COACHING TIPS
GLOBAL ISSUES PROBLEM SOLVING (GIPS)

Future Problem Solving Program International (FPSPI) is a challenging and rewarding program. Proficiency in Global Issues Problem Solving (GIPS) is a result of understanding the Creative Problem Solving model and mastering the generating and focusing tools used in problem solving.

- The GIPS **Coach's Handbook** is the next step from this overview of the problem solving model used in GIPS. It provides activities to introduce generating and focusing problem solving tools, strategies for teaching each step of the process, as well as student mini-guides.
- The **Process Pointers Plus** is an excellent companion to the Coach's Handbook as it scaffolds student learning with examples and exercises for each of the six steps. Accompanying the workbook are videos to enhance student learning and engagement.
- The official **Evaluation Guidelines** are published annually and represent the most current standards for competition. They are provided for all participants from Affiliate Directors, or available for download at www.fpspimart.org.

Contact Future Problem Solving Program International or visit www.fpspimart.org for information on these and other materials related to Global Issues Problem Solving.

EDUCATIONAL BENEFITS

Foster 21st Century Learning Skills with Future Problem Solving - Future Problem Solving (FPS) teaches students how to think, not what to think. The diverse components offered by Future Problem Solving address the need for problem solving within the curriculum in order for students to prepare effectively for the future in front of them. FPS can also be integrated into all curriculum areas, especially language arts, science, and social studies. Participation in the program strongly supports the development of 21st Century Skills.

Creativity

Problem solving situations are set in the future to encourage inventive thinking. Students extrapolate future possibilities from the present.

Communication

Clear and articulate communication is developed while working with a team or in the community, and ideas are presented in written and verbal modes.

Critical Thinking

Students use analysis to gain an understanding of issues in today's world and to comprehend significant aspects of complex situations.

Collaboration

Students work together while learning and applying problem solving skills. Teamwork is nurtured as students advance through challenging and exciting situations.

Students increase their global awareness and explore content related to business & economics, science & technology, and society & politics through the study of a series of current issues projected into the future. As students focus on what is happening in the world today (research) and what might happen in the future (foresight), learning is dynamic and empowering. Under the guidance of a coach, students evaluate, analyze, and synthesize information from a wide range of perspectives.

FPSPI Mission:
To develop the ability of young people globally to design and achieve positive futures through problem solving using critical and creative thinking.

Learning and applying this process enriches students by providing open-ended support to align with a multitude of standards using complex thinking to address real-world problems. Students use primary and secondary resources, conduct research on selected topics, and then apply their knowledge and ideas to the problem solving model.

The FPS Six Step Process

Step 1: Identify Challenges
Generate challenges or issues related to a specified situation

Step 2: Select an Underlying Problem
Analyze possible challenges to determine a single focused area to address

Step 3: Produce Solution Ideas
Generate a variety of potential solution ideas to resolve the selected Underlying Problem

Step 4: Select Criteria
Develop criteria to measure the merit of solution ideas

Step 5: Apply Criteria to Top Solutions
Evaluate solution ideas using student-designed criteria to identify the most promising solution

Step 6: Develop an Action Plan
Based on the strongest solutions as determined by the criteria, develop a plan of action to explain and implement the best solution

THINKING IN ACTION

The educational goal of Global Issues Problem Solving is to prepare students to respond to real-world situations using problem solving skills. With this in mind, problem solvers should respond directly and creatively to the Future Scene. While preparation and practice are important, memorizing "pre-packaged" Challenges, Underlying Problems, Solutions, Criteria, and Action Plans and making them fit the Future Scene does not meet the educational goals of the program.

For Global Issues Problem Solving competitions such as Qualifying Problem, Affiliate Bowl, or the International Conference, students do not see the Future Scene in advance. In these situations, evaluators reward students for responding directly to the Future Scene, recognizing students that **use**

their creativity to respond spontaneously to a situation. This furthers FPSPI's educational goal of preparing students to respond to real-world situations.

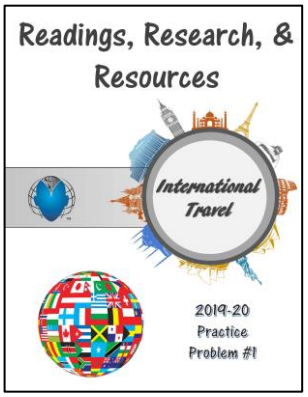
The students spend time researching the topic and developing ideas that might be relevant to the Future Scene; however, they do not see the Future Scene until the two-hour competition begins. The students must analyze the contents to determine what part of their research on the topic does and does not apply to the Future Scene.

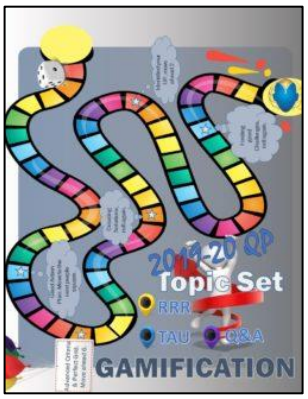
The ability to be prepared and informed, and thus capable to respond to an unknown situation, is at the core of the mission of FPSPI. Students should use their preparation to jumpstart brainstorming and understanding of the Future Scene. Students are rewarded for creative, spontaneous ideas in direct response to the Future Scene.

Preparation & Research

It is important to prepare for Global Issues Problem Solving by developing solid background knowledge on the topic. Having a solid foundation of the current events within a topic and the vocabulary used to discuss that topic is extremely advantageous to problem solvers when they read the Future Scene.

- Books, news magazines, futuristic periodicals, and other helpful information can be found in the school library or on the internet. The FPSPI Facebook page regularly posts topic related articles and videos. Check us out at www.facebook.com/fpspi/
- Online resources such as webinars and MOOCs designed for student learners can provide engaging ways to explore new topics.
- The FPSPI **Readings, Research, and Resources (RR&R)** is an excellent source for initiating research. It provides research strategies and content for use by the new and experienced coach with students of all ages. For each topic the RR&R includes:
- Terms and Definitions to establish an early understanding of topics, with online interactive activities
    - Overview of major trends to look toward the future
    - Questions for Discussion to develop analytical skills
    - Themes and Concepts to guide student research
    - Article links and summaries
- The FPSPI **Topic Activity Units** engage students in a wide variety of instructional activities incorporating topic research with the six-step process. Topic Activity Units include:
    - Lesson plans developed from best practices to integrate critical thinking.
    - Standalone units of study or singular activities may be used as desired for particular Steps within the process.
- Field trips, real-life experiences, and local experts are excellent means to provide research opportunities. Local industry associations and





service organizations often have individuals prepared and interested in speaking on a variety of subjects.

Caution: We strongly advise coaches to review their educational organization's policies on appropriate content, and to screen any materials before making them available to students.

The Future Scene

Student work must relate to the Future Scene, a hypothetical "what-if" scenario based on current research projected 20-30 years into the future. The Future Scene operates as the "reality" within which participant work must take place. Future Scenes revolve around an imaginary, yet realistic, futuristic scenario. The imagined and futuristic elements of the Future Scene allow FPSPI to use its own creativity in producing the scenarios. Global Issues Problem Solving intends for students to build upon the creative elements of the Future Scene and showcase their own creativity.

Early in the competition season, Future Scenes are open-ended and allow students to develop and enhance their skills. Future Scenes become more difficult as the FPS season progresses. There are two types of Future Scenes utilized during the FPSPI season. Practice Problem 1 and Practice Problem 2 are non-competitive. These Future Scenes are often examined by students over time, with instruction and guidance from their coach. For these problems, emphasis is placed on learning the problem solving process, and thus, evaluators often provide extensive feedback to promote effective use of the process. The Qualifying Problem, Affiliate Bowl, and the International Conference are competitive, and thus less emphasis is placed on teaching the process and more on the application of the process.

Note about Examples:
- The examples used in this document are based on the 2014 IC Future Scene, on the topic of SPACE, which can be found at the end of this document. It is recommended to read this first.
- Gray text boxes such as this one indicate examples throughout this document.

For competitive Global Issues Problem Solving problems, students do not see the Future Scene in advance. The Future Scene is provided in a proctored setting. No research is allowed during this two hour competition. Future Scenes concentrate on only a portion of the topic. Not all of the student's research and information is applicable to the Future Scene, and the students must utilize appropriate information relevant to their work in the GIPS booklet.

Key Tips for reading a Future Scene
- Identify the Future Scene parameters (topic, place, and time).
- Relate the Future Scene to the research. What has changed? What is the same?
- Identify the vocabulary, new products, and trends specific to the Future Scene.
- Consider pertinent questions:
  - What is the charge?
  - Who is challenged, involved, or affected within the Future Scene?

STEP 1
Identify Challenges

The key objective of Step 1 is to identify Challenges based on the Future Scene. A Challenge is an issue, concern, or problem that *may* need attention or consideration (points of importance). A Challenge is a logical cause or effect of the situations in the Future Scene that may have a chance of occurring. Flexibility in thinking is demonstrated by exploring Challenges from different perspectives or categories. Knowledge of the topic should be used to determine Challenges from the situations within the Future Scene. The goal is 16 well-written Challenges. (8 for individuals)

ESSENTIALS

1. Student work must relate to the Future Scene as stated. Though present research trends may point in several directions, students are required to problem solve within the boundaries of the given situation.
2. Step 1 Challenges are written as statements, not questions.
3. Challenges are stated in terms of *possibility*, using non-absolute terms such as may, might, could, etc.
   - Absolute terms that indicate an idea *"**will** be a challenge"* deny an important element of projecting into the future as it is impossible to know what will or will not occur in the future.
4. A clearly written Challenge demonstrates logical cause-effect reasoning and tells what the Challenge is, why it is a Challenge, and how it relates to the Future Scene.
5. Students should demonstrate flexibility in their thinking and explore Challenges from different perspectives or categories.

To earn maximum Fluency and Clarity scores in Step 1, students need to explain:
- ***What*** the Challenge is,
- ***Why*** it is a Challenge, and
- ***How*** it logically relates to the Future Scene.

Clearly stating each Challenge helps an evaluator understand the intent of a Challenge. Challenges written at different levels of expertise, as shown in the examples, may be awarded credit. Each of these Challenge statements clearly tells ***what*** the Challenge is, ***why*** it is a Challenge, and ***how it logically relates to the Future Scene.***

Examples of "Yes" Challenges

A. *People on Titania may not be able to communicate with Earth.*
   - Cause/effect relationship implied

B. *Since Titania is the farthest settlement from Earth, People on Titania may not be able to regularly communicate with Earth due to technical problems.*
   - Explained what the Challenge was and why it was a Challenge

C. *Since Titania is the farthest settlement from Earth, people on Titania may not be able to communicate with friends and family on Earth due to technical problems causing them psychological and emotional stress.*
    - More insightful information added

C. *Humans can suffer emotionally, psychologically, and physically from long separations from loved ones. Since Titania is the farthest settlement from Earth, people on Titania may not be able to communicate with friends and family on Earth causing them psychological and emotional stress, which could lead to poor job performance.*
    - Relevant research added

D. *The Oberon Corporation is planning to send 600 people to live on Titania to mine Helium-3. People living on Titania might not be able to get help from Earth if there is an emergency resulting in death, injury, or irreparable damage to equipment.*
    - "Expertly" written Challenge with high clarity

Mistakes to Avoid

- Challenges unrelated to the Future Scene. After thorough research, students are eager to demonstrate their topic knowledge (and they should!). This research should inform their understanding of the Future Scene. Not everything they learned about a topic will apply to the reality presented in the Future Scene.
- Underdeveloped Challenge ideas. Sometimes a Challenge is not developed enough to receive credit. Be mindful that each Challenge idea includes **WHY** it is a Challenge and **HOW** it relates to the Future Scene.
- Facts from the Future Scene. These are important starting points for Challenges. However, students need to expand from simply restating a fact to identify what they view as the Challenge.
- Solutions. Students may get excited to present their ideas for how to solve problems they identify in the Future Scene. In Step 1 they need to focus their efforts on clearly defining the Challenges, there will be plenty of opportunities for offering Solutions in Step 3.

HELPFUL HINTS

Fluency and flexibility can be expanded by the use of generating tools such as brainstorming, forced relationships, and the category list. Not all categories will apply to every topic and Future Scene. There is an illustrated category list designed for student use available at the end of this document.

1. Arts & Aesthetics
2. Basic Needs
3. Business & Commerce
4. Communication
5. Defense
6. Economics
7. Education
8. Environment
9. Ethics & Religion
10. Government & Politics
11. Law & Justice
12. Miscellaneous
13. Physical Health
14. Psychological Health
15. Recreation
16. Social Relationships
17. Technology
18. Transportation

Cause and effect relationships are the basis of Challenges. A Challenge embodies cause-effect reasoning when looking at causes whose effects can be seen in the Future Scene or looking at the Future Scene details as causes and determining what effects may occur. There may be multiple causes for a single effect and multiple effects from

Common cause-effect signal words

If…then	Because	So that
Therefore	Since	Thus
As a result	Due to	Accordingly

a single cause. A chain of two effects is usually sufficient for a Challenge. The relationships between causes and effects must be logical.

If a Challenge or concern is mentioned in the Future Scene, it can be included in the student-written Challenges provided that their Challenge elaborates on what is stated in the Future Scene to offer greater insight as to ***why*** something is a Challenge.

- Students must develop the fact/concern, extending it to a new level.
- Restating a fact/concern from the Future Scene is not enough to earn credit as a Challenge.

Extremes should be avoided. Students sometimes hit the extreme when explaining consequences – proclaiming widespread death, economic ruin, or the end of the world as we know it. Usually, many intermediate consequences are possible before such major disasters would overtake us. For example, "cramped quarters could lead to stress and tension between people" is a reasonable consequence. It is an extreme measure to assert that people might start fighting, and everyone would kill each other.

What an evaluator looks for in Step 1

Fluency – Challenges that are logical cause/effect statements of the situations in the Future Scene.
Flexibility – A variety of ideas presented in Challenges as demonstrated by the use of multiple categories.
Clarity – Challenges that clearly describe what the concern is, why it is a concern, and how it relates to the Future Scene.

Key Tips for success in Step 1

- Facts (causes) from the Future Scene are used to identify Challenges (effects) that may result.
- Consider a diverse range of themes (categories) to demonstrate Flexibility of thinking.
- Allow research to inspire possible results from the Future Scene situation.

STEP 2
Select an Underlying Problem (UP)

An Underlying Problem identifies a goal based on addressing one or more Challenges within the Future Scene. An excellent Underlying Problem has a narrowed focus, addresses a **significant** issue from the Future Scene through the Key Verb Phrase, and identifies a positive outcome (Purpose) of accomplishing the KVP.

ESSENTIALS

1. An Underlying Problem is stated as one question and contains four basic components.
   - ***Condition Phrase*:** The Condition Phrase is a lead-in fact or logical extension from the Future Scene or research related to the Future Scene that is the basis for the issue chosen for the Key Verb Phrase. The Condition Phrase should provide a connection to the Future Scene and the rationale.

     Example Condition Phrase:
     Due to the fact that Oberon may hold a monopoly on Helium-3 collection in space, possibly causing an uneven distribution of fusion energy on Earth, …
   - ***Stem + Key Verb Phrase*:** Together, the stem ("How might we" or "In what ways might we") and the Key Verb Phrase, a single action verb or verb phrase with its object, indicate the primary action that addresses an issue from the Future Scene. Words should be carefully chosen so the goals stated in the KVP and Purpose are clear and measurable. Phrases such as *improve the quality of life* or *provide a successful life* have different meanings to each evaluator. The evaluator may have a difficult time determining if a vague Key Verb Phrase can be achieved. All Solution ideas in Step 3 must address the goal of the Key Verb Phrase.

     Example Stem + Key Verb Phrase
     …how might we diversify access to Helium-3 collecting …
   - ***Purpose*:** The Purpose specifies an optimal direction or outcome of the Key Verb Phrase. The Purpose should be singular and give further information about the desired result that should flow from accomplishing the action goal, and it is not a repetition of the Condition Phrase or KVP. The Purpose usually begins with "so," "so that," or "in order to." The Purpose should be one that clearly flows from achieving the action goal stated in the Key Verb Phrase. It is not appropriate to rephrase the KVP.

     Example Purpose
     …so that citizens of all countries have access to clean fusion energy in 2063 and beyond?
   - ***Future Scene Parameters*:** The Future Scene parameters place the Underlying Problem within the confines of the Future Scene. These parameters include the topic (major focus of Future Scene), place (geographic location), and time (date from Future Scene, reasonably related dates). The parameters may be placed anywhere in the Underlying Problem.

     Example's Parameters
     Topic – *space*
     Place – *space, deep space, Titania, Earth's moon,*
     Time – *2063*
2. The issue identified in the Underlying Problem should be a smaller part of the entire Future Scene; it should narrow the Future Scene without trivializing any part of it. The issue must be derived from a Challenge or cluster of Challenges generated in Step 1.

Example Underlying Problem
Due to the fact that Oberon may hold a monopoly on Helium-3 collection in space, possibly causing an uneven distribution of fusion energy on Earth, how might we diversify access to Helium-3 collection on Titania so that citizens of all countries on Earth have access to clean fusion energy in 2063 and beyond? (parameters underlined)

Mistakes to Avoid

- Too many goals. Trying to please everyone everywhere is unrealistic, just as solving an Underlying Problem with multiple goals. Identify a single Key Verb Phrase and a single Purpose for a successful UP. A slightly narrower UP is often more manageable and allows for more solutions in Step 3. To receive credit for Solution ideas in Step 3, each one must address all elements of the Underlying Problem.
- Absolute verbs. Sometimes absolutely accomplishing something is the most desirable thing (eliminate all contaminates in drinking water). Remember that each Solution idea must accomplish the goals identified by the Underlying Problem. Therefore "improving the quality of drinking water" typically makes for a more successful UP.
- No reason for taking action. Without a Purpose, there is no reason for implementing Solution ideas.
- Fix the whole thing. Restating the challenges of the entire Future Scene in the Underlying Problem is a critical error in the problem solving process. Students should synthesize the information to identify a single significant area of concern.
- Moving beyond the Future Scene. An Underlying Problem that broadens its focus outside the Future Scene or is unrelated to the Future Scene does not represent a response to the Future Scene. Students are tasked with responding to the situation they are provided with, not moving outside of it, or undoing it.

HELPFUL HINTS

Focus considers that question "Is it manageable?" The Underlying Problem serves as the goals to be accomplished in Step 3. Goals that are immense are daunting, making it difficult to develop a range of solutions. "How do we solve world hunger?" is an excellent objective, but so massive it is easy to give up before you even start. "How can we feed the hungry in our community?" will make a difference, while allowing the issue to be addressed in a variety of ways.

Adequacy addresses the idea of importance. UPs should address a significant aspect of the Future Scene. There is always a range of issues present in a situation, especially a FPS Future Scene. Helping a single person is a good thing to do. Identifying a group of people to help is even better. Students should ask themselves "If we solve this problem how significantly will the Future Scene be impacted?"

The Four I's refers to four areas that students should consider as they make their decision about the Underlying Problem.

- ***Impact*** - Which area of concern, if solved, would have the greatest impact on the Future Scene?
- ***Influence*** - Which area of concern can the team/individual have the most influence on because of their knowledge of the topic?
- ***Interest*** - Which area of concern generates the most interest and enthusiasm?
- ***Imagination*** - Which area of concern seems most likely to inspire students' imaginations so they can come up with creative, futuristic Solution ideas?

The Underlying Problem is the most important Step in problem solving because the quality of all subsequent Steps relies on an important and well-stated Underlying Problem. Successful UPs will demonstrate a skillful understanding of the Future Scene, and response to the charge. An Underlying Problem that has a careful balance between Focus and Adequacy makes for a successful booklet.

Key Tips for a successful Underlying Problem

- A Challenge that is an underlying *cause* of the Future Scene makes an excellent Underlying Problem.
- Responds directly to the charge (area of concern) identified in the Future Scene.
- Address an area or category of concern.
- Several related Challenges in Step 1 may be compiled into an important Underlying Problem. A compilation, or synthesis, can be seen as more than one specific Challenge but less than an entire category of Challenges, or it can be a compilation of related Challenges that address several different categories.
- Multiple **unrelated** ideas should not be included in the Underlying Problem.

What an evaluator looks for in Step 2

Completeness – Are all the correct components (Condition Phrase, KVP, Purpose, Parameters) present and appropriate?

Focus – The issue identified in the Underlying Problem should be a smaller part of the entire Future Scene; it should narrow the Future Scene without trivializing any part of it.

Adequacy – The Underlying Problem should be of major importance in relation to other Challenges affecting the Future Scene. Future Scenes commonly identify a specific mission, charge, or area of concern.

STEP 3
Produce Solution Ideas

The key objective of Step 3 is to produce many varied and creative Solution ideas to solve the Underlying Problem. A Solution idea, if relevant, addresses the Key Verb Phrase and supports the Purpose, either explicitly or implicitly, and does not contradict the Future Scene parameters of topic, place, and time. Flexibility in thinking is demonstrated by suggesting ideas from different perspectives or categories. The team's goal is 16 (8 for individuals) elaborated Solution ideas.

ESSENTIALS

1. Solution ideas must address, or have a relationship to, the Key Verb Phrase.
2. It must be clear or easily inferred that the Solution idea supports the Purpose.
3. Solution ideas should not contradict any part of the Future Scene parameters of topic, place, and time. The parameters do not need to be stated in the Solution idea, but the Solution should not be about a different topic, a different place, or a time period other than that of the Future Scene.
4. Solution ideas are written in statement form as definite proposals, using the word "will" rather than "may" or "might."
5. A Solution idea does not have to solve the Underlying Problem completely, but it must show a relationship to the UP.
6. For team problem solving, each team member should have the same action goal in mind before generating Solution ideas. Teams and individuals should keep a copy of the Underlying Problem

KVP and Purpose in front of them as they go through the remaining Steps, so they will remember exactly what they are trying to accomplish.

7. An elaborated Solution idea contains at least three significant areas of detail.
   - WHO will implement the solution
   - HOW the Solution will work
   - WHY it's a good idea
   - WHAT it will accomplish
   - HOW/WHY it will fulfill the goals of the Key Verb Phrase and/or Purpose
   - WHEN it will be completed or a timeline of actions
   - WHERE are relevant places for the Solution idea to be carried out, etc.

   While it is helpful to include *when* and *where* these will only be counted toward elaboration if they are of a substantive nature. ("In the year 2063 on Titania" is not of a substantive nature.)

Elements of Elaboration

Here is an example of an elaborate (perhaps *over* elaborate, for the sake of illustration) Solution idea utilizing who, what, how, why, and a substantive where and when:

Who: *The United Nations*

What: *will initiate a new policy*

How: *encouraging every nation to buy a stake in Oberon Corp. and eventually buy them out*

Why: *in order to diversify access to Helium-3 collection.*

Where: *This worldwide owned company will give each nation equal shares of the Helium-3*

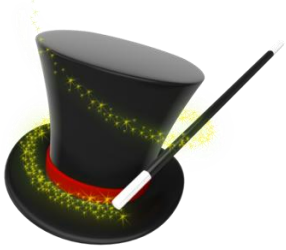
When: *and will begin immediately.*

Mistakes to Avoid

- Solution ideas that do not have a clear connection to the Key Verb Phrase and Purpose of the Underlying Problem. More information may be needed to make the connection.
- Solution ideas that are not related to the Underlying Problem. Remember Step 3 is a direct response to the goals (KVP and Purpose) identified in Step 2.
- Statements that do not describe a Solution Idea OR the idea is unclear.

HELPFUL HINTS

Just repeating the Key Verb Phrase and Purpose in the Solution idea does not illustrate how or why the Solution would be implemented. How the idea will address the KVP and how/why it will support the Purpose must be explained.



Imaginative inventions are fun, but inventions do not necessarily happen just because someone says it will. Sometimes inventions are "magical thinking" or in opposition to the laws of nature. Some level of explanation about how the invention will work may be needed to award a Relevant.

Futurizing is fun and great for Solutions. Prepare by researching new technologies and future trends using journals such as *The Futurist*, *Futures*, or *Scientific American*. Brainstorm potential Solution ideas or use those found in research and practice making the ideas more futuristic. If necessary, remember to explain how the futuristic elements will work.

Generating a range of ideas will improve Fluency and Flexibility scores. Practice with the category list and brainstorming tools such as force fitting, SCAMPER, morphological matrix, and other creative problem solving tools for generating Solution ideas. Additional generating and focusing tools are available through virtual modules at creativelearning.com.

SCAMPER

S ubstitute: What person or thing could serve in place of another?

C ombine: What can be brought together or united?

A dapt: How can something be adjusted to suit a condition or purpose?

M odify: How can the color, shape, or form be changed?

M agnify: How can it be made larger, stronger, or thicker?

M inify: How can it be made smaller, lighter, or shorter?

P ut to Other Uses: For what else can it be used?

E liminate: What can be removed?

R everse: How can it be turned around or placed opposite its original position?

R earrange: How can the pattern, sequence, or layout be changed?

Using an appropriate WHO in Solution ideas is important. The actual *who* in a Solution idea should be the *person or agency* that will implement the Solution idea. The *who* should be a logical expert, agency, or organization. A celebrity may not be the appropriate person to create educational materials. Children of the world will not pass legislation. A pronoun such as we, they, he, she, etc. is not sufficient to count as "who."

A good WHO has PIE

A good WHO is a ***logical*** person, expert, agency, or organization to *implement* the Solution.

They have the:

- **P**ower
- **I**nterest
- **E**xpertise

to make the Solution happen.

Key Tips for successful Solutions

- Communicate with your teammates. It is easy for ideas about educating, fundraising, new technology, etc. to sound alike. Knowing what everyone in the group is working on will help to prevent duplicate ideas.
- Every Solution idea must respond to the Key Verb Phrase and Purpose identified in Step 2. Keeping these items on a scrap of paper in the middle of the table helps to keep students focused on the precise goals they established. Often time out of sight out of mind holds true if the UP does not remain at center stage.

Solution ideas are a great place to demonstrate research, creativity and futuristic thinking. Just because it is not possible today does not mean it will not be possible in the future. Have fun and try new ideas. Build off of what is possible today and take it where it could be. Consider the Future Scene for inspiration. What technology is present? Who is involved in the Future Scene? If the idea is already occurring in the Future Scene, students will have to expand on the idea to receive credit.

What an evaluator looks for in Step 3

Fluency – Solution ideas that clearly address the Key Verb Phrase and support the Purpose presented in the Step 2 Underlying Problem.

Elaboration – Relevant Solution ideas that include at least three significant who, what, why, how, where, and when elements.

Flexibility – A variety of ideas presented in Solutions as demonstrated by the use of multiple categories.

STEP 4
Generate & Select Criteria

Criteria are the standards by which Solution ideas are judged. The Solution idea that best addresses all of the criteria is considered the "best Solution" and becomes the basis for the Action Plan. Therefore, criteria should address aspects of the Solution ideas that will be very important in determining which Solution will best accomplish the goals of the Underlying Problem. The key objective of Step 4 is to generate ideas/criteria that serve as measurement standards to determine the creative potential and importance of Solution ideas.

ESSENTIALS

1. Criteria should be written to satisfy four guidelines.
   1. Focus on a single standard
   2. Demonstrate a measure of degree using a superlative
   3. Indicate the desired outcome
   4. Recognizable as a question
2. The specificity of the criteria content is considered. Criteria that are generic and can be applied to a wide variety of topics and situations score lower in points. Criteria that are specific to the Underlying Problem, Future Scene, and research for the topic score more points. All criteria, even those that are not Correctly Written, are considered for their content. There are three categories of criteria that receive points.
   - ***Generic:*** A criterion that could be applied to nearly any Underlying Problem or Future Scene. Generic criteria with Future Scene parameters added (topic, place, time) are still rated Generic. Simply adding the Future Scene Parameters (topic, place, time) does not develop a criterion beyond Generic.
   - ***Modified:*** A criterion with a core idea that is generic, but with significant details from the Future Scene added. These details may include stakeholders from the Future Scene; details from the Condition Phrase, Key Verb Phrase, or Purpose if used as a time constraint; or other key details from the Future Scene. Future Scene

Generic Criteria Examples
- *Which solution will last the longest?*
- *WSW be the safest in 2063?*
  - Time parameter added is still generic

Modified Criteria Examples
- *Which Solution will be the safest for Oberon Corporations workers in space?*
- *WSW be the quickest to implement for Oberon's competitors?*

parameters alone (topic, place, time) are not enough to score as Modified.

- ***Advanced:*** A criterion that firmly establishes its Relevance to the Underlying Problem using one of three methods:
  - A criterion that uses the concept from the Key Verb Phrase or the concept from the Purpose.
  - A criterion that uses concepts from the background research on the topic for this particular Future Scene or is specific to an element of the Future Scene that is not generic.
  - A criterion that is generic, but is justified with specific facts from the Future Scene that relate closely to its importance.

Examples of Advanced Criteria

Underlying Problem for Criteria Examples: Because Oberon Corporation holds large amounts of economic and political power as the solar system's largest supplier of "extra-Earth" minerals and Helium-3, in what ways might we increase the variety of companies involved in the space program so that it will lessen Earth's dependency on the dominating Oberon Corporation on Earth in the year 2063 and beyond?

A. *Which Solution will best increase the variety of companies involved in the space program?*
   - UP based (KVP)

B. *Which Solution will most effectively lessen the Earth's dependency on the dominating Oberon Corporation?*
   - UP based (Purpose)

C. *Which Solution will best comply with international business laws that govern the harvesting of materials from space?*
   - Research based - Space law was part of the research on the topic of space.

D. *WSW best avoid conflicts between governments competing in space?*
   - Future Scene based – Takes into account events in the Future.

E. *Since unmanned shipments of Helium-3 will be sent from Midsummer Station to Earth only twice per decade, which Solution will best assure the safe delivery of the Helium-3?*
   - Justified with Future Scene facts

Mistakes to Avoid

- Not Relevant to the Underlying Problem
  - A criterion that has no relevance to evaluating Solutions for this Underlying Problem
- Duplicate of another accepted criterion
  - A criterion that duplicates one of the other criteria being used.
- Adding an element of the Underlying Problem to a generic concept. Adding the KVP or Purpose as an introduction to a criterion does not change the concept being measured by the criterion.

HELPFUL HINTS

Thoughtful word choice impacts the meaning of criteria very quickly. Keeping your ideas clear and succinct helps to make sure that only one idea is addressed in each criterion. Words like "and" "or" "when" and "while" often serve to introduce a second concept. Successful criteria will address only one area.

Check for meaning: Some criteria lack meaning. One example of this is "Which Solution will be most effective?" Most effective at what? Be sure the meaning is clear.

Use facts for justification: A justification for a generic idea begins with Since… or Because… What follows must be *facts* from the Future Scene, *not assumptions*. Be sure that your justification is actually stated in the Future Scene and has a logical relationship to the criteria. For example, how would a fact about the cost of something help identify the most humane Solution?

Key Tips for successful Criteria

- Shorter is often better. Criteria must be singular in order to receive credit. Often as ideas are elaborated, and efforts are made to Modify or Justify Generic concepts, multiple elements are introduced.
- Does it apply to YOUR Underlying Problem? A criterion can be a wonderful idea. If it is not Relevant to YOUR Underlying Problem, it is not going to receive credit.
- Remember the reason for Criteria. They are there to help you make a decision. If their meanings are ambiguous, they cause decision making to be more difficult.

Criteria play an important role in the problem solving process. The development of Criteria provides reasoning and structure to the decision-making process.

What an evaluator looks for in Step 4

Correctly Written – Does each criterion follow all four of the necessary elements of successful criteria?

1. Focus on a single standard
2. Demonstrate a measure of degree using a superlative
3. Indicate the desired outcome
4. Is recognizable as a question

Relevance – Is this criterion a valid way to evaluate the Solution ideas for this Underlying Problem?

STEP 5
Apply Criteria to Solution Ideas

The key objective of Step 5 is to determine which Solution is the best one to address the Key Verb Phrase and support the Purpose in the Underlying Problem. The evaluation matrix (grid) is used for this purpose. Applying the criteria to Solution ideas is an important focusing tool. Use the evaluation matrix (grid) to apply five criteria to the most promising Solution ideas in order to determine the best Solution. The best Solution then becomes the focus of the Step 6 Action Plan.

ESSENTIALS

1. Students select 8 of their most intriguing Solution ideas (5 for individuals) to enter into the evaluation matrix (grid). The matrix is used to rank the Solution ideas. Considering one criterion at a time, rank each of the Solution ideas against all others using that criterion. Repeat the ranking for each of the criteria.

2. In each column (one for each criterion), rank the Solution ideas from 1 (low) to 8 (high) or to the highest number that equals the number of Solutions ideas in the grid (5 for individuals). Use each number once in each column.
3. Add the ranks across the rows and enter the totals into the final column of the grid.
4. Use the Solution idea with the highest points as the basis for the Step 6 Action Plan.
5. If there is a tie for the highest points, choose one Solution idea or the other. The Step 6 Action Plan cannot be a combination of tied Solution ideas.

Step 3 Solution	Solution Idea	Criteria					Total
		1	2	3	4	5	
# 13	Space suits	6	4	6	7	5	28
# 5	multiple companies	3	3	3	6	4	19
# 9	Space X	1	8	4	4	3	20
# 10	UN money	7	5	5	5	1	23
# 15	Helium-3 scans	4	2	7	2	2	17
# 1	Private transport	2	1	1	1	8	13
# 7	new budget	5	6	2	3	7	23
# 8	Mars rover	8	7	8	8	6	37

Mistakes to Avoid

- Not truly the best Solution. If the highest scoring Solution idea does not represent a good or logical plan to address the Underlying Problem, it is usually because:
  - The criteria are not adequate.
  - The favorite Solution idea is being mistaken for the best Solution.
- Don't manipulate the grid. It is inappropriate to assign the same rank to each Solution idea for every criterion. It is unlikely that each Solution idea would receive the same rank from five different criteria.

HELPFUL HINTS

Best, then worst: In ranking each Solution idea against a criterion, it may be easier to determine the best Solution ideas (8, 7) and then the least effective Solution ideas (1, 2). Then work to the middle.

Breaking a tie: If, after completing the grid, two or more Solution ideas tied for the best Solution, the tie must be broken. Any of these methods may be used for breaking the tie. It is helpful to let the evaluator know how the tie was broken, but it is not required.

Key Tips for a successful Grid

- Double-check addition. Addition for the totals in the grid should be double-checked to be certain no mathematical errors have occurred. Use a calculator to add up the totals. If the sum is 180 (75 for the individual grid with five Solution ideas), the grid is most likely completed correctly.

It is important that only one Solution idea "win" the grid and be developed into your Action Plan in Step 6. Improper use of the grid (i.e., ignoring the outcome, or using multiple Solution ideas) leads to receiving only 1 point. The highest scoring Solution must be the one presented in Step 6.

What an evaluator looks for in Step 5

Correctly Used – Was the grid used appropriately to select the best Solution for development into the Step 6 Action Plan?

STEP 6
Develop an Action Plan

An Action Plan is a *proposal* for solving the Underlying Problem. The Action Plan should explain in detail the *who, what, how, why, where,* and *when* of the Solution idea. Developing an Action Plan involves moving from creative ideas into action; a new idea is incomplete until it is a workable idea. The Action Plan demonstrates how it addresses the area of concern of the Underlying Problem and how it positively impacts the Future Scene.

ESSENTIALS

1. The Action Plan MUST focus on the best Solution as identified by using the evaluation matrix (grid) in Step 5.
2. The Action Plan should first introduce the basic idea, similar to what was written about it in Step 3 – Solution Ideas.
3. Many additional facets may be added to the idea at this point, with the goal of showing a complete plan and strategies for implementation of the best Solution.
4. The Action Plan *may* describe timelines and tasks, details on how the Solution will operate, potential obstacles and how to overcome them, how the plan will address the Underlying Problem, how/why it will have a positive impact on the Future Scene, etc.

Mistakes to Avoid

- Restating the Solution idea. The Action Plan should elaborate well beyond the initial idea presented in Step 3.
- Claiming perfection. It is okay, and even encouraged to admit that the Action Plan is not perfect. Acknowledging obstacles provides an opportunity to explain your Action Plan in more depth.

HELPFUL HINTS

Connect the plan: Tie the Action Plan back to the Underlying Problem, the Future Scene, the Criteria, and the topic.

Elaborate - The original Solution idea may be used as the starting point for the Action Plan, but the plan should go well beyond that idea with many details.

Develop the plan:

- Include information on who will carry out the plan, what will be done, how it will work, and when milestones will occur.
- Describe how the Action Plan directly responds to the goals created in the Underlying Problem.
- Discuss the effectiveness of the plan (how well it solves the Key Verb Phrase and supports the Purpose).
- Include ideas about how the plan addresses the criteria developed in Step 4.
- Consider the broader impact of the plan (the ways in which it will affect the Future Scene).
- Analyze the humaneness of the plan (how productive and positive the plan will be if achieved).
- As an option, describe obstacles that may occur and how they might be overcome.

Be creative and persuasive: Sell the idea! Be mindful that wildly creative ideas do not distract from how appropriately the Action Plan solves the Underlying Problem.

Other Solutions - Be careful if using other Solution ideas as part of the Action Plan. Another idea or two from the grid is acceptable if truly supporting the best Solution idea and not overshadowing it, but the overall plan should be a unified effort to address the Underlying Problem.

Key Tips for a successful Action Plan

- Clearly demonstrate how your solution idea responds to the goals identified by your Underlying Problem.
- Explain how the criteria influenced the decision to identify the best solution to be developed into the Action Plan.

The Action Plan is the culmination of the problem solving process. Use all the knowledge that has been gained researching a topic, and the analysis of the Future Scene to inform the explanation of the Action Plan.

What an evaluator looks for in Step 6

Relevance – Demonstrates the relationship of the Action Plan to the Underlying Problem.
Effectiveness – To what extent does the Action Plan actually accomplish the goals identified in the Underlying Problem?
Criteria in Development of Action Plan - How well do students explain the thinking that went into their choice of Action Plan and what part did their criteria play in that thought?"
Impact – Is the UP of enough significance and the Action Plan clearly linked to it, thus having a strong impact on the Future Scene as a whole?
Humaneness – Will the Action Plan have a productive, positive potential as opposed to a destructive, negative potential?
Development of Action Plan – Was a complete strategy for implementing the Action Plan presented?

OVERALL

The Overall scores reward problem solvers who can combine research, creativity, and futuristic thinking to effectively work from a Future Scene to a focused Action Plan using the Creative Problem Solving Process. Some Steps of the process lend themselves to a more effective demonstration of these concepts. It is the "Overall" impression that the booklet gives in these three areas that determines the scores.

ESSENTIALS

1. **Research Applied:** Relevant research concepts and terms are used throughout the booklet to demonstrate a solid understanding of the topic, and the likely future trends that will result.
   - Vocabulary terms and facts specific to the topic.
   - Examples and incidents from the research may be woven into student responses.
2. **Creative Thinking:** Responses showing creativity are those requiring intellectual energy to make mental leaps beyond obvious or commonplace responses. A diverse range of ideas, as well as effective application of the problem solving process, indicates creative thinking.
   - Unique ideas.
   - Skillful use of the problem solving process.
   - High scores on the creativity scales of fluency, flexibility, and elaboration are signs of creative strength.
3. **Futuristic Thinking:** Discussion and research that extends current knowledge of the topic into the future and that identifies future trends and technologies that may be relevant to the topic are recommended.
   - Use of relevant trends from the research.
   - An awareness of potential future technologies.
   - Development of futuristic, yet workable ideas is essential.

HELPFUL HINTS

Practice embedding research terms, concepts, and information into the Steps of the problem solving process is recommended. A vocabulary list is a great place to start. It provides students with a better understanding of the Future Scene and terms they will likely see, and as well as allowing them to speak with confidence on topics that are often well beyond their years.

Generate lots of ideas. Familiarity with a variety of creative thinking tools for generating ideas is recommended. All good brainstorming begins with some ground rules. Practicing the rules and goals of brainstorming will make it second nature by the time competitive rounds begin.

What an evaluator looks for in Overall

Research Applied – To what extent was the application of research throughout the booklet demonstrated?

Creative Strength - Consider the creative, productive thinking in evidence throughout the booklet.

Futuristic Thinking - Examine the ability of students to put themselves into the time frame of the Future Scene.

GIPS EVALUATION

The full Evaluation Guidelines for Global Issues Problem Solving are published annually by FPSPI. You can access the latest version free of charge at **www.fpspimart.com**. These are the official rules that participants must adhere to at the International Conference. Affiliate Programs are encouraged to follow these Guidelines, though check with your Affiliate to confirm any adaptations they may have made.

Step 1 / Challenges

- **Y** *Yes!* This is a possible Challenge.
- **P** *Perhaps* this is a Challenge. Explain more completely.
- **W** *Why* is this a Challenge? The evaluator cannot see the connection.
- **S** This is a *Solution* idea instead of a Challenge.
- **D** This Challenge is a duplicate – too similar to another one.

Fluency measures the quantity of Yes Challenge ideas.
Flexibility measures the number of different categories covered by the Yes Challenges.
Clarity measures the quality of the writing and the cause-effect reasoning in the Challenges.
Originality is awarded for innovative ideas not generated by most other teams.

Step 1 Scoring Guidelines										
Fluency - A Yes challenge is a logical cause or effect of the situations in the Future Scene. **Score**	Fluency is determined by totaling the number of Yes challenges and using the following scale:									
	Number of Yes challenges:	1	2	3	4	5-6	7-8	9-10	11-12	13-14	15-16
	Number of points awarded =	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Flexibility - Measures the number of different categories in Yes challenges **Score**	Flexibility is determined by totaling the number of different categories identified.										
	Number of distinct categories:	1	2	3	4	5	6	7	8	9	10
	Number of points awarded =	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Clarity - Tells what the concern is, why it is a concern, and relates it to the Future Scene **Score**	Hard to determine what challenge is; cause-effect reasoning may be absent or incorrect **1 2 3**	Most convey basic idea; lacks detail; cause-effect reasoning is vague or takes leaps **4 5 6**	Clear explanations; some detail; most cause-effect relationships make sense **7 8**	Well written; clear descriptions with detail; logical cause-effect relationships **9 10**						
Originality - Three bonus points may be awarded to any Yes challenge that shows unique creativity or insight into the future scene.										

Step 2 / Underlying Problem

Completeness considers **Condition Phrase, Stem + Key Verb Phrase, Purpose, and parameters** to evaluate that the required elements in the UP are present.
Focus looks at the scope of the UP and whether it is too broad or too narrow.
Adequacy judges the importance of the UP and the impact on the Future Scene.

Step 2 Scoring Guidelines				
Condition Phrase **Score**	Not present **0**	Inaccurate information or unrelated to KVP **1**	Present, accurate, and related to Future Scene **2**	
Stem and **KVP** **Score**	Key Verb Phrase not present **0**	Present but multiple verb phrases **1**	Present but multiple objects or modifiers **2**	Present and contains a single active verb phrase **3**
Purpose (P) **Score**	Not present **0**	Present but more than one or repeats KVP **1**	Present but no clear relation-ship to KVP **2**	Present and singular with logical relation to KVP **3**
Future Scene Parameters **Score**	0 or 1 Parameter present **0**	2 Parameters present **1**	Topic, place, and time present **2**	
Focus of Underlying Problem **Score**	Restates, broadens, or ignores FS **1** No purpose or not connected to KVP; Purpose repeats KVP and/or CP **1 2 3**	Too broad or too narrow KVP with stated purpose; UP not clearly worded; multiple KVP or purpose **4 5 6**	UP contains a good KVP, the goal or purpose is evident and addresses Future Scene charge **7 8**	Excellent KVP that ties directly into a well defined, clearly written purpose and addresses Future Scene charge **9 10**
Adequacy/Importance of Underlying Problem **Score**	Restates, broadens, or ignores FS **1** No purpose or not connected to KVP; Purpose repeats KVP and/or CP **1 2 3**	Identifies minor issue from the Future Scene **4 5 6**	Identifies an appropriate issue from the Future Scene **7 8**	Identifies a major, important issue from the Future Scene **9 10**

Step 3 / Solution Ideas

R This is a *Relevant* Solution that addresses the Key Verb Phrase of the UP and supports the Purpose.

P *Perhaps* this is a Solution. Explain more completely.

W *Why* is this a Solution? Does not seem to address the KVP and Purpose.

D This Solution idea is a duplicate – too similar to another one.

Fluency measures the quantity of Relevant Solution ideas.

Elaboration rates the number of Relevant Solutions with three areas of significant detail.

Flexibility rates the number of different categories covered by the Relevant Solutions.

Originality is awarded for Relevant, innovative ideas not generated by most other teams.

Step 3 Scoring Guidelines										
Fluency - A relevant solution idea addresses the KVP and supports the purpose **Score**	Fluency is determined by totaling the number of relevant solution ideas and using the following scale:									
	Number of relevant solution ideas:	1	2	3	4	5-6	7-8	9-10	11-12	13-14	15-16
	Number of points awarded:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Elaboration - Any relevant solution idea that includes at least 3 who, what, why, how, where and when elements **Score**	Elaboration is determined by totaling the number of elaborated solutions in relevant solution ideas:									
	Number of elaborated solution ideas:	1	2	3	4	5-6	7-8	9-10	11-12	13-14	15-16
	Number of points awarded =	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Flexibility - Measures the number of different categories in relevant solu-tion ideas **Score**	Flexibility is determined by totaling the number of different categories identified.										
	Number of categories:	1	2	3	4	5	6	7	8	9	10
	Number of points awarded =	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Originality - Three bonus points may be awarded to any relevant solution idea that shows unique creativity or insight											

Steps 4 and 5 / Criteria and Grid

Correctly Written judges the structure of each criterion: a single standard, superlative, desired outcome, recognizable as a question.

Relevance judges whether the criteria are generic to any UP or specific to this UP.

Correctly Used judges to what extent the grid is completed accurately.

Steps 4-5 Scoring Guidelines				
Correctly Written (CW) Measure of degree, single dimension, worded in desired direction **Score**	One point is awarded for each correctly written criterion. A correctly written criterion **MUST** include all three: a superlative - 'st' word, focus on a single dimension, and phrased in the desired direction. **Number of correctly written criteria = 0 1 2 3 4 5**			
Relevance to the UP **Score**	**Total Relevancy Points from the table below** **0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15**			
Correctly Used **Score**	Grid has 3 or more errors; top solution not used in Step 6 **1 2**	Grid contains 2 errors **3**	Grid contains 1 error **4**	Grid contains no errors **5**

	CW (√)	A = Advanced 3 points M = Modified 2 points G = Generic 1 point D = Duplicate 0 points NR = Not Relevant 0 points	A / M / G / D / NR	Rel Pts
1				
2				
3				
4				
5				

Steps 4-5 Comments:

Step 6 / Action Plan

Relevance measures the relationship of the plan to the Underlying Problem, KVP, and Purpose.
Effectiveness evaluates how well the plan successfully solves the UP.
Criteria in Development of Action Plan examines the degree to which Criteria are incorporated into the Action Plan.
Impact determines to what extent the plan will have a positive impact on the Future Scene.
Humaneness measures the productive, positive potential of the plan.
Development of Plan measures how well a comprehensive, workable plan has been presented.

Step 6 Scoring Guidelines				
Relevance - Measures the plan's relationship to the Underlying Problem **Score**	Action Plan does not address the UP **1**	Action Plan has some relation to the UP; another solution might be better **2 3**	Action Plan does a good job of addressing the UP **4**	Action Plan has an excellent relationship to the UP **5**
Effectiveness - Measures the potential ability of the Action Plan to successfully solve the UP **Score**	Action Plan does little to solve the UP **1**	Action Plan solves some aspects of UP **2 3**	Action Plan adequately solves UP **4**	Action Plan completely solves UP **5**
Criteria in Development of Action Plan - the degree to which criteria are addressed in Action Plan **Score**	Action Plan does not address the criteria **1**	Action Plan's connection to criteria is minimal or unclear **2 3**	Action Plan makes some valid connections to criteria **4**	Action Plan addresses criteria in a convincing manner **5**
Impact - Measures the positive effect of the Action Plan on the Future Scene **Score**	Action Plan has no effect; UP scored low in adequacy **1**	Effect on the Future Scene is not strong; UP low in adequacy **2 3**	Action Plan has effect on Future Scene; UP of average adequacy **4**	Plan has strong impact on Future Scene; UP high in adequacy **5**
Humaneness - Measures the productive, positive potential of the Action Plan **Score**	Negative or destructive Action Plan **1 2**	Action Plan is neutral - neither positive nor negative **3**	Constructive potential evident **4**	Action Plan is positive and constructive **5**
Development of Action Plan - The degree to which the team explains its plan **Score**	Minimal description of plan; rewrite of Step 3 solution idea **1 2 3**	Plan provides some elaboration; more support of ideas needed **4 5 6**	Plan explains the who, what, why, and how in detail **7 8**	Plan structured and well elaborated detailing more than the basic W-W-W-H elements **9 10**

Overall

Research Applied rates the application of research shown throughout the booklet.
Creative Strength measures the creative, productive thinking shown in the booklet.
Futuristic Thinking evaluates how well the team has addressed issues of the future.

Overall Scoring Guidelines				
Research Applied Relevant terms and ideas **Score**	Minimal evidence of research terms, concepts, issues, trends **1 2 3**	Average evidence of research terms, concepts, trends for age group **4 5 6**	Noticeable evidence of research terms, concepts, trends **7 8**	Evidence of research and thorough knowledge of topic readily apparent **9 10**
Creative Strength Original, productive, thinking **Score**	Minimal evidence of creative thinking **1 2 3**	Some attempt at creative thinking evident in parts of booklet **4 5 6**	Innovative thinking, insightful ideas; parts of booklet go beyond the ordinary **7 8**	Strong display of inventive, ingenious ideas throughout the booklet **9 10**
Futuristic Thinking Relevant trends and technologies projected into the future **Score**	Minimal evidence of futuristic trends or technologies **1 2 3**	Average futuristic ideas for age group **4 5 6**	Futuristic concepts present throughout booklet **7 8**	Excellent futuristic concepts that indicate how ideas impact future society **9 10**

QUESTIONS?

There are many people that are not only able to answer questions, but would enjoy the opportunity to discuss FPS with you! The Affiliate Director for your geographic region can assist with things ranging from new coaches needing guidance to the specific dates and costs for events in your area.

Questions about this resource should be directed to the International Office. Seeking curricular materials or wonder how the International Conference works? Not sure where to start? Contact the International Office at www.fpspi.org or 321-768-0074. It would be our pleasure to assist.

Category List


Arts & Aesthetics

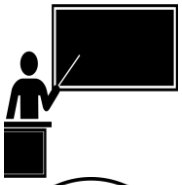

Basic Needs


Business & Commerce


Communication


Defense


Economics


Education


Environment


Ethics & Religion


Government & Politics


Law & Justice


Miscellaneous


Physical Health


Psychological Health


Recreation


Social Relationships


Technology


Transportation

"Sixty years ago I looked up at that star," my great-grandfather points toward a point of light through the station window. *"Scientists laughed at me when I said I'd send a probe there. But look at what we have achieved, William! Sixty years from now, the probe we launched today will send back the first images of the star system, Alpha Centauri."* He sighs quietly, *"I wish I could be alive to see the results."*

While CEO of our family business, the Oberon Corporation, my great-grandfather paid for the development of the Herschel 1 probe. Herschel 1 launched today from our moon and is headed for the Alpha Centauri System four light years away. The probe contains a transmitter, an imaging device, and fusion generators for power. It will take over sixty years before we can be sure it has arrived.

At 100 years old, my great-grandfather has seen more scientific and social progress in his life than almost any other living person. When he was born in 1963, a national tragedy gave way to fears that the new president wouldn't continue to support the U.S. space program - but that didn't happen. The wonderful achievements of that decade are often referred to as "the golden age of space exploration." By the start of the 21st century, creative entrepreneurs like my great-grandfather were taking control from governments as the corporate space age took shape.

The space elevator brought my great-grandfather and me 62,000 miles up to Port Earth Station. From there we could watch the launch and enjoy just one example of the achievements of entrepreneurs like my great-grandfather. Port Earth Station is effectively an orbiting city - a "new star," as my great-grandfather likes to say. Some 3,500 scientists, engineers, and marketing-specialists live semi-permanently on the station - and most of them are employees of Oberon Corporation. Even with rival mineral mining concerns on the Moon and Mars, our corporation remains the solar system's largest supplier of "extra-Earth" minerals and Helium-3, the main fuel in fusion power generators - and we intend to keep it that way.

Our next venture will be the biggest and best achievement of Oberon Corporation. On the Uranian moon of Titania, 1.7 billion miles away, we are planning for our newest settlement: Midsummer Station. It will be the farthest human settlement from Earth, with a planned population of 600 people who will be able to survive on the moon because of Titania's interior water ice mantle. Three Helium-3 collectors in the atmosphere of Uranus will supply Midsummer Station with all the fuel needed to run its fusion reactors and power its mining facilities. Twice-per-decade, unmanned shipments of Helium-3 will be sent from Midsummer Station to Earth. This will provide a nearly inexhaustible supply of fuel for Earth's own fusion reactors. Because of these shipments, clean energy will course through the power relays of Earth and the human footprint will continue expanding toward the edges of our solar system and beyond. All of this, the very future of space exploration, has been made possible by my great-grandfather and the entrepreneurial skill he showed decades ago.

And what is the cost for this endless supply of clean energy? As the first to mine the abundance of Helium-3 on Titania, we have almost complete control over the price. Cost will not stand in the way of my great-grandfather's vision. And what if governments try to tax our profits or regulate our corporation? Well, mining Helium-3 is expensive and regulation tends to make it more expensive - so expensive that if governments do regulate us, they may hurt their own chances of enjoying the benefits of fusion energy. I'd say we have a pretty sound business model. *FPSers, use the Six Step problem solving process to address the implications of Oberon Corporation's space expansion in the late 21st century and beyond*.