

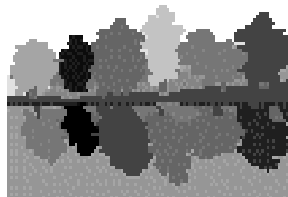
MANITOBA YOUTH STEWARDSHIP



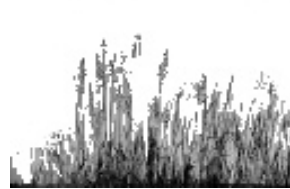
IN ENVIRONMENTAL SUSTAINABILITY



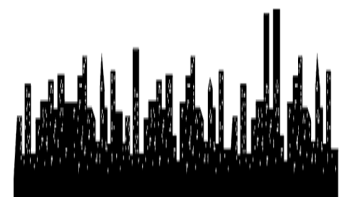
WETLANDS



FORESTS



PRAIRIE



URBAN

THE OFFICIAL RULE BOOK

Competitions for **ELEMENTARY**, **SECONDARY** and **UNIVERSITY/COLLEGE**

SHOWCASE MAY 5, 2007

Oak Hammock Marsh Interpretive Centre

A PROJECT OF SCIENCE COUNCIL MANITOBA

www.scmb.mb.ca



*Dedicated to the promotion of
Science and Technology*

The UNIVERSITY OF WINNIPEG
DEPARTMENT OF GEOGRAPHY



515 Portage Avenue
Winnipeg, Manitoba
Canada R3B 2E9

Tel: 204-786-9278

E-mail: geography@uwinnipeg.ca

An Invitation To All Principals Of Manitoba Schools

The University of Winnipeg and the Y.S.E.S.P. Project, Science Council Manitoba are seeking enthusiastic teacher-mentored school teams who would be interested in collecting monthly rainfall/snowfall samples for the purpose of establishing a Manitoba Network for Isotopes in Precipitation(MNIP) Databank. Ideally, we would like to produce a dense network of teams with geographic distribution over the province of Manitoba. These groups would be collecting the precipitation samples in their own school grounds and sending them to the University of Winnipeg for isotopic analysis on a new state-of-the-art mass spectrometer. Of international importance, this project is a prototype in the Americas since only one other such study of this kind has been conducted on the European continent in Germany.

Teachers will be transported to workshops at the University of Winnipeg and other sites for the purpose of absorbing the background theory and to build weather stations and collectors with resources supplied by the sponsors. Monitoring of the precipitation isotopes will include quantitative collection and dissemination of the data with interpretations on a web page. This strategy will provide teachers and students with data for projects which they can enter into local Science Fairs and the Youth Stewardship in Environmental Sustainability Project Showcase, now nominating schools to the Manitoba Round Table Sustainability Awards event held annually in the Fall. In addition to developing interest in Climatology, an exciting element of our Grade 10 provincial science curricula, this project will assist us to understand Manitoba climate history and to allow researchers to predict the dynamics and possible changes involved in global warming trends in this Province and perhaps, around the world.

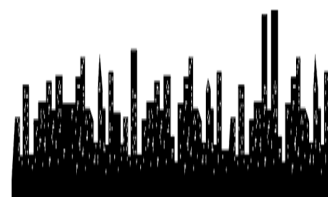
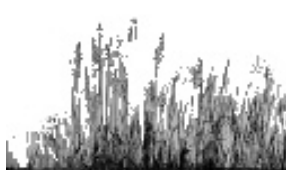
At this time, we would like to extend an invitation to you and your teachers to join a growing team of individuals dedicating their schools to the cause of a healthy state of climate and environment. If you are interested in joining this adventure, please contact Danny Blair at 786-9236; d.blair@uwinnipeg.ca or Bill Buhay at 786-9481; b.buhay@uwinnipeg.ca.

Dr. Heather Robinson
Past-President Science Council Manitoba
Chairperson Y.S.E.S.P.

**This Annual Showcase is dedicated to the memory of
Dr. Robert William Boyle, a Canadian pioneer in
exploration geochemistry
and
Dr. Daniel Robert Boyle, environmental geochemist.**

Table of Contents

Sponsors	Page 4
Committee Members	Page 5
Message from the Chairperson	Page 6
Theme for 2006 / 2007 Showcase	Pages 7-8
Tackle Topics	Pages 9-11
Showcase Competition Outline and Areas of Competition ...	Page 12
Judging Criteria and Definitions	Pages 13-14
Investigative Innovation/Invention Grade 1-12	
Project Regulations and safety guidelines	Page 14
Additional Information	Page 14
Development of an Investigation Project	Page 15
Development of an Innovation/Invention Project	Page 15
Development of a New dimensions Project	Page 16
How to make your display appealing	Page 16
Awards	Page 17
Judging Criteria and Definitions	Pages 18-20
Investigation Innovation/Invention (Scholarship Program) Grade 12 & University/College Registration Procedure	Page 20

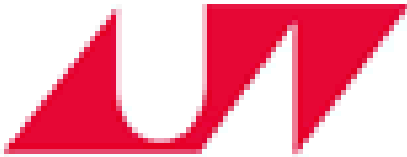


SPONSORS of Y.S.E.S.P.

At the time of printing this publication, the following organizations pledged sponsorship and/or funding for the Youth Stewardship in Environmental Sustainability Project Showcase (Y.S.E.S.P.). We extend our gratitude to those who have provided the resources necessary for the event to become a reality.



Manitoba Hydro



The University of Winnipeg



**Manitoba Network for
Science and Technology**



**Oak Hammock Marsh
Interpretive Centre**



**Manitoba Education, Citizenship & Youth
Provision of "Education for a Sustainable
Future" Document**



*Dedicated to the promotion of
Science and Technology*

SCIENCE COUNCIL MANITOBA

The Science Council Manitoba is dedicated to the promotion of Science and Technology at all levels in the Province of Manitoba through initiatives such as the Manitoba Robot Games and the Youth Stewardship in Environmental Sciences Project (Y.S.E.S.P.)

The Manitoba Community Services Council

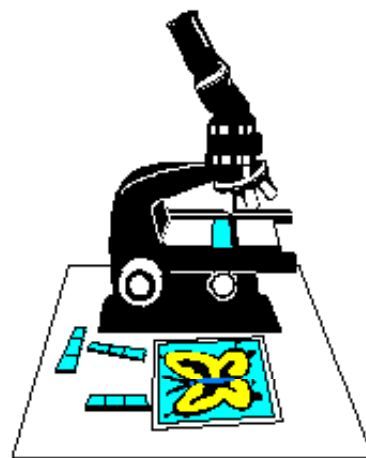
Is gratefully acknowledged for their major funding of the Y.S.E.S.P.

Introduction

SCIENCE COUNCIL MANITOBA

The Y.S.E.S.P. is one of several activities planned and administered by the Science Council Manitoba to promote interest in Science and Technology. The executive and members of the Science Council Manitoba are all volunteers who, together, form an enthusiastic group of instructors, students, industry and government contacts with a wide range of expertise. As Past-President, I would like to thank all of these hard working individuals for the time and effort that they have provided to this cause.

Dr. H. Robinson



SCIENCE COUNCIL MANITOBA

committee members *comprises;*

S.C.M. EXECUTIVE MEMBERS

Dr. Heather Robinson – Past President
Herb Reynolds – President/Treasurer
Ian Elwood-Oates – Vice-President
Bert Valentin – Liaison Director at Large (MM)
Evhan Uzwyshyn – Communications Director

STAFF

Donna Melnyk – Secretary
Toresa Slater - Desktop Publishing

THE MANITOBA ROBOT GAMES COMMITTEE

Herb Reynolds – Chairperson/Promotion
Ian Elwood-Oates – Webmaster, Hardware Mgr
Lesley Elwood-Oates – Volunteer Support
Dan Gerard – Member
Colin Mantay – Member
Max Maxon – Materials Coordinator
Tom McKechnie – Games Coordinator
Linda Reynolds – Volunteer Coordinator
Bill Smart – Member
Bert Valentine – Facilities Coordinator
Rory Winters - Member
George Wurtak – Member

THE YOUTH STEWARDSHIP in ENVIRONMENTAL SUSTAINABILITY PROJECT COMMITTEE

Dr. Heather Robinson –
Chairperson/Founder/Promotion
Bob Laidler – Showcase Manager
Michelle Kading – Showcase Manager
Kent Simmons – Advisor
Christina McDonald – Advisor
Mike James – Professional Development
John Perry – Professional Development
Harold Partap – Professional Development
Max Maxon – Promotion
Evhan Uzwyshyn – Professional Development
Gordon Harrison – External Advisor, Ecoscope
Lillian Massey – Student Representative
Diana Borges – Student Representative
Jackie Mikolash – Advisor
Alex Salkie– Advisor
Bill Buhay - M.N.I.P.
Lorraine Gowanlock - Advisor
Rob Cann– Professional Development
John Murray– Professional Development
Lisa Tack– Professional Development
Rick Wishart– Advisor
Bob Austman– Professional Development

Youth Stewardship in Environmental Sustainability Project

Oak Hammock Marsh Interpretive Centre

Saturday May 5th, 2007

(Setup Friday evening, May 4, 5:30 – 8:30 p.m.)

A UNIQUE WAY TO SHOWCASE THE WORK OF SCIENCE, GEOGRAPHY, SOCIAL STUDIES AND ARTS STUDENTS

Welcome to Youth Stewardship in Environmental Sustainability Project. The project is an initiative of the Science Council Manitoba. We sponsor an annual sustainability showcase and competition in May. We also sponsor sustainability inservices and a sustainability speakers' bureau.

This year's theme is "**International Year of Planet Earth: Challenges for a Sustainable Future (2007-2009)**". Projects with different sustainability topics other than those suggested in the lists of this document, will also be accepted. Scholarship awards will be made at Grades 9 to 11, 12, and University/College levels this year. In addition, plaques will be awarded to the most outstanding Grades 1 to 8, 9 to 11 and 12 project based on an executive decision.

This showcase and competition will foster, showcase and reward teacher/student initiatives concerned with developing projects that focus on SUSTAINABLE MANAGEMENT STRATEGIES FOR THE ENVIRONMENT, THE HEALTH OF SOCIETY AND THE ECONOMY. Major world issues pose a challenge to many of our young people, and they desire to share in the solution of these problems. Nowhere do we find as many problematic situations as in the MANAGEMENT OF OUR ENVIRONMENT. This Progressive plan will provide champion students, under the direction of a guiding mentor, with an opportunity to acquire the skills of:

1. Collecting information on the environment using appropriate surveys and technologies;
2. Analyzing their systems of choice and discovering the important trends and connections;
3. Identifying sustainable problems, and through problem solving strategies, look at the options and develop a consensus about what needs to be changed;
4. Developing responsibility in stewardship by planning appropriate and cooperative action plans to implement their solutions in their schools and the community.

Activities at this Annual Showcase will also build the UNDERSTANDING, SKILLS AND VALUES NEEDED FOR SUSTAINABILITY. These include:

1. Understanding the input that our enterprise has on the welfare of both humans and the environment;
2. Knowledge of the mechanisms of economic development at local, national and international levels;
3. A vision of the sustainable community, and steps needed to achieve and maintain its infrastructure and its emotional well-being.

The Showcase ensures that champions have recognition for their leadership, with real contributions to challenging tasks. A goodwill builder for participants, it promotes excellent morale networking and strengthens partnerships between Interpretive Centres, such as Oak Hammock Marsh Interpretive Centre and all educational bodies. The entire project has a good fit to educational agendas since the new *Pan-Canadian Science Curriculum Framework* has an emphasis on stewardship.

For more information or if you would like to volunteer to help with this project please contact Dr. Heather Robinson at Ph. 1-204-284-5024 or Fax 1-204-956-5049.

Y.S.E.S.P.

Youth Stewardship in Environmental Sustainability Project

ECOSYSTEM SUSTAINABILITY

Youth Stewardship in Environmental Sustainability Project

For the May 5, 2007 Showcase, please register online at www.scmb.mb.ca. If you cannot register online, contact Dr. H. Robinson at 1-204-284-5024 or 1-204-947-1674 or by fax 1-204-956-5049 for a registration form.

- **JOIN THE PIONEERING SPIRIT**
- **GET INVOLVED IN CUTTING EDGE SUSTAINABILITY PROJECTS**
- **CHAMPION A CAUSE FOR THE ENVIRONMENT**
- **CHALLENGE YOURSELVES, FELLOW STUDENTS AND TEACHERS**

In 2006-7 the **Y.S.E.S.P. Showcase project** will celebrate a year of investigations, innovations, inventions and new dimensions entitled “**International Year of Planet Earth: Challenges for a Sustainable Future (2007-2009)**”. A list of “**tackle topics**” is outlined below. You may also choose a topic of your own as long as it emphasizes Sustainability connected to the environment. Regulations for the competition may be found in the new Y.S.E.S.P. Rulebook to be released on the website and in abridged softcover November 2006.

Visit our website at www.scmb.mb.ca

**We are encouraging
TEAMWORK**



Students working with parents, teachers and mentors

Science clubs working as a group

Teachers, team teaching with a student class

Entire classes, students working together

Small group projects

Professors working with research students

We are encouraging **COMPETITION**



- Between classes in the same school**
- Between schools in the same division**
- Between individuals and small groups**
- Between university/college faculties**

The showcase competition will be focused on the CHALLENGE of presenting the best design, model, solution, plan of action, sustainable management program etc. for the “tackle topic”. The project may be presented as an investigation, invention/innovation, entrepreneurship plan, or it may be entered into the non-competitive New Dimensions area, if preferred.

- **Platinum**
- **Gold**
- **Silver**
- **Bronze**

We give

Certificates

Scholarship awards to be presented at stipulated levels.

Grades 9 to 11	2 awards at \$250 each
Grade 12 Projects	2 awards at \$300 each
College/Undergraduate/4th Year Honours Projects	2 awards at \$375 each
Masters/ Ph. D. Projects	2 awards at \$500 each

The Award of Excellence Plaques will be awarded, based on an executive decision, for an outstanding showcase project from each level/combined categories in Grades 1 to 8, Grades 9 to 11 and Grade 12.

For showcase projects in the Sustainability Judging section a minimum of 80% is required.

A lottery draw will award one student, Grade 1 to 8, a free family outing to O.H.M.I.C
(includes lunch, tours and canoe ride)

\$200 awards for start up of projects (maximum of 5)

Register your team and “tackle topic” on the Y.S.E.S.P. Showcase Website page between September 1, 2006 and May 3, 2007.

YSESP Tackle Topics



Suggestions for 2007 Showcase

The first set of topics tie in with the International Year of Planet Earth (<http://www.yearofplanetearth.org/>).

The exact headings are still tentative.

In addition there are a number of other sustainable development topics listed. If you have an interest in a topic not listed please contact our chairperson Dr. Heather Robinson at 284-5024 or 947-1674.

Projects started early enough may be eligible for equipment funds. Information is available from Dr. Robinson or www.scmb.mb.ca our Science Council of Manitoba website.

All projects should highlight sustainability approaches and implications.

1 Groundwater-towards sustainable use

Devise and conduct tests to determine water quality in an at risk water resource and develop sustainable strategies for bioremediation (well water, aquifers, pollution by cottage industry).

Design and carry out a plan of action for cleaning up a watershed site (river, lake, creek...)

Investigate the competing uses of water and propose a sustainable water management system

Investigate the sustainable development and management of feedlots.

2 Hazards-minimizing risk, minimizing awareness (floods, earthquakes, hurricanes)

Investigate the environment, social, and economic costs of “twinning” the Winnipeg floodway.

3. Earth & Health – building a safer environment

Design and evaluate a process to clean up a chemical spill (oil, gas, chlorine, PCB’s, CFC’s, etc.) and demonstrate its connection to sustainability issues.

Investigate the impact on water and air quality, preservation of land sites for a resource-based industry (mining, logging, fishing, tourism) in a specific community. Suggest sustainable practices to overcome the problems.

Investigate how the proposed diversion of water from Devils Lake into the Red River Basin will affect Manitoba. What are the environmental, social, and economic costs?

Lake Winnipeg is suffering from nutrient enrichment. Show how this has affected the local environment, society, and economy. How can the amount of nutrients entering the lake be reduced?

Sewage effluent from the City of Winnipeg contributes to the excess of nutrients entering Lake Winnipeg. Design a system that Winnipeg could use to reduce the sewage effluent entering the Red River and Lake Winnipeg.

Through research and building of effective models, show how construction of a lagoon on farmland can ensure water quality for the region.

Investigate the positive and negative effects of bank erosion and propose a sustainable method for minimizing the negative effects of bank erosion.

* 4. Climate - the “stone tape” dating with rock formations and fossils

5. Resources- sustainable power for sustainable development

Design, test and apply an effective alternative renewable energy strategy (biogas, solar, wind, recycling of oils, fuel cells, mini hydro projects, etc.) and demonstrate their importance to sustainability issues.

Research alternate sources of alternate energy such as biogas, solar, wind, recycling of oils, fuel cells, mini hydro projects, etc... Look at the sustainability implication of the alternate energy sources. v

Document the steps involved in converting a standard vgasoline or diesel engine to run on an alternate fuel. Explain the sustainable development advantages of the conversion.

***6. Going deeper, building safer**

***7. Deep Earth – from crust to core**

***8. Ocean – abyss of time**

** We welcome sustainable development suggestions for these areas*

9. Soil – Earth’s living skin

Design and carry out a plan of action for remediation of a brown field in a local urban or rural location.

Design and carry out a plan of action for reclaiming a prairie pothole or local reservoir and for conserving it as a natural site.

Investigate the sustainable development and management of wood lots.

Investigate the sustainable development and management of animal husbandry and “green farming”.

Investigate the sustainable development and management of zero tillage.

Investigate the effects of fertilizers/pesticides/herbicides use on soil health, the economics of farming and the health of society

10. Earth and Life

Investigate the sustainable development and management of genetically modified foods.

Design a sampling device that will allow a researcher to collect aquatic invertebrates that emerge from wetlands with shallow water and lots of emergent vegetation. Illustrate sustainable applications.

Investigate how scientists sample aquatic invertebrates in flowing streams and rivers. What are the pros and cons of the existing devices that are in use? Test different materials that could be used and design a new and better device. Illustrate sustainable applications.

The following tackle topics are additional suggestions

Conduct a tree inventory study for a local forest that includes lists of species and the state of arboreal health in that region. Use the information to promote sustainable management of forests or forestry enhancement.

Research a company in order to highlight how the company has changed to meet the challenge of sustainability and to show how the firm continues to improve to meet this challenge.

Develop educational research to show how teachers/ students are becoming more involved in the issue of climate change. This could include information from the Manitoba Network of Isotopes in Precipitation program or any other existing process.

Investigate the sustainable development and management of game farms.

Investigate how cattails (Typha) or giant reed grass (Phragmites) might be used as a renewable resource.

Design a robot system that can measure the light intensity at various heights in a forest. The device should include a way to sense and measure light and to record measurements. It should also be able to record the measurement of the height above the forest floor. Illustrate sustainable applications.

Design a robotic device/machine to sample water from various depths in a lake or river. The machine should have the ability to: (1) obtain a water sample and (2) record the measurement of depth from which the sample was taken. Illustrate sustainable applications.

Design a robotic device that solves a sustainable development/management problem.

Investigate an issue related to fish biodiversity (habitat degradation, water quality, land use, riparian zone management, etc.) and propose a course of action that will help alleviate the negative affects of this issue on fish biodiversity. Include references to the sustainable development decision making model.

Investigate the role plants have in fish health and habitat and propose a sustainable course of action that will help maintain plants in the water and/or on the bank.

Investigate the importance of riparian areas and develop a method of re-establishing degraded riparian areas. Ensure your plan incorporates aspects from agriculture, forestry, water quality and fish.

Examine the issue of the sick building syndrome and the concept of “Green Buildings”

Build an architectural structure that demonstrates the use of sustainable development concepts.

Explore the impact of alien/exotic species on terrestrial and/or aquatic ecosystems and propose some sustainable remediation solutions.

Design a sustainable system that will reduce the amount of winter kill (due to lack of oxygen) for fish in a Manitoba Lake.

Any other project pre-approved by the Chairperson (Y.S.E.S.P), Dr. H. Robinson (ph: 284-5024; fax: 956-5049).



Use this page to help you pick your topic

I am particularly interested in:

-
-
-
-

I would like to know more about

-
-
-
-

*List all your resources
(where you might find information)*

-
-
-
-

List keywords to help in searches

-
-
-
-

SHOWCASE COMPETITION OUTLINE

The 2007 Y.S.E.S.P Showcase will focus on

“International Year of Planet Earth: Challenges for a Sustainable Future (2007-2009)”

Projects will be classified primarily as either, “Investigation”,
“Innovation/Invention/Entrepreneurship” or “New Dimensions”

Judging criteria will depend on the type of competition and the
educational level of the competitor

	Investigation	Innovation/Invention/ Entrepreneurship	New Dimensions
Grades 1 to 8	Judged – Certificate	Judged – Certificate	Non-Judged
Grades 9 to 11	Judged – Certificate Scholarship	Judged – Certificate Scholarship	Non-Judged
Grade 12	Judged – Certificate Scholarship	Judged – Certificate Scholarship	Non-Judged
University/College	Judged – Certificate Scholarship	Judged – Certificate Scholarship	Non-Judged

Projects will be judged using the following scales:

See page 13-14 and 18-20 for definitions.

		Investigation	
		Grades 1 - 12	
A)	Sustainability	25	Points
B)	Process of Thought	20	Points
C)	Originality & Creativity	25	Points
D)	Dramatic Value Display	10	Points
E)	Skills	10	Points
F)	Project Summary (written report)	10	Points
Total		100	Points

		Innovation/Invention/Entrepreneurship	
		Grades 1 - 12	
A)	Sustainability	25	Points
B)	Process of Thought	20	Points
C)	Originality & Creativity	25	Points
D)	Dramatic Value Display	10	Points
E)	Skills	10	Points
F)	Project Summary (written report)	10	Points
Total		100	Points

		Investigation	
		University/College	
A)	Sustainability	25	Points
B)	Critical thinking/Statistical analysis	15	Points
C)	Originality/Creativity/Synthesis	30	Points
D)	Dramatic Value Display	10	Points
E)	Project Summary (written report)	20	Points
Total		100	Points

		Innovation/Invention/Entrepreneurship	
		University/College	
A)	Sustainability	25	Points
B)	Critical thinking/Statistical analysis	15	Points
C)	Originality/Creativity/Synthesis	30	Points
D)	Dramatic Value Display	10	Points
E)	Project Summary (written report)	20	Points
Total		100	Points

New Dimensions
Grade 1 to University/College
 This category will not be judged.
 See Page 16 for definition and guides for this category.

Judging Criteria and Definitions

Investigation and Innovation/Invention/Entrepreneurship

Grades 1- 12

Sustainability

1. The project should relate to two or more of the concepts of sustainability (Human Health / Well-being, Environment, Economy)
2. Presenters should be able to explain the concepts of sustainability and how their project incorporates the philosophy of sustainable development/management
3. More than one solution should be offered to a problem.
4. Each solution should be assessed for its pros and cons.
5. Possible consequences of acting on each solution should be outlined.
6. Decision-making should lead to the choice of one best solution, accompanied by reasons and projected outcomes. Political and financial steps needed to implement the solutions should be explained.
7. Thought and action plans should be in line with the project's analysis and evaluations in the discussion.
8. Suggestions for auditing and monitoring the solutions should be included as a project extension.

Process of Thought/Supporting Research

1. The problem should be clearly defined and stated.
2. The project should demonstrate the use of an effective action plan for obtaining a solution to the defined problems.
3. The variables (factors under investigation) should be clearly defined and any necessary controls identified and correctly used.
4. Data Should be carefully reported in tables, graphs, charts and drawings. The most current data should be used to support the analysis and conclusions for the project. Wherever possible, scientific research should be cited to support the analysis /development of an idea or model.
5. Further research required to address unresolved problems should be included as an extension to the project.

Originality and Creativity/Synthesis

1. The identified problem should be interesting, and any proposed solutions should be creative.
2. Interpretation, analysis and evaluation of the data, and any suggested applications arising from it, should be original outcomes.
3. Construction, design of the investigation and equipment used for the study should be as unique as possible.
4. Collections of items can only be considered original if they support an investigation in some creative way.
5. Any synthesized models, checklists and games developed from the investigation outcomes should be visible in the project.
6. Creative capturing of ideas and data, application of artistic endeavors to science, innovative use of materials/designs/tools should be a visible component.

Skills/Practicality of Innovation – Invention

Skillful use and application should be demonstrated in the following areas:

1. Experimental procedures for data collection.
2. Building of equipment.
3. Information resources.
4. Scientific/sustainability vocabulary.
5. Workmanship on the exhibit.

Critical Thinking and Statistical Analysis

1. The project should analyze and evaluate reasons and evidence.
2. Assumptions should be made explicit and they should be evaluated.
3. Unwarranted inferences or “leaps of logic” should be avoided.

Dramatic Value Display

1. The exhibit should bear attractive components.
2. The display should be self-explanatory and the eye should be lead smoothly and sequentially through its connected components.
3. The use of appropriate colour is recommended.
4. The best and most complete available evidence should be used.
5. Relevant distinctions should be evident.

Project Summary (Written Report)

1. The written report should be complete and in an easy to follow format.
2. The bibliography should follow an approved style.
3. In addition to the project summary, a logbook or other form of record keeping should be present.
6. Contradictions should be absent or reconciled as much as possible.
7. Distinctions should be made between what is known and what is suspected to be true.
8. Correct statistical analytical approaches should be used wherever possible.

Project Regulations and Safety Guidelines

- All panels of the exhibit must be free standing and stable
- No hazardous chemicals
- No open flames
- Simulated flammable or poisonous chemicals only. Any pressurized containers must have a functional safety valve.
- Any hazardous moving parts are to be protected/shielded.
- Radioisotopes present are to be at normal background activity. X-ray or other high-energy radiation sources must have been registered and approved by provincial authorities.
- If electricity is required, participant must supply their own electrical cord. Electrical power cord must be a three-wire grounded connection, and more than 7 m in length. Electrical connection must be insulated. Non-current-carrying metal parts must be connected to the ground lead. Exposed, electrically-live parts must be at a potential of less than 36V to ground. No voltages above 10kV should be generated.
- Live animals, fungi, protists, bacteria, and viruses are not to be displayed. Representative photographs or drawings replacing the live samples are encouraged.

Additional Information

The project may be presented in either English or French. Students must stipulate on the entry form in which language they want their project judged.

All exhibits, including all accessories, are encouraged to occupy no more than a table space not exceeding 0.8 meters from front-to-back, 1.2 meters from side-to-side and 2.0 meters in maximum height from the floor. Please consult the registrar (284-5024) if your project exceeds these guidelines so that appropriate space/tables may be assigned. Materials should be strong but lightweight and the structure itself must be self-supporting. Unless indicated otherwise all displays will be mounted on tables supplied by the Y.S.E.S.P. Committee. New Dimensions applicants should stipulate their requirements for space and attach a, two page or less, description of their activity to the registration form.

No distinction will be made between individual and group exhibits. All group members should be present during the judging and they all should be prepared to explain all aspects of the project.

It is important that all teachers make students aware of the criteria for judging as soon as they begin their project work. Teachers may wish to use these criteria in pre-judging the projects.

Projects that have been entered in other competitions may be reworked to meet the criteria for this Youth Stewardship Competition.

Suggested Areas of Investigation

See Newsflash: Challenges for a Sustainable Future for a list of “tackle topics” on pages 9-11.

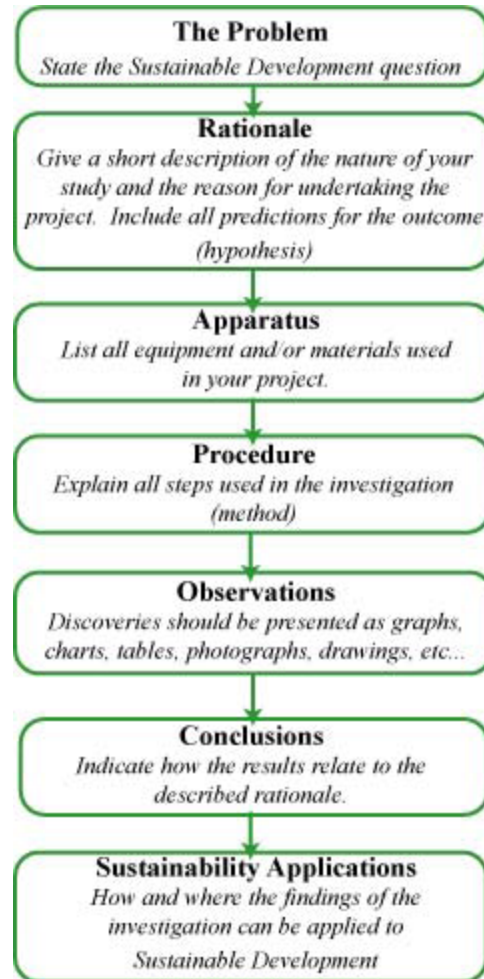
Development of an Investigation Project

Grade 1 to University/College

Projects should demonstrate a collection and analysis of data to reveal evidence of a fact or a situation involving sustainable development.

This study could include:

1. A short term study of cause and effect factor relationships involving the health of society, the environment, the economy.
2. Long term studies involving ecological investigations that incorporate comparisons of systems and extensive collection of data.



Development of Innovation/Invention/Entrepreneurship Projects

Grade 1 to University/College

Projects in this category involve the development and evaluation of innovative devices, models or techniques, board games, simulations related to Sustainable Development. A summary must accompany the project and should include all relevant diagrams and charts.

Include in the report:

- (1) rationale for the project,
- (2) apparatus and technology employed,
- (3) methods used for developing the innovation/invention,
- (4) applications of the system to Sustainability practices, and
- (5) evaluation of the potential of the proposed applications.

Entrepreneurship projects are encouraged; phone Dr. H. Robinson for details (284-5024)

Development of New Dimensions Projects

Grade 1 to University/College

Development of projects in this area must illustrate one or more of the Principles of Sustainability.

The mode of delivery may be:

- A play
- Visual communication (3-D model, sculpture, drawing, painting, original cartoon)
- Film/video
- Dance
- Songs
- Poetry
- Original CD-ROM
- Other possibilities acceptable to the committee

1. All entrants should submit no more than two pages of detailed description of the nature of the project with their registration form.

2. In the project summary, include a description of the equipment used, layouts, personnel attending, representative art slides and audio tapes, scripts as they apply to the project as a whole. Please also indicate your requirements for floor space/equipment to be provided by the host facility.

3. As the project develops, modifications may be needed. These changes should be noted in the final project summary.

How to Make Your Display Appealing and Effective

A. GENERAL LAYOUT:

- Use a sharp eye-catching title.
- Rule of thumb - approximately 40% of your available display space should be occupied by absolutely NOTHING.
- Crowded panels defeat their purpose - for viewers usually take one hurried glance, decide that understanding so cluttered an exhibit would be a chore and move on to a simpler display. Minimize the writing.

B. PHOTOS, CHARTS, GRAPHS:

- Visuals should be large enough to view details without squinting.

C. COLOUR:

- In the space provided for your display on the backboard, use a few basic colours plus black and white.
- Different basic colours can be used to define different main areas of emphasis, different shades of basic colours can be used to define sub-areas.
- Colours should attract.

D. LETTERING:

- Avoid unnecessarily large or ornate letters, as well as letters that are too small.
- Headings and titles should be prominent but should not dominate.
- Check spelling and grammar then type or print neatly the detailed information.

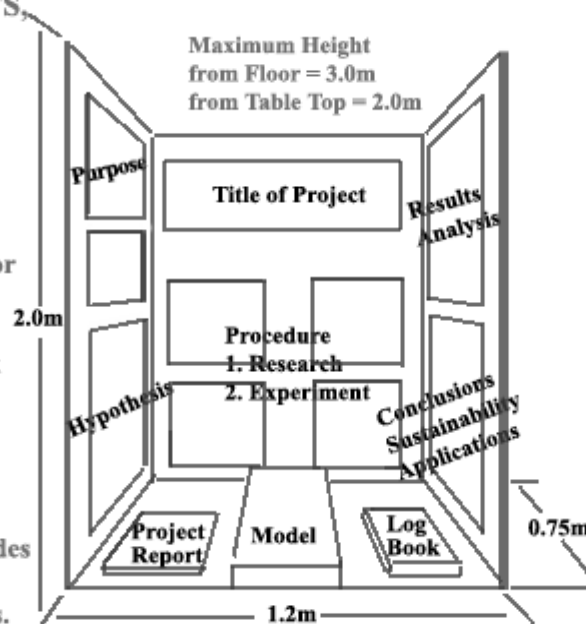
E. APPARATUS:

- Large arrays of mechanical apparatus are confusing.

- It is often better to display one piece of unique equipment alongside a model, a drawing, or a photo of the complete assembly.

F. GRAPHS AND CHARTS:

- Use simple bar, pie, line, or picture graphs.
- Use captions to explain graphs and charts adequately.
- Avoid confusing scatter diagrams or line graphs that re-cross.
- Use of colours and different symbols will make the various factors more discernible.



Judged Awards

1. Platinum Award	for a mark of 90 to 100%	Certificate / Ribbon
2. Gold Award	for a mark of 80 to 89%	Certificate / Ribbon
3. Silver Award	for a mark of 70 to 79%	Certificate / Ribbon
4. Bronze Award	for a mark of 60-69%	Certificate / Ribbon
5. Certificate of Participation	for a mark of less than 60%	Certificate

Non-Judged Awards

New Dimensions Project Participants Certificate and Evaluation

Scholarship Awards Program

Grades 9 to 11 Projects	2 Awards at \$250.00 ea.
Grades 12 Projects	2 Awards at \$300.00 ea.
College/Undergraduate/4th yr Honours Projects	2 Awards at \$375.00 ea.
Masters/Ph.D. Projects	2 Awards at \$500.00 ea.

The Award of Excellence Plaques

One plaque will be awarded to the highest platinum certificate Showcase project in all of the combined categories (Investigation/ Invention etc.) for each of the following levels:

- a. Grade 1 to 8
- b. Grades 9 to 11
- c. Grade 12

* A minimum mark of 80% to be obtained in the sustainability section of the judging sheet.

Grade 1 to 8 Lottery Draw

A lottery draw will be conducted for all platinum certificate award students in this category. The fortunate student will win an all expenses paid day for their family at Oak Hammock Marsh Interpretive Centre (includes lunch, tours and canoe ride).

Judging Criteria and Definitions

Investigation and Innovation/Invention/Entrepreneurship

Grades 9 to 11, Grade 12 and University/College Scholarship Awards Program

Purpose

The scholarship will recognize grades 9 to 11, grade 12 high school and Undergraduate/ Graduate university/college students who have shown scholastic excellence in developing projects for the annual Youth Stewardship in Environmental Sustainability Showcase competition. These projects must embrace the principles of sustainability and stewardship and they must be presented in the form of an investigation, innovation, invention or entrepreneurship process.

Number and Value of the Awards

Two awards of \$250 each may be offered to grades 9 to 11 high school students who win the highest platinum certificate in the level. One award will be assigned to each of the Investigation and Innovation/ Invention/ Entrepreneurship categories.

Two awards of \$300 each may be offered to grade 12 high school students who win the highest platinum certificate marks. One award will be given in the Investigation Category and the second award will be given for projects in the Innovation/Invention/ Entrepreneurship Category.

Two awards of \$375 each may be assigned to college, undergraduate and 4th year honours university students. Each award will be assigned for projects: one award to the Investigation Category and one to the Innovation/Invention/ Entrepreneurship Category for the highest platinum certificate marks.

Two awards of \$500 each may be given for Masters and Ph.D. projects, one for the Investigation Category and one for the Innovation/Invention/Entrepreneurship Category for the highest platinum certificate marks.

Eligibility

Projects entered for competition must obtain a standard minimum mark of a PLATINUM certificate (90%) with a minimum of 80% in the sustainability section of the judging sheet. Awards will be made in the listed level and category to the top project meeting the minimum standard with the highest overall percentage marks. Awards will be made independent of the language of judging. Individual and group projects will be accepted for the awards and no distinction will be made on the basis of the number of project participants. The awards will be divided evenly amongst the project members or used at the discretion/consent of the members. New Dimensions will not be eligible for awards.

This project must be presented in the format of a poster presentation as outlined in the Y.S.E.S.P. Rulebook, either on a standard science fair desktop board or as a flat wall poster. Models, video and powerpoint presentations, games and experimental equipment or other pertinent paraphernalia may accompany the presentation.

The Y.S.E.S.P. Committee's decisions about awards are final and these will be announced during the afternoon Annual Showcase Awards Event.

Judging Criteria and Definitions

Investigation and Innovation/Invention/Entrepreneurship University/College Only Scholarship Awards Program

1. Sustainability (25 Points)

- a. The project should relate to the three concepts of sustainability (Human Health/Well-Being, Environment, Economy).
- b. The presenter should be able to explain the concepts of sustainability.
- c. The presenter must be able to describe how the project and its defined problem incorporates sustainable development/management.
- d. The project should address the consequences of implementing each solution for the defined project.
- e. The presenter should be able to explain the “best solution” and how it was determined.
- f. Political and financial issues with respect to implementation should be explained.
- g. Suggestions for auditing and monitoring of continuing operations should be developed and explained. Any hazardous conditions involved in the project design should be dealt with in an effective manner.

2. Critical Thinking/Statistical Analysis Investigation Projects Only

(15 Points)

- a. The problem should be defined clearly.
- b. The project should demonstrate:
 - i. An analysis of the problem
 - ii. A solution to the problem (thesis), and
 - iii. A realistic implementation plan
- c. The project should also demonstrate the use of structured decision and analysis techniques (decision matrices, statistical analyses, etc.)
- d. The data should be presented in a clear, orderly

fashion in tables, graphs, illustrations, etc.

e. Supporting scientific research should be cited clearly and correctly.

f. Suggestions for further development and research should be included in the presentation.

Originality/Creativity/Synthesis

(30 Points)

- a. The content of the project should be unique, in that it is an original and new approach to the defined problem.
- b. The proposed solution should be a unique mix of technology, materials and equipment.
- c. The solutions should advance the art and skills attached to the environmental problem and the field of study used to investigate this issue.
- d. Any future development applications should be identified for the project.
- e. The presentations should highlight any synthesized models, checklists, or games developed for and during the project.

Dramatic Value Display (10 Points)

- a. Oral and physical presentations should be clear, organized, interesting and dramatic.
- b. The presentation should use graphics, pictures, and colour effectively.
- c. The project should blend the technical solution with aesthetics.
- c. The variables, factors under investigation should be clearly defined/analysed. Any controls should be identified and correctly used.

d. Any data should be reported carefully in tables, graphs, charts and drawings. The most current *Judging Criteria and Definitions cont...*

data should be used to support the discussion and conclusions for the project. Wherever possible, scientific research should be cited to support the discussion/development of an idea, model or invention.

Project Summary/Written Report **(20 Points)**

- a. The report should be organized and presented in a recognizably consistent format.
- b. The report should be clear in its description and development of the problems and their solutions
- c. The report should use clear and correct English/French.
- d. There should be evidence of excellent record keeping for the project.

Process of Thought/Supporting Research Innovation/Invention/Entrepreneurship Projects Only **(15 Points)**

- a. The problem should be clearly defined and stated.
- b. The project should demonstrate (i) the use of an effective plan for obtaining a solution to the defined problem (thesis) and, (ii) the ability to follow that plan to completion.
- c. Any data should be reported carefully in tables, graphs, charts and drawings. The most current data should be used to support the discussion and conclusions for the project. Wherever possible, scientific research should be cited to support the discussion/development of an idea, model or invention.

Registration Procedure

Deadline for registration is Thursday, May 3, 2006. The earlybird fee is \$15 per project if received before May 1, 2006. Late entry fee after May 1, 2006 is \$25. All registration forms must be accompanied by a cheque in the correct amount promptly sent by mail to the address below. Please make cheques payable to the Science Council Manitoba. Registration may be carried out online with a cheque sent immediately after by mail, or download the registration form and mail with the accompanying cheque to the address below:

Science Council Manitoba
Dr. Heather Robinson
Winnipeg Adult Education Centre
310 Vaughan Street
Winnipeg, Manitoba R3B 2N8
Phone: 284-5024 Fax: 956-5049

Presentation of Certificates, Scholarship Awards, Plaques and Lotteries

A judging committee will determine winners according to the eligibility criteria and all certificates, scholarships, plaques and lotteries will be awarded by the Y.S.E.S.P Committee in the afternoon of the Annual Showcase event.