# WISCONSIN
# Future Problem Solving Program

# Program Basics


*Teaching students HOW to think . . . not what to think!*

# *Wisconsin Future Problem Solving*

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Thank you for your interest in Wisconsin Future Problem Solving (FPS)! Through FPS, students develop skills of teamwork, communication, research, critical and creative thinking, analysis, synthesis, and evaluation. They learn to apply these wonderful skills to situations that are futuristic, but oriented to real life.

Today's students will spend most of their lives in the 21st century. As society changes more quickly than ever before, we face the awesome burden of preparing today's students for the uncertainties of the future. We cannot provide students with all the information they will need to survive, but we can help them develop the thinking skills necessary to adapt to a changing world. The Future Problem Solving Program embraces that challenge.

This publication contains information about our program and its many components. For even more information, visit our website at the address above. Please don't hesitate to contact me should you need more information. We would love for you to become a member of the Wisconsin FPS family!

Lynn Buckmaster, Affiliate Director

# What is Future Problem Solving?

Future Problem Solving (FPS) is a dynamic international program involving hundreds of thousands of students annually from around the world. Founded in 1974 by creativity pioneer Dr. E. Paul Torrance, the program's goal is to inspire creativity in students and encourage them to develop a positive vision for the future.

Future Problem Solving provides competitive and non-competitive components for today's curriculum via a six-step model which teaches critical and creative thinking, problem solving, and decision making.

***Dr. E. Paul Torrance***

## Our Goals for Students

- Increase global awareness
- Explore and problem solve complex, future societal issues
- Develop, utilize and improve research techniques
- Learn and apply problem solving strategies
- Expand and enhance creative and critical thinking skills
- Engage in real-life problem solving
- Develop teamwork skills
- Improve oral and written communication

## Through FPS participants become . . .

- **Futuristic, creative and critical thinkers** who analyze issues from a variety of perspectives and learn to think "outside the box"
- **Self-motivated learners** who are goal directed
- **Collaborative workers** who are able to compromise
- **Skilled problem solvers** who learn a specific thinking tools and a structured problem solving process
- **Analytical researchers** who explore and investigate social, scientific and economic issues that have future significance
- **Ethical leaders** who consider who consider viewpoints from a variety of perspectives
- **Effective communicators** who can build consensus
- **Global citizens** who take initiative to solve problems

# The Problem Solving Model


All of the problem solving work in FPS is based on the Creative Problem Solving (CPS) process, sometimes also referred to as a complex problem solving process. This is a powerful process that can be applied to many complex situations in educational, business, community, and personal settings.

## 1. Identify Challenges

- Generate issues, concerns, and problems, applying background knowledge to the Future Scene
- Consider major issues and categories of problems in order to think of more challenges
- Select the best challenges
- Write the those challenges clearly and concisely, showing cause and effect and tying directly to the Future Scene

## 2. Select an Underlying Problem

- Consider the major issues in the challenges
- Select an issue, one that will have a major impact on the Future Scene, for the focus of the underlying problem
- Be forward-looking and proactive, not regressive and reactive, in developing the underlying problem
- Write the underlying problem in correct format
- Indicate a desired action to be taken, a purpose for the desired action, and parameters tying the problem to the Future Scene

## 3. Produce Solution Ideas

- Generate multiple solutions to the underlying problem
- Think futuristically and consider the use of technological advances
- Select the best solution ideas
- Check each solution for its relevance to the underlying problem
- Write these solutions clearly
- Elaborate by telling who will implement the solution, what action will be taken, and how or why the action will be taken

## 4. Select Criteria

- Generate possible criteria that could be used to evaluate the solutions
- Consider the underlying problem and the Future Scene in developing criteria
- Select the most important criteria
- Write criteria in question format, with a superlative and in the desired direction

## 5. Apply Criteria

- Select the most promising solutions to include in the grid

  - Rank the solutions based on each of the criteria separately
  - Identify the best solution as the one with the highest number of total points

## 6. Develop an Action Plan

- Plan how the best solution can be implemented
- Describe the actions and steps of the plan
- Make clear how the plan will solve the underlying problem and impact the Future Scene

# Wisconsin FPS Program Components and Divisions

These are the components of the Future Problem Solving Program. Details of each are on subsequent pages.

## Global Issues Problem Solving (GIPS)

Teams or individuals research up to five different topics annually. They apply a 6-step problem-solving model to address issues within provided Future Scenes. Competitive and non-competitive options are available.


## Community Problem Solving (CmPS)

Teams or individuals apply the problem-solving model to explore local, regional, or global issues to design and implement changes in their community.

## Scenario Writing

Students develop and polish their creative writing skills as they create a futuristic 1500-word scenario based on one of the year's current topics.

## Scenario Performance

Students use the storytelling model to create and orally present a futuristic story based on one of the current topics.

### Divisions

- Junior -- grades 4-6
- Middle -- grades 7-9
- Senior -- grades 10-12
- Adult -- post high school (GIPS only)

**Registration for all components can be completed on our website**
**https://www.wisfps.org/fees-registration**

# Global Issues Problem Solving

## What is Global Issues Problem Solving?

Global Issues Problem Solving (GIPS) is a team or individual activity in which students research a series of topics with global impact and learn a six-step creative problem solving process. Participants apply their knowledge and the problem solving process to address in writing an imagined situation set in the future called a Future Scene. There are five topics each year: two practice problems, a qualifying problem, an affiliate competition problem, and an international competition problem.

## Why Global Issues Problem Solving?

Future Problem Solving provides the tools and strategies students need to face the challenges of today and the future. Students learn about topics of global importance, systematically address related complex situations, and evaluate multiple solutions in order to best address the situation. Students involved in Global Issues Problem Solving develop their critical and creative thinking, improve their communication skills through collaboration, and learning to write concisely and with focus. Future Problem Solving addresses many academic standards, including those of Common Core, STEM, and NAGC (National Association for Gifted Children).

## Who can participate in Global Issues Problem Solving?

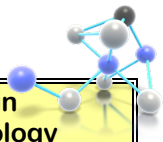
Competitive Global Issues Problem Solving is for individuals and teams of four. In some cases a team may be fewer than four. Coaches may work with multiple teams and individuals. The composition of the team does not have to be the same for each practice problem. However, in most cases the team composition must remain the same from the qualifying problem through the international level.

## GIPS topics

Topics for the Future Scenes include global issues in the areas of business and economics, science and technology, and social and political areas.

**Previous Topics in Business and Economics**

Air Transportation
All in a Day's Work
Counterfeit Economy
Currency
Debt in Developing Countries
Fund-raising and Charity Giving
Pharmaceuticals
Philanthrocapitalism
Trade Barriers

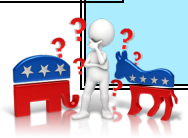


**Previous Topics in Science and Technology**

Coral Reefs
De-Extinction
Drones
E-Waste
Genetic Testing
Personalized Medicine
Robotic Workforce
Sleep Patterns
Space Junk
Wearable Technology

**Previous Topics in Social and Political Areas**

Child Labor
Coping with Stress
Culture of Celebrity
Cultural Prejudice
Gamification
Human Rights
Megacities
Olympic Games
Orphaned Children



# Non-Competitive Problem Solving Options

There are a number of ways to teach problem solving skills to students non-competitively. Each works a bit differently.

## LEAP (LEarning About Problem Solving), Grades 1-5

- This is a basic introduction to Future Problem Solving designed for integration into the classroom curriculum.
- From a number of available topics, teachers select one for problem each semester. This allows teachers to best match the topic to curriculum or community issues. (Sample topics: trash, hunger, learning to read, tornadoes, school safety, water pollution)
- Students work on a simplified version of the problem solving process in classes or in teams within a class.
- Each registration entitles one booklet to be sent for evaluation each semester, but materials may be used with as many students as you wish.

## Bridge to Global Issues Problem Solving (GIPSP)

Available to those who have completed our coach training, this program provides a more gradual introduction to GIPS. You do not follow the schedule for competitive or Rookie teams. This option consists of three parts:

1. Lessons to learn the problem solving process geared to your appropriate grade level
2. Apply the process to a shorter Future Scene (various options are provided)
3. Apply the process to a full-length Future Scene

All student work is submitted for feedback from an experienced evaluator.

## Global Issues Rookie Teams, Grades 4-12

- Wisconsin teams participate in three divisions: Junior (4-6), Middle (7-9), and Senior (10-12).
- Rookie teams use the same three practice problems and Future Scenes as competitive teams, with the same postmark dates for submission.
- Teams write a shorter booklet that includes all six steps, but only 10 challenges and 10 solutions. Teams of 3-5 are recommended. There are no limitations on time or getting assistance from the coach. Booklets are evaluated non-competitively.
- Note: Rookie teams may upgrade to competitive status for the third practice problem, called the Qualifying Problem (QP). They will then write a full competitive booklet with 16 challenges and 16 solutions and must follow competitive QP Conditions to be considered for a State Bowl invitation.

## *The Problem Solving Experience* Curriculum, 5-8

- *The Problem Solving Experience: Classroom Curriculum Designed to Promote Problem Solving in the 21st Century* is a complete curriculum targeted at grades 5-8. Portions of the curriculum may be used with younger or older students.
- The curriculum can be implemented as a full semester course, or spread across 1-4 school years.
- The curriculum consists of a preparation unit and eight "experiences." Complete lesson plans and resource materials are provided for direct instruction of problem solving skills.
    - Preparation for Problem Solving
    - Problem Solving Experience 1: Eensy Weensy Spider
    - Problem Solving Experience 2: The Elephant's Nose
    - Problem Solving Experience 3: Robin Hood
    - Problem Solving Experience 4: The Lorax
    - Problem Solving Experience 5: Harrison Bergeron
    - Problem Solving Experience 6: Smart Clothes
    - Problem Solving Experience 7: Digital Music Rights
    - Problem Solving Experience 8: Prejudice

## *Problem Solving Across the Curriculum,* 4-12

- This is a publication that provides copies of hundreds of Future Scenes that have been used in the Global Issues Problem Solving component over a number of years.
- Teachers may select Future Scenes to fit their curriculum, and may modify the scenes to meet their students' educational needs.
- Training in teaching problem solving process skills is needed in order to make full use of these Future Scenes.

# Community Problem Solving (CmPS)

## What is Community Problem Solving?

Community Problem Solving (CmPS) is a team or individual activity in which students identify real problems in a community – a school, local, state, national, or even global community -- and implement real solutions. Students use the skills of the problem solving process as they work on their project. CmPS can be pursued as an extracurricular activity or as part of the regular school curriculum, and projects can be one or more years in length. This component exemplifies problem-based learning.


## Why Community Problem Solving?

Students involved in Community Problem Solving learn powerful lessons about creating change, dealing with local authorities and organizations, and making a positive impact. The implementation of real solutions gives students a strong sense of accomplishment and helps them see the practical applications of the processes and skills that they have been learning. CmPS participation may fulfill service-learning requirements, although CmPS projects are typically more extensive. FPSPI components are aligned with national curriculum standards, Common Core standards, and the National Association for Gifted Children (NAGC) standards.

## Who can participate in Community Problem Solving?

Any student(s) may participate in Community Problem Solving. Having a background in the Global Issues components of FPSPI is a great start for students in CmPS, but it is not required. Individuals or teams of any size may participate in CmPS. For a team, you may want at least 3 or 4 students; for large projects, ay size group is acceptable. Since CmPS projects are long-term activities, lasting up to a year or more, students need to be committed to following through with the activity. Complex projects may take quite a bit of organization, with tasks divided among the participants.

**2017 Middle Individual Grand Champion**
**Project SharkMate**
**The Illawarra Grammar School, Australia**

"As fear of sharks pervades the public psyche, the senseless culling and slaughter of sharks has a perverse level of acceptance in society today. With one hundred million sharks killed every year globally, their future existence would seem to be precarious at best, and the delicately balanced ecosystem of our oceans is ultimately at risk.

SharkMate can alleviate fear of attack by providing a likelihood factor of shark presence to users of our waterways. This app will allay fear and assist in preventing the needless destruction and slaughter of wildlife in the world's oceans and ultimately help protect our ecosystems."

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# Scenario Writing

## What is Scenario Writing?

Scenario writing is an individual competition in which students develop short stories of 1500 words or less that are related to one of five topics for the year. The story is set at least 20 years in the future and is an imagined but logical outcome of actions or events taking place in the world today. It is a prediction of the future and is written as though the future were the present.

## Why Scenario Writing?

Future Problem Solving teaches students to think critically, creatively, and futuristically in a variety of ways. One way is for students to think futuristically is to create images of what the future may be like. The Scenario Writing component of FPSPI strives to help students enlarge, enrich, and make more accurate those images of the future, while honing their creative writing skills. Scenario writing personalizes the ever-growing perspective a student has on the future. In addition, participation provides opportunities for students to meet and exceed educational standards as they refine their writing skills.

## Who can participate in Scenario Writing?

Any student(s) may participate in Scenario Writing. For students who participate in Global Issues Problem Solving (GIPS) or Scenario Performance components of FPSPI, Scenario Writing can serve as an excellent complement to their work on any of the topics. Scenario Writing is also an excellent offering for students who do not participate in other components. The creative writing involved may appeal to students who are not drawn to the team orientation of the other components. Scenario Writing can be used as a stand-alone activity by an FPS coach, an English teacher, a parent, or any instructor with students who are interested in creative writing.

**Excerpt from *Out of the Mouths of Babes***
**Junior Division 1st Place 2017 International Champion**

I am on duty, monitoring the information relayed by the millions of sophisticated sensors deployed in disaster-hit areas. Neon statistics, colour-coded based on severity, quiver in front of me on a holographic screen. Sitting in my Aeromobile, I'm ready to swing into action at a moment's notice.

*Earthquake, magnitude 8.9, together with tsunami. 50 people missing, presumed dead…*

The text is bright orange. Not severe enough for my team. Another team will respond.
A line of red comes into view.

*Hurricane, category 7. 75 people confirmed dead, 200 people missing, young children among them…*

The red is my cue to embark on a rescue mission "Take me there," I instruct the Aeromobile.

*****

I begin by mentally turning on my specialised search-and-rescue (SR) chip. The SR chip, which is implanted in my brain in addition to my other information chips, will automatically connect with sensors on the ground and give me detailed and precise information about the situation. It will also link up with the identity chips of people on the site, enabling other SROs and I to locate them and assess their condition quickly, as well as the SR chips of other SROs.

I swing into action prompted by the information leads from my SR chip. Other SROs are moving around, locating survivors to be fitted into body cases. Only survivors who have more than a seventy percent chance of survival (as calculated by the SR chip) are rescued. This may seem inhumane, but with the multitude of disasters occurring, a perverse sort of triage is practiced – medical intervention only for those who will probably survive…

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# Scenario Performance (ScP)

**What is Scenario Performance?**

In Scenario Performance, students create a futuristic story related to one of the annual topics. This story is not written out in full; rather, it is ***told*** and should be more "natural" and "spontaneous" in nature. Students are challenged to create a story that lasts up to 5 minutes and is set 20-30 years in the future.

**Why Scenario Performance?** Scenario Performance was designed by the Future Problem Solving Program in Australia to develop and sustain the oral tradition of storytelling. This option is ideally suited to students who show thinking abilities in different ways - particularly those whose cultural heritage and/or learning styles prefer oral communication. It is also ideal for developing thinking skills. This oral activity for individuals encourages students to enlarge ideas, enrich personal style, and predict accurate images of the future.

**Who can participate in Scenario Performance?** Any student(s) may participate in Scenario Performance. For students who participate in the Global Issues Problem Solving and/or Scenario Writing components of FPSPI, Scenario Performance can serve as an excellent complement to their work on any of the topics. Scenario Performance is also an excellent offering for students who do not participate in other components of FPSPI. Creative storytelling may appeal to students who are not drawn to the writing and/or the team orientation of the other components. Scenario Performance can be used as a stand-alone activity by an FPS coach, a drama/debate teacher, a parent, or any instructor with students who are interested in creative storytelling.

**Find Wisconsin Future Problem Solving at**
**www.wisfps.org**

# *You can find more specific details about Wisconsin Future Problem Solving on our website !*

### About Us
- Overview of Wisconsin FPS
- History of Wisconsin FPS
- Our Board of Directors
- The Problem Solving Process
- Divisions & the Year's Topics

### Our Program Components
- Global Issues Problem Solving
- Scenario Writing
- Community Problem Solving
- Scenario Performance
- Noncompetitive Options

### Registration Fees & Forms
- Registration forms for Global Issues Problem Solving
- Entry information & forms for Community Problem Solving, Scenario Writing, and Scenario Performance

### Evaluation
- Evaluation Calendar
- Basic Questions about Evaluating
- Student booklet with Future Scene on the topic of Identity Theft
- Evaluation scoresheet

### Coaches
- Program Basics Publication
- Getting Started
- W.O.W. Factors
- Sales
- Training Workshops
- Calendar
- State Bowl Information

### Parents, Students, Alumni
- Parents Corner
- Parents Newsletters
- Current FPS Students
- FPS Alumni
- Legacy Fund

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