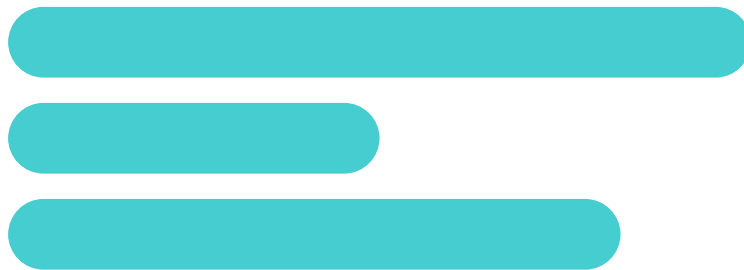


1



FPS

2



GUIDE

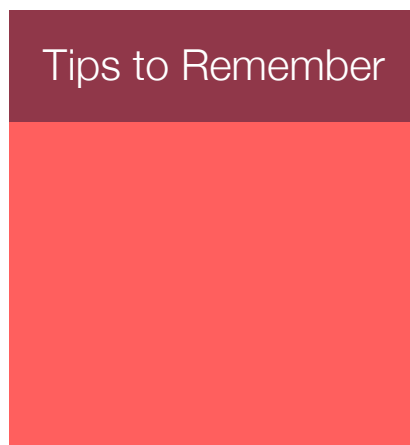
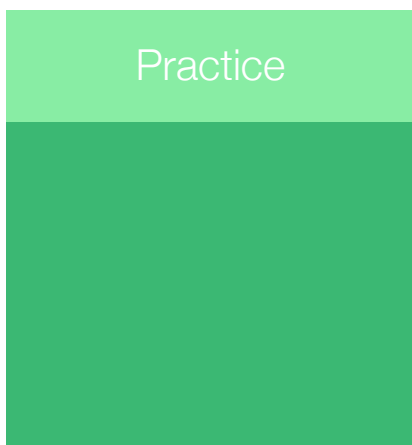
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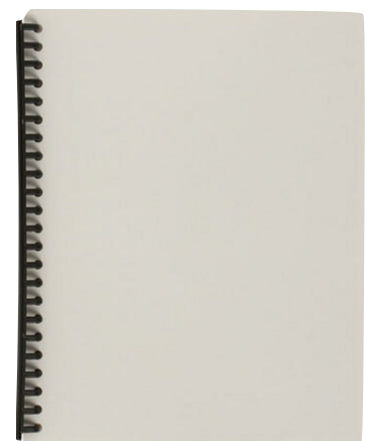
Checklist

- 4 - Introduction
- 5 - Researching the Topic
- 6 - Categories
- 7 - Analysing the Future Scene
- 10 - Brainstorming
- 11 - Step 1 | Problems
- 13 - Step 2 | Underlying Problems
- 16 - Step 3 | Generate Solutions
- 17 - Step 4 | Selecting Criteria
- 19 - Step 5 | Applying Criteria
- 20 - Step 6 | Developing an Action Plan & Timeline

What to look for



What you'll need



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Credits

Introduction

Welcome to the Future Problem Solving Program at Siena Catholic College!

FPS is an outstanding, international extension program which aims to teach students how to think and use their imagination to solve futuristic global issues.

"FPS teaches students how to think, not what to think..."

The FPS process will help you to

- Think more creatively and positively about global issues.
- Develop an active interest in the future.
- Improve communication skills, both oral and written.
- Think critically and analytically.
- Devise justified solutions to problems using a six-step thinking process.
- Work co-operatively in teams.
- Learn about complex societal issues.
- Develop research skills.
- Apply knowledge toward the generation of new ideas.
- Develop lifelong skills of resilience and adaptability.

Future Thinking

Try and think of stories which you have seen in the media on advancements in technology and predictions about the future. The world is developing at a quicker pace than ever so it is hard to tell what is around the corner. Your challenge in FPS is to develop ideas which may be possible in the near future.

These skills will be attained once you understand the following basic six step process

1. Brainstorm **Problems** and **Challenges** related to the researched topic and Future Scene.
2. Identify an **Underlying Problem**.
3. Brainstorm **Solution Ideas** to the Underlying Problem.
4. Develop **Criteria** by which to judge these solution ideas.
5. **Evaluate** the solution ideas to determine the best solution.
6. Devise and describe a **Plan Of Action** and **Timeline** to implement the best solution.

As you can see, the FPS process is not simple. Succeeding at FPS means mastering an intricate set of rules, while not stifling your own creativity.

Researching the Topic

Researching the current topic is a key step towards creating innovative ideas around which to write Problems and Solutions pertaining to the scenario you will be given about the topic. The best place to start is by reading parts or all of the information booklet your FPS coach will provide you with at the start of a new topic. This booklet contains:

- Terms & Definitions
- Overview
- Questions for Discussion
- Allocated Articles
- Further Internet Reading

By reading the articles that have been allocated to you, your team will benefit from the information which you provide and your depth of knowledge in a particular area.

Steps of Researching

- Learning the basic definitions and meaning of terms
- Reading the overview
- Reading your allocated article summaries
- Consider & discuss “Questions for discussion”
- Advanced teams could follow suggested references on your topic from the yearly handbook list

Things to Look For When Researching

When reading about the current FPS topic, it is important to note these key points (particularly when reading information from third parties).

- Is the source a good representation of the current topic?
- Has the article been written in an objective or subjective tone?
- Are there any details which you should discuss with your team (key historical events)?

Categories

Learning categories is an essential part of the Future Problem Solving process. These categories form a diverse structure which allows you to brainstorm ideas to solve the Future Scene. You will need to use the eighteen categories below to assist with shaping your Problems & Solutions. Perhaps you could even split them between your team members so that you don't have to remember quite as much. Occasionally you will have an idea that may not fit into any of the classifications so you will need to use the Miscellaneous category. Make sure you remember these categories as you will not be allowed to take the list into the competition!

Categories

Try to remember the eighteen categories by practising them regularly and associating mental images with each. Set a timer for 5 minutes each night and quiz yourself on all the categories. How many can you remember?



CATEGORIES

- Arts & Aesthetics
- Basic Needs
- Business & Commerce
- Communication
- Defence
- Economics
- Education
- Environment
- Ethics & Religion
- Government & Politics
- Law & Justice
- Miscellaneous
- Physical Health
- Psychological Health
- Recreation
- Social Relationships
- Technology
- Transportation

Analysing the Future Scene

At the start of the two hour session, you will be given a Future Scene. This is a futuristic scenario on the topic you have been researching. It is riddled with potential problems and challenges which you have to identify in Step 1.

It is important that you and your team read and thoroughly understand the Future Scene before you start the process. If you do not, the rest of your booklet will not be relevant and may be marked poorly.

You will need to identify and highlight this important information hidden in the Future Scene:

Date – What year is the scenario set in?

Location – Where is the scenario taking place?

Topic – What is the specific, narrowed topic?
(Usually more direct than the broader topic you have been researching)

Charge – The charge is usually found in the last paragraph, it asks you, the future problem solvers, to solve the problem. The charge *must* be fulfilled in order to score well in the process.

Future Scene Practice

As you read over the Future Scene, remember to highlight the important information and start to think about possible problems.

Tips for Analysing Future Scenes

- Highlight! Highlight! Highlight!
All important information, key words, characters etc.
- Feel free to take notes down the border of the page, write whatever helps you to deconstruct the scenario and find problems or challenges.
- Circle any words which you need to look in the dictionary.

Example:

Date

Location & Parties

Topic & Primary Points

Charge

Today, in 2045, there are two new islands in the Pacific Ocean. They are not the result of volcanic activity and they do not have waving palm trees and sandy beaches. What is more, they move from one area to another. They are man-made Roving Mine Islands, or RMIs.

It has been known for many years that the oceans are storehouses of mineral wealth. But, until recently, there was no affordable way to gather the minerals. The dream of harvesting the mineral riches of the oceans is now becoming a reality. A consortium of Australasian, Canadian, and American companies pioneered the RMIs to mine the mineral riches of the oceans. Today, the two existing RMIs successfully mine manganese, magnesium, copper, and gold in the Pacific Ocean. The RMIs have operated for two years at a substantial profit. The consortium is planning to build 50 more RMIs over the next 10 years.

A Roving Mine Island is large enough to support mining and processing facilities, plus the 7,000 people needed for these operations. Stabilisers allow the RMIs to withstand hurricanes without damage, while they slowly move through the Pacific.

Manganese nodules (round, fist-sized pieces of rock) are found on many areas of the sea floor. The purest nodules are found at a depth of 13,000 feet. Giant robotic dredges that are like remote-controlled vacuum cleaners mine manganese. The dredges can draw 10,000 nodules a day.

Magnesium is found dissolved in seawater. The magnesium plants on the Rims draw millions of gallons of seawater. Lime is then added to the seawater to create a sediment (a mixture that settles to the bottom of a tank). The magnesium is extracted (withdrawn) from the sediment with hydrochloric acid.

On two sides of the RMIs are 50 square miles of seaweed held in place by net fences. Visitors to an RMI are surprised to learn that these algae fields are the gold and copper mines. The seaweed is actually genetically-engineered algae. The fields of seaweed move with the RMI and absorb and store the gold and copper found in the ocean water. Every three months the algae is harvested.

The processing plant on the RMI uses chemicals to dissolve the plant material and release the precious minerals. It is estimated that there are 10 million tons of gold and 15 billion tons of copper in the oceans.

With the RMI technology now a fact of life, there is international interest in studying the uses and abuses of the RMIs. It is a well-known fact that the health of our planet depends on the health of the oceans. Mining on land has caused environmental problems. Some fear that mining the oceans may result in problems for the marine environment. For example, the sediments that result from processing magnesium are poured back into the ocean and cause clouding of the water for extended periods.

At a meeting of the United Nations Oceanic Issues Committee in Fiji next month, RMI technology will be a major topic of discussion. Some of the issues the committee will discuss are mineral rights, the net fences, and waste products from the RMIs.

Your FPS team is sponsored in part by the Australasian-North American Consortium. The Consortium wants the RMIs to be part of the solution to finding and mining new mineral deposits, not a source of more international problems. It has asked you to join the discussion on how using RMIs might affect the oceans. Please brainstorm all the possible problems, select one Underlying Problem, and work through the FPS process to suggest your best solution.

Brainstorming

Once you've read the Future Scene, your team will brainstorm ideas for possible Problems which may occur.

Why should a team Brainstorm?

- It encourages creativity.
- It rapidly produces a large number of ideas.
- Brainstorming gives all team members an opportunity to contribute.

Rules for Brainstorming

1. **Accept all ideas**, no judging! In order to have active participation by all team members, everyone should feel free to express his or her ideas, even if they seem silly or far out.
2. **No criticism.** This may negate someone's great ideas!
3. **Piggybacking is okay!** Build on ideas generated by other team members.
4. **Always have a scribe.** All ideas should be written exactly as presented and displayed where everyone can see them.
5. **Always have a timekeeper** and set a time limit.
6. **No idea is too far-out or zany!** Be creative! *(The more creative the ideas the better! Offbeat and silly ideas may trigger practical breakthroughs which might not otherwise occur.)*
7. **Quantity is important.** The larger the number of ideas, the greater the chance of reaching the best ideas.

Brainstorming

Practice your brainstorming skills by choosing a method that works for you. There are so many ways to put your ideas to paper, from mind-maps to lists, so choose one that you feel is most efficient and allows you to quickly write all your thoughts.

Suggestions for Brainstorming

- Use the FPS categories to brainstorm (TIP: Write the name of the person who generated the idea as they will usually be the best person to write the paragraph about that problem)

Step 1 | Identifying Problems

1. *Brainstorm all possible problems and challenges found in the Future Scene*
2. *Write the 16 most promising ideas into your FPS booklet (write four each)*

When writing a Problem you must explain

1. **What** the problem is
2. **Why** this may be a problem
3. **How** the challenge or problem relates to the Future Scene

How to structure the paragraph

F: FUTURE SCENE FACT

The Future Scene states that

or As stated in the Future Scene

or Since

P: POSSIBLE PROBLEM/CONSEQUENCE

There is a strong possibility that ... may ...

W: EXPLAIN WHY THIS MAY BE A PROBLEM (& back with research!)

This may be a problem because ...

or This may cause A similar situation occurred inwhen...

or This may present a challenge because ... Research has shown that...

Example:

- F:** The Future Scene states that the sediments that result from processing magnesium are poured back into the ocean and cause clouding of the water for extended periods.
- P:** There is a strong possibility that the noxious chemicals causing this clouding may damage the ecosystems which exist in oceanic habitats.
- W:** This may present a challenge as sea life present in these areas could be affected by the poisonous chemicals released during the extraction of magnesium.

Rules for Step 1:

- Read the charge (in the final paragraph)
- Select only challenges likely to occur in the future
- Use terms like may, could, might, perhaps NOT will/would (as you cannot be definite about future events)
- Use as many categories as you can
- Don't leave half the idea in your head (explain fully)
- Remember marks are only awarded if you are able to convince the evaluator that the problems you describe have a *strong* possibility of occurring
- Back your ideas with evidence from the research if possible.

Paragraph Structure

- **F:** Future Scene Fact Link (*One* Fact Link only)
- **P:** Identify *one* possible problem/consequence (express as a possibility not a certainty)
- **W:** Explain why this may be problem and backup with research.

PRACTICE YOUR PROBLEM WRITING SKILLS IN YOUR PRACTICE BOOKLET

To see how Step 1 is scored, go to the Scoring Section

Step 2 | Select an Underlying Problem

- *Getting the U/P correct is critical to the team's success!*
- *Is definitely the most challenging part of the process*
- *Must address the Charge (the instructions given in the last paragraph of the Future Scene)*

Identifying an Underlying Problem

This may occur in several ways:

- **Choose one very important problem**, or a compilation of several related problems, but be careful not to make the U/P too broad (the U/P should never address the entire F/S)

NB: The problem selected should be the one that if solved, has the most potential for solving many of the problems in the Future Scene (i.e. will have a major impact on the Future Scene)

- **An underlying cause can make an excellent U/P**
(e.g. addressing the dumping of waste in the ocean is an excellent idea for the Oceans topic)
- **Another way to select an U/P is to address an area of concern**
(e.g. instead of trying to solve all the problems of the oceans, we could attack the legal problems of the area, or the economic problems etc.)

How to Write an Underlying Problem

All underlying problems must have the following 5 basic components:

(C) CONDITION STATEMENT – which describes the conditions present and/or past related to a targeted section of the F/S which you will use in your U/P.

- Research may be included here for more experienced teams.

(S) STEM – “How might we ...” or “In what ways might we..”

(KVP) - KEY VERB PHRASE – e.g. reduce/improve/maximise the.....

(one key verb in a phrase that tells exactly what you must do in Step Three to try to solve the problems or challenges you have identified in Step 1)

(P) PURPOSE – e.g. “so that the

(FSP) PARAMETERS (date, topic, place e.g. the Great Barrier Reef in the year 2025 and beyond?) and always remember a question mark at the end.

First Example of an Underlying Problem

- C** Since the Future Scene states that the long term health of the planet is largely dependent on the well-being of the oceans, it is important to ensure that the oceanic environment is not degraded.
- Research** Research in the 1990's by the United Nations showed that oceans were a key component in the operation of global environmental systems.
- KVP** In what ways might we improve the disposal of wastes from Roving Mine Islands in the oceans
- Purpose** so as to decrease their environmental impact on
- Parameters** the oceans in 2046 and beyond?

Second Example of an Underlying Problem

- C** The scenario states that the Great Barrier Reef (GBR) is being damaged by the effects of industry. However, these industries are important to provide resources to humans.
- Research** This is a similar situation to that which occurred in the Amazon Rainforest in South America where the fragile habitat was damaged for resources.
- KVP** How might we minimise the impacts of industry on the GBR
- Purpose** so that the Australian Government can maximise the sustainability of the GBR as a habitat for multiple organisms
- Parameters** in the year 2025 and beyond?
(note place mentioned above)

AAA Rated Underlying Problem

- *Applies* to the Charge in the Future Scene
- *Achievable* using modest terms in the K.V.P & Purpose
- 'And' is outlawed in the K.V.P & Purpose! Ensure that you always have a focused K.V.P & Purpose

Important Tips

- Avoid using absolute verbs (such as guarantee, eliminate, keep, stop, prevent). These will be too difficult to provide solutions for in step 3.
- Use moderate terms and qualified verbs such as reduce, alleviate, improve, increase, enhance.
- Choose an idea that will allow you to utilise the research your team has done
- Avoid areas such as “How might we convince the public/raise funds/ relieve stress etc.... as because then the rest of booklet will be about this and not about the specific topic of the F/S.
- There should only be one Key Verb Phrase and one Purpose (**no ‘ands’**)
- You must select an U/P that neither restates the whole F/S nor is too narrow to be able to brainstorm at least 16 solutions
- Make sure it is either problem which causes the events in the F/S or a problem which results from it

Avoid Restatements & Shifts

- Restatements occur when teams address the whole scenario without narrowing their view to a sub-topic of particular importance.
- Shifts occur when a team chooses a small or irrelevant sub-problem to solve.



PRACTICE SELECTING AND WRITING YOUR UNDERLYING PROBLEM IN YOUR PRACTICE BOOKLET WITH YOUR TEAM

Step 3 | Generate Solution Ideas

1. Team brainstorms solution ideas which address the U/P
2. Team writes 16 possible solutions

All solutions must address **both** the *key verb phrase* and the *purpose* to be scored relevant!

Elaborate your ideas by including at least 3 of the following

- **Who** will be responsible for the solution (e.g. We the)
- **What** will be done to effectively impact the U/P
- **How** it will be done or how it will impact the U/P
- **Why** it is being done or why it will solve the U/P

Tips

- Be clear in your writing
- Be specific about the “Who”
 - e.g. don't say ‘the government will...’ Instead say, ‘The Department of Foreign Affairs...’
- Use the categories
- Think futuristically
- Try to think of some creative solutions
- Try to use terminology from the research
- State as definite proposals e.g. “We the ... WILL do
- Definitely no blatantly inhumane, racist, sexist or violent comments

Example | (Who)(What)(How)(Why)

We, the ECO (Engineering for Communities Offshore) will design a fully equipped recycling centre to be built on all RMIs. The waste materials from the RMIs will be recycled daily so that it does not accumulate and create a health hazard for the workers and so it will not be dumped into the ocean. The by-products from the recycling can then be disposed of more efficiently, protecting the environment.

Checking your Solutions

When you are working in a group to identify and write solutions to solve the Underlying Problem, make sure you swap Solutions to check. Look for small grammatical and spelling errors as well as larger, structural errors.



PRACTICE BRAINSTORMING AND WRITING SOLUTIONS IN YOUR PRACTICE BOOKLET

Step 4 | Selecting Criteria

Select 5 Criteria to use to evaluate the quality of the solution ideas.

Each Criterion Must

- *Relate to an Underlying Problem* - For example, relate one criterion specifically to the Key Verb Phrase and another to the Purpose.
- *Contain a Superlative* - Phrases such as 'have the greatest impact on', 'will be the quickest' or 'will be the easiest to implement' work well.
(e.g. best, least, most, fewest)
- *Be based on one consideration only and contain no 'ands'*.
- *End with a question mark.*
- *Phrase your Criteria to indicate a positive direction (e.g. easiest not hardest).*

AAA Rated Criteria

- *Achievable* measure with no extremes
- *Applies* to the Underlying Problem
- *'And'* is outlawed as Criteria must be highly focussed

CATLEEP

- **Cost** - 'Cost the least...' or 'Be most cost effective...'
- **Acceptance** - 'Will be most acceptable to...' or 'Will gain the greatest support from...'
- **Time** - 'Most time efficient in...' or 'Quickest to implement...'
- **Long Term Effectiveness** - 'Most sustainable long-term in...'
- **Efficiency** - 'Most effective in minimising ...'
- **Ethical** - 'Will be the fairest way of ...'
- **Practicality** - 'Will be the most practical to implement ...'

Remembering CATLEEP

Try to remember the CATLEEP acronym to ensure that everyone in the team is able to contribute to quickly writing the Criteria. Try writing Criteria to judge the solutions your group has written in an attempt to solve the Future Scene and Underlying Problem.

Creative Criteria

Try to adjust your Criteria to match the Key Verb Phrase and Future Scene.

e.g. 'In terms of ..., which solution will ...'

• 'In order to ..., which solution will ...'

• 'Due to the fact that ..., which solution will ...'

• 'Since the ..., which solution will ...'

• 'Owing to the reality that ..., which solution will ...'

Examples

1. Which solution *will* be the most effective method of disposing of waste materials from the RMI?
2. Which solution *will* have the most positive environmental impact on oceanic ecosystems?
3. Which solution *will* provide the most effective long term method for the disposal of waste from the RMIs?
4. Which solution *will* be the most cost efficient method for disposing of waste from the RMIs?
5. Which solution *will* be the most acceptable to environmentalists and marine biologists alike?

PRACTICE SELECTING AND WRITING CRITERIA BY USING 'CATLEEP' TO SCAFFOLD SENTENCES IN YOUR PRACTICE BOOK

Step 5 | Applying Criteria

Use the five Criteria from Step 4 to judge the solutions written by your team.

Process:

1. Discuss within your team which eight Solutions you believe may be most effective at solving the Underlying Problem and addressing the Future Scene.
2. Write key words to identify your Solution Idea into the Solutions column next to the number of the box which this Solution was written in.
3. Rank the Solutions using your Criteria with a scale from 1-8 (eight points are given to the Solution which most effectively solves the Underlying Problem and so on).
4. Add the figures in each cell to determine which Solution has the highest score. This Solution will now be used to write your Action Plan.
5. If two Solutions are tied for the highest score, you may go back and give double points to the Criteria which you believe is the most important. Make sure to note this weighting has occurred.

Example:

Solution No°	Solutions	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Total
1	Genetically Engineered Microbe	8	8	8	4	7	35
5	Fertiliser for Algae Fields	6	4	3	3	5	21
9	NERDS	7	5	7	5	4	28
3	Filter System for Dredges	4	7	6	7	3	27
10	RMI International Licenses	2	3	4	1	8	18
4	Silicone Tarps Under RMIs	3	1	1	6	1	12
8	Send Waste into Space	1	2	2	2	2	9
6	Use Waste as Fuel for RMIs	5	6	5	8	6	30

PRACTICE SELECTING AND JUDGING SOLUTIONS BY USING THE TABLE IN YOUR PRACTICE BOOKLET TO SCORE YOUR TEAM'S SOLUTIONS

Step 6 | Developing an Action Plan & Timeline

Write about how the Solution selected in Step 5 will effectively solve the Underlying Problem and satisfy the Charge of the Future Scene.

Include the Following Key Areas:

- **Who** - A believable body with authority.
- **What & Where** - Outline what will be done to solve the Key Verb Phrase and Purpose.
- **When** - Create a clear and concise Timeline outlining the key dates of implementation.
- **Detail** - Elaborate on your timeline in the body of your Action Plan.
- **Why & How** - Describe the positive impact on people likely to be affected by the Solution.
- **Thinking Futuristically** - Include futuristic ideas which are not possible in present but may be possible in the timeframe of the Future Scene.

Action Plan

The Action Plan is the final element of the FPS process and also one of the most important! By writing as comprehensively as you can about your chosen Solution, you will be well on your way to forming a successful Action Plan. Remember, any ideas you don't write down the judges will never know about! It is essential that your team is able to quickly form three paragraphs and a comprehensive timeline so try and practice writing parts of it yourself.

Action Plan Checklist:

- Does the Action Plan accomplish the goals stated in the Underlying Problem?
- Does the Action Plan demonstrate its potential effectiveness in relation to the goals stated in the Underlying Problem?
- Are the short-term, middle-range and long-term goals identified?
- Is there a time line of events?
- Are those individuals/groups who have an interest in the implementation of the Action Plan identified?
- Are those individuals/groups who might assist or resist the implementation of the Action Plan identified and their concerns addressed in the development so the plan?
- Is there a positive, productive and constructive impact of the Action Plan upon the Future Scene?
- Does the Action Plan explain in detail - Who? What? Why? Where? How?

Example | (Who)(What & Where)(Why & How)(When)

We feel that the most effective method for dealing with waste disposal from the RMIs is to have geneticists at the American Biogenetic Corporation create a microbe that would feed off waste products. This microbe would be created by replacing a pair of DNA strands in a specific strand of Spirochaete bacteria. The bacteria will become attracted to, and will in fact be able to feed on unwanted substances given off in the RMI mineral refinement process.

When the bacteria are then introduced to the waste products, it would feed on the wastes. This process would be done inside a sealed lab that wouldn't allow the bacteria to cause harm. When the bacteria were not allowed to feed on the waste products, they would begin to cannibalise each other. With this destruction of the of the bacteria, the adverse effects of the refinement process would be greatly reduced. This, therefore would allow the RMIs to mine the mineral without the adverse effects of the waste products.

The microbe would also feed off other types of waste products from the RMIs such as human waste. By disposing of waste in this manner, the operation of the RMIs will not be a threat to the ocean environment.

The development of the microbe will take place over a five-beat period, with the aim of implementing it in 2040. Until that time, all RMIs will be required to improve their waste disposal methods by using enclosed hard silicone tarps suspended underneath the RMIs to transport all waste back to home base.

PRACTICE WRITING AN ACTION PLAN IN YOUR PRACTICE BOOKLET USING THE SOLUTION
CHOSEN IN STEP 5

Practice & Teamwork

Work in your team to refine your skills and decide on your time management during the two hour period.

Time Plan

Use this plan as a guide for your team. Some steps can be completed simultaneously.

1	Read Scenario and Highlight Key Elements	10 Minutes Everyone
2	Identity Key Ideas Together and Use Dictionary	5 Minutes Everyone
3	Brainstorm & Allocate Problems to Write	10 Minutes Everyone
4	Write Problems	20 Minutes Everyone
5	Check Problems	10 Minutes 2 People
6	& Brainstorm (All) and Write Underlying Problem	& 15 Minutes 2 People
7	Brainstorm & Allocate Solutions to Write	10 Minutes Everyone
8	Write Solutions	20 Minutes Everyone
9	Write Criteria	10 Minutes 1 Person
10	Check Solutions	10 Minutes 1 Person
11	& Evaluate Solutions Using Criteria	& 5 Minutes 1 Person
12	Brainstorm Action Plan	5 Minutes 2 People
13	Write Action Plan Details	15 Minutes 2 People
14	& Develop Timeline	& 10 Minutes 2 People

Things to Remember

Criticism vs. Critique

Criticism passes judgement — **Critique poses questions**

Criticism finds fault — **Critique uncovers opportunity**

Criticism is personal — **Critique is objective**

Criticism is vague — **Critique is concrete**

Criticism tears down — **Critique builds up**

Criticism is ego-centric — **Critique is altruistic**

Criticism is adversarial — **Critique is cooperative**

Criticism belittles the writer — **Critique improves the writing**

Maintaining Momentum

Remember that time travels quickly during the two hour competition time. Work as a team to keep the momentum going while completing all of the steps to ensure that you have enough time to accomplish everything. Time can usually be saved during brainstorming periods and when developing Problems & Solutions. To try and maximise your time efficiency, review these resources:

ANALYSING THE FUTURE SCENE | 7

BRAINSTORMING | 10

PROBLEMS | 11

GENERATE SOLUTIONS | 16

ACTION PLAN & TIMELINE | 20

Practice Boxes

1

Future Thinking

PREPARATION

Try and think of stories which you have seen in the media on advancements in technology and predictions about the future. The world is developing at a quicker pace than ever so it is hard to tell what is around the corner. Your challenge in FPS is to develop ideas which may be possible in the near future.

2

Steps of Researching

PREPARATION

- Learning the basic definitions and meaning of terms
- Reading the overview
- Reading your allocated article summaries
- Consider & discuss “Questions for discussion”
- Advanced teams could follow suggested references on your topic from the yearly handbook list

3

Future Scene Practice

PREPARATION

As you read over the Future Scene, remember to highlight the important information and start to think about possible problems.

Brainstorming

STEP 1

Practice your brainstorming skills by choosing a method that works for you. There are so many ways to put your ideas to paper, from mind-maps to lists, so choose one that you feel is most efficient and allows you to quickly write all your thoughts.

4

Remembering CATLEEP

STEP 4

Try to remember the CATLEEP acronym to ensure that everyone in the team is able to contribute to quickly writing the Criteria. Try writing Criteria to judge the solutions your group has written in an attempt to solve the Future Scene and Underlying Problem.

5

Action Plan

STEP 6

The Action Plan is the final element of the FPS process and also one of the most important! By writing as comprehensively as you can about your chosen Solution, you will be well on your way to forming a successful Action Plan. Remember, any ideas you don't write down the judges will never know about! It is essential that your team is able to quickly form three paragraphs and a comprehensive timeline so try and practice writing parts of it yourself.

6

Tips to Remember

1

Tips for Analysing Future Scenes

STEP 1

- Highlight! Highlight! Highlight! All important information, key words, characters etc.
- Feel free to take notes down the border of the page, write whatever helps you to deconstruct the scenario and find problems or challenges.
- Circle any words which you need to look in the dictionary.

2

Categories

STEP 1

Try to remember the eighteen categories by practising them regularly and associating mental images with each. Set a timer for 5 minutes each night and quiz yourself on all the categories. How many can you remember?

3

Suggestions for Brainstorming

STEP 1

- Use the FPS categories to brainstorm (TIP: Write the name of the person who generated the idea as they will usually be the best person to write the paragraph about that problem)

Avoid Restatements & Shifts

STEP 2

- Restatements occur when teams address the whole scenario without narrowing their view to a sub-topic of particular importance.
- Shifts occur when a team chooses a small or irrelevant sub-problem to solve.

4

Checking your Solutions

STEP 3

When you are working in a group to identify and write solutions to solve the Underlying Problem, make sure you swap Solutions to check. Look for small grammatical and spelling errors as well as larger, structural errors.

5

1

Paragraph Structure

STEP 1

- **F**: Future Scene Fact Link (*One Fact Link* only)
- **P**: Identify *one* possible problem/consequence (express as a possibility not a certainty)
- **W**: Explain why this may be problem and backup with research.

2

AAA Rated Underlying Problem

STEP 2

- *Applies* to the Charge in the Future Scene
- *Achievable* using modest terms in the K.V.P & Purpose
- 'And' is outlawed in the K.V.P & Purpose! Ensure that you always have a focused K.V.P & Purpose

3

AAA Rated Criteria

STEP 4

- *Achievable* measure with no extremes
- *Applies* to the Underlying Problem
- 'And' is outlawed as Criteria must be highly focussed

Scoring

OVERALL | WHAT YOUR SCORES MEAN

Score Ranges

Research Applied	1 — 10
Creative Strength	1 — 10
Futuristic Thinking	1 — 10

Research Applied

Student work is examined for its connections to the research available on the topic. Concepts and terms from the research and noticeable flexibility are all indicators of research applied to the problem. A determination is made by comparing the research applied in all booklets in a sample on this 1-10 scale.

Creative Strength

Assesses the overall creative productive thinking evidenced in the booklet. Responses showing creative strength are those requiring intellectual energy to make mental leaps beyond commonplace responses.

Evaluators look in any or all steps for: innovative/unconventional thinking and for ideas indicating fresh insights/perceptions. A determination is made by comparing the creative strength in all booklets in a sample on this 1-10 scale.

Futuristic Thinking

Futuristic Thinking: Assesses the ideas presented in the booklet as a whole to rank the ideas as “ideas of the future” and not just everyday ideas that already exist.

Evaluators use all steps to rank this section but Steps 3 and 6 are those that are most studied for futuristic thinking. A determination is made by comparing the futuristic thinking in all booklets in a sample on this 1-10 scale.

STEP 1 | IDENTIFYING PROBLEMS

Score Ranges

Fluency	1 — 10
Flexibility	1 — 10
Clarity	1 — 10
Originality	x3 Points

Fluency

A score indicating how many appropriate and completely written problems or challenges the team identified. Each brainstormed problem is awarded a 'yes', 'perhaps', 'why', 'solution' or 'duplicate' (Y, P, W, S, D) on the team booklet. The number of Y's are counted and rated according to a set scale.

- Y** Yes: The challenges listed have a strong possibility of occurring. These problems can be seen as a logical cause or effect of the Future Scene situation.
- P** Perhaps: The challenges listed have only some possibility of occurring. Problems that are worded poorly or confusingly.
- W** Why: Those challenges that do not appear to have a clear connection to the Future Scene situation. The statements that do not identify a problem or challenge.
- S** Solution: The responses listed represent ways to solve challenges in the Future Scene.
- D** Duplicate: The problems listed which are too contextually similar to another problem or challenge scored as a YES. Not duplicate categories, it is acceptable to have several different ideas within the same category.

Flexibility

The number of Categories used in developing challenges and problems to the Future Scene, the more ways in which the Future Scene has been approached. Each Problem scored as a 'Y' for 'yes' is assigned a category. The number of categories is counted and a numerical score from 1 – 10 is determined.

Clarity

How clearly the challenge or problem is stated. Each idea should be a clear and thorough description of a problem or challenge. A high score indicated that good communication skills have been used. A low score reflects the need to write more clearly and/or completely. Teams who consistently state what the problem or challenge might be, why it might be a problem and how it relates to the Future Scene should receive high scores.

Originality

This score is only given to problems showing insight or an unusual approach to the problem. It is intended to reward a rare, high-quality problem. Given only to the challenges and problems scored as a 'Y' for YES by the evaluator will receive the originality points. Any response found infrequently or stands out at the particular age level are considered to be Original.

STEP 2 | UNDERLYING PROBLEM

Completeness	1 — 10
Adequacy	1 — 10
Focus	1 — 10

Completeness

A complete problems statement is one that includes the five required elements: Condition, Stem, Key verb Phrase, Purpose and Future Scene Parameters (Time, Place, Topic). Completeness does not address whether the Underlying Problem is good, bad or otherwise, completeness is only a question of structure. To determine completeness the evaluators ask several questions and assign points accordingly.

- Think more creatively and positively about global issues.
- Did the team use proper stem in stating the problem? If a team fail to use a proper stem the error is pointed out but no points are deducted. Did the team include a clear condition under which this set of circumstances might be a problem and a direction that identifies a goal for which the team is striving? (0, 1 or 2 points)
- Did the team only use one Key Verb Phrase or have they used two or more? (0, 1, 2 or 3 points)
- Did the team only use one purpose or have they used two or more? (0, 1, 2 or 3 points)
- Did the team include the Parameters?

All Parameters Present	2
One or Two Missing	1
No Parameters Present	0

Adequacy

Refers to the importance of the problem area chosen for creative attack, as well as whether or not a sub-problem has been identified.

Evaluators will ask the following questions:

1. Has the team identified a sub-problem from the Future Scene?
2. How significant is the sub-problem?
3. Will solving this sub-problem have a positive impact on the Future Scene as a whole?

Focus

How well has the focus been narrowed? The problem identified in the Underlying Problem should be a smaller part of the entire Future Scene. Teams are encouraged to focus on a subgroup from the Future Scene, identifying a problem relevant to the group and describing the conditions under which the problem may occur. Focus refers to the degree of deductive analysis reflected in the Underlying Problem.

Note

If the team writes a Underlying Problem that restates the Future Scene or uses exact words from the Future Scene and broadens the identified problem in order to solve all of the problems apparent in the Future Scene, this is considered a restatement and the booklet may be disqualified. An Underlying Problem which has no purpose or becomes too broad and no longer links back to the Future Scene can be considered a shift and may be disqualified.

STEP 3 | GENERATING SOLUTIONS

Fluency	1 — 10
Flexibility	1 — 10
Elaboration	1 — 10
Quality of Thinking	1 — 10
Originality	x3 Points

Fluency

Measures the number of solutions listed that are relevant to the Underlying Problem. A 'Relevant' solution is one that solves the problem expressed in the key verb Phrase and the Purpose states in step 2. If there are several contextually similar or trivial solutions, these may be combined or counted together. Relevance is judged only in relation to the step 2 KVP and Purpose. It is not determined by an evaluator's agreement or disagreement with the solution, or the solutions practicality or perceived possibility.

R

An 'R' is assigned to each solution considered to be relevant.

Exceptions

- If a solution contradicts a basic law of nature, it may be counted as irrelevant.
- If a solution is deemed to be inhumane by the evaluator then it will not be considered relevant.

Flexibility

This refers to the change of focus in seeking solutions to the Underlying Problem. A category is assigned to each solution scored as an 'R' by the evaluator. The number of categories is counted and numerical score is determined on the 1-10 scale.

Elaboration

An elaborate solution is any relevant solution that describes in detail a solution to the Underlying problem. A solution is elaborated when it includes at least three of the 'who', 'what', 'why' and 'how' elements.



An 'E' is placed in the left hand margin next to each relevant solution that qualifies. The number of 'E' is counted and a numerical score from 1-10 is determined.

Quality of Thinking

Teams that use research to generate creative, futuristic and yet justified solution will score well in this criterion.

Originality

This score rewards the identification of a rare, high-quality solution. Any response found infrequently among solutions at that age level and considered to be of high quality (creative) is considered Original.



An 'O' is assigned by the evaluator to any Relevant solution that qualifies. The total number of Original solutions is counted and multiplied by three for points.

STEP 4 | SELECTING CRITERIA

Correctly Written

1 — 10

Applicability & Relevance

1 — 10

Correctly Written

Each criterion should be a measure of degree, focus on a single dimension and indicate the desired direction.

One Points

Awarded to each criterion written in the correct form.

Applicability & Relevance

This scale measures the extent to which the criteria listed are important in evaluating solutions to the Underlying Problem. It is acceptable for students to make criteria out of the KVP and Purpose of their Underlying Problem.

Three Points

Awarded for each target criterion that is specifically relevant to the UP.

Two Points

Criteria of a generic nature with general language relating back to the UP.

One Points

Generic criteria without language specifically relating back to the UP.

STEP 5 | APPLYING CRITERIA

Correctly Used

1 — 10

Correctly Used

The grid is important in evaluating the best Solution. The information and the numbers must all be entered correctly to ensure that the team has selected the best Solution. Each vertical column should include the numbers 1-8 each once. Half-points may be awarded for ties, or certain columns may be weighted (numbers are doubled) as long as numbers are entered correctly. Correct use of grid also includes accurate addition in determining totals. The horizontal columns must be totalled correctly.

Perfect Grid	5
One Error	4
Two Errors	3
Three Errors	2
Four or More Errors	1

STEP 6 | ACTION PLAN

Relevance	1 — 10
Effectiveness	1 — 10
Impact	1 — 10
Humaneness	1 — 10

If the Underlying Problem has been marked as a Shift or Restatement, the first four criteria will receive an automatic one mark.

Relevance

A measure of the extent of relevance the Plan of Action to the Underlying Problem. It is determined by comparing the Best Solution to the Underlying Problem. The relevance criterion here is almost identical to the Relevance criterion being used in Step 3. The difference is that in Step 3, a solution is scored as being either relevant or irrelevant. In Step 6, the extent of the relevance is scored.

Note

If a step has been marked as irrelevant in Step 3, it cannot be marked as being relevant in Step 6.

Effectiveness

To what extent does the Plan of Action have the potential to effectively solve the Underlying Problem? An 'Effective' plan is one which will do much to solve the Underlying Problem stated in Step 2. A low score will be given to a Plan of Action that does very little or nothing to solve the Underlying Problem. In differentiating between Relevance and Effectiveness, Relevance asks whether or not the plan addresses the Underlying Problem. Effectiveness asks whether or not the plan addresses the Underlying Problem effectively.

Impact

This scale measures the positive impact the Plan of Action will have on the Future Scene situation. This measures the degree to which the Plan of Action impacts upon or affects the Future Scene if implemented. The evaluator must assess the impact and make a rating on the 1-5 scale.

Humaneness

This scale measures the productive, positive potential of the Plan of Action as opposed to its destructive, negative potential. It is measured by the evaluator anticipating the practical consequences of implementation of the plan.

Note

The number '3' on the scale represents a neutral solution. Higher numbers are awarded if the solution actively seeks to be constructive, a lower one if actively destructive.

Credits & Acknowledgements.

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