TEWS'98

FINAL REPORT

DISCLAIMER

"A meaningful science education experience integrates intellect, emotions, interests, and skills... Produces a significant sense of achievement and growth... confidence in one's own ability to think, to feel, to take action and cope with future challenges... self esteem"

C. Morrow "Meaningful Experiences in Science Education".

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INTRODUCTION

The fifth annual International Science Camp: The Earth We Share 1998 (TEWS'98) was held at the Colorado School of Mines located in Golden, Colorado. TEWS'98 was a four week residential program which focused on providing a meaningful science education experience while developing critical thinking skills.

Thirty three students, three teachers, four college interns and the camp administrator lived and worked together while developing solutions to several world wide problems. These problems are called the Discovery Topics (further explanation will be given shortly).

The participants, both students and staff came from different countries all over the world. The following countries were represented: The United Kingdom, Sierra Leone (West Africa), Ireland USA, Nigeria, West Indies and Barbados.

Since 1994, TEWS has been held at : Choate Rosemary Hall in Wallingford Connecticut /
Camp Algonquin in Algonquin (Northwest of Chicago) , Illinois / Talledega College in Alabama / Dartmouth College in Hanover, New Hampshire and Colorado School of Mines in Golden, Colorado.

BACKGROUND

The Dorothy Jemison Foundation for Excellence promotes experiential learning. TEWS is based on this type of learning process.

TEWS Philosophy : Hearts On, Minds On, Hands On!, suggests an active approach to learning.

By the time most students reach the third grade, their enthusiasm for the love of science begins to dwindle. The future world market is depending more and more on jobs requiring technical and scientific skills, Sadly, there is a decline in the number of students graduating from high school literate in technology and science. With the increased need for technological and scientific skills and the decreased need for manual labor, future economies and societies will be compromised if immediate intervention does not take place.

PURPOSE

There is reason to be concerned about the technological and scientific needs of the near future. The importance of finding ways to increase technology and science literacy for all students is paramount.

TEWS was designed to address the growing need for a curriculum in middle and secondary schools that promotes science and technology literacy for all students. TEWS'98 aimed to provide a "meaningful educational experience" for both students and teachers.

The TEWS experience integrates the student's emotions (Hearts On), the student's intellect (Minds On), and the student's interests and skills (Hands On). This vital combination produces a significant sense of growth and acheivement. This combination should also bolster the students' confidence in their own ability to think, to feel, to take action, to cope with future challenges,thus; the promotion self esteem!

OBJECTIVES of the TEWS PROGRAM

TEWS Overall Objective : To provide a "meaningful educational experience".

TEWS Major Objectives :

Initiate the teaching of science skills at the middle and secondary school levels via experiential learning which emphasizes critical thinking skills and problem solving.

Improve teachers' skills through the practice of experiential teaching methods and exchange these ideas with other educators and industry professionals.

Increase student and teacher appreciation of the impact of science and technology on society and the world.

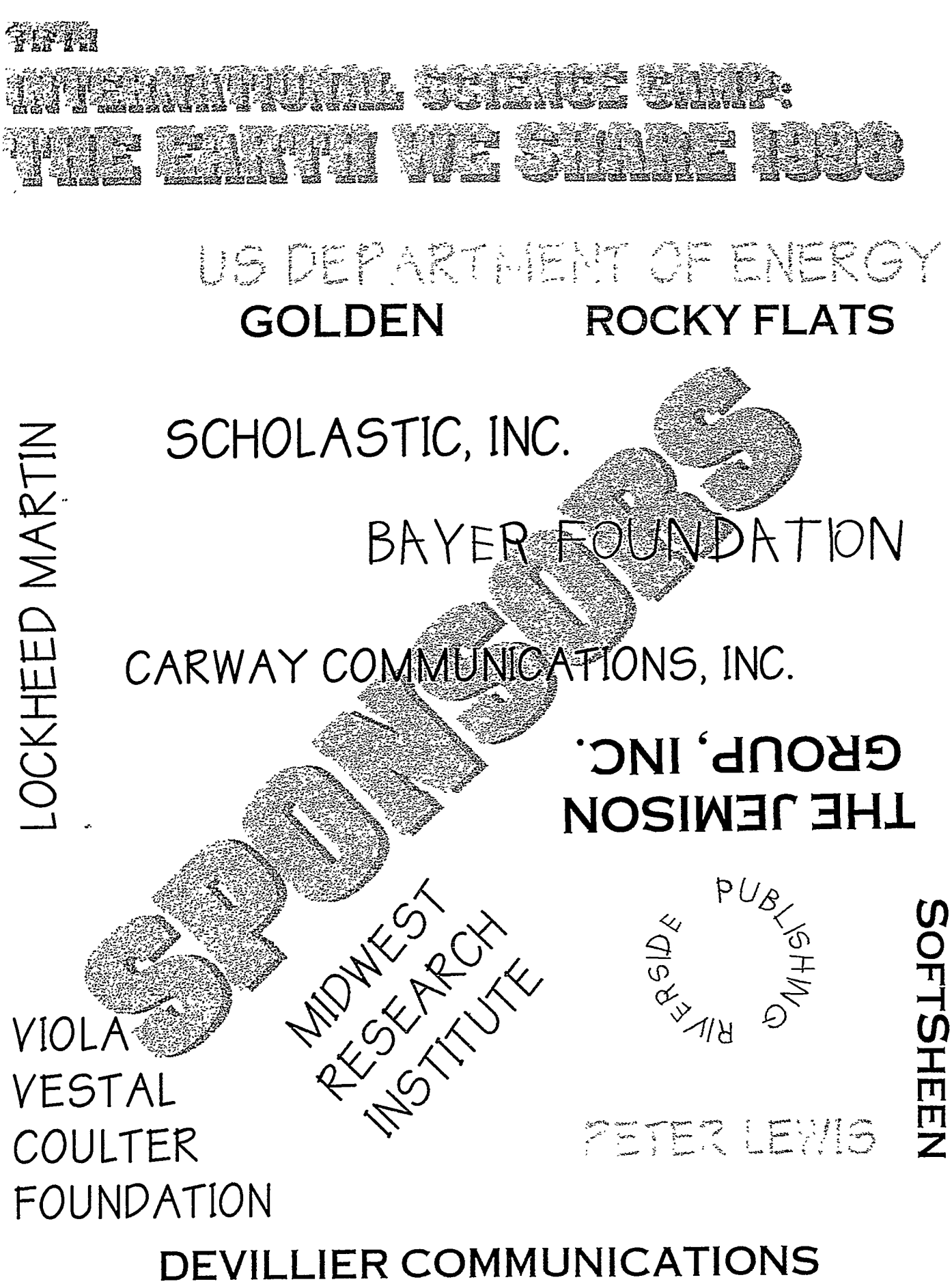
Identify and develop curricula that best promotes positive attitudes in students and teachers toward science and technology careers.

CONTRIBUTORS

TO TEWS '98 CONTRIBUTORS:

THANK - YOU VERY MUCH.

The organizations and individuals who helped make the Earth We Share 1998 possible through their generosity are shown in "Display Fashion" on the very next page! Again, Thank-You ever so much.


THE
INTERNATIONAL SCIENCE SHOW
THE EARTH WE SHARE 1995
US DEPARTMENT OF ENERGY
GOLDEN
ROCKY FLATS
SCHOLASTIC, INC.
BAYER FOUNDATION
CARWAY COMMUNICATIONS, INC.
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VIOLA
VESTAL
COULTER
FOUNDATION
PETER LEWIS
DEVILLIER COMMUNICATIONS
SPONSORS

APPLICANT SELECTION

The TEWS goal is to select participants(students, teachers and college interns) who, on return to their respective communities, could beneficially influence how others respond to science, technology and social issues.

Application Process

Over 2000 applications were distributed to individuals, schools and organizations in most major U.S.cities and many international locations. The student application required a grade point average of 2.7 (to insure reading literacy), an age ranging between 12 years and 17 years, and the student applicants were required to write three essays on the following:

Describe how science and technology affect the world in which we live.

Why do you want to meet students from other countries and what information do you want to share with them about you and your country?

If you could invent anything, what would it be, who would use it and why would you develop it?

Student applicants were selected based on a 2.7 GPA or better(out of 4.0), three letters of recommendation (one each from a teacher, school official, and a community member) and three essays. The selection committee looked for students that showed the potential to be leaders in problem solving.

Staff and college intern applicants were selected with consideration of the likelihood that they would continue to participate in science education and would share their knowledge with others. The selection committee looked for experienced staff interested in science education with a willingness to share their knowledge with others.

The selection committee was composed of educators, engineers, computer scientists, a psychiatrist, an architect and a budget analyst. In addition to criteria already mentioned, each member was asked to evaluate each applicant based on the candidates skills, awareness, knowledge, and innovation.

Selected applicants appear on the very next page.

Student Name	Country
Challa, Tanya	USA
Chavis, Janeen	USA
Chestnut, John	Scotland
Dejarnette, Michelle	USA
Domingo, Jessica	USA
Dorsey, Kristen	USA
Evans, Nicholas	USA
Hardy, Ali	USA
Henry, Androni	USA
Hogan, Brittany	USA
Mason, Aisha	ENGLAND
Mays, Clinton	USA
Page, Riccardo	USA
Peach, Nicholas	England
Perlee, Caralyn	USA
Peters, Jasper	USA
Phillips, Elizabeth	USA
Pray, James	USA
Reavis, Alexander	USA
Sahoo, Anshuman	USA
Sealey, Colette	BARBADOS
Shin, Hwa	KOREA
Soares, Simisola	NIGERIA
Stevens, Haley Lynn	USA
Stewart, Norman Troy	W. INDIES
Terrell, Stacey	USA
Tyler, Mason	USA
West, Andrew	USA
West, Justin	USA
Williams, Rhanda	BARBADOS
Wilson, Cian	IRELAND
Wong Shue, Sheena	USA
Wurtz, Gregory	USA

STAFF

Sadaqa, Shirley	USA
Shears, Yema-Kellen	England
Doris, Fiona	Ireland
Davies, Brenda	Sierra Leone
Gatewood, Robert	USA
Chalobah, Symchay	Sierra Leone
Mooney, Keira-Eva	Ireland
Hunter, Christopher	USA

TEWS CURRICULUM

TEWS curriculum is based on experiential learning and student responsibility. The curriculum centers on developing critical thinking skills. This curriculum was developed by Mae Jemison, MD, physician, engineer, astronaut, and college professor; Fran O'Donaghue, physics and chemistry teacher at Choate Rosemary Hall; Linda Slonksnes, physics teacher and aerospace engineer; in consultation with Ada Jemison, MD child and adolescent psychiatrist; Lucille Abney, PH.D. psychologist and educator; and other members of the TEWS advisory board.

The curriculum revolves around the exploration of a discovery topic. The TEWS'98 Discovery Topics were as follows:

Design the Worlds Perfect House
How Many People Can the Earth Hold?
Predict the Hot Public Stocks for the Year 2030

Using the Discovery Topics demands a certain structure for scheduling activities and lessons. Each of the four weeks presents tasks and goals which are dependent on the previous weeks' accomplishments. The TEWS schedule for Discovery Topic exploration is as follows:

Week 1: The Problem
Identify the components of the problem, resources available and set problem boundaries.

Week 2: Testing, Analysis, and Proposed Solutions
Research, test the current situation, make predictions and brainstorm possible solutions.

Week 3: Model and Test Proposed Intervention
Model the solutions and then decide on the "best" one(s).

Week 4: Presentation
Define a means to communicate what your solution is and then tell the world.

Mini -Achievements

The main Discovery Topic curriculum is complemented by other self- contained activities called "mini-achievements". These mini-achievement activities help students experience multiple accomplishments throughout the four week camp.

Physical Fitness and Sports, a part of each day's activities. TEWS'98 students took part in a variety of supervised sports: swimming, soccer, basketball (boys and girls), running and hiking.

Night Sky introduced students to the fascination we all have when we watch the stars at night.

Word Up Data! , the TEWS computer literacy training introduces students to the components of a computer; accessing the Internet and E-mail, the basics of word processing and graphics packages.

During Radio TEWS, each student is responsible for preparing and reporting information of current scientific, political, economic or environmental issues from their country or hometown.

The Cultural Program, consists of students sharing stories, games, food, songs, and a myriad of ethnic resources from their cities and countries. The TEWS'98 students and staff enjoyed a slide show presentation about Ireland. The student and staff from Ireland displayed their rich cultural heritage with music and history as they presented the slide show.

Guest Speaker Program

Guest speakers are invited to demonstrate to TEWS students how they use science literacy daily. The guest speakers also act as resources to the Discovery Teams.

Mr. Danny Creed from Lucent Technologies presented students with an A.M. presentation and " T " shirts that the students wore throughout the remainder of camp. Mr. Creed also acted as a rich resource when he spent the afternoon with a Discovery Team discussing " Hot Stocks ".

Dr. Sanjeev Madan from Bayer Pharmaceuticals conducted a very active, 100%"hands on" presentation in Chemistry. The TEWS'98 students were very excited and impressed with the way science provides things we use every day.

Field Trips

Field trips are included in the curriculum to aid in exposing students to hands-on experiences with existing technologies and sciences. Student Discovery Teams decided where they wanted to go (limited to cost and location) depending on the data they need to complete their projects, the" Design the Worlds Most Perfect House" Discovery Team visited Clear Creek Ranch in Golden, Colorado (located just off the campus of the Colorado School of Mines) to observe how log cabin homes were constructed. This team also took a class trip to The National Renewable Energy Lab's (NREL) to explore how renewable energy could be converted to electricity for homes/communities and fuel for cars.

The Discovery Team, "How Many People Can the Earth Hold?" saw Dr. Shane Tyson from NREL. DR, Tyson had recently completed a study on "How Many People the Earth Could Hold. She was a rich resource for this team and gave them further insight into their problem.

The entire TEWS'98 camp visited : The National Renewable Energy Lab and students assembled their own solar cars
The students visited the Keystone Science Center in Keystone, Colorado and took an Alpine Hike along the Continental Divide while studying the flora and fauna.
A Denver guided tour ended at the Denver Museum of Natural History with a presentation in the Planetarium.
Two fun trips: One to Park Meadows mall (where souvenirs were sought and brought) and to Elitch Gardens Amusement Park one day before the final day of camp.

Program Evaluation

As with any new idea, experiment or program, a determination of its effect must be made. The Watson-Glaser "Critical Thinking Appraisal" was administered to the students prior to and after completion of the Discovery Process. The "Critical Thinking Appraisal" tests were designed to find out how well an individual can reason analytically and logically.

The students and teachers were asked to evaluate the program as well. The overall results were supportive of the residential program as well as the methodology. Some participant comments are as follows:

* How would you make the camp better?

  * In the future, camp should be held in a different country.
  * Make camp less strict.
  * Have more free time.
  * Have camp for six weeks next time.
  * It can not be made any better.
  * Next time do not have "lights out".

* What was your favorite part about the whole camp? Discovery Topic?

  * Making new friends and meeting people from different places.
  * I found out how to make money in the stock market.
  * Having a successful presentation after all that hard work.
  * Interacting with other students and hearing different ideas.

* What was your least favorite part about the whole camp? Discovery Topic?
  * The food.
  * The long class times and study hours.
  * Lights out.
  * The disagreements that took place within my discovery team even though everything worked out, I did not like the arguing.

*Do you think the camp has changed you at all? How?

* Yes, it has given me better communication skills. I can express myself better.
* I learned to listen to others and try to cooperate with them.
* Camp made me appreciate what I have and the abilities I have.
* Now I know that science can be fun and does not have to be boring.

Program Development

There were three teachers, four college interns and one full time TEWS administrator at the camp. The students and staff were housed in dormitories. Three meals were provided in the college dining hall. Boxed lunches were provided for all field trips when requested and a cook-out for the Fourth of July was catered by cafeteria staff.

The facilities provided to TEWS by the Colorado School of Mines were quite adequate. Office space was provided for the camp administrator and excellent classroom facilities were provided for students and teachers. A room with a sink and cabinets was utilized by TEWS'98 as the resource center. A wet lab was also available. Among other facilities available to TEWS participants were the library, a student recreational center, a huge computer resource center, the indoor/outdoor athletic field and an infirmary.

Site Selection

The Colorado School of Mines (CSM) is a university of engineering, applied science, economics and the environment with a special focus on the earth's resources. Founded in 1874 and located at the foothills of LookOut Mountain (the grave site of Buffalo Bill). The Table Mountain could be seen from the CSM campus.

The Dorothy Jemison Foundation for Excellence believes that moving the TEWS camp to different locations from year to year offers the ability to demonstrate that the methodology is universal and not site specific.

Proposal Development

Funds were raised for TEWS'98 by presenting proposals to individuals, corporations and organizations. The 1998 sponsors are:

The United States Department of Energy at Golden and Rocky Flats Colorado
Midwest Research Institute
Bayer Foundation
Caraway Communication, Inc.
Lockheed Martin
Viola Vestal Coulter Foundation
Devillier Communications
The Jemison Group, Inc.
Scholastic, Inc.
Softsheen
Peter Lewis
Riverside Publishing

We are extremely appreciate of the generous support.

Publicity and TEWS Promotion

One objective of The Earth We Share was to change the perception of science and technology literacy from "nerdy" to the perception of being an avenue to creativity. Specially designed TEWS Tee-shirts were given to all students and staff and were worn on the final TEWS field trip. The shirts served as walking billboards on/off campus as well as the hometowns of the participants.

Articles were printed and released in various publications during the operation of the camp (find an example of TEWS publicity on the following two pages).

Boulder Daily Camera, Monday, July 20, 1998

FUTURE SCIENTISTS

GOLDEN PLAYS HOST TO science faction

International science camp allows kids to think critically

KERRY HULLER / For the Camera

Brittany Hogan shows Anshuman Sahoo a detail they need to consider in the design of a "perfect home." Hogan and Sahoo are participating in a science camp at Colorado School of Mines in Golden, in which students from all over the world will be designing the ideal house.

By Rachel Shindelman

For the Camera

Jasper Peters, 13, is not having a typical summer. Instead of relaxing and hanging out with friends, the recent graduate of Prairie Middle School in Aurora is designing the world's perfect house, with the help of 10 students from around the world.

Every minute of the day is filled, he said.

Peters is one of 33 students, ages 12 to 16, who is attending an international science camp, called "The Earth We Share," held in Golden from June 29 to July 25. They live in dormitories on Colorado School of Mines campus, and pay nothing to participate. Their teachers and interns also come from various countries.

The Earth We Share was founded in 1993 by Dr. Mae Jemison, the first female African-American astronaut in the United States. Each year, it is held in a different city.

The camp is sponsored by the Department of Energy's Golden field office, DOE's National Renewable Energy Laboratory, DOE Rocky Flats Environmental Technology Site and the Midwest Research Institute.

Students are chosen from around the world from nearly 3,000 applications. They had to write three essays and include three recommendations.

Peters applied for the program because he likes science and math.

"Technology is always changing. It's new and it's fun," he said.

Students divide into three groups of 11, based on their age. Each group works on solving one problem. These include guessing the popular stocks for 2030 and figuring out how many people can fit on Earth.

The students working on the world's perfect house are the youngest of the group. Most are 13 years old, although a few are 12 or 14, said their instructor, Fiona Doris, a botanist from Dublin, Ireland.

In designing the perfect house, students work together to research and decide which qualifications their house must have, then analyze and prioritize them. They also perform a cost analysis and build a model.

The camp teaches students critical thinking through experiential learning, Doris added. Instructors serve as guides.

"This class isn't about making scientists," she said. "It's about critical thinking, and understanding the role of technology and science."

But students have a rigorous schedule. Their days last more than twelve hours, with only small breaks. However, they control direction of the class.

"The teachers aren't telling you what to do. We're doing it for ourselves," said Colette Sealey, 12, of Barbados.

And they do things they have never done before. Last weekend, they went on an alpine hike.

"It was the first time I'd seen snow," Sealey said.

Because students and teachers spend everyday together, they learn more about each other than they would ever in a typical school.

Doris said she has learned that her students' imaginations have no boundaries.

"They come up with ideas like that," she said, snapping her fingers. "It's humbling. It's a humbling experience."

Follow - Up

Follow-up activities are designed to maintain the "Discovery" momentum gained at the camp. A newsletter will serve as the line of communication. Follow-up letters, TEWS Tee-shirts, and this report will be sent to all sponsors, advisory board members and staff.

Summary, Conclusion and Future Plans

The night before the final departure from camp, several students passed out a TEWS'98 directory that they prepared (the directory included the names and addresses of TEWS'98 students and staff). There were many tears and sad faces as the students tried to enjoy their final party... dancing to music, munching on fried chicken, pizza, sodas and chips.

TEWS'98 offered a setting to explore, create and communicate. **Many students were forced to think rather than memorize. The teachers were forced to re-examine their habits and consider an experiential "risk-laden" teaching method.**

Discovery Topics posed contemporary global dilemmas and required the application of multiple natural and social science disciplines which heightened both the teacher and student awareness and understanding of the impact of science and technology on themselves, societies and the earth.

If funding permits, consideration will be given to holding the camp in another country next year. Ultimately, The Dorothy Jemison Foundation for Excellence will evolve the TEWS curriculum so that it can be used in "regular" classrooms around the world. As we continue to work towards this goal, our hope is to continue to provide students and teachers with "meaningful educational experiences" that prepare us all to successfully participate in tomorrow's challenges.

TEWS '98

Daily Schedule

Monday - Friday

7:00 - 8:00 AM	Breakfast
8:15 - 11:45 AM	Class
12 Noon - 1 PM	Lunch
1:15 - 3:00 PM	Class
3:15 - 4:30 PM	Sports
5:00 - 6:00 PM	Dinner
6:15 - 8:15 PM	Study Time
8:15 - 8:30 PM	Dormitory "Tag-up"
8:30 - 10:00 PM	Social Time
10:00 - 11:00 PM	Quiet Hour
11 PM SHARP	LIGHTS OUT

Saturday

7:30 - 8:30 AM	Breakfast
12:00 - 1 PM	Lunch
5:00 - 6:00 PM	Dinner
7:00 - 11:00 PM	Social Time
11:00 - 12:00 Midnight	LIGHTS OUT

Sunday

7:30 - 8:30 AM	Breakfast
12:00 - 1 PM	Lunch
5:00 - 6:00 PM	Dinner
6:15 - 8:15 PM	Study Time
8:15 - 8:30 PM	Dormitory "Tag-up"
8:30 - 10:00 PM	Social Time
10:00 - 11:00 PM	Quiet Hour
11 PM SHARP	LIGHTS OUT

This schedule is in effect every day unless instructed otherwise by the Camp Administrator, Ms. Sadaqa.

THE EARTH WE SHARE 1998
Activities Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
6/21 Curriculum Trainer Arrive at CSM	6/22 Set-up	6/23 Set-up & Faculty Arrive	6/24 Staff Orientation	6/25 Staff Orientation	6/26 Staff Orientation	6/27	*Orientations*
6/28 Students Arrive	6/29 TEWS '98 OPEN Group Meetings & Intro to Discovery Manuals	6/30 CSM Library and Facilities Sports Groups Cultural	7/1 Intro to Astronomy	7/2 TEWS Group Field Trip Keystone Center Alpine Hike	7/3 Holiday!!!! Celebrate Cultural Program	7/4	*Intro to topic* *Limits to efforts* *Tests*
7/5	7/6 Night Sky	7/7	7/8	7/9 Cultural Program	7/10 Guest Teacher Danny Creed Lucent Technology	7/11 TEWS Group Field Trip to Denver	*Testing* *Collect Data* *Propose Intervention*
7/12	7/13	7/14	7/15 Night Sky	7/16	7/17 Guest Teacher Dr. Sanjeev Madan Bayer Corporation	7/18	*Model and test proposed intervention*
7/19	7/20 Draft and design of Presentation Pictures Night Sky	7/21	7/22 TEWS '98 Presentations Guests Day Cultural Program	7/23 Evaluations	7/24 Good by Party	7/25 Students Leave Staff Evaluations	*Develop presentation and implement*
7/26	7/27	7/29 Staff Leaves	7/30	7/31	8/1	8/2	

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THE EARTH WE SHARE 1998
Activities Schedule

WEEK A

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
6/21 Administrator & Trainer Arrive at CSM	6/22 Set-up	6/23 Set-up & Faculty Arrive Teacher and Intern Get Together Meet with Faculty Introduction Mindtrap	6/24 Staff Orientation Administrative Day Administrative Briefing Campus Orientation Facilities Orientation Counseling and Cross Cultural Awareness Training TEWS Curriculum Overview	6/25 Staff Orientation Plan Field Trip Activities Plan observation Activities Intro to Manuals Resource Center	6/26 Staff Orientation Assign Mini-achievement Topics Dr. J arrives at CSM Discovery Topics and Critical Thinking Skills	6/27 Complete Discovery Topic Lesson Plans Organize Materials and classrooms Interns plan student pick-up	*Orientations*

THE EARTH WE SHARE 1998
Activities Schedule

WEEK 1

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
6/28 Students Arrive Teachers meet with Dr. J Organize Materials and classrooms Interns pick up students Student Orientation Activities	6/29 Student Orientation Opening and Press Pre-Evaluation Tool Group Meetings Debrief on Measurements and Observations Mind Trap, observation and critical thinking games Topics Introduction to Discovery Manual Management structures Intro to short projects and radio	6/30 Introduction to Resource Manuals CSM Library and Facilities Tours Tech and Society Relating Talking about it Identify Problem Identify Resources	7/1 Intro to Computers Begin Identify Conditions continued---------- Cultural Program	7/2 Field Trip Keystone Center Alpine Hike Keystone, CO	7/3 Holiday Sports Groups Cultural programs Celebrate!!!!!! continued What kind of test? What is needed?	7/4 HOLIDAY!!! Prepare for the Data Testing may begin Intro to Astronomy	*Intro to topic* *Identify* • *Problem* • *Resources* • *Parameters* • *Tests*

THE EARTH WE SHARE 1998
Activities Schedule

WEEK 2

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
7/5	7/6 Field trip Testing Night Sky	7/7 Testing continued	7/8 Field Trips to Research Sites	7/9 Data Analysis	7/10 Guest Teacher Danny Creed Lucent Technology Predict the unchanged future Brainstorming	7/11 Field trip Trip to Denver, CO	*sting* *ta Analysis* *ainstorm*

THE EARTH WE SHARE 1998
Activities Schedule

Week 3

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
7/12 Brainstorm continues	7/13 Brainstorm Analysis Night Sky	7/14 Field Trips to Research Sites Focus Prepare for Modeling Prepare for Data	7/15 Solution Modeling Night Sky	7/16 continued---------- Cultural Program	7/17 continued Guest Teacher Dr. Sanjeev Madan Bayer Corporation Begin analysis	7/18 Finish all modeling Solution Timeline	ainstorm lysis us lel and test osed vention

THE EARTH WE SHARE 1998
Activities Schedule

WEEK 4

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
7/19	7/20 Draft and design Presentation Pictures Night Sky	7/21 Organize for and practice presentations	7/22 Presentations Cultural Program **Guests**	7/23 Post camp evaluations tool	7/24 Good bye Party	7/25 Students Leave Staff Evaluations	*Develop presentation and implement*

THE EARTH WE SHARE 1998
Activities Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Comments
7/26 Clean up	7/27 Clean up	7/28 Teachers and Interns Leave	7/29	7/30	7/31 TEWS Administrator Leaves	8/1	

THE EARTH WE SHARE

COPY

September 14, 1998

Mr. Frank Stewart
Manager
Department of Energy Golden Field Office
1617 Cole Blvd.
Building 17
Golden, CO 80401

Dear Mr. Stewart:

Thank you for the Department of Energy Golden Field Office's support of the International Science Camp: The Earth We Share 1998 (TEWS '98). TEWS '98 was held at the Colorado School of Mines from June 28 through July 25 in Golden, Colorado. Thirty-three students, three teachers and four interns were selected from over 2000 applications distributed. They came from across the United States, Ireland, England, Sierra Leone and Barbados and worked to discover solutions to global dilemmas we all face today.

As you know, TEWS advocates science literacy for all students and promotes the development of critical thinking and problem solving skills. The curriculum revolves around Discovery Topics™ designed to capture students' innate creativity, curiosity and motivation. Our goal is for all students and teachers to understand the role of science and technology in our lives.

The students, ages 12-16, worked in teams of eleven with one teacher and an intern as guides on these Discovery Topics:

- Design the World's Perfect House
- How Many People Can the Earth Hold?
- Predict the Hot Public Stocks of the Year 2030

Their solutions? An energy efficient house that included exercise facilities, with an oval shape oriented to the wind to improve thermal air layer insulation and materials that are recyclable. 9.3 billion people can exist "comfortably" on the earth in our present state of inequality between countries and socioeconomic groups and based on our current resource consumption. And technology stocks will remain hot, but they will be from different countries and companies -- the aerospace industry will be bigggg!

COPY

TEWS '98 hosted guest teachers Dr. Sanjeev Madan, from Bayer Corporation, who led hands-on chemistry demonstrations, and Mr. Danny Creed, from Lucent Technologies, who took the camp on a "tour" of the telecommunications industry and did extra duty with the "Stock" team. Participants went on an Alpine Hike in the Rocky Mountains along the Continental Divide led by the Keystone Center Science School, visited the National Renewable Energy Laboratory with Mr. Frank Stewart and toured Denver, Colorado with Ms. Syl Morgan-Smith. Students, teachers and interns shared multiple cultural activities, gained computer skills, observed the night sky and of course, participated in sports daily.

TEWS '98 was remarkable for the international staff presence. We had a teacher from Ireland and from Sierra Leone as well as one from Denver. Also three of the interns were international. Students, teachers and interns overall considered the camp *"a one-in-a-lifetime experience"*.

Enclosed is a list of the participants, a picture of everyone taken at the beginning of the camp, a list of our sponsors and this year's tee shirt. A final reported will be mailed to you in early November 1998.

We are currently working to define the operations of TEWS '99 and a way to provide the TEWS curriculum through day camps, after school programs and more traditional classrooms. We are also seeking permanent camp administrative staff to work full time, year round, to assure the benefits of TEWS are fully realized and made available to as many educational avenues that may benefit from it. If you know of any individuals who may have the skills, talent and drive to take up this challenge and excel, please advise me.

Again, thank you for your generous support of TEWS '98. We appreciate it greatly and look forward to continuing to promote science literacy.

Sincerely,

Mae Jemison, MD
Director

enclosures: TEWS '98 Picture
TEWS '98 Tee Shirt
Participant List
Sponsor List

cc: Ms. Syl Morgan-Smith
Mr. John Mott

International Science Camp:
The Earth We Share 1998
Participants

Students

Challa, Tanya	Bellerose	NY	USA
Chavis, Janeen	Lithonia	GA	USA
Coly, Robert	Schenectady	NY	USA
Dejarnette, Michelle	Temple	TX	USA
Domingo, Jessica	North Canton	OH	USA
Dorsey, Kristen	Olympia Fields	IL	USA
Evans, Nicholas	Kokomo	IN	USA
Hardy, Ali	Altadena	CA	USA
Henry, Androni	Grand Rapids	MI	USA
Hogan, Brittany	Chicago	IL	USA
Mason, Aisha	Gt. Yarmouth	Norfolk	ENGLAND
Mays, Clinton	Missouri City	TX	USA
Page, Riccardo	Olympia Fields	IL	USA
Peach, Nicholas	Atlanta	GA	USA
Perlee, Caralyn	Slingerland	NY	USA
Peters, Jasper	Denver	CO	USA
Phillips, Elizabeth	Denver	CO	USA
Pray, James	Atlanta	GA	USA
Reavis, Alexander	Chicago	IL	USA
Sahoo, Anshuman	Albany	NY	USA
Sealey, Colette	Christ Church		BARBADOS
Shin, Hwa	Denver	CO	USA
Soares, Simisola	Ikeja	Lagos	NIGERIA
Stevens, Haley Lynn	Edmond	OK	USA
Stewart, Norman Troy	Hastings	NY	USA
Terrell, Stacey	Fredericksburg	VA	USA
Tyler, Mason	Derby	KS	USA
West, Andrew	Lenexa	KS	USA
West, Justin	Lenexa	KS	USA
Williams, Rhanda	St. Michael		BARBADOS
Wilson, Cian	Sutton	Dublin	IRELAND
Wong Shue, Sheena	Coral Springs	FL	USA
Wurtz, Gregory	Tillson	NY	USA

Teachers

Brenda Davies	Sierra Leone
Fiona Doris	Ireland
Robert Gatewood	USA

Interns

Symchay Challobah	Ivory Coast
Christopher Hunter	USA
Kiera-Eva Mooney	Ireland

Camp Administration

Shirley Sadaqa	Administrator	USA
Yema-Kellen Shears	Admin. Intern	England

International Science Camp: The Earth We Share 1998

SPONSORS

US Department of Energy Golden Field Office

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