <u>(Targets the Goal)</u>	YES NO ☐ ☐	YES NO ☐ ☐
This solution will allow citizens of Hillston to improve their mental health. <u>(Targets the Stakeholders)</u>	YES NO ☐ ☐	YES NO ☐ ☐

STEP 5 — Strategic Plan

Content: The **Strategic Plan** is a detailed proposal to solve the **Central Concern**. Students may choose either solution idea from step 4 regardless of the table outcome.

Evaluating a Strategic Plan:

Impact on the Case Study – Measures the positive effect that the **Strategic Plan** has on issues occurring in the **Case Study**.

Relevancy to the Central Concern – Measures the ability of the **Strategic Plan** to solve the **Action** and fulfill the goal of the **Central Concern**

Clarity – Measures the clearness and conciseness of the writing throughout the **Strategic Plan**

Development – Measures the extent to which a team develops a **Strategic Plan**

Humaneness – Measures the humane and constructive potential of the **Strategic Plan**

Explanation of Justifications – Measures how effectively the **Strategic Plan** addresses the **Justifications** from step 4

Strategic Plan Metrics	Explanation	Requirements	Points
Impact	Measures the positive effect that the Strategic Plan has on issues occurring in the Case Study.	- Resolves all or nearly all issues in the Case Study - Dramatically improves the Case Study resulting in a highly successful outcome	18 or 20 Points
		- Resolves most of the issues in the Case Study - Significantly improves the Case Study resulting in a successful outcome	14 or 16 Points
		- Resolves some of the issues in the Case Study - Moderately improves the Case Study	8, 10 or 12 Points
		- Resolves few of the issues in the Case Study - Minimally improves the Case Study	4 or 6 Points
		- Resolves minimal issues in the Case Study - Does not improve the Case Study Or - Does not use a solution that was justified in step 4	2 Points

		- Has no relationship to the Case Study or Central Concern Or - Two or more solutions from step 3 are combined Or - Central Concern was scored as a Fundamental Flaw in step 2.	1 Point
		Blank Strategic Plan	0 Points
Relevancy	Measures the ability of the Strategic Plan to solve the action and fulfill the goal of the Central Concern	Has an excellent relationship to the Action and Goal of the Central Concern	10 Points
		Has an adequate relationship to the Action and Goal of the Central Concern	8 Points
		Has some relationship to the Action and Goal of the Central Concern	6 Points
		- Has some relationship to the Action or Goal of the Central Concern - Another solution might be better.	4 Points
		- Has little relationship to the Central Concern Or - Does not use a solution that was justified in step 4	2 Points
		- Has no relationship to the Case Study or Central Concern Or - Two or more solutions from step 3 are combined Or - Central Concern was scored as a Fundamental Flaw in step 2.	1 Point
		Blank Strategic Plan	0 Points
Clarity	Measures the clearness and conciseness of the	Writing is excellent; clear and concise expression of ideas throughout	10 Points

	writing throughout the Strategic Plan	• Writing contains mostly clear and concise descriptions	8 Points
		• Writing is inconsistent; may be difficult to understand in places; may detract from main ideas	4 or 6 Points
		• Writing is difficult to understand; wordy or vague; confuses main ideas; takes leaps in reasoning Or • Does not use a solution that was justified in step 4	2 Points
		• Has no relationship to the Case Study or Central Concern Or • Two or more solutions from step 3 are combined Or • Central Concern was scored as a Fundamental Flaw in step 2.	1 Point
		• Blank Strategic Plan	0 Points
Development	Measures the extent to which a team develops a Strategic Plan	• Is comprehensive, detailing the who, what, why, and how • Develops justified solution in rich detail • Considers potential obstacles and includes additional details of the implementation • Presents an effectively organized explanation of process needed to achieve Strategic Plan	18 or 20 Points
		• Is comprehensive, detailing the who, what, why, and how but minor gaps may exist • Develops justified solution in detail • Considers potential obstacles and includes additional details of the implementation in a less convincing manner. • Presents an organized explanation of process needed to achieve Strategic Plan	14 or 16 Points
		• Addresses the who, what, why, and how but important aspects remain underdeveloped or incomplete. • Attempts to develop justified solution	8, 10 or 12 Points

		Presents a process needed to achieve Strategic Plan <i>Note: Cannot score above a 12 if no obstacles are addressed.</i>	
		- Attempts to address the who, what, why, and how but lacks depth and meaningful content - Includes minimal details of the implementation	4 or 6 Points
		- Poorly developed and lacks cohesiveness - May include unnecessary redundancy - Fails to address most of the key areas Or - Does not use a solution that was justified in step 4	2 Points
		Fails to develop the solution idea beyond what was written in step 3	1 Point
		Blank Strategic Plan	0 Points
Humaneness	Measures the humane and constructive potential of the Strategic Plan	- Is highly constructive and positive - Creates significant long-term benefits for stakeholders	10 Points
		- Is somewhat constructive and positive - Improves the situation for stakeholders in some ways	6 or 8 Points
		- Is neutral - Does not harm nor help the stakeholders.	4 Points
		- Is somewhat harmful to the stakeholders Or - Does not use a solution that was justified in step 4	2 Points
		Is highly destructive to the stakeholders	1 Point
		Blank Strategic Plan	0 Points
Explanation of Justifications	Measures how effectively the Strategic Plan addresses the Justifications from step 4	Convincingly explains how the justification validates the Strategic Plan.	3 Points Per Justification

	<i>Note: Teams may address one or both solutions from step 4.</i>	Explicitly details the justification's connection to the Strategic Plan without ambiguity	
		- Adequately explains how the justification validates the Strategic Plan. - Details the justification's connection to the Strategic Plan	2 Points Per Justification
		Restates the Justification from step 4	1 Point Per Justification
		Does not address Justifications or Blank	0 Points Per Justification

Research and Creativity Score

Overall Score: Evaluators should assess the degree to which teams incorporated research and creativity throughout their booklet. Evaluators should review all steps of the Strategic Problem Solving Booklet to assign scores.

- a. **Research** - Indications of relevant research include vocabulary terms, concepts, facts, and incidents from the research.
- b. **Creativity** - Skillfully uses productive, creative, and innovative thinking. Responses showing Creative Strength are those beyond obvious or commonplace responses.
 - i. Each supplemental category will be assigned a holistic score from 1-15

Research

Scoring	Description
13-15 Points	Integrates accurate, sophisticated vocabulary, concepts, facts, and incidents to demonstrate deep comprehension.
10-12 Points	Effectively incorporates accurate vocabulary, core concepts, and solid facts, showing clear understanding.
7-9 Points	Includes some relevant terms or facts, but application is generalized, or occasionally imprecise.
4-6 Points	Features sparse or minimal research elements; terms and concepts are frequently missing, misunderstood, or misapplied.
1-3 Points	Lacks meaningful evidence of research, containing significant factual errors and a fundamental misunderstanding of key concepts.

Creativity

Scoring	Description
13-15 Points	Shows exceptional creative strength, moving well beyond standard responses with fresh perspectives and imaginative elements.
10-12 Points	Demonstrates original creative thinking that transcends the obvious.
7-9 Points	Displays occasional moments of originality, but largely stays close to conventional or commonplace ideas.
4-6 Points	Relies heavily on predictable responses with minimal effort toward innovative thinking.
1-3 Points	Lacking in imagination, relying strictly on obvious, unoriginal responses.

