CENTER FOR INFRASTRUCTURE ENGINEERING STUDIES

2003 SUMMER TRANSPORTATION INSTITUTE

By

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University Transportation Center Program at
The University of Missouri-Rolla

UTC
ETT88

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16. Abstract

Civil Engineering at UMR has hosted a USDOT Summer Transportation Institutes (STI) for the past four years. The Programs have been very successful. The STI is a 5 week intensive during summer for high school students - targeted primarily toward minorities but not limited to them. The goals of the STI are to:

1. Expose secondary school students to and allow them to participate in a series of academic and practical experiences designed to motivate them toward professions in the transportation industry,
2. Provide secondary school students with mathematics, science and technological enrichment to enable them to pursue a career in the transportation industry.

This would help to increase the numbers of youths entering the transportation profession and would help the University in its recruiting efforts. The students (11th and 12th graders) are subjected to a healthy dose of Campus life. Once again we will offer a 3 credit course as part of the curriculum this year and consequently the program length remains at 5 weeks.

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ABSTRACT

The Transportation Institute in the Department of Civil Engineering at the University of Missouri-Rolla hosted its fourth U.S. Department of Transportation Summer Transportation Institute (STI). The mission of the Institutes Program is:

To contribute to the development of a diverse, well-qualified workforce for the transportation industry by encouraging secondary school students to pursue transportation careers.

In concert with this mission and with UMR's unique strengths, the objectives of this effort were to provide an educational experience for high school students which explored a wide variety of aspects of the transportation industry and its role in our society. To that end, the STI curriculum provided educational opportunities for its students in critical areas of transportation, math and science, personal growth and computers. The twenty one tenth, eleventh and twelfth grade students who were chosen for the Program were exposed to university life, leadership and team building activities, a three credit college history course, and a series of lectures, seminars, hands-on laboratories and field trips. The Institute was comprised of five weeks: Orientation, Highway, Air, Public and Intermodal Transportation weeks (see Appendix 3) and was headquartered at the Transportation Institute in the Civil Engineering's Butler-Carlton Building.

The Federal Highway Administration's money was used as "seed" money to fund the Institute which cost more than twice the amount funded. The five week Institute was conducted by faculty, staff and students from the Departments of Civil Engineering and History. Government agencies and private firms provided substantial support in funding, staff assistance and educational materials as well. See Appendix 10 for a complete list of sponsors.

Youths from across the State of Missouri were recruited. Email greetings, with program brochure and application attached, were sent to more than1,500 high school students who had indicated an interest in engineering; STI staff called 20 Missouri high schools in the St. Louis area (our target population); parents of the STI parents group were asked to recruit; and the National Society of Black Engineers and local MODOT personnel were again asked to help to identify and recruit likely candidates. Thirty three applications were received and twenty one were accepted. Copies of the cover letter, brochure and application are provided in Appendix 1. Applicants were selected based upon their academic standing, recommendation letters, and their essays explaining their interest in transportation. The Project team assessed the applications and accepted the twenty one aforementioned applicants. The average grade point average of the chosen group exceeded 3.0 on a 4.0 scale. Four of the twenty one were tenth graders, seven were eleventh graders, and ten were twelfth graders. There were seventeen African Americans, two asians, one caucasion and one Hispanic student. Thirteen of the students were women. The students represented the schools listed in Appendix 7.

INTERMODAL ADVISORY COMMITTEE

This year the Advisory Committee was used primarily to review the planned curriculum and to help identify speakers and arrange field trips. We have identified through the course of the Program four new members for the Committee and retired two others. For next year two members will be added: Mr. Clarence Dula of Parsons-Brinkerhof and Ms. Toni Burrows of Boeing Corporation. Current membership on the Committee is as follows:

NAME: Robert T. Berry TITLE: Vice President AFFILIATION: Burns & McDonnell 1630 Des Peres Road St. Louis MO 63131	NAME: Lisa Lamons TITLE: Regional TRAC Director AFFILIATION: MODOT 2217 St. Mary's Blvd Jefferson City MO 65102
NAME: Tricia Bohler TITLE: Civil Engineer AFFILIATION: Jacobs-Sverdrup 13723 Riverport Drive Maryland Heights MO 63043	NAME: Ron Moore TITLE: AFFILIATION: NSBE
NAME: Floyd Harris TITLE: Director AFFILIATION: University of Missouri-Rolla Minority Engineering Office Rolla, MO 65409	NAME: Ray Purvis TITLE: Division Engineer AFFILIATION: MODOT R& D Division 105 Capitol Ave Jefferson City MO 65102
NAME: Sherrie Koechling-Andrae TITLE: Assistant Professor AFFILIATION: Lincoln University College of Business Jefferson City MO 65102	NAME: Allen Masuda TITLE: Administrator AFFILIATION: FHWA, MO Division Office 209 Adams St Jefferson City MO 65101
NAME: Jennifer Kuchinski TITLE: Civil Engineer AFFILIATION: Parsons Brinckerhoff 1831 Chestnut Street St. Louis MO 63103-2225	NAME: Stephanie Webb TITLE: Aviation Education Pgm Mgr AFFILIATION: Federal Aviation Administration 901 Locust Kansas City MO 64106

A draft copy of the institute schedule was sent to the Committee for its review. It subsequently met on Thursday, April 10, 2003 at 8:30 AM via teleconference to discuss STI activities. Each member was assigned a set of tasks in preparation for the STI. Subsequent communication was maintained on an individual basis via email and telephone.

PROGRAM OBJECTIVES

Strategic Plan

The following outcomes were adopted by the NSTI and were used for this year's program at UMR:

Upon completion of the STI, students shall be able to:

1. Apply analytical skills to basic transportation applications

Instrument

Pre and post test questions (questions 2 and 8)
Performance in technical laboratories

Metric

80% will demonstrate a increase in skills on tests. 80% will perform adequately in labs.

2. Identify career opportunities in transportation

Instrument

Paper about careers, preparation for careers, or application of careers – everyone write one, choose best for the Newsletter

Metric

80% of students should receive at least a passing grade . - **- 90% received pass grades**

3. Discuss the topics in the core areas of land, air, water and safety covered in the Institute

Instrument

Paper or monograph discussing modes of transportation listing aspects of each – everyone write one and choose the best for the Newsletter

Metric

80% should pass graded paper. - **- 81% passed**

4. Name and explain steps necessary to enter college

Instrument

Pre and Post test questions

Metric

80% will demonstrate a increase in knowledge. ***Not met.*** *44% demonstrated an increase in knowledge. Only one, 2 hour, session is devoted to this topic and it is at the beginning of the Institute. Recommend that sessions of this type be increased and that they be more pointed in relaying this critical information. Possibilities include additional sessions with UMR admissions staff augmented by evening discussion sessions with UMR students.*

5. Conduct research in a library and on the internet

Instrument

Paper on transportation modes
Egg Hunt
Literature course

Metric

80% should have passing grade on both - -**90% passed**

6. Work in teams

Instrument

Presentations

Metric

Faculty and staff evaluations - 100% satisfactory on first one. **Met**. *Students put together an excellent multimedia show for the closing lunch which included singing, dancing and a slide show narrated by each and every one of the students. Suggest next year that other events be included in this metric – such as the way in which the students successfully worked together in publishing an excellent newsletter, in designing crash cushions, designing and building MagLev trains, etc.*

7. Discuss the principles of effective leadership

Instrument

Paper describing a favorite leader and why that person is considered a great leader. Everyone writes one – the best one gets published in the Newsletter

Metric

75% to receive an above average evaluation - **- 100% passed**

8. To develop and use employability tools (such as resumes, interview skills, appropriate dress) and to explain the value of work ethics

Instrument

Resumes

Metric

80% should receive satisfactory (1 worst, 5 best) evaluation by faculty and staff.

9. Discuss the value of diversity in the workforce

Instrument

Essay on diversity – 1 page paper. Everyone writes one – the best one gets published in the Newsletter

Metric

Faculty graded - 80% should receive a satisfactory grade . **90% passed**

PROGRAM FACULTY AND STAFF

Description of duties

Program Manager
Ms. Lonnajean Yoest, in preparation to take over as Director in 2004, worked with the Director in recruitment, development of marketing materials, development of curriculum content and implementation of the institute. Essentially she served as a second in command to the Director.

Academic Aides
Mr. Erick Webster worked with the Director and the Program Manager and was assigned the following duties:

- Assured that speakers had what they needed to conduct lectures and laboratories,
- Assured that attendees were in the right place at the right time, on time
- Attended field trips
- Resolved conflicts among attendees
- Assisted in academic instruction
- Organized the evening program of activities
- Aided in the implementation, evaluation and revision of the academic curriculum
- Assisted with coordination of field trips
- Supervised and saw to the needs of attendees
- Served as mentor to the attendees
- Acted in the absence of the Project Director

Dr. Mohammad Qureshi worked with the Director in organizing activities and providing seminars on a variety of topics during the Institute.

Dr. Jeff Schramm taught History 176 Modern American History. He customized the course to focus on transportation and technology.

Counselors
We had two full time counselors and two full time mentors (students returning from 2002). Their duties consisted of helping Mr. Webster in all of his duties listed above. The two counselors, Mr. Webster and a driver, Mr. Colin McFarland (a history major at UMR) drove vans on field trips. Counselors were Shannon Foil, a graduate student in Civil Engineering (transportation emphasis) and Samantha Whitwell, an undergraduate student in History (interested in teaching upon graduation). The returning students, mentors, were: Claire Lehman (who will attend UMR this coming Fall as a freshman engineering student) and Dominique Crain (who plans to apply to UMR for next Fall).

Affiliations

Dr. Gary S. Spring, Director Associate Professor Civil Engineering	Shannon Foil Graduate student Civil Engineering (transportation)
Dr. Jeffrey Schramm Assistant Professor History	Dr. Mohammad Qureshi Assistant Professor Civil Engineering
Samantha Whitwell Undergraduate student History	Erick Webster Undergraduate student (upper level) History

ACADEMIC PROGRAM

The Institute was comprised of five weeks, the first of which was focused on student orientation and the remaining weeks included tracks dealing with Highway, Air, Public and Intermodal Transportation (see Appendix 3) and was headquartered at the Transportation Institute in the Civil Engineering's Butler-Carlton Building. Each track began with an introductory session in which speakers from the topic area were asked to speak to the group and field questions. These sessions were followed by a series of in-class activities and field trips which corresponded with the particular theme.

ENHANCEMENT

The several enhancement activities provided this year were meant to expand students' non-technical skills, such as leadership, taking responsibility for one's own actions, establishing directions in life, relating with others in teams and in other settings, and in developing organizational skills. They are:

- Introduction to the Seven Habits for Highly Effective People
- Ropes and Challenge Course
- Teamwork Seminar
- How to Study Seminar
- Communication Seminar
- Newsletter Workshops
- Adobe Photoshop workshop
- Using the Library
- Creating your own web pages
- Introduction to College life
- Conducting an interview
- History 176 Modern American History

Introduction to the Seven Habits for Highly Effective People

This activity consisted of a three hour session which began by introducing the concepts of paradigm shifts, being proactive and setting personal goals, followed by discussions on developing good organizational skills and their importance, setting priorities, and the maturity continuum which flows from independence to interdependence. Students were asked to write personal mission statements as homework - samples of which are provided in Appendix 6. Several group and individual exercises were conducted during the session that supported the concepts under discussion (see Appendix 4). A follow up session focussed on perhaps the most difficult habit, namely "Seek first to understand, then to be understood." Students were asked to state their position on the topics shown in Figure 1.

Issue	Strongly for	No strong opinion	Strongly against
1. Quotas should be used as one vehicle for affirmative action			
2. Euthanasia (ala Dr. Kevorkian) should be legalized			

3. Women should have a right to abortion			
4. The death penalty should be retained			
5. No prayer of any kind should be allowed in public schools			
6. It is ok to use animals for research purposes.			

Figure 1. Questionnaire for Empathic Communication Exercise

The issue chosen for discussion was abortion based upon student responses. There were at least three students who were strongly for, and three strongly against each of these two topics. Additionally, there were at least three who had no strong opinion to serve as mediators. Students formed three groups: two groups for the discussion, for and against, and one group to referee. Each discussion group's charge was to convince the opposing group that it truly understood the opposing group's stand. The referee group was to assure that the discussants stayed on point. Where necessary, it provided reminders that the point of the exercise was to understand the others' views rather than win the debate. Very lively discussions ensued. The students' reactions were very positive and, as with previous years' students, requested more such exercises. They seemed to gain a great deal from the experience and very much enjoyed the lively interactions.

Ropes and Challenge Course

The Ropes and Challenge Course at the Universal Challenge Center in Salem, MO provides a set of training tools meant to promote human development through Experiential (Adventure) Education. The tools include group problem-solving games and initiatives, low elements (1-2 feet from the ground), and high elements (30-40 feet up). These activities and physical challenges are used as metaphors to promote development. The Universal Challenge Center has one of the largest and best equipped courses in the Nation featuring state of the art construction and nationally established safety standards. Its accredited staff is experienced in outdoor education, human development, and group dynamics. STI students were unable to experience all of the activities given the limited time frame available (1 evening versus several days) but did receive some valuable highlights of the Course. The UCC Ropes Course tested personal courage, teamwork, and group support as the students faced challenges involving climbing and traversing obstacles high in the air. We hope that students were left with lasting impressions of their experiences that they can draw upon to meet future challenges. The activities are not merely physical challenges, but metaphors for the issues we all face in our personal and professional lives. The course consists of several challenges on which students actually experienced the need to trust team members. Activities included:

- Burma Bridge. A quick climb up the pole, then across the cable and back before descending back to the ground.
- Multi-Vine Traverse. With memories of Tarzan, participants crossed this bridge using only one cable for their feet and a series of "vines" hanging from an overhead cable. Balance and concentration were required to traverse this challenge!
- Cat Walk / Balance Beam. Walking across a fallen log 30 feet above the ground.
- Flying Fox Zip Line After climbing to the take-off platform, participants were secured to a pulley that carried them the length of Zip Canyon.

- The Rock Climb A vertical climb using "rock" hand and foot-holds is both a physical and mental challenge. Strength, coordination, and strategy were needed to meet this element.

An excellent experience for these young people.

Teamwork Seminar
This two hour seminar was led by Dr. Spring. Students took the Myers Briggs test to determine personality type. Dr. Spring followed this with a fairly detailed discussion of the Myers Briggs taxonomy and where each of the students fit. A NASA team work exercise was then used to illustrate the power of teamwork. The session also provided open discussion among the students regarding what attributes constitute a good team member and how one goes about acquiring those skills. It also served as an ice breaker for the students.

How to Study Seminar
In this three hour session, topics discussed were: styles of taking notes, what to do with them after they have been taken, and how to study for exams. How we learn (the learning process) and what information should be put in the students' notebooks were also discussed.

Communication Skills Seminar
The students were introduced to principles of effective presentations. Following the introduction, the students participated in a toastmasters style meeting and practiced these principles.

Newsletter Workshop
Ms. Lonnajean Yoest, STI Program Manager, provided a half day workshop consisting of lecture and hands on exercises in the design and creation of technical newsletters using Quark. The workshop included graphic design techniques, good writing practices and layout design. Students were required to create a newsletter reporting on each week's activities.

Adobe Photoshop
Ms. Yoest provided a 2 hour review and workshop on the basics of graphics design and the use of Photoshop in implementing those basics.

Using the Library
Ms. Kathy Gallagher, a UMR librarian, introduced students to the use of the University library. She provided a tour of the facility and a tutorial on how to find information.

Creating your own webpage
A two hour workshop on the creation of websites taught students the rudimentaries of web site design. Each student created his or her own web site using Microsoft Frontpage.

Introduction to College life
Mr. Floyd Harris, Director of UMR's Minority Engineering Program (MEP) met with STI students and, provided them with an overview opportunities offered through the MEP. Counselors from UMR admissions office told students how to apply to college, what to look for when applying, and financial aid and how to qualify and apply for it. UMR students later gave the STI students a tour of campus.

History of the American West (History 175)
Students were introduced to the joys and rigors of a genuine college course. Dr. Jeff Schramm, a History professor at UMR, taught this three credit course specifically for the STI program and as stated above actually tailored the course to reflect the transportation objectives of the STI.

SPORTS AND RECREATION PROGRAM

UMR's Multipurpose Facility has an olympic-size swimming pool and full facilities for tennis, weight lifting, basketball, etc. Students were provided with several free evenings during which many availed themselves of these facilities.

Rolla's Fourth of July celebration. Several students chose to remain in Rolla during the July 4th holiday. Those that did attended this small town fair/carnival that is held at the Rolla Lions Club Park annually during the week of July 4.

Movies. Students were provided with passes to the local movie theatre. They took advantage of a rare free evening to see The Hulk.

Vacating in Chicago. Students were given some free time at the end of the day on Wednesday. They spent the evening at the Navy Pier.

PROGRAM EVALUATION

Meaningful evaluation requires revisiting the outcomes established as part of the Program's Strategic Plan. The following discussion provides an evaluation of those outcomes along with an assessment of this year's student evaluations.

Measurable Outcomes Results

One assessment tool that was planned for use was the pre and post test which was administered to students at the beginning and end of the program. The test was changed significantly from last year's in the types of questions that were asked. Questions were much more focused and pointed. It seemed that the students this year took the tests (both pre and post) seriously. Results are used here to gain insight into program effectiveness along with the several other instruments used for this purpose.

1. Apply analytical skills to basic transportation applications

Following an interactive lecture about mathematical models (see slides in Appendix 4), students were introduced to the formulation and application of math models. They designed a steel wire adequate to hold their own weight. In this way, they were introduced to the safety versus efficiency dichotomy faced in design. Following this lecture session, students were given the Crash Cushion laboratory materials provided in Appendix 4. Each group was to do the appropriate calculations and design paper crash cushions that would prevent an egg placed in the design vehicle from breaking. All of the twenty one participants understood the problem and were able to complete (correctly) the necessary computations to solve the problem. The TRAC Program encouraged the students to apply concepts from math and physics in establishing locations of physical objects, designing bridges and vehicles as well.

It was hoped that in the process of learning these skills that students would also gain an understanding of the role of math and physics in transportation design and analysis. In addition to homework and frequent admonitions from presenters who stressed the necessity of math and science, there were many examples on field trips and in video presentations that accented the need for math and science. In all of these sessions, students participated in "real world" applications of the math and physics content that they learn in school - thus, it is hoped, providing them with this "better understanding" described above.

Performance on the analytical questions (questions 2 and 8) on the pre and post test was not satisfactory. No apparent improvement was made on these questions. Although students were given a tutorial on math modeling and used models appropriately and well in the subsequent activities (crash cushion design contest), they had forgotten this information by the end of the institute. Recommend more academically challenging activities throughout the 5 weeks. This is also reflected in the results of the student "rap" session at the end of the STI at which several suggested that there be more events that are academically challenging. **MET**. *Overall, it appears that students increased their knowledge of analytical tools.*

2. Identify career opportunities in transportation

A session titled "The Transportation Profession" provided an introduction to careers in transportation. The Curriculum further provided repeated exposure to a variety of career paths via classroom presentations, field trips, videos and exploration of the Internet.

A "careers" paper was assigned for which 90% of students (greater than the 80% metric) received passing grades. **MET**.

3. Discuss the topics in the core areas of land, air, water and safety covered.

The curriculum is designed to expose students to various topics in these areas. A paper that compares and contrasts at least two modes of transportation (based upon student experiences during the Institute and upon student research) was assigned for which 81% (greater than the 80% metric) received passing grades. **MET**.

4. Name and explain steps necessary to enter college

A question pertaining to this was included on the pre/post test. Only 44% of the students demonstrated an increase in knowledge (as compared to the 80% metric). Only one, 2 hour, session is devoted to this topic and it is at the beginning of the Institute. Next year the number of sessions of this type will be increased and will be more pointed in relaying this critical information. Possibilities include additional sessions with UMR admissions staff augmented by evening discussion sessions with UMR students. **NOT MET.**

5. Conduct research in a library and on the internet

All students taking the Literature course for credit received passing grades. Ninety percent of students successfully completed the "Egg Hunt" homework and 90% wrote acceptable papers on transportation modes. Students were allowed to work in teams for the Egg Hunt homework based upon comments from last year's students regarding its significant length. **MET**.

6. Work in teams

As is described earlier, students were provided with a three hour seminar on team work and its value. With few exceptions (for example the Bridge design laboratory which has each student designing his or her own bridge using software) subsequent activities all involved working in teams. Students put together an excellent multimedia show for the closing lunch which included singing, dancing and a slide show narrated by each and every one of the students. They formed editorial, writing and graphic arts teams and published an excellent newsletter (see Appendix ?), and they performed well in the team-based labs such as crash cushion design and MagLev. All performed satisfactorily for these endeavors. **MET**.

7. Discuss the principles of effective leadership

Students were assigned to write a one page paper on a leader of their choice and to enumerate the qualities of that person that made the student choose him or her. All students wrote something and all received passing grades(exceeding the 75% metric) on their thoughtfulness in describing their leader of choice. **MET**.

8. To develop and use employability tools (such as resumes, interview skills, appropriate dress) and to understand the value of work ethics

Although a resume workshop was not done this year (due to lack of time), students were exposed throughout the five weeks to professionals in a variety of professional environments. During the last week of the Institute, a series of mock interviews were held and were critiqued for the students by representatives from UMR's career center. Students rated this last session as good to excellent. All comments on the session were very positive. **MET**.

9. **Discuss the value of diversity in the workforce**

Students were assigned an essay on diversity in the workforce. 90% received satisfactory grades (as compared to the 80% metric). **MET**.

The several objectives described in the Strategic Plan that are not readily measurable are discussed below. No quantifiable measures were identified to assess the attainment of these.

Non-measurable Outcomes Results

Appreciate what is involved in the planning, design, construction and operation of transportation facilities.
These concepts were introduced in the introductory panel discussions. They were then developed using the subsequent site visits pertaining to the respective discussion. At several site visits the STI students were shown plans and told how long the planning and design periods existed prior to the construction phase. The scope of details necessary for the successful operation of airports, traffic flow, highway safety, and waterways were highlighted by many of the field trips.

Understand the interactions among the various modes.
The final theme of the Institute was intermodal transportation. The prime focus of the Chicago field trip was on intermodal activities. Students were provided a tour of Regional Transportation Authority (RTA) facilities (which in include light rail, heavy rail and bus modes) and were provided tours of the Chicago Transit Authority's operations and control centers, a transit station and a transit "yard" by Dr. John Allen, Senior Transit Analyst for the RTA and Dr. Mark Pitstick, Program Manager for RTA. Mr. John Clement, Senior Manager of Hub Operations, provided the group with a three hour tour of the 388 acre Corwith Intermodal Facility (the second most productive in the Nation).

Speakers in panel sessions and field trips stimulated discussions on the issues and logistics associated with intermodal operation. Comparisons were also made to give students an idea of the relative benefits and costs of hauling freight by rail, water, road and air. A tour of Consolidated Freight Inc. (among the top five trucking companies in the U.S.) by company president and CEO, Mr. Herb Schmidt provided a dynamic culmination to the week. Mr. Schmidt provided STI students with a discussion on the trucking industry, the logistics of getting products to market and technological advances in the industry. Students received a tour of the Joplin facility which highlighted operations and dispatch, security, and technologies.

Discuss the major environmental and social issues facing tomorrow's transportation professional.
In St. Louis, the proposed expansions of the Metrolink, The Municipal Airport, and several highway projects presented fertile ground for several presenters to discuss these issues. The panel discussions and visits to Jacobs and to the Lambert Expansion Project office also provided discussions of these sorts of issues.

Student Evaluations of the UMR STI
This year's results were compared to previous years' in an effort to determine problem areas for the Institute. As the evaluation summary in Appendix 9 shows the Program experienced significant improvement in all areas for speakers and for activities. In last year's "rap" session, students suggested that we should provide speakers with more help in structuring their presentations. To that end, a set of guidelines were prepared for, and used by, all panelists – see Appendix 04. We believe that this caused the improvements seen in the speakers and activities areas.

Dr. Spring, once again, met with the students on the day before the end of the Institute to discuss what suggestions they have for improvement – the so-called "rap" session. Students in general were very positive about the program but provided some excellent suggestions for improvements (see Appendix 9).

MARKETING

Electronic brochures and applications were emailed to approximately 1,500 students who had expressed interest in engineering; admissions people spoke to students and counselors while recruiting for UMR; STI staff called counselors from about 20 different high schools in the St. Louis region and asked for help in identifying likely candidates for the Program; representatives of the National Society of Black Engineers again helped in identifying candidates; and, parents of STI graduates (STI Parents group) were asked to recruit in their communities. A copy of the brochure and of a one page briefing summary, prepared for the admissions folks and counselors, are provided in Appendix 11.

The STI Parents Program
This program has essentially two goals: to maintain contact with parents and alumni which it is hoped will facilitate tracking, and to aid in recruiting each year. Parents also provide help in arranging venues for field trips and in program development where appropriate.

CLOSING PROGRAM

The week ended with the closing luncheon to which all parents, students, faculty, staff, advisory committee members and dignitaries were invited. Seventy eight people attended. The Program began before lunch with welcoming comments from Gary Spring, STI Director, Jerry Bayless, Associate Dean of Engineering, on behalf of the University, Allen Masuda, Missouri Division Administrator, on behalf of FHWA and Mr. Ron Moore on behalf of the National Society of Black Engineers (NSBE). Each speaker urged the students to use the information they have gained from and their experiences during the Institute in positive ways. Their comments were followed by a slide presentation detailing the five weeks for parents, and lunch and by student presentations. The students this year chose to produce an extravaganza of music, dance and narrated slide show – all related to their experiences at STI.

The Annual Awards Ceremony was held following lunch. Certificates of completion and a class year book (created by the students) were given to all attendees who successfully completed the five weeks. In addition to the special award plaques suggested by the NRC, namely, the Director's,

FHWA's and State DOT's awards, special commemorative plaques were prepared for the following:

- Citizenship Award. Given for service as mentor and friend to peers, helpfulness to advisors and professors, and excellent attitude. Winner was: Michael Coyle.

- Leadership Awards. Given to the students who took on significant leadership roles in the group. Winners were: Jamie Klemmer who served as the managing editor and copy editor for the Newsletter; and, Larry Hawkins who served as the creative design editor for the Newsletter.

The three "official" awards were given to the three students who combined excellent scholarship, high productivity and significant service to the STI. All students were ranked in each category, categories were then combined and the top three ranked were awarded the plaques. Highest award, Director's Award went to Shawn Cross, Second Award, FHWA Award went to Brittanie Witherspoon, and third, State DOT Award went to Andrea Bell. See Certificates in Appendix 05.

Closing comments by Dr. Spring included expressions of appreciation to the STI sponsors, Advisory Committee and staff. He gave a special thanks to parents for taking the initiative to involve their children in the STI , and appealed to the students to use their experiences at the Institute when making career decisions and to keep in contact with him as they proceed in making their decisions. The luncheon adjourned at 3:00 PM.

CONCLUSIONS AND RECOMMENDATIONS

This year's STI at UMR was the most successful yet. Students were more serious, of a higher caliber and more diverse than in previous years. They were also more demanding. Based upon the outcomes of this evaluation effort, the following changes will be considered for future STIs:

(1) Continue to improve pre and post tests that involve exclusively multiple choice questions.
(2) Change the five week schedule back to a four week one but require students to remain on campus over the weekends. A firm schedule for the college course will be established, including some time on weekends which will leave the remainder of the week for STI activities. Field trips to St. Louis may be grouped within two days in concert with a stay over to reduce the amount of "back and forth" now seen.
(3) Work more closely with the Advisory Committee in establishing an improved strategic plan and curriculum. Similar to last year, this year the Committee mainly served as a review board for the curriculum and a resource for arranging for speakers and field trips. The Program would benefit from a more fundamental role for the Committee.
(4) Include more academically challenging activities throughout the Institute. This is in response to the poor performance on the pre and post test analytical questions and to the results of the student "rap" session at the end of the STI at which several suggested that there be more events that are academically challenging.
(5) Increase the number of sessions on college preparation and attempt to make them more pointed in relaying this critical information. Possibilities include additional sessions with UMR admissions staff augmented by evening discussion sessions with UMR students.

APPENDIX LIST

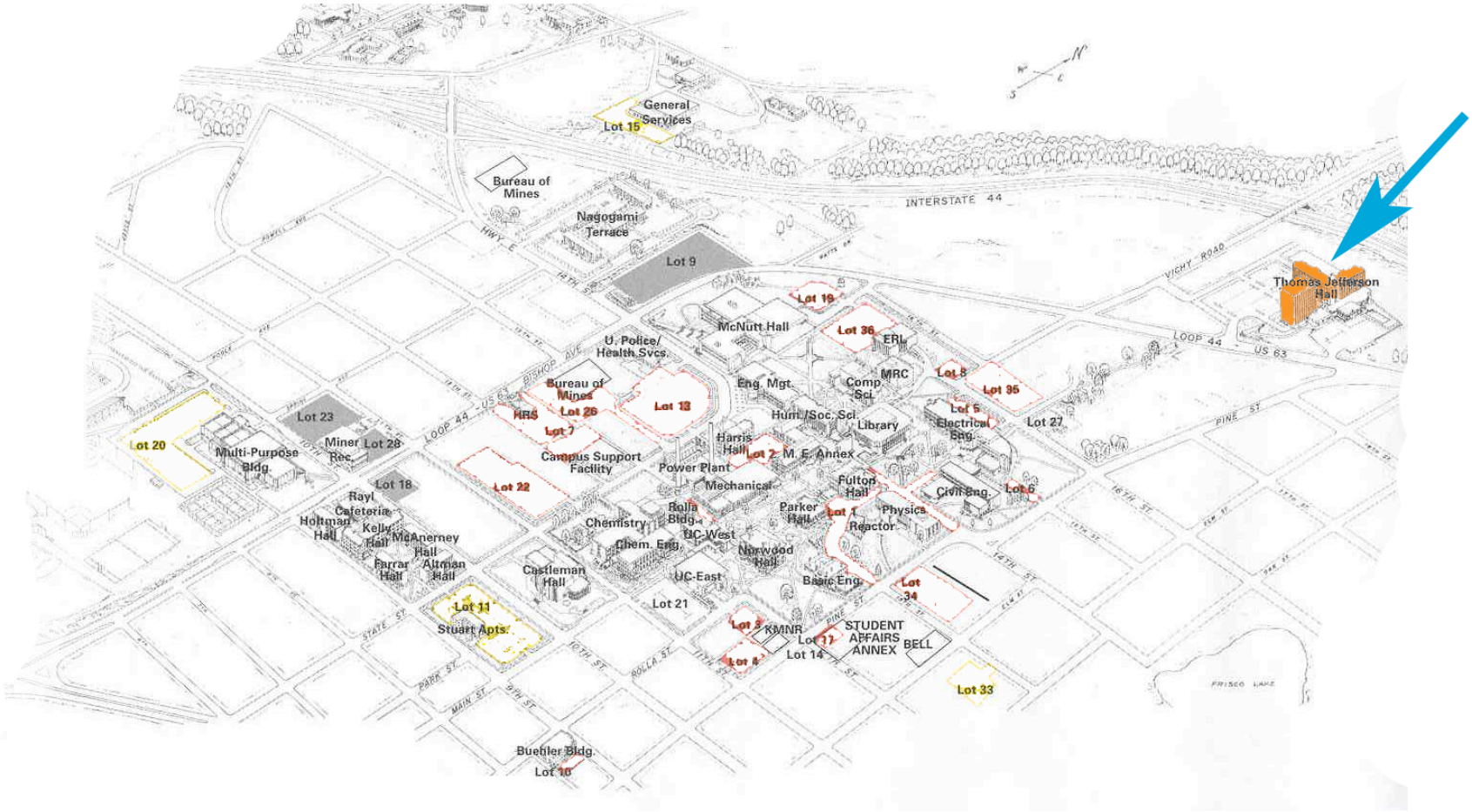
Appendix 1

Application Materials (10 pages)

Map of UMR Campus
STI Curriculum 2003 at a glance
Check in and Orientation Session
STI Regulations
Sample acceptance letter
Application Package Checklist
Housing regulations
Student checklist and Dresscode
Release form
Confirmation letter
Certificate of health

DIRECTIONS:

Take I-44 to US 63 at Exit 186. Go south on US 63 for approximately one mile. TJ Hall is a high-rise brick building (the only one in sight) and will be on your right. Park in any legal spot around the building: there are lots on the north and south sides of the building. A map is included for your reference.



2003 STI Curriculum
At-a-Glance

	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
9:00 AM	Orientation	Working in Teams	Newsletter Workshop	7 Habits workshop	Transpo as a Profession
10:00 AM	UMR computer network (lab)				
11:00 AM		Using the Library (10:30) (Q)			
12:00 PM	Lunch	Lunch	Lunch	Lunch	Lunch
1:00 PM	Tour of Rolla Campus	History class	Surveying Lab	History class	Newsletter Planning
2:00 PM	Student Ids				
3:00 PM	Study Habits Seminar				
4:00 PM		Minority Engineering Intro		Applying for College	Depart
5:00 PM	Dinner	Dinner	Dinner	Dinner	
6:00 PM	Evening	History class	Evening	Photoshop Workshop	
7:00 PM	Activity	(lab)	Activity		

	30-Jun	1-Jul	2-Jul	3-Jul	4-Jul
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
9:00 AM	Introduction to Highway Transportation	Intro to Math Models	Travel Springfield TMC Maintenance facility tour	Crash cushion design contest	Holiday
10:00 AM					
11:00 AM		ITS			
12:00 PM	Lunch (BOX LUNCH - TJ)	Lunch	Lunch PROVIDED BY TMC	Lunch	
1:00 PM	FHWA	History class	Highway Construction project	History class	
2:00 PM	MODOT		Sunshine and 65 interchange		
3:00 PM			Travel		
4:00 PM	Travel	Communication Skills		Depart	
5:00 PM	Dinner	Dinner	Dinner		
6:00 PM	Soccer	History class (lab)	Free Time		
7:00 PM					

	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
9:00 AM	Introduction to Air Transpo	Tour of Boeing Facility (Spring)	Newsletter Working Session	Habits exercises	Intro to Public Transpo
10:00 AM	FIELD TRIP				
11:00 AM		Tour of Lambert Expansion		Newsletter (10:30)	
12:00 PM	Travel		Lunch	Lunch	Lunch
1:00 PM	Lunch (ON YOUR OWN)	TWA Training Center 1:30 to 3:00	Bridge Design Lab	History class	Newsletter Finishing Session
2:00 PM	History class				
3:00 PM		TRAVEL			
4:00 PM			Free time	Newsletter Working Session	
5:00 PM	Dinner	Dinner	Dinner	Dinner	
6:00 PM	Pringle Magic Show	History class (lab)	A night at the Movies	Study time (Newsletter if needed)	Depart
7:00 PM					

	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
9:00 AM	History class	*Chicago tours* Chicago Transit Authority Operations and Control Center	Return to Rolla	Travel	Yearbook Design
10:00 AM				Sverdrup activities Lunch PROVIDED	
11:00 AM			Lunch ON YOUR OWN		
12:00 PM	Lunch (BOX LUNCH FROM TJ)	Corwith Intermodal Facility			Lunch
1:00 PM					History class
2:00 PM			Bi-State Operations Center (including MetroLink)	Tour of Alton Lock and Dam	
3:00 PM		Chicago Regional Transit Authority			
4:00 PM			Travel	BBQ with NSBE	Free Time
5:00 PM	Travel to Chicago Yearbook Planning	Downtown rail station	Dinner		Depart
6:00 PM			History class (lab)	Travel	
7:00 PM		Cubs game			

	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
9:00 AM	Yearbook Completion	MAGLEV Lab (Lamons)	MOCK Interviews Rehearse final presentations	Close out and "rap" session Take exit exams	Finalize and practice presentations
10:00 AM					
11:00 AM	Travel to Joplin				
12:00 PM	Lunch (BOX LUNCH)	Lunch	Lunch (BOX LUNCH)	Lunch	Closing Luncheon
1:00 PM		History class	Lincoln (Spring)	History class	
2:00 PM	CFI activities				
3:00 PM					
4:00 PM	Travel	Free Time		Free Time	
5:00 PM	Dinner (ON YOUR OWN)	Dinner	Dinner	Dinner	
6:00 PM		History class (lab)	Evening	Evening	
7:00 PM			Activity	Activity	

University of Missouri-Rolla
SUMMER TRANSPORTATION INSTITUTE
Check-In & Orientation

Date: June 22, 2003
Time: 4:00 p.m.
Location: Thomas Jefferson (TJ) Hall – dormitory
South Lounge

DORMITORY CHECK-IN

WELCOME

INTRODUCTION OF FACULTY AND STAFF

PROGRAM DESCRIPTION – Dr. Spring

OVERVIEW OF PROGRAM

EXPECTATIONS OF STUDENTS

ADMINISTRATIVE ISSUES – Ms. Turner; Ms. Sheppard from TJ

INSTRUCTIONS TO PARENTS
- Sign in/out
- Supervision
- Telephone calls
- Insurance
- Injuries/Sickness

DORMITORY LIFE
- Room assignments
- Living in a dormitory
- Keys
- Money/valuables
- Clean room daily
- Washing clothing
- Roommate

REVIEW AND COMPLETION OF FORMS

WELCOME PICNIC AT SHUMAN PARK

University of Missouri-Rolla

SUMMER TRANSPORTATION INSTITUTE

Regulations

We are excited to have you join us for the Summer Transportation Institute! During the institute, we are responsible for your safety and well-being at all times, in addition to your educational experiences. Therefore, we have established the following set of regulations:

1. Project staff members expect participants to display courtesy and professional behavior toward their peers, the faculty, and the staff at all times.

2. Attendance at all program activities is mandatory. Only excused absences from the project director will be accepted. Students must report illness, injury, etc., to their residence counselors and the project director to be excused from classes, seminars, or labs. Violations may lead to dismissal from the program.

3. Students may not leave campus without the escort of an STI staff member. Residence counselors will make arrangements for shopping, day trips, etc. Any student found or reported off campus unescorted is subject to immediate dismissal.

4. Students will go home on weekends; they may leave on Fridays after 4:00 P.M. and must return on Sundays by 7:00 P.M. Parents must sign students out of the dormitory whenever leaving campus and sign them in when they return. Parents/guardians needing to pick up their children during the week should notify the director. Each student will receive a University of Missouri Rolla ID card which will allow him/her dining privileges and access to all university facilities and related programs.

5. All residence hall rules of conduct must be followed. A curfew and bed-check time will be set. Students are free to move around inside the residence hall under the supervision of the residence hall counselor.

6. Students are completely responsible for all personal items, including cash.

7. Students with vehicles are expected to keep the vehicles parked in the parking lot during STI. Students are responsible for their vehicles and for checking in and out of TJ as appropriate.

.....

I have read and understand the above regulations.

_____ _____

Signature (Student) Date

_____ _____

Signature (Parent/Guardian) Date

Gary Spring, Director & Associate Professor
• • •
Summer Transportation Institute
University of Missouri-Rolla
Civil, Architectural, & Environmental Engineering
135 Butler-Carlton Hall
Rolla, Missouri 65409
• • •
www.umr.edu/~tranist/sti

July 28, 2003

«Fname» «Lname»
«HomeStreet»
«HomeCity», «HomeState» «HomeZip»

Dear «Gender» «LName»:

Congratulations! You have been awarded a full scholarship to attend the 2003 US Department of Transportation (USDOT) Summer Transportation Institute (STI) at the University of Missouri Rolla (UMR) June 22–July 25, 2003. UMR, the Missouri Department of Transportation (MoDOT), and the Federal Highway Administration (FHWA) have agreed to provide educational experiences for outstanding secondary school students like you.

Check-in is on Sunday, June 22, at 4:00 P.M. in the Thomas Jefferson (TJ) Residence Hall located on the UMR campus. Orientation for students and parents follows at 4:30 P.M. Please see the enclosed map and directions.

I have enclosed a copy of the *Letter of Confirmation*. This signed form confirms your commitment to participate in STI 2003. It must be returned to us by 3:00 P.M. CST, June 8, 2003, either by standard mail or fax. Other required forms and a statement from the UMR Housing Office are enclosed for you to review with your parent(s)/guardian(s). Please bring them with you to orientation. A notary will be available at TJ for your use.

You may contact me or Sue Turner at (573) 341-4550 if you have additional questions about STI.

Congratulations again! We look forward to seeing you on June 22!

Sincerely,

Gary S. Spring
Director, Summer Transportation Institute
Associate Professor, Civil Engineering

Enclosures

University of Missouri-Rolla
SUMMER TRANSPORTATION INSTITUTE
Checklist

CHECKLIST	Reviewed	Completed	Signed	Sent
Letter of Confirmation				
Certificate of Health				
STI Regulations				
Release Form				
Housing Regulations				
Personal Items & Dress Code				
Parent Orientation Session				

Not applicable

University of Missouri-Rolla

SUMMER TRANSPORTATION INSTITUTE

Housing Regulations

FROM THE DIRECTOR OF HOUSING:

As you prepare to join us on June 22, 2003, we need to make you aware of a few things which may be of importance to you.

PHONES:
The residence halls provide pay phones only. No in-room phone service is available.

APPLIANCES:
Refrigerators, hot plates, room heaters, and cooking appliances are prohibited.

HOUSING:
The institute will provide sheets, pillows, pillowcases, and a daily towel service. Each dorm resident is responsible for maintaining the order and cleanliness of his/her room. Beds are twin size.

KEYS:
Students will be required to turn in room keys each Friday. There is an additional $30 charge for lost keys.

Parents of STI participants, we appreciate the confidence you have shown in the University of Missouri-Rolla by entrusting your most prized possession—your children—to us. Along with you, the university can help expose your child/children to and prepare them for the work world of tomorrow.

We hope that your stay with us is pleasant; please feel free to give us your feed back.

University of Missouri-Rolla
SUMMER TRANSPORTATION INSTITUTE
Personal Items & Dress Code

PERSONAL ITEMS YOU WILL NEED:

- Toiletries
- Laundry detergent
- Extra blanket and pillows if desired
- Shower cap
- Book bag/carry-all
- Calculator
- Dictionary
- Loose-leaf paper
- Pens/pencils/markers
- Comfortable clothing
- Walking shoes
- Rain coat (with hood)
- Swimming caps, suits/trunks
- Sunday-best clothing for the Closing Ceremonies
- Light-weight jacket
- Alarm clock
- Social security card
- Medication*

* All medication must be accompanied by a signed letter from an attending physician explaining dosage and any relevant instructions for institute staff.

DRESS CODE:

Ladies:

Shorts/Pants/Skirts:
Extremely short or mini skirts are not acceptable.

Shirts/T-shirts:
All tops must cover entire torso.

Gentlemen:

Shorts/Pants:
All shorts/pants must fit to waistline with belts. Shorts/pants falling below waistline are not acceptable.

Shirts/T-shirts:
All tops must cover entire torso).

University of Missouri-Rolla
SUMMER TRANSPORTATION INSTITUTE
Release Form

Permission to Tape or Photograph

Student Name:_____

Date of Birth: _____

I grant written permission to the University of Missouri-Rolla Summer Transportation Institute to make video tapes or photographs of the above named student.

I further authorize the use of such photographs or tapes for brochures, press releases or other recruitment and publicity material without prior inspection on my part.

Signature:_____
(Parent/Guardian)

Date:_____

Witness:_____

Date:_____

University of Missouri-Rolla

SUMMER TRANSPORTATION INSTITUTE

Letter of Confirmation

I have read and understand all materials submitted to me in my acceptance letter for the 2003 Summer Transportation Institute. I have also read the Summer Transportation Institute Regulations, and I agree to comply with all stated policies. I understand that non-compliance with the regulations will result in my dismissal from the institute. If dissatisfied with the program, I understand I can leave at any time, after a parent/guardian conference with the Project Director.

_____	_____	_____
Signature (Student)	SS#	Date

_____	_____	_____
Signature (Parent/Guardian)	Relationship	Date

Parent/Guardian Telephone Numbers:

Home_____

Work_____

University of Missouri-Rolla
SUMMER TRANSPORTATION INSTITUTE
Certificate of Health

This certificate is for your child's safety and welfare while on campus.
Please print clearly.

Name: _____

Address: _____

SS#: _____ Age: _____ F/M: _____

Past and Present Medical History

1. Disease: _____
2. Heart disease (Mitral Valve Prolapse, Murmur): _____
3. Lung disease (Tuberculosis, Asthma):_____
4. Neurological conditions (Seizures, Migraine): _____
5. Mental conditions (Anxiety Disorder): _____
6. List any past surgeries or hospitalizations: _____
7. Has he/she ever passed out? _____
8. List any lengthy illness _____
9. List any visual problems _____
10. Sinusitis: _____
11. Hearing loss: _____
12. Anemia/Sickle Cell: _____
13. Rheumatic Fever: _____
14. List any injury or broken bones:

Neck	_____	Elbow	_____	Back	_____
Collar bone	_____	Wrist	_____	Pelvis	_____
Ankle	_____	Shoulder	_____	Hand	_____
Arm	_____	Ribs	_____	Leg	_____

Other: _____

– OVER –

15. List any physical defects: _____

16. Is he/she on any medications? _____

17. List any allergies to food, medications, plants, dust, etc. _____

18. Please list any restrictions related to sports.

    Running _____ Swimming _____ Other _____

19. Please list any injuries or conditions not included above.

    _____

    _____

Insurance Carrier Information

Carrier Name: _____

Phone Number: _____

Address: _____

Member Number: _____

Group Number: _____

I certify that the above information is true and that the individual named on this certificate is in good health and able to take part in all Summer Transportation Institute (STI) activities at the University of Missouri-Rolla with the exceptions that I have written in this certificate.

I also understand that no physician is available on the campus of the University of Missouri-Rolla during the summer; however, professional nurses will be available. I give permission for limited treatment of minor illnesses and/or injuries. Emergency illness will be referred to the nearest medical facility for care. STI provides an excess policy that will cover costs over other available coverage. However, the first $200 will be paid for by the institute's policy without contribution from other available insurance coverage.

_____ _____

Signature (Parent/Guardian) Date

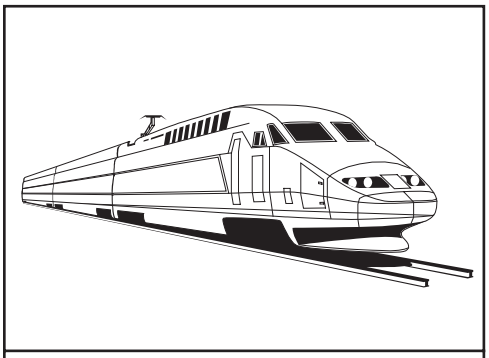
_____ _____

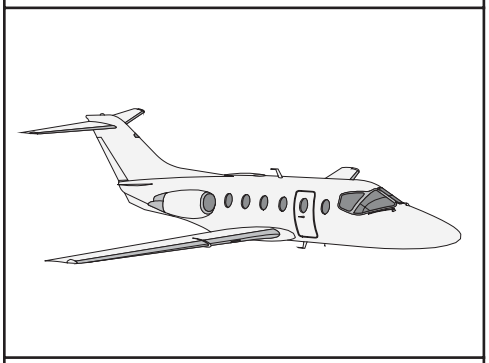
Notary Date

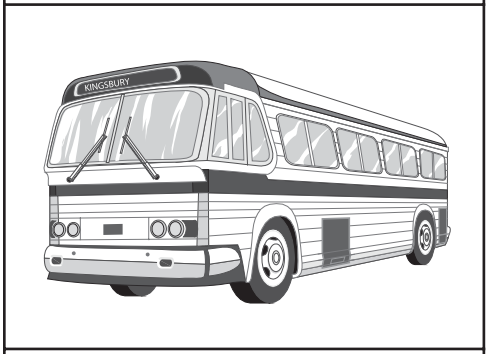
Appendix 3

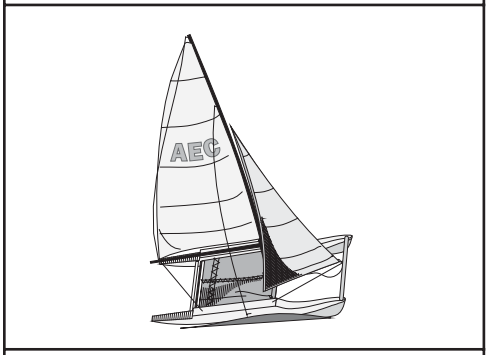
Curriculum (20 pages)

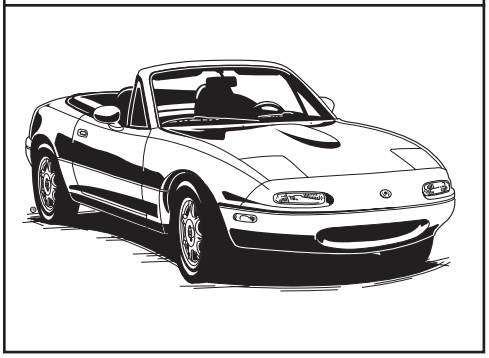
Weekly detailed schedules for weeks 1 through 5











ORIENTATION

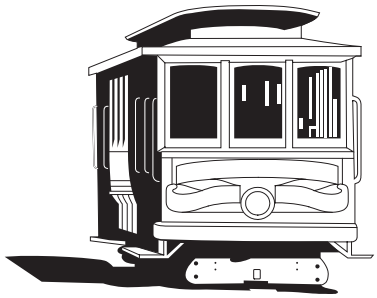
Events for Sunday, June 22

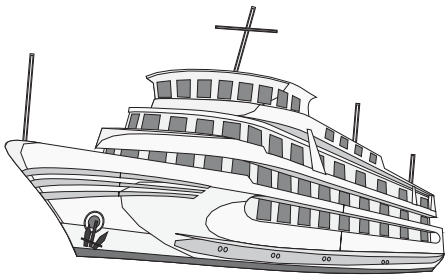
4:00 PM – 4:30 PM **TJ Hall**
Check-In
Ms. Sue Turner

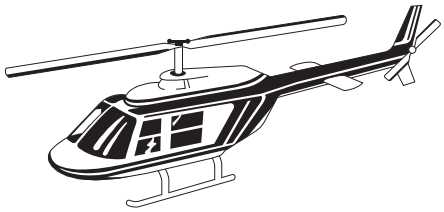
4:30 PM – 5:00 PM **121 Butler-Carlton Hall**
Student & Parent Orientation

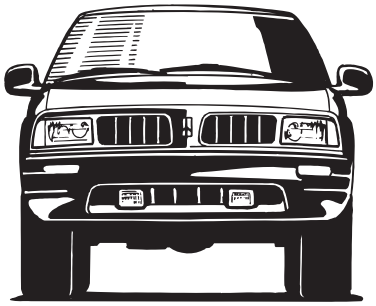
I. Welcome & Introductions
Dr. Gary Spring
II. Program Overview & Expectations
Dr. Gary Spring
III. Instructions to Parents
Ms. Sue Turner
IV. Dormitory Life
TJ Representative
V. Review & Completion of Forms
Dr. Gary Spring
VI. Class Registration
Ms. Sue Turner

5:00 PM – 6:30 PM **Schumann Park**
Welcome Picnic









WEEK 1

Events for Monday, June 23

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 10:00 AM **121 Butler-Carlton Hall**
Program Orientation
Dr. Gary Spring

10:00 AM - 12:00 PM **Civil CLC**
Computing & Web Programming
Ms. Lonnajean Yoest

12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

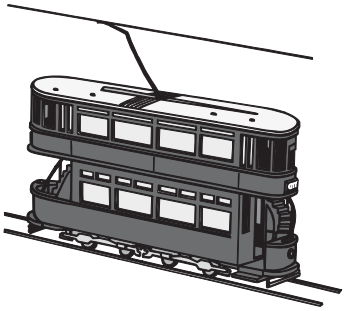
1:00 PM - 2:00 PM **UMR Campus**
Tour of the Campus
Student Ambassadors

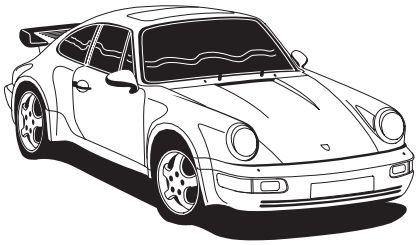
2:00 PM - 3:00 PM **UC West**
Student IDs
Mr. Erick Webster

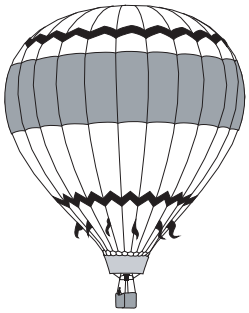
3:00 PM - 5:00 PM **121 Butler-Carlton Hall**
Study Habits Seminar
Dr. Diana Ahmad

5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

6:00 PM - 8:00 PM **TJ Hall**
Evening Activity
Mr. Erick Webster







WEEK 1

Events for Tuesday, June 24

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 11:00 AM **121 Butler-Carlton Hall**
Working in Teams
Dr. Gary Spring

11:00 AM - 12:00 PM **UMR Library**
Using the Library
Megan W. Lowe, Coordinator for Library Instruction

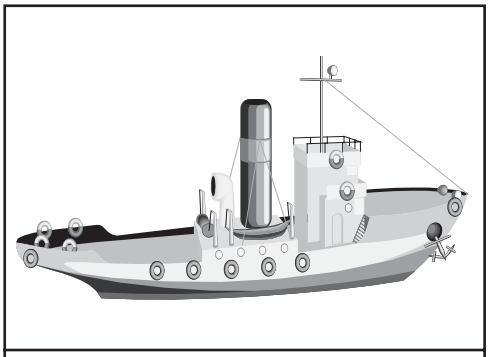
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

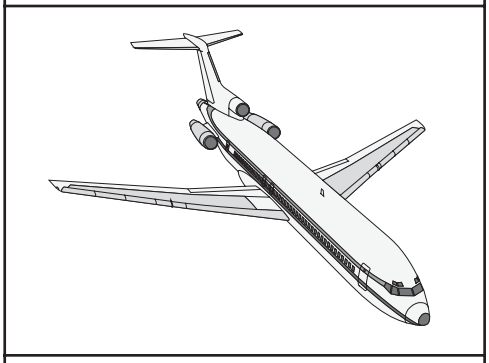
1:00 PM - 4:00 PM **121 Butler-Carlton Hall**
History Class
Dr. Jeff Schramm

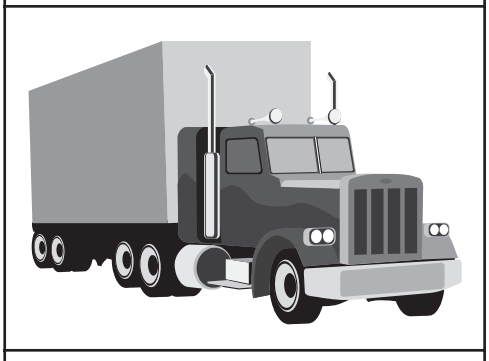
4:00 PM - 5:00 PM **121 Butler-Carlton Hall**
Communication Skills
Mr. Erick Webster

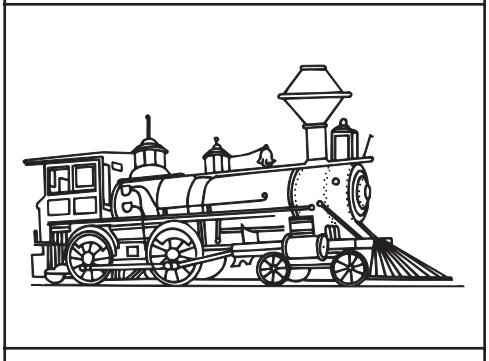
5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

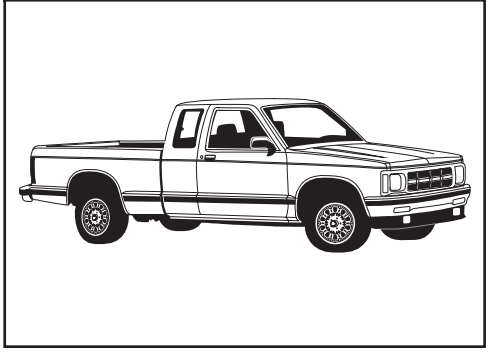
6:00 PM - 8:00 PM **121 Butler-Carlton Hall**
History Class Lab
Dr. Jeff Schramm











WEEK 1

Events for Wednesday, June 25

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

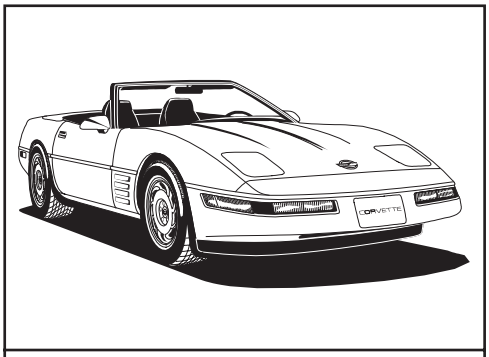
9:00 AM - 12:00 AM **Civil CLC**
Designing a Newsletter
Ms. Lonnajean Yoest

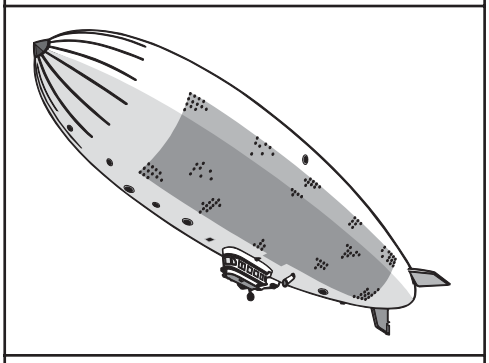
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

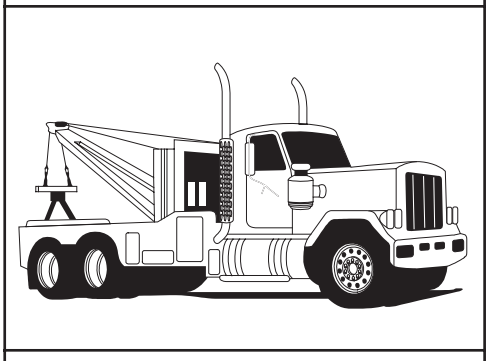
1:00 PM - 5:00 PM **121 Butler-Carlton Hall**
Surveying Lab
Ms. Jennifer Crites, Mr. James Caughorn, and Ms. Lisa Kuntz, MoDOT Engineers

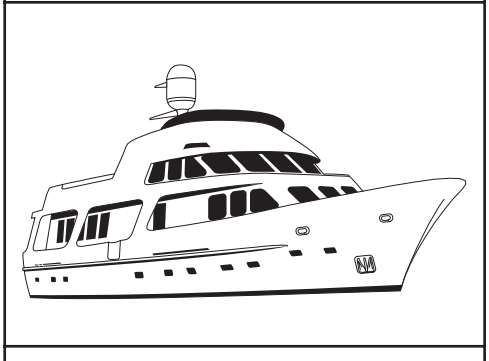
5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

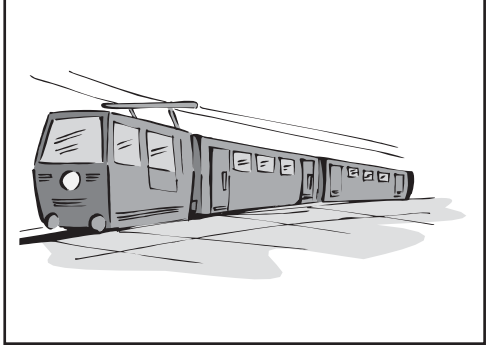
6:00 PM - 8:00 PM **TJ Hall**
Evening Activity
Mr. Erick Webster











WEEK 1

Events for Thursday, June 26

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 12:00 AM **121 Butler-Carlton Hall**
The Seven Habits of Highly Effective People
Dr. Gary Spring

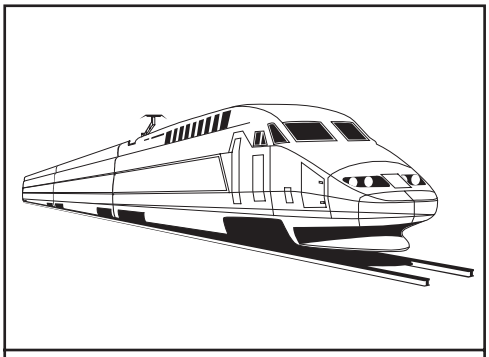
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

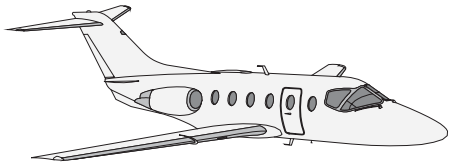
1:00 PM - 4:00 PM **121 Butler-Carlton Hall**
History Class
Dr. Jeff Schramm

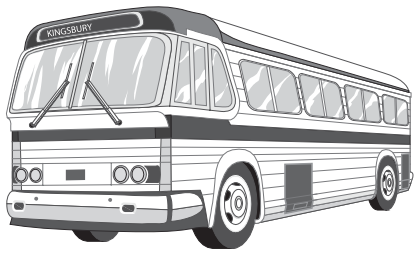
4:00 PM - 5:00 PM **121 Butler-Carlton Hall**
Applying for College
Dean Jay Goff

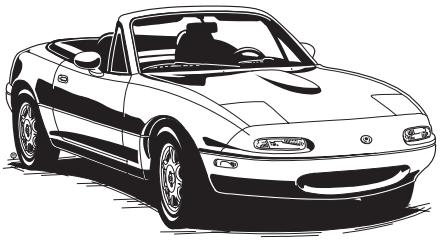
5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

6:00 PM - 8:00 PM **Civil CLC**
Photo Manipulation 101
Ms. Lonnajean Yoest









WEEK 1

Events for Friday, June 27

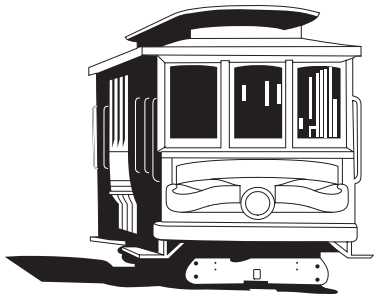
8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

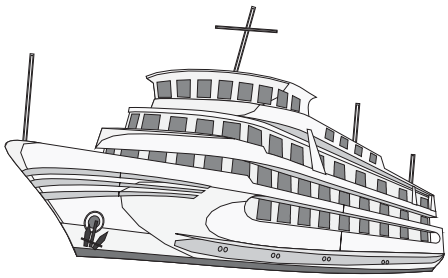
9:00 AM - 12:00 AM **121 Butler-Carlton Hall**
Transportation as a Profession
Dr. Gary Spring
Transportation Practitioners

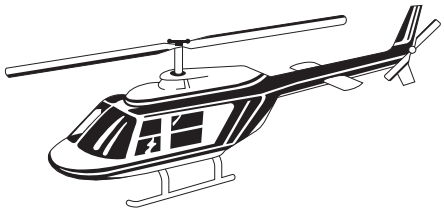
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

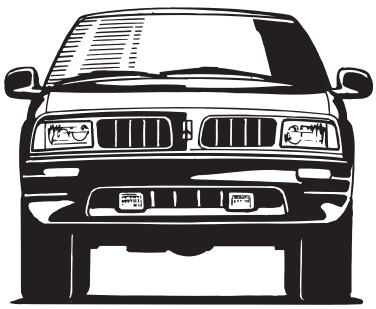
1:00 PM - 4:00 PM **Civil CLC**
STI Newsletter Planning & Design
Ms. Lonnajean Yoest

4:00 PM **TJ Hall**
Depart for the Weekend









WEEK 2

Events for Monday, June 30

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 12:00 PM **121 Butler-Carlton Hall**
Introduction to Highway Transportation
Ms. Deanna Venker, Area Engineer, MoDOT
Mr. Steve Lockett, Senior Traffic Engineer, MoDOT
Mr. Justin Wolf, Senior Designer, MoDOT

12:00 PM **- 1:00 PM** **Travel**
Lunch - TJ Box Lunch

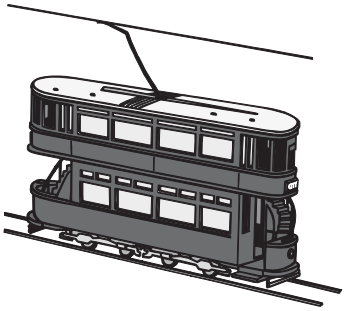
1:00 PM - 2:00 PM **Jefferson City, Mo.**
Federal Highway Administration

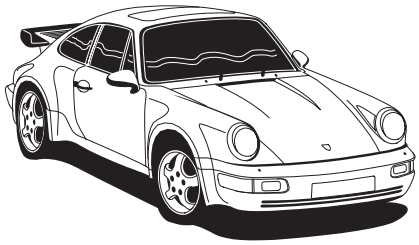
2:00 PM - 4:00 PM **Jefferson City, Mo.**
MoDOT

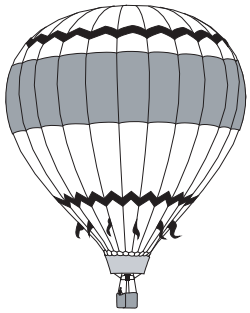
4:00 PM - 5:00 PM **Travel**

5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

6:00 PM - 8:00 PM **TJ Hall**
Sports Night







WEEK 2

Events for Tuesday, July 1

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 11:00 AM **121 Butler-Carlton Hall**
Introduction to Math Models
Dr. Gary Spring

11:00 AM - 12:00 PM **121 Butler-Carlton Hall**
Intelligent Transportation Systems
Dr. Gary Spring

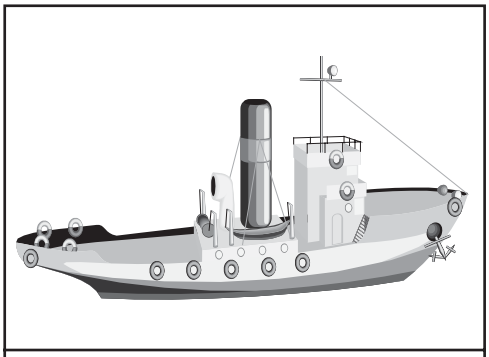
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

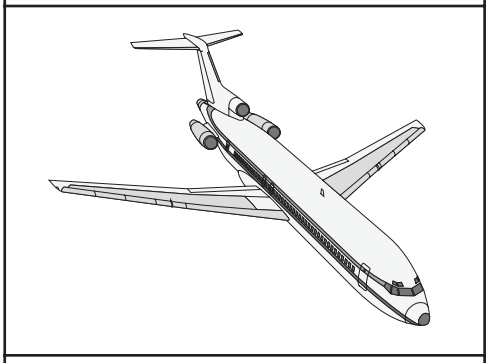
1:00 PM - 4:00 PM **121 Butler-Carlton Hall**
History Class
Dr. Jeff Schramm

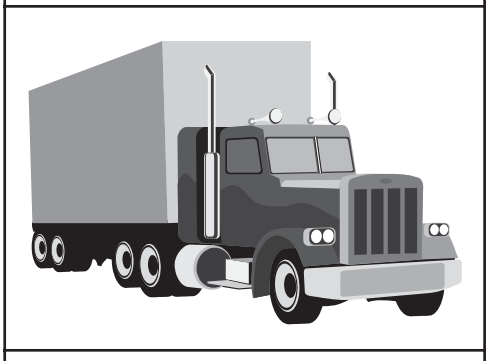
4:00 PM - 5:00 PM **121 Butler-Carlton Hall**
Minority Engineering Introduction
Mr. Floyd Harris, Director, UMR MEP

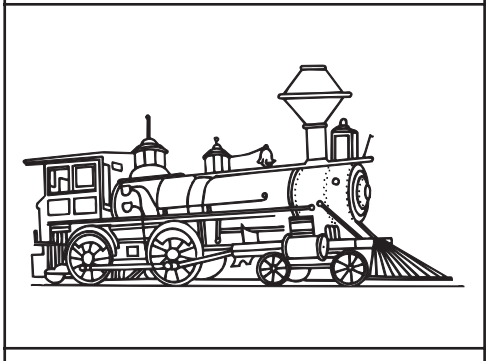
5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

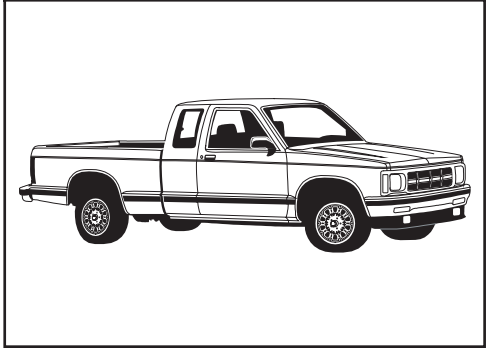
6:00 PM - 8:00 PM **121 Butler-Carlton Hall**
History Class Lab
Dr. Jeff Schramm











WEEK 2

Events for Wednesday, July 2

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

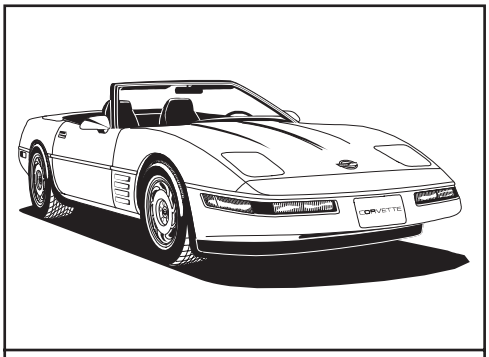
9:00 AM - 10:00 AM **Travel**

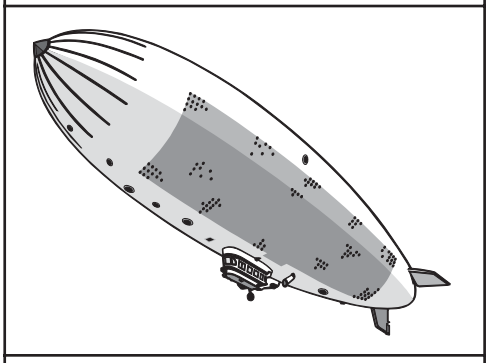
11:00 PM - 3:00 PM **Springfield, Mo.**
Traffic Management Center
Maintenance Facility Tour
(Lunch provided by TMC)
Highway Construction Project

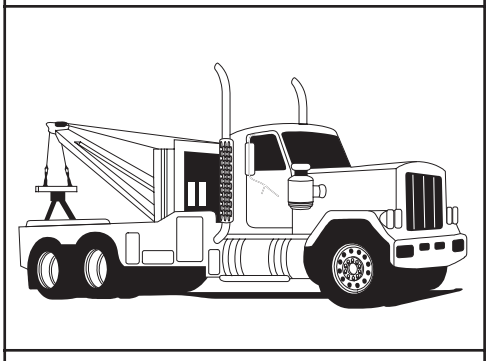
4:00 PM - 5:00 PM **Travel**

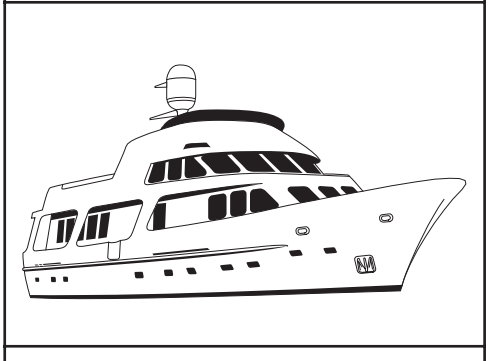
5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

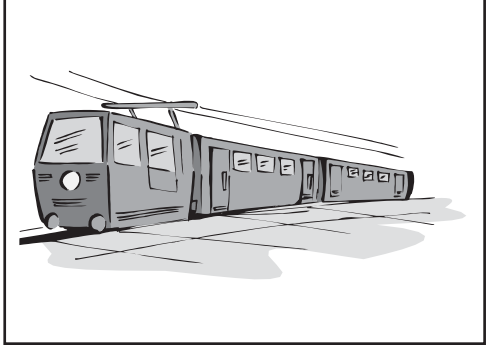
6:00 PM - 8:00 PM **TJ Hall**
Movie Night











WEEK 2

Events for Thursday, July 3

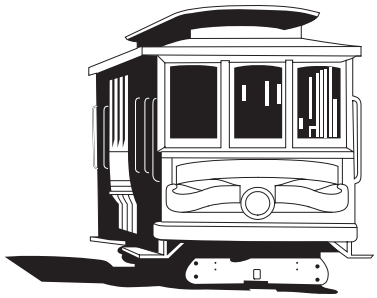
8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

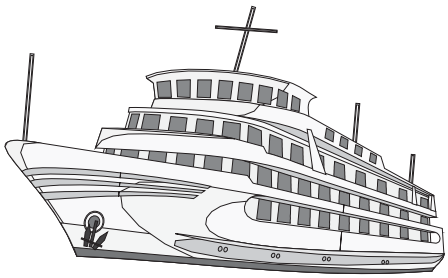
9:00 AM - 12:00 AM **121 Butler-Carlton Hall**
Crash Cushion Design
Dr. Gary Spring

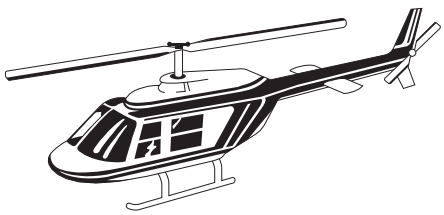
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

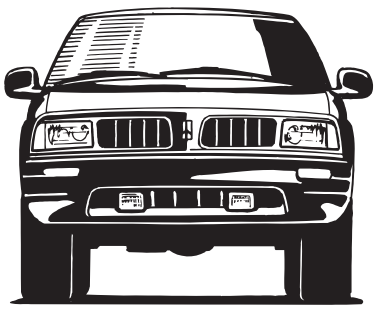
1:00 PM - 4:00 PM **121 Butler-Carlton Hall**
History Class
Dr. Jeff Schramm

4:00 PM
Depart for the Weekend









WEEK 3

Events for Monday, July 7

7:00 AM – 7:45 AM **TJ Cafeteria**
Breakfast

7:45 AM -9:00 AM **Travel**

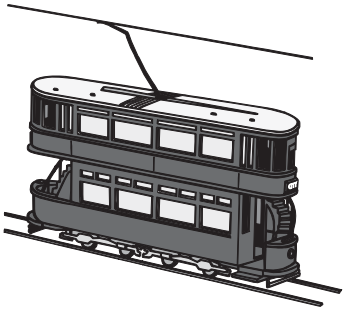
9:00 AM - 12:00 PM **Columbia Airport**
Introduction to Air Transportation
Mr. Webb

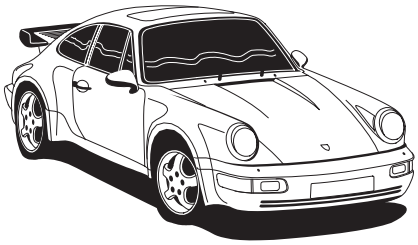
12:00 PM - 2:00 PM **Travel**
Lunch (on your own)

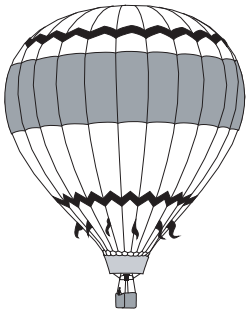
2:00 PM - 5:00 PM **121 Butler-Carlton Hall**
History
Dr. Jeff Schramm

5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

6:00 PM - 8:00 PM **Rolla**
Universal Challenge Center







WEEK 3

Events for Tuesday, July 8

7:00 AM - 7:30 AM **TJ Cafeteria**
Breakfast

7:30 AM – 9:00 AM **Travel**

9:00 AM - 11:00 AM **St. Louis**
Tour of Boeing Facility

10:00 AM - 12:00 PM **St. Louis**
Tour of Lambert Expansion Project

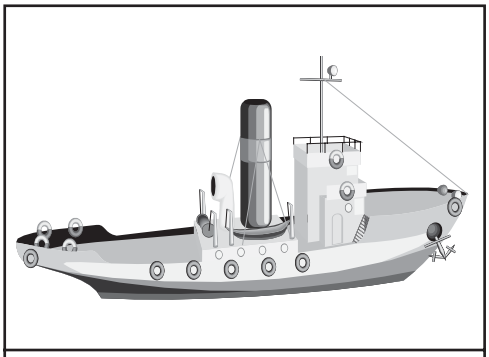
12:00 PM - 1:30 PM
Lunch (on your own)

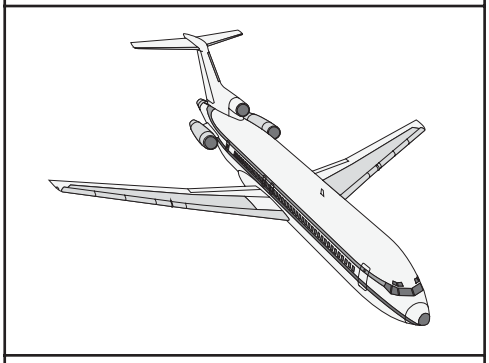
1:30 PM – 3:00 PM **St. Louis**
Tour of TWA Training Center

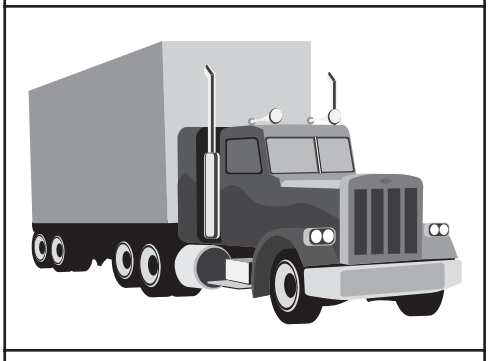
3:00 PM - 5:00 PM **Travel**

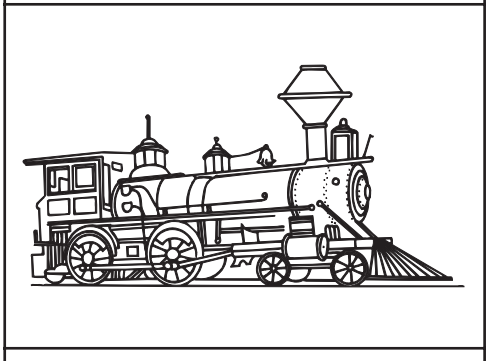
5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

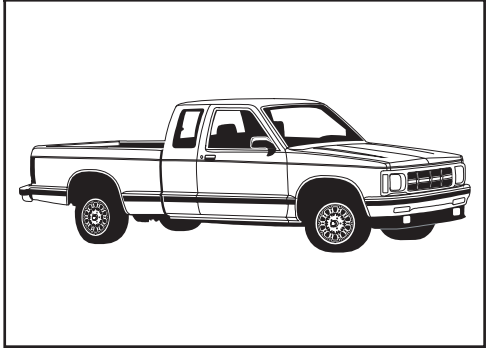
6:00 PM - 8:00 PM **121 Butler-Carlton Hall**
History Class Lab
Dr. Jeff Schramm











WEEK 3

Events for Wednesday, July 9

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 12:00 AM **Civil CLC**
Newsletter Working Session
Ms. Lonnajean Yoest

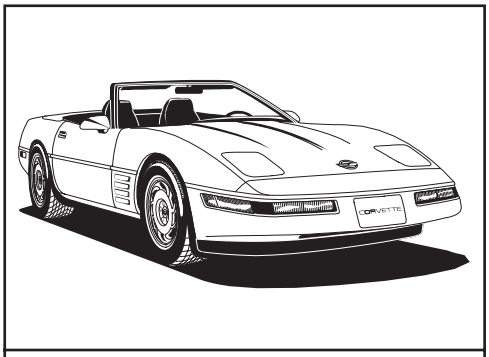
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

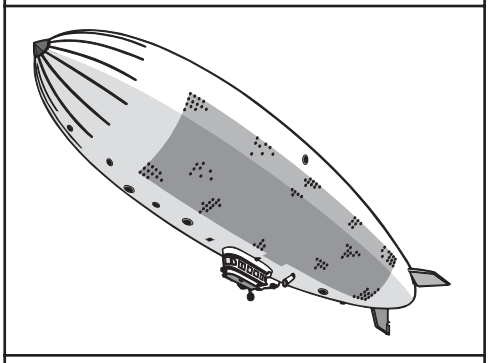
1:00 PM - 5:00 PM **121 Butler-Carlton Hall**
Bridge Design Lab
Mr. Lamons

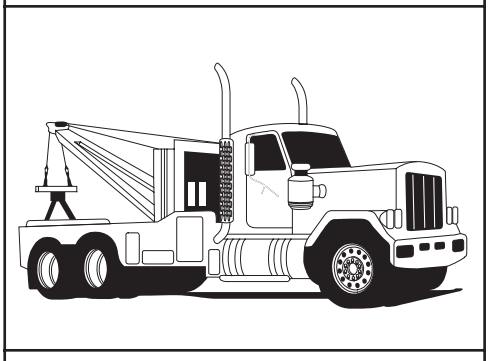
4:00 PM - 5:00 PM **TJ Hall**
Free time

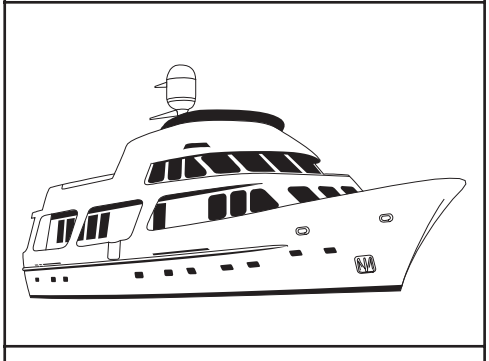
5:00 PM – 6:00 PM **TJ Cafeteria**
Dinner

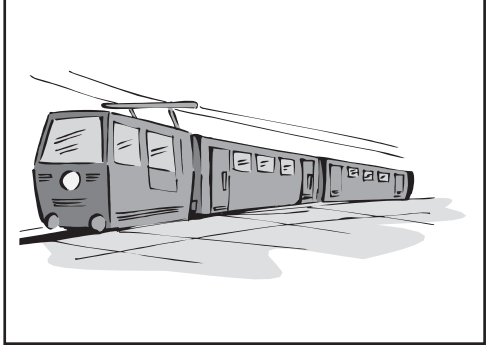
6:00 PM – 8:00 PM **Physics Building**
Pringle Magic Show











WEEK 3

Events for Thursday, July 10

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 10:30 AM **121 Butler-Carlton Hall**
7 Habits exercises
Dr. Gary Spring

10:30 AM - 12:00 PM **Civil CLC**
Newsletter/Web Design
Ms. Lonnajean Yoest

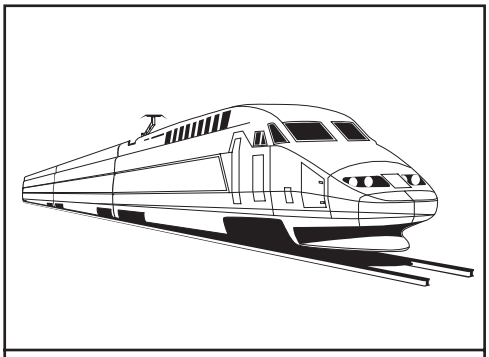
12:00 PM - 1:00 PM **TJ Cafeteria**
Lunch

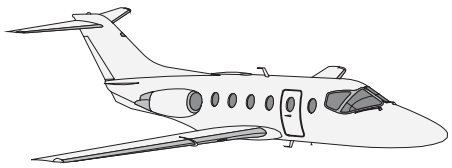
1:00 PM - 4:00 PM **121 Butler-Carlton Hall**
History
Dr. Jeff Schramm

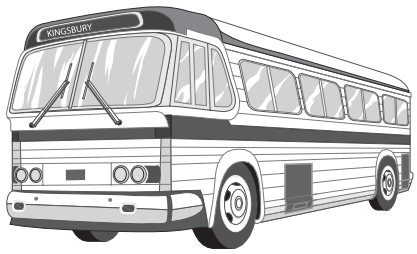
4:00 PM -5:00 PM **Civil CLC**
Newsletter Working Session
Ms. Lonnajean Yoest

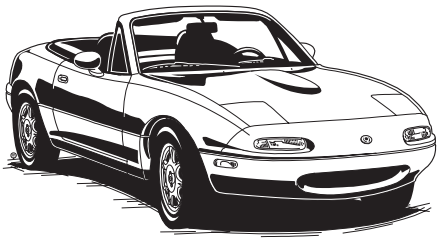
5:00 PM - 6:00 PM **TJ Cafeteria**
Dinner

6:00 PM – 8:00 PM
Study Time
(Newsletter if needed)









WEEK 3

Events for Friday, July 11

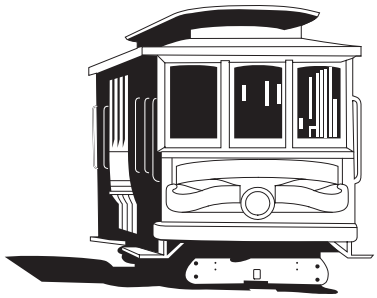
8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

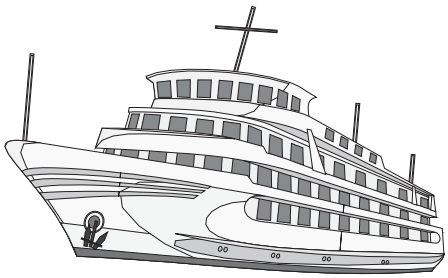
9:00 AM - 12:00 AM **121 Butler-Carlton Hall**
Introduction to Public Transportation

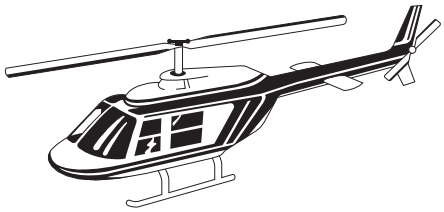
12:00 PM – 1:00 PM **TJ Cafeteria**
Lunch

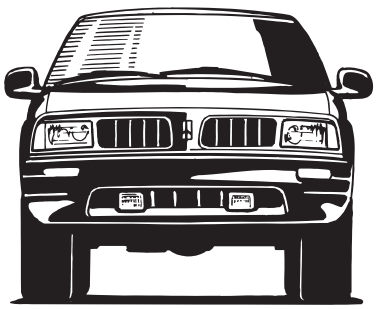
1:00 PM - 4:00 PM **Civil CLC**
Newsletter Finishing Session
Ms. Lonnajean Yoest

4:00 PM
Depart for the weekend









WEEK 4

Events for Monday, July 14

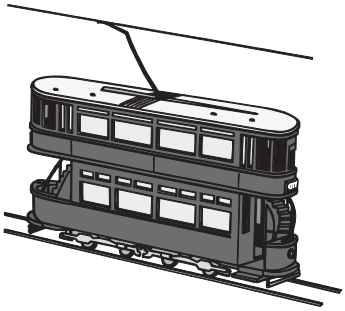
8:00 AM – 8:45 AM **TJ Cafeteria**
Breakfast

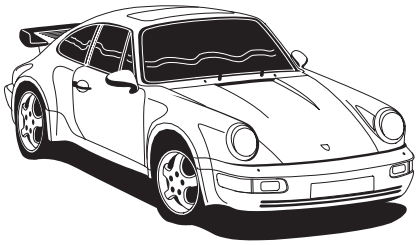
9:00 AM -11:00 AM **121 Butler-Carlton Hall**
History
Dr. Jeff Schramm

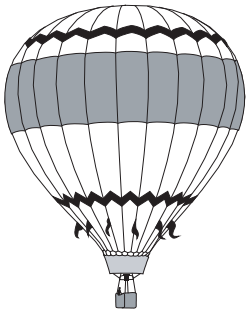
12:00 PM - 8:00 PM **Travel**
Lunch (box lunch- TJ)

Travel to Chicago
Yearbook Planning
Dr. Qureshi

8:00 PM **Fairfield Inn**
Arrive in Chicago







WEEK 4

Events for Tuesday, July 15

8:00 AM - 8:45 AM **Fairfield Inn**
Breakfast

9:00 AM – 9:30 AM **Travel**
Travel in city

9:30 AM – 11:00 AM
Tour with Corwith Yard

11:00 AM – 1:00 PM **Travel**
Travel in city
Lunch (on your own, in area)

1:00 PM – 1:45 PM
Tour of RTA office & Customer Service Center
Mr. Pitstick

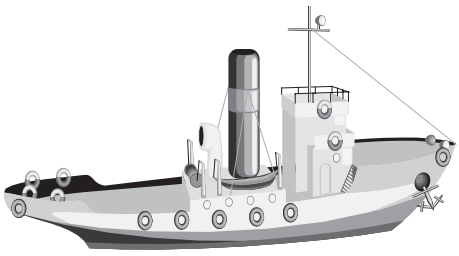
1:45 PM – 3:00 PM **Travel**
Travel in city

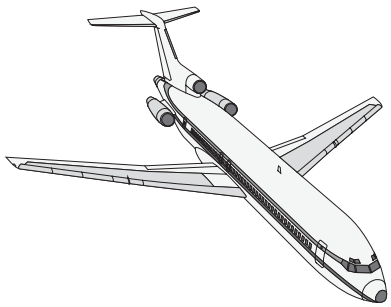
3:00 PM – 4:30 PM
Tour of CTA Operations Center

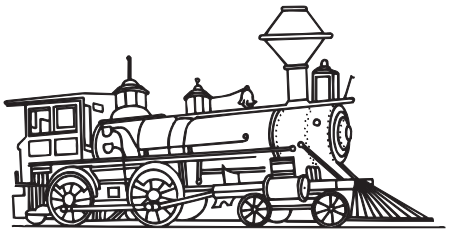
4:30 PM – 5:30 PM **Travel**
Travel in city

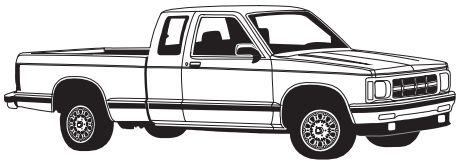
5:30 PM – 6:00 PM **Fairfield Inn**
Free Time

6:00 PM – 9:00 PM **Navy Pier**









WEEK 4

Events for Wednesday, July 16

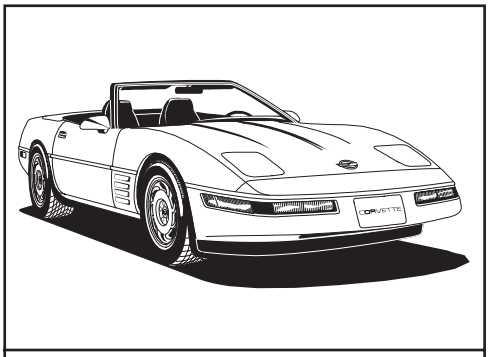
8:00 AM - 8:45 AM **Fairfield Inn**
Breakfast

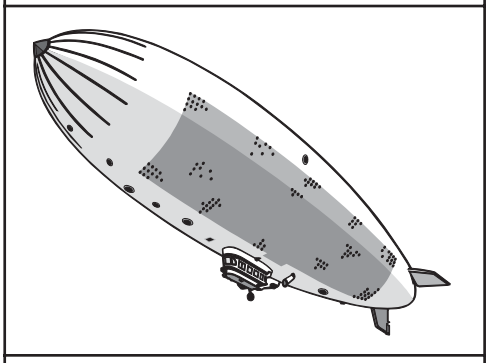
9:00 AM - 2:00 PM **Travel**
Travel to St. Louis
Lunch (on your own)

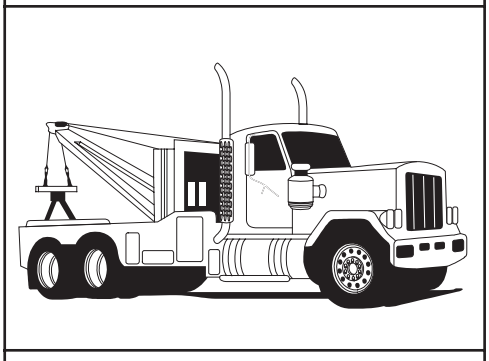
2:00 PM - 4:00 PM **St. Louis**
Bi-State Operations Center
(including MetroLink) Dr. Spring

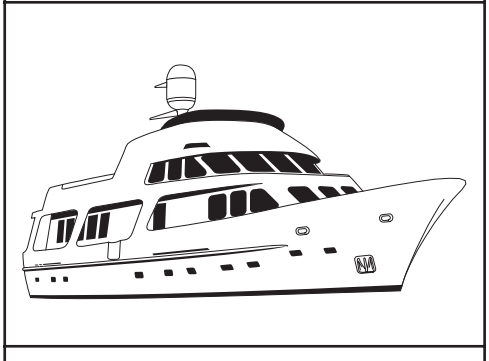
4:00 PM - 6:00 PM **Travel**
Travel to Rolla
Dinner

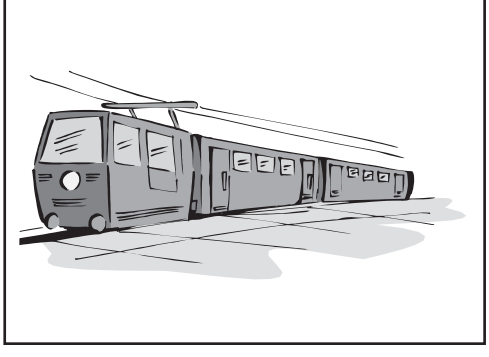
6:00 PM - 8:00 PM **121 Butler-Carlton Hall**
History class (lab)
Dr. Jeff Schramm











WEEK 4

Events for Thursday, July 17

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

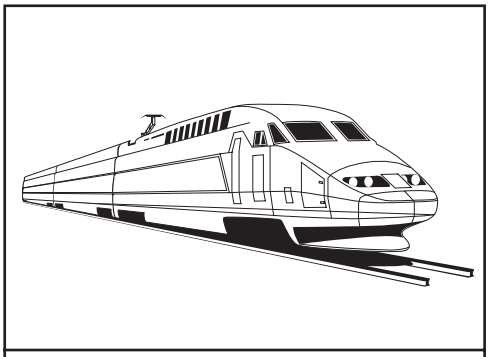
8:00 AM - 10:00 AM **Travel**
Travel to Alton, IL

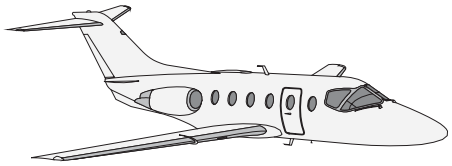
10:00 AM - 2:00 PM **Alton**
Jacobs activities
Lunch PROVIDED
Ms. Trisha Bohler

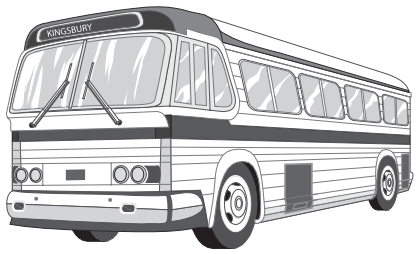
2:00 PM – 4:00 PM **Alton**
Tour of Alton Lock and Dam
Ms. Trisha Bohler

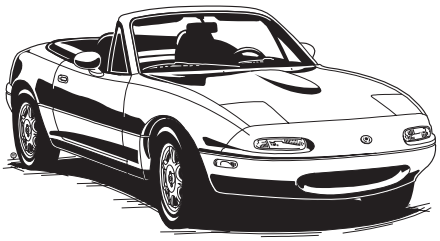
4:00 PM - 6:00 PM **Alton**
BBQ with NSBE
Mr. Ron Moore

6:00 PM -8:00 PM **Travel**
Travel to Rolla









WEEK 4

Events for Friday, July 18

8:00 AM - 8:45 AM **TJ Cafeteria**
Breakfast

9:00 AM - 12:00 AM **Civil CLC**
Yearbook Design
Ms. Lonnajean Yoest

12:00 PM – 1:00 PM **TJ Cafeteria**
Lunch

1:00 PM - 4:00 PM **Civil CLC**
Newsletter Finishing Session
Ms. Lonnajean Yoest

4:00 PM -5:00 PM **Free Time**

5:00 PM
Depart for Weekend

Appendix 4

Curriculum

GUIDELINES FOR SESSIONS

WORKSHOPS/LABORATORIES (60 pages)
The 7 Habits of Highly Effective People
Slides, exercises and discussion topics
Principles of Surveying
Designing Websites
Newsletter Basics
Graphic Design
Crash Cushion Design

SEMINARS (30 pages)
Orientation
Expectations, Assignments
Working in Teams
Intelligent Transportation Systems
Mathematical Modeling

INTERNET EGG HUNT (1 page)

GUIDELINES FOR SESSIONS WITH HIGH SCHOOL STUDENTS

The standard formal presentation in which the speaker uses powerpoint slides for 20 to 30 minutes is less than ideal for dealing with high school age groups. Less formal and more interactive sessions are much more effective in sparking student interest in the topics being discussed. I propose the following for your visit:

Use the talking points shown below in preparing your remarks. Keep them brief (5 to 10 minutes max!).

TALKING POINTS

- Brief description of your agency and its perspective on transportation
- Transportation issues that you feel are critical and timely – it would be good to be a little provocative here
- What exactly is it that YOU do
- Pearls of wisdom (what are the 2 top things that you'd like to share regarding what you've learned over the years - with regard to choosing and starting a career, or anything else you feel has been important in making you a success in your professional life)

Remarks by panelists will be followed by a question and answer session. I will get the students to generate a list of questions that I'll send to you prior to your session. I'd also like to have some questions from you that I could use to get discussions moving if there's a lull. Again, provocative is good.

If you have visual aids that would significantly enhance our discussions (such as short videos, sets of plans, models, etc.). Or, if you have a hands on activity that you'd like to use, that would be great, just let me know and we can discuss how it can be incorporated into the session.

I want these kids coming away inspired and excited about the topics discussed.

7 Habits of Highly Effective People

Dr. Stephen Covey

New Habits

- *Can be learned*
- *Require a paradigm shift*
  - Must be open minded and willing to risk

Paradigms

- *"We see the World as, not as it is, but as we are"*
- *We affect others with our paradigms of them*

Habits Exercise 1

Group

The Verna Case Study-

take 10 minutes

Exercise 2

Individual

A personal relationship

take 10 more minutes

Effectiveness

- Production - getting results
- Production capability - preserving and enhancing our assets
- Emotional bank account - need for others

P/PC Balance

- We are effective when P/PC are in balance
- PC comes from 3 kinds of assets
- Human is the most important and the most neglected

Exercise 3

Group

P/PC balance

Take 15 minutes

The Emotional Bank Account

- Importance in relationships
- Only thing that we can control
- Deposits only work if sincere
- Constant relationships require constant deposits
- Building and repairing take patience

Deposits

- Increase trust in the relationship:
  - Keeping promises
  - Being loyal
  - Apologizing when appropriate
  - Clarifying and honoring expectations
  - Having integrity

Withdrawals

- Decrease trust in the relationship:
  - Unkindness
  - Criticism
  - Broken promises
  - disloyalty

Exercise 4

Individual

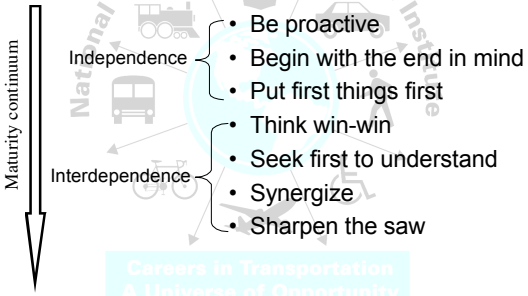
Emotional Bank Account

Take 15 minutes

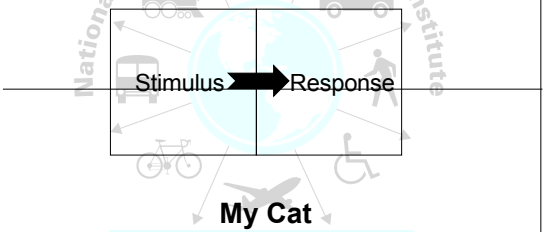
Basic Needs

- To Live
- To Love
- To Learn
- To leave a Legacy

The 7 Habits

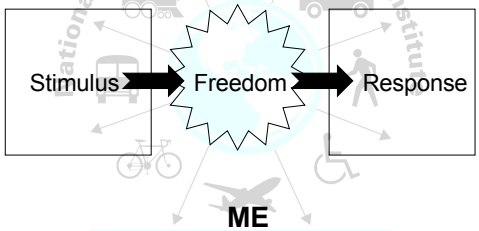


Be Proactive



My Cat

Be Proactive



ME

Be Proactive

- The power, freedom and ability to choose responses to whatever happens to us
- Based on values
- Produces results - not excuses or explanations.
- Energies focus on circle of influence

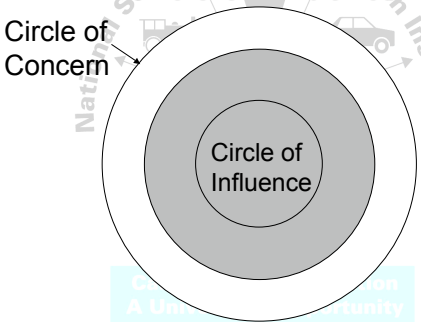
Exercise 5

Group

Your New Year's resolution

Take 10 minutes

Circle of Influence



Exercise 6

Group

Case Study - your extra assignment

Take 15 minutes

Proactive example

- I shall not submit to injustice from anyone
- I shall conquer untruth by truth
- And resisting untruth, I shall put up with all suffering

Begin with the end in Mind

- All things are created twice: first mentally then physically
- Define values to guide proactivity
- Roles and goals
- Mission statements

Mission Statements

- What do I want from my life?
- What do I value?
- What are my talents?
- At the end of my life, what do I want to have accomplished?

Mission Statements

- Encourages you to think deeply about your life
- Values become part of your software
- Connecting mission with daily activities leads to integrity

Sample Statement

- My overall goal is to make a significant difference in and impact on my students. To have them remember me with fondness and gratitude for the value I gave them. To do this I will strive to build student trust, have empathy for them, and serve as mentor where appropriate and desired.

Exercise 7

Individual

Complete the 6 steps shown.

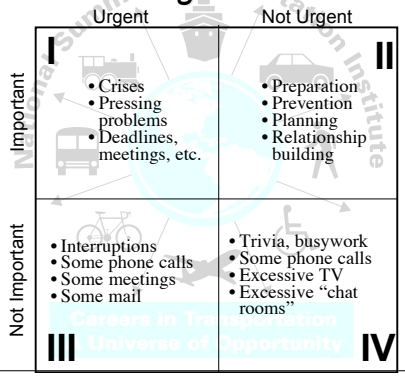
-Take 15 minutes

For homework, draft a personal mission statement that follows from them.

Put First Things First

- Habit 2 sees that we do the "right" thing
- This habit sees that we do the thing "right"
- Demands may be defined by their urgency and importance

Time Management Matrix

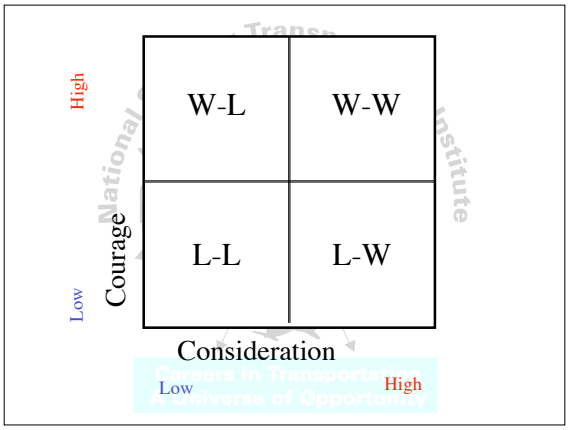


Think Win-Win

- Abundance mentality
- Win-win or no deal
- Successful relationships built on
- Example

Think Win-Win

- Courage to express your opinions
- Consideration of others' feelings



Group Exercise 1

Seek First to Understand

- Facilitates discussions
- Must be willing to be influenced
- Non-threatening
- Gain influence in the relationship
- Doctors do it, Lawyers do it, sales people do it - all to increase their effectiveness and influence

Stages in Empathic Listening

- Mimic the content - no feelings, only words
- Rephrase content. Own words
- Reflect feelings.
- Rephrase content and reflect feelings
- Should not be used as a weapon

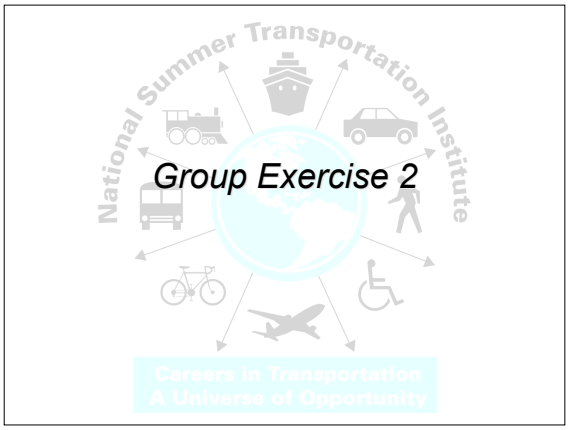
Understanding is not the same as agreeing!

The five levels of listening

- Ignoring. Pay no attention to the other person or what he/she is saying
- Pretended listening. Act like we're listening but attention is elsewhere.
- Selective listening. Hear some things only
- Attentive listening. Listen with ears only.
- Empathic listening. Move below surface to the feelings and issues that really matter.

Synergize

- 1+1=3
- Critical elements:
  - Win win attitude
  - Seeking first to understand
  - Belief in our abilities to find the 3rd alternative
- Brainstorming is an example



Sharpen the Saw

- P/PC balance - examples
- Areas:
  - Physical
  - Mental
  - Spiritual
  - Social-emotional (emotional bank accounts)

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Seven Habits Exercises

Exercise 1. Group

The Verna Case Study
You supervise a production department and have requested a secretary. Your request is approved on one condition: you must use an existing employee named Verna. The supervisor of the order department, where Verna has been employed for the past 2 years, confides in you that Verna wasn't able to cope with the work flow and often misplaced orders or failed to process them completely. Management didn't want to fire her because she's nearing retirement, she supports herself, and she lacks self-confidence to find another job. They felt that secretarial work would be slower paced and something that she could handle.

You feel resentful that they pushed Verna on you. You had wanted a younger, more assertive person. Besides, Verna didn't perform well in the order department, so why should she perform well for you? But you were given no alternative, so you agree to use her. In your first meeting with Verna, you are surprised to find her alert, cordial and quite willing to work. Still, you know of her record and you aren't sure what to expect.

1. You have a chance to adopt a paradigm of Verna. What are your choices?

2. What differences might your paradigm make in Verna's performance? How might these differences come about?

3. Is it possible in this case that some positive, productive qualities that you imagine Verna to have could be true? Reports qualities false. Explain your thinking to your partners.

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Seven Habits Exercises

Exercise 2. Individual

A personal relationship
Remember the last bullet on the last slide: "We all see the World, not as it is, but as we are." With that in mind, take a few moments to reflect on a relationship of yours that isn't going as smoothly as you'd like. Consider the following questions:

1. Describe your paradigm of the other person. Have you labeled him or her? In what way?

2. Is it possible that your paradigm could be the source of the problem?

3. How might you change your paradigm to allow the relationship to improve?

4. How might you alter your actions in the relationship so that the other person might also grow and change?

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Exercise 3. Group

P/PC Balance
Discuss the following questions within your group which ask you to analyze the P/PC balance principle as it relates to your "job." Provide feedback on one another's responses.

1. What key results are you responsible for producing as a student?

2. What is being done to maintain the assets (physical, financial and human) that allow you to produce these results?

3. Are P and PC in balance? If not, what price are you paying?

4. What action should be taken, if any, to achieve a more effective P/PC balance?

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Exercise 4. Individual

The Emotional Bank Account
Consider your important relationships. What are some of the Emotional Bank Account deposits you could immediately begin making to move you to a higher balance with these people? Feel free to share your ideas with others if you like, but you will not be asked to discuss this exercise.

Person	Deposits

How could these deposits affect your relationships?

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Exercise 5. Group

Your New Year's resolution
Think of a New Year's resolution you've broken in the past. Something that's not too personal and that you don't mind sharing with your partners. If you don't make New Year's resolutions, pick something in your life that you have had a hard time changing. Each of you will use the three reactive explanations to explain why you haven't changed. Try to convince your partners that there is nothing you can do to make this change.

FIRST

Give a genetic explanation. In other words, explain that you can't change because that's just the way you are. You were born that way. You are just like your ancestors.

NEXT

Give a psychic explanation. Explain that you can't change because your parents raised you that way.

THEN

Give an environmental explanation. Explain that you can't change because someone or something else is really causing the problem.

Be creative with this. Don't just say, "I was born that way," and be done with it. Elaborate a bit. Tell why you believe that, and what the evidence is. The more fun you have with this, the more you'll learn. Partner A goes rist, then partner B, then C.

FINALLY

Explain proactively why you've not managed to make this change. What paradigm or self-map has influenced you to behave this way?

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Exercise 6. Group

Your Extra Assignment
Your boss recently asked you to research some ways to cut costs in your department and announced to your co-workers that you would be contacting each of them to discuss their ideas. Everyone agreed that this was a worthwhile effort and pledged their support. At first, you thought this would be a fun and interesting project because it would add some variety to your job and give you a chance to learn some new skills.

Lately, the assignment has become somewhat less exciting than you had hoped it would be. Scheduling time to meet with other employees in the department has been difficult and some do not seem very interested in providing you with information. To complicate the situation, it's hard to find a quiet meeting place and getting your regular job done on top of this added assignment is no easy task.

1. What are some reactive responses to this situation? How might they affect your Emotional Bank Account balance with co-workers and boss?

2. What are some proactive responses to the situation?

3. What effect would these proactive responses have upon your overall effectiveness in the department?

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Seven Habits Exercises

Exercise 7. Individual

Mission Statements
By completing the following six steps, you will have written a first draft of a personal mission statement that will provide inspiration, direction and guidance in your life. The process of writing involves as much discovery as it does creation as you become more aware of your natural talents and tendencies.

STEP ONE. INFLUENTIAL PERSON

1. Who has affected your life in a significant way for good? Identify one person who has exerted (knowingly or unknowingly) a positive influence in your life.

2. List the qualities you most admire in this person.

3. What qualities did you gain from this person?

STEP TWO DEFINING WHO YOU WANT TO BECOME

1. What I want to have or possess:

2. What I want to do or experience

3. What I want to be (qualities of character)

STEP THREE: DEFINING YOUR LIFE ROLES
You live your life in roles. For example, you may have roles in work, family, community organizations and in other areas of your life. These roles can provide a natural framework in helping you define what you want to be.

Example roles: student, teacher, brother, sister, son, friend, employee, etc.

Write your roles in the spaces provided on the attached worksheet. Next, identify the key person related to each role - for example, for the role of friend you could list your best friend(s). Then, project yourself forward to the end of your life and write a brief statement describing this person's feelings and thoughts as you would want to be described in that particular role.

Exercise 7 continued

STEP FOUR: WRITE A DRAFT MISSION STATEMENT
When you feel you have an accurate idea of how your roles contribute to the qualities of character you'd like to strengthen or acquire, write a rough draft of your personal mission statement. Carry the rough draft with you and make notes, additions and deletions before you attempt another draft.

Exercise 7 continued

STEP FIVE: CONTINUE REVISING AND REFINING
Place your mission statement in your planner or organizer and refer to it often. Use it as a standard by which you judge decisions and actions.

STEP SIX: PERIODICALLY REVIEW AND EVALUATE
Does my statement represent the best that is within me?
Do I feel direction, purpose, challenge and motivation when I review the statement?
Am I practicing the strategies and skills that will help me accomplish what I have written?
Does this statement inspire me?

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Covey Exercises Session II

Exercise 1. Group

For the situation described below, your group will take one of the two positions. You will team with another group who has taken the opposite position. Your goal is to begin looking at deeply felt wants in an effort to find a win-win solution. Creat "want lists" and then, from the want lists, create a third alternative that allows you both to win. Remember that achieving a third alternative usually requires a paradigm shift on the part of one or both people.

ISSUE: Should a teenager own his or her own car?

Teenager's position: "I want to own my own car."
Parent's position: "I don't want my child to have a car"

Teenager's Want List Parent's Want List

Third alternative: _____

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Covey Exercises Session II

Exercise 2. Group

Empathic Communication

INSTRUCTIONS:

Objective of teams: to gain an understanding of the opposing view through practicing habits 4, 5 and 6: Think Win-Win, Seek First to Understand then to be Understood, and Synergize.

Listen empathically strictly to understand - not to try to manipulate the other team into "seeing it your way."

Suggestions for accomplishing this:

- Repeat the content of the communication back
- Rephrase the content
- Reflect feelings (listen with your eyes as well as your ears to do this)
- Rephrase feelings and content
- Learn when not to reflect - sometimes it isn't necessary

Instructions for observers: observe team interactions. At the end of 15 minute discussion, critique each team in its attempt to empathize with the opposing team.

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Application Exercise
Empathic Communication

Place your initials beside each issue in the column that most closely describes your feelings about the issue.

Issue	Strongly for	No strong opinion	Strongly against
1. Quotas should be used as one vehicle for affirmative action			
2. Euthanasia (ala Dr. Kevorkian) should be legalized			
3. Women should have a right to abortion			
4. The death penalty should be retained			
5. No prayer of any kind should be allowed in public schools			
6. It is ok to use animals for research purposes.			

ACTIVITY 10.2

SURVEYING – MEASURING HORIZONTAL DISTANCES

INTRODUCTION

The task of determining the horizontal distance between two existing points is a fundamental surveying operation. Depending on the specific application and the required accuracy, one of several methods may be used to determine the horizontal distance. One such method is called pacing.

In certain surveying applications, only a rough approximation of distance is necessary. Pacing is one way to determine distance without the use of any equipment. Pacing simply involves counting steps

OBJECTIVES

Students will be able to:

1. Determine their own personal unit pace value.
2. Use pacing to calculate rough distance measurements.

MATERIALS

a. A line of known distance
b. Student Journal/Notebook
c. Pen/Pencil
d. Definition of a Pace
e. Formulas for Unit Pace

ACTIVITIES

Students will:

1. Determine their pace value

NOTE: A pace is the distance between 2 successive positions of the toes (or heel) of the same foot.

a. Walk normally along a line of known distance.
b. Count the number of paces it takes to walk the distance. Record the number.
c. Repeat steps a and b 5 times.
d. Average your number of paces. Record the number.

e. Calculate your Unit Pace using the formula below:

$$\text{UNIT PACE} = \frac{\text{Known Distance}}{\text{Average No. of Paces}}$$

e. Record the number. This is your Unit Pace Value.

NOTE: A pace is expressed in terms of feet per pace (ft/pace) or meters per pace (m/pace).

2. Once you have determined your Unit Pace Value, you can begin making rough measurements of some distances between two points using the equation below:

$$\text{Distance} = \text{Unit Pace} \times \text{Number of paces}$$

3. Try making several rough measurements. Record your results.

QUESTIONS

1. What surveying application is used for rough distance measurement?
2. What relative accuracy can be expected when measuring distances by pacing?
3. How many paces = a stride?
4. Explain why no two people have the same pace value.
5. What's an advantage of using the pacing method to determine horizontal distance?
6. What's a disadvantage of using the pacing method to determine horizontal distance?

ACTIVITY 10.3

SURVEYING – Using a Transit

INTRODUCTION

One of the traditional measuring instruments used in the field for surveying is the transit. The transit measures horizontal and vertical angles. It consists of an optical line of sight which is perpendicular to and supported on a horizontal axis.

OBJECTIVES

Students will be able to:

1. Design and construct a transit.
2. Measure a long distance indirectly, two different ways.
3. Measure the angles between two distant points.

MATERIALS

a. cardboard
b. pen/pencil
c. graph paper
d. paper fastener
e. scissors
f. stapler/staples

ACTIVITY

Students will:

Activity 1

1. Cut a circle with a 7 inch diameter out of cardboard.
2. Divide the circle into 360 degrees.
3. Cut a second circle with a 5 inch diameter.
4. Cut a strip of cardboard 6 inches x 1 inch. Make the ends pointed by folding.
5. Staple the strip to the 5 inch circle.
6. Place the larger circle under the smaller one and secure them with a paper fastener. Now you are ready to survey.

Activity 2

1. To find the angle between two distant points (we'll call them points A and B), line up the two paper points with the zero on your scale (cardboard circle) and point A. Without moving the outer circle, swing the part with the pointed ends around and sight on point B. The number of degrees on the scale will be the angle. Practice this a few times.

STI 2003
DESIGNING WEBSITES 101:
Using Macromedia Dreamweaver to Build Your Own Website

I. Set up your site

1. Open Dreamweaver
2. Site Menu: New Site
3. Click Advanced tab.
4. Click Local Info
5. Name the site
6. Set the Local Root Folder
    A. Click the folder icon on the right
    B. Navigate to your S drive
    C. Create a new folder (click folder icon with *)
    D. Name the folder mysite
    E. Choose the folder (double-click it)
    F. Click Select
    G. Click OK

II. Create a file

1. File Menu: New File
2. Name the file index.htm
3. Double-click the file to open it from the Site Files window
4. What a document title is: the information that displays at the top of a browser window
5. Title the document in the blank at the top of the design window: title it something related to page content (for instance, Lonnajean's Homepage)
6. Save the file

III. Take a look at the code

1. What HTML is: the programming language (code) used to create webpages
2. What a browser is: IE, NS: the programs that read and display HTML code to display webpages
3. The main sections of HTML code: <head>(title, display language)<body>(everything that displays on the Internet)
4. Tags: open & close
5. Attributes

IV. Make a folder for images

1. Go to your site files window (if it's not open you can find it via the Site Menu: Site Files)
2. Right-click the Site icon for your site
3. Choose New Folder
4. Name the folder images
5. Go outside of Dreamweaver and drag hdr.gif into your images folder

V. Insert a table

1. Insert Menu: Table
2. Set the attributes (descriptors)
    A. 1 row
    B. 1 column
    C. 760 pixels wide (standard page size in HTML is 760 pixels by 420 pixels)
    D. 0 cell spacing
    E. 0 cell padding
    F. 0 border

3. Set the background color of the table to white in the Properties panel
    A. Select the table on its edge with the crosshair cursor
    B. In the Properties panel click the color box next to bg color
    C. Drag the eyedropper to the white square and click
4. Align the table to center in the Properties panel
5. Save your file

VI. Insert an image

1. Put your cursor in the table cell
2. Insert Menu: Image
3. Navigate to hdr.gif and click insert

VII. Links in HTML

1. What a relative link is: an address that points from the file you're in out to another file (like an image or another html page) by giving step-by-step directions to get there; the address will change based on where you start from
2. View the relative link to your image in the Properties panel
3. What an absolute link is: an address in URL format (beginning with http://...) that points to another file but does NOT change based on where you start from—like your home address, it's the same no matter where you're coming from

VIII. Set the page properties

1. Modify Menu: Page Properties
2. Set the background color to the blue in STI
3. Set the text color to black

4. Set the Links color to the blue in STI
5. Set the Visited Links color to orange
6. Click OK
7. Save your file

IX. Insert another table

1. Make sure your cursor is to the right of the previous table
2. Use the attributes above except create 6 columns, 3 rows
3. Make the background of the table white
4. Align the table to center
5. Save your file

X. Set column widths

1. Place your cursor at the top of the first column (you should get a downward arrow cursor) and click
2. In the Properties panel set the width to 116
3. Set the width of the second column to 20
4. Set the width of the third column to 250
5. Set the width of the fourth column to 20
6. Set the width of the fifth column to 334
7. Do not set a width for the sixth column

XI. Set row alignment

1. Put your cursor to the left of the middle (2^{nd}) row until you see the horizontal arrow cursor and click
2. Set the vertical alignment to top in the Properties panel
3. Save your file

XII. Add text to a cell

1. Select the first column
2. Set the horizontal alignment of the column to center
3. Set the background color of the column to black
4. Set the text font and color in the Properties panel
5. Type text for pages you will link to (make the first line Homepage) in the first table cell of the center row
6. Enter (hard return) vs. Shift-Enter (soft return) for entering text line breaks (try both and note the difference)

XIII. Add page content

1. Insert your picture in the third cell of the middle (2nd) row
2. Type an introduction about yourself in the fifth cell of the middle row, & format the text to match your side navigation text

XIV. Duplicate your index page

1. Save and close index.htm
2. Go to the Site Files window
3. Right-click index.htm and choose the menu item Duplicate
4. Name the new file something related to the first link you added to the side navigation on your homepage (for instance, hobbies.htm)
5. Open the new file

XV. Merge table cells

1. Highlight the third, fourth, and fifth table cells in the middle row of the second table
2. Click the merge cells button in the Properties panel

3. Look at the code to learn about tables and the related tags and attributes
4. Enter text in the newly merged cell (for instance, add information about your hobbies if this is your hobbies page)
5. Change the page title to match the new content (for instance, Lonnajean's Hobbies)
6. Save the page

XVI. Add a link to text

1. Highlight Homepage in the side navigation text
2. Make sure the Site Files window is open
3. In the Properties panel drag the wheel icon next to Link out to the index.htm file in the Site Files window
4. Note the relative link that's added in the Link box of the Properties panel
5. Repeat the steps for the side navigation text linking to the page you're working on
6. Repeat the steps for side navigation text in the file index.htm

XVII. Create another page

1. Duplicate the 2nd page you created
2. Change the content and page title
3. Save the page
4. Add the link to this new page to the appropriate side navigation text in each page you've created

XVIII. Post your pages to your public_html folder

1. Copy all your .htm files and your images folder to the public_html folder on your S drive

   A. While holding down the Control key click each file and the folder
   B. Let off the Control key
   C. Right-click the highlighted files and choose Copy
   D. Navigate to the public_html folder
   E. Right-click and choose paste
2. Go view your website with Internet Explorer
   A. Open Internet Explorer
   B. Type http://www.umr.edu/~sti1 (use your login in place of sti1) and hit enter
   C. Navigate between your pages
   D. CONGRATULATIONS, YOU JUST CREATED YOUR OWN WEBSITE!!! Be sure to tell you parents to logon and check it out!

Newsletter Basics

STI 2003

The Personnel Division

- Reporters
- Photographers
- Graphic Artists
- Editors

What Do Reporters Do?

- Create the "body copy"
  - Investigate potential stories
  - Interview the people involved
  - WRITE!

What Do Photographers Do?

- Collect pictures to supplement body copy

What Do Graphic Artists Do?

- Design the newsletter format
- Layout the content w/in that format
- Manipulate photos to fit the space/purpose
- Create graphic elements

What Do Editors Do?

- Final check on grammar & diction
- Cut or extend articles to fit available space

Who's In Charge?

- The MANAGING EDITOR
  - Head of the editing team
  - Has the final say on what goes in & where everything gets placed
  - Assigns stories to reporters
  - Leads the newsletter board meeting

Who's In Charge?

- The ARTISTIC DIRECTOR
  - Has the final say on all aspects of layout & design
- The PHOTO EDITOR
  - Decides which photos get used

What's In a Newsletter?

- Flag—the nameplate/title
- Folios—month, date, & year
- Content
  - News stories
  - Editorials
  - Ads
  - Cartoons
- Artwork

Artwork—there's 2 main types

- ILLUSTRATED—images drawn by hand or with computers
  - Cartoons
  - Clipart
- PHOTOGRAPHIC—images shot with a camera and then manipulated with computers

Copy Style—there's no limit!

- Informational articles
- Q & A
- Editorial articles
- Stylistic pieces

AUDIENCE is everything!

- Your readership determines both FORMAT & DESIGN

AUDIENCE is Everything!

- Personnel must consider…
  - what the audience will be interested in
  - how much they'll want to read
  - what language they'll understand
  - what look they'll find appealing

Today's Assignment

- Choose a managing editor
- Hold a board meeting to choose a title
- Split up into 2 teams
  - Reporters: come up w/a content plan
  - Graphic Artists: choose colors & main fonts; design the flag

Content Requirements

- Must be STI-related
- Must include at least 2 articles on topics from your 4 assignments
- Must include a staff page w/pictures & mission statements
- Must include an STI ad

Principles of Great Graphic Design

An STI workshop based on
The Non-Designer's Design Book
by Robin Williams

Proximity

The Principle of Proximity:
Related items should be grouped close together.

Elements in close proximity to each other form a single visual unit rather than separate ones. Scattered design elements make for an unorganized piece with information that's not instantly accessible to the reader.

THE BIG IDEA:
To organize!

Q: How many elements can you find on the card below?

Q: Are any of the separate items related?

Q: Where are you supposed to start and stop reading?

John Doe (573) 341-5500

The Design Studio

Graphic Artist

5771 East O'Rear Road Rolla, MO 65401

With ONE simple alteration — grouping related elements together into closer proximity — look at the improvement:

The Design Studio

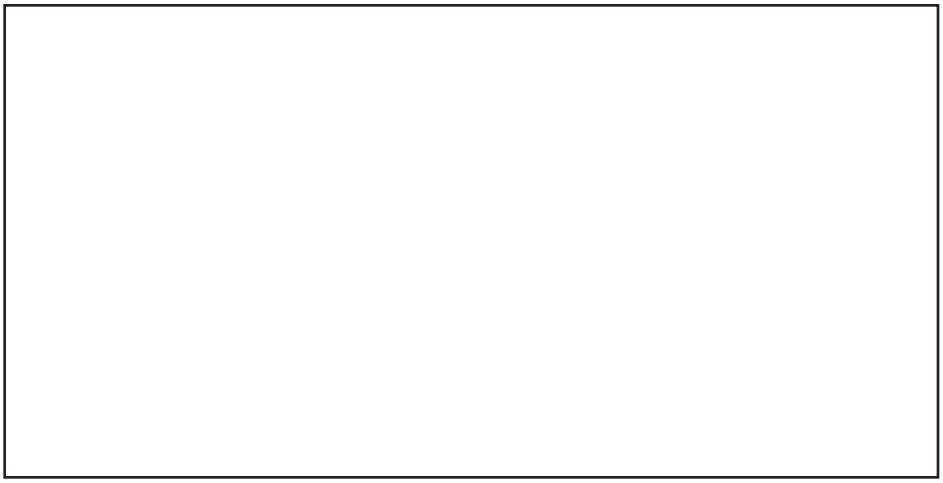
John Doe
Graphic Artist

5771 East O'Rear Road
Rolla, MO 65401
(573) 341-5500

Now you know what to read first and where to go from there. You know when you've reached the end and which items belong together. The information is clearly conveyed in only 2 elements rather than 6.

EXERCISE – Proximity

Below are elements of a business card. Design the card grouping related items in close proximity and separating unrelated items.



Art Studio One

Jane Doe

(573) 341-7550

Rolla, MO 65401

Illustrator

12345 Hwy 66

Alignment

The Principle of Alignment:
Each design element in a piece should have a visual connection with another element on the page.

Placement of items on a page is NEVER random or arbitrary. Alignment of items on a page draws them together for the eye and the mind.

THE BIG IDEA:
To unify!

Flush Left
This text is flush left. Some people call it left aligned or left justified.

Centered
If you're going to center text, make it obvious.

Flush Right
This text is flush right. Some people call it right aligned or right justified.

Justified
This text is justified — the text lines up along both sides. Do not do this unless your line length is long enough to avoid awkward spaces between words.

General rule of thumb: *don't use too many alignments on a page.*

Q: Three different approaches...which is best and why?

John Doe (573) 341-5500

The Design Studio

Graphic Artist

5771 East O'Rear Road Rolla, MO 65401

The Design Studio

John Doe
Graphic Artist

5771 East O'Rear Road
Rolla, MO 65401
(573) 341-5500

The Design Studio

John Doe
Graphic Artist

5771 East O'Rear Road
Rolla, MO 65401
(573) 341-5500

EXERCISE – Alignment

Below are the elements of a report cover. Design the cover making use of alignment. Don't forget to use proximity, too!

Johnny Doe

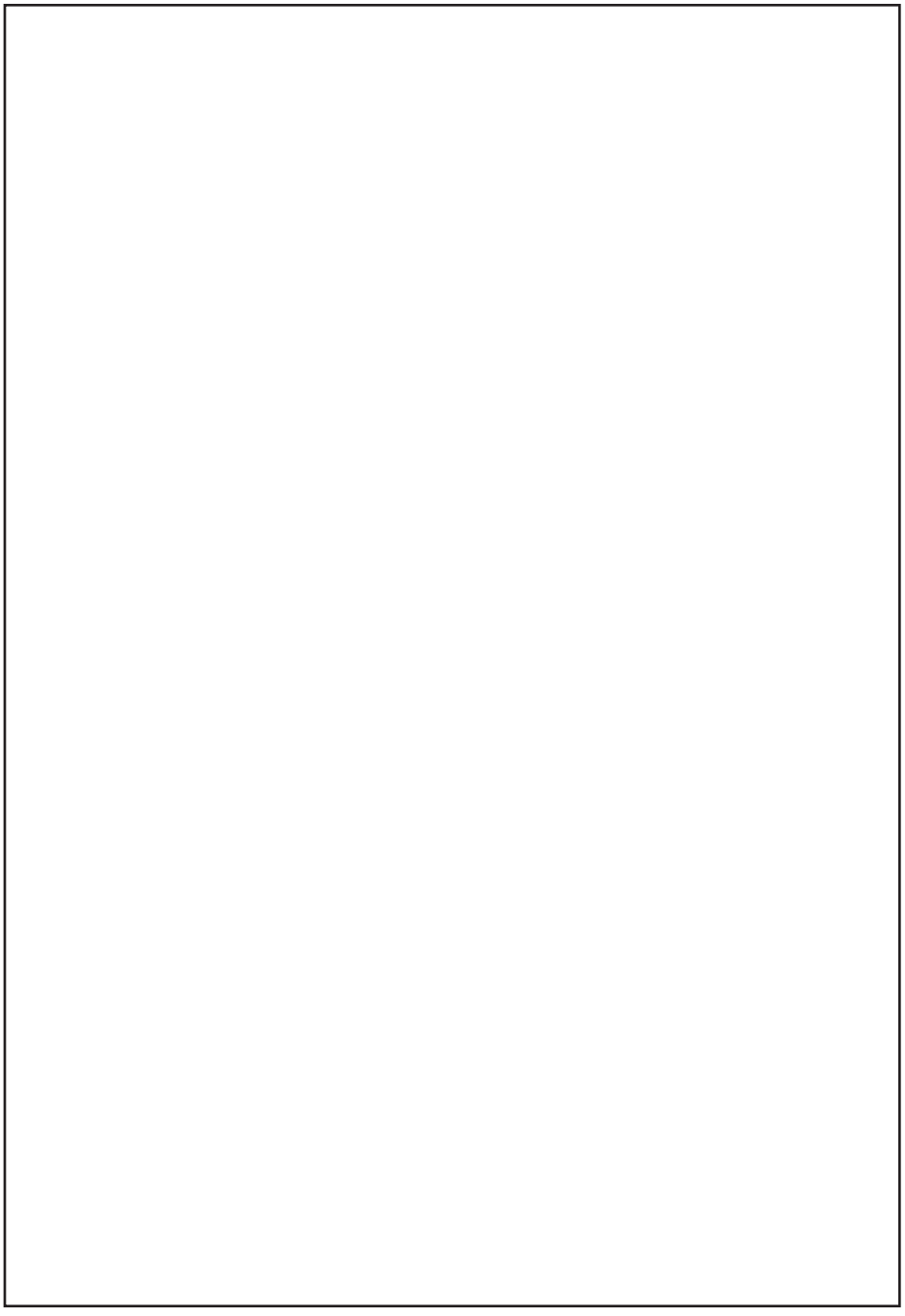
English 101

The Story of the
Great Graphic Designer

February 22, 2003

Mrs. McKinney

Final Book Report



Repetition

The Principle of Repetition:
Design elements should be repeated throughout a piece.

Repetition lets the reader know that separate items are part of the same piece. The repeated element may be color, typeface, a rule, a specific paragraph format, etc.

THE BIG IDEA:
Consistency!

Q: What is repeated in the second card below?

Q: Why is this card more effective?

The Design Studio

John Doe
Graphic Artist

5771 East O'Rear Road
Rolla, MO 65401
(573) 341-5500

The Design Studio

John Doe
Graphic Artist

5771 East O'Rear Road
Rolla, MO 65401
(573) 341-5500

Q: What types of repetition can you find below?

Spiderman

- Hollywood Blvd.
  Anaheim, California

Employment

- Marvel Comics
- Various movie studios

Education

- The real world

Favorite Activities

- Swinging from tall buildings
- Catching bad guys

Favorite Quote

- A spider is man's best friend.

EXERCISE – Repetition

Below are elements of an advertisement for a sale at the local art supply store. Design the ad using different types of repetition. Don't forget to use alignment and proximity, too!

Portfolios

Colored pencils

3 Days Only

Drawing pads

HUGE SALE!

Art Supplies-R-Us

Glue and glitter

Paint Supplies

Paintbrushes

Miscellaneous Supplies

All supplies 1/2 off!

Watercolors

The chance of a lifetime!

The store for your artistic side

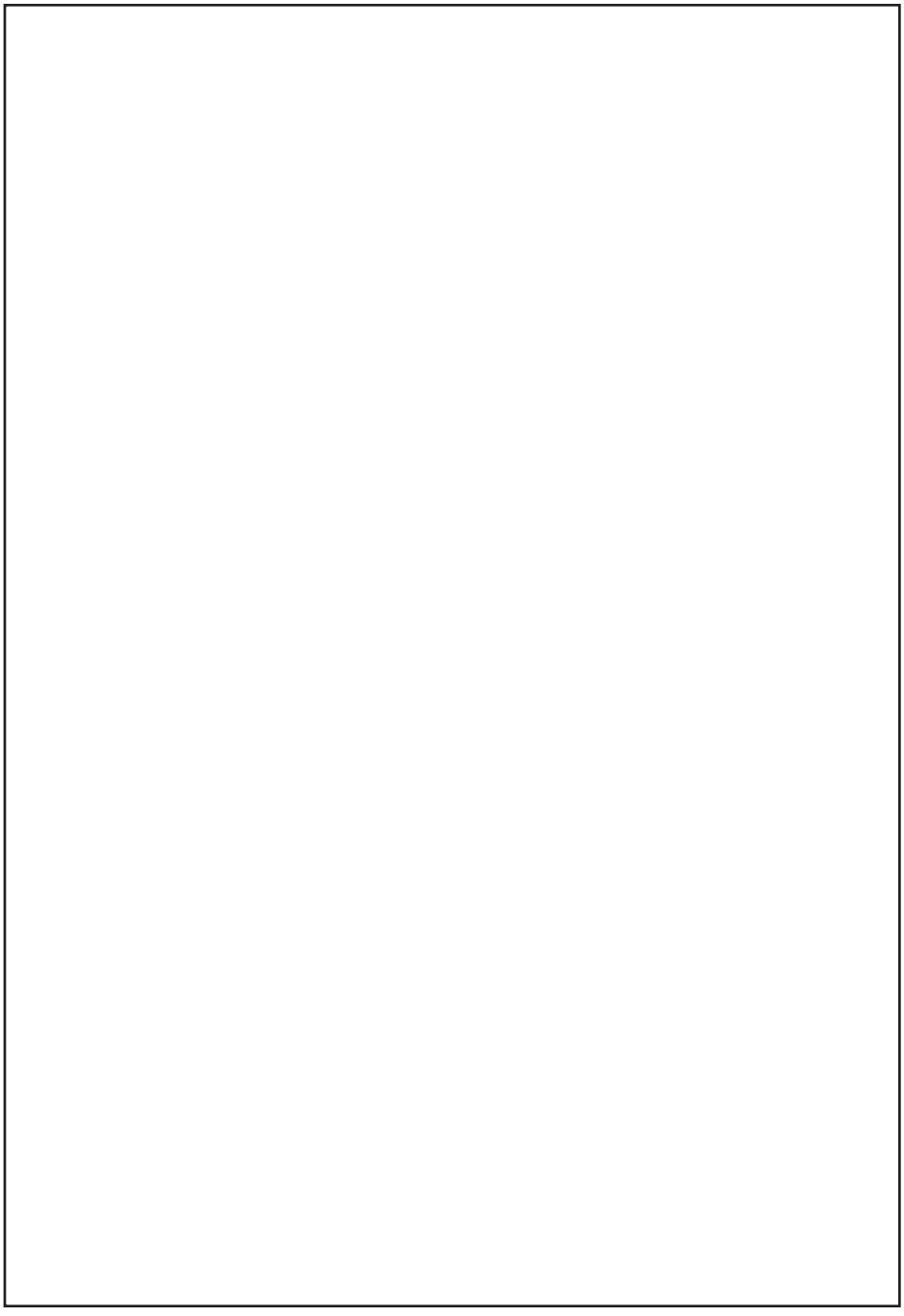
Easels

Friday thru Sunday

Drawing Supplies

Paint Smocks

Don't miss this sale!



Contrast

The Principle of Contrast:
If items are not related they should be DISTINCTLY different.

Contrast is one of the best ways to add impact. Remember that the stronger the contrast, the more effective. BE BOLD! If two items are different, then make them *really different*.

You can create contrast by varying size, color, typeface, etc. Just make sure the difference is great enough to be noticed.

THE BIG IDEA:
Make it stand out!

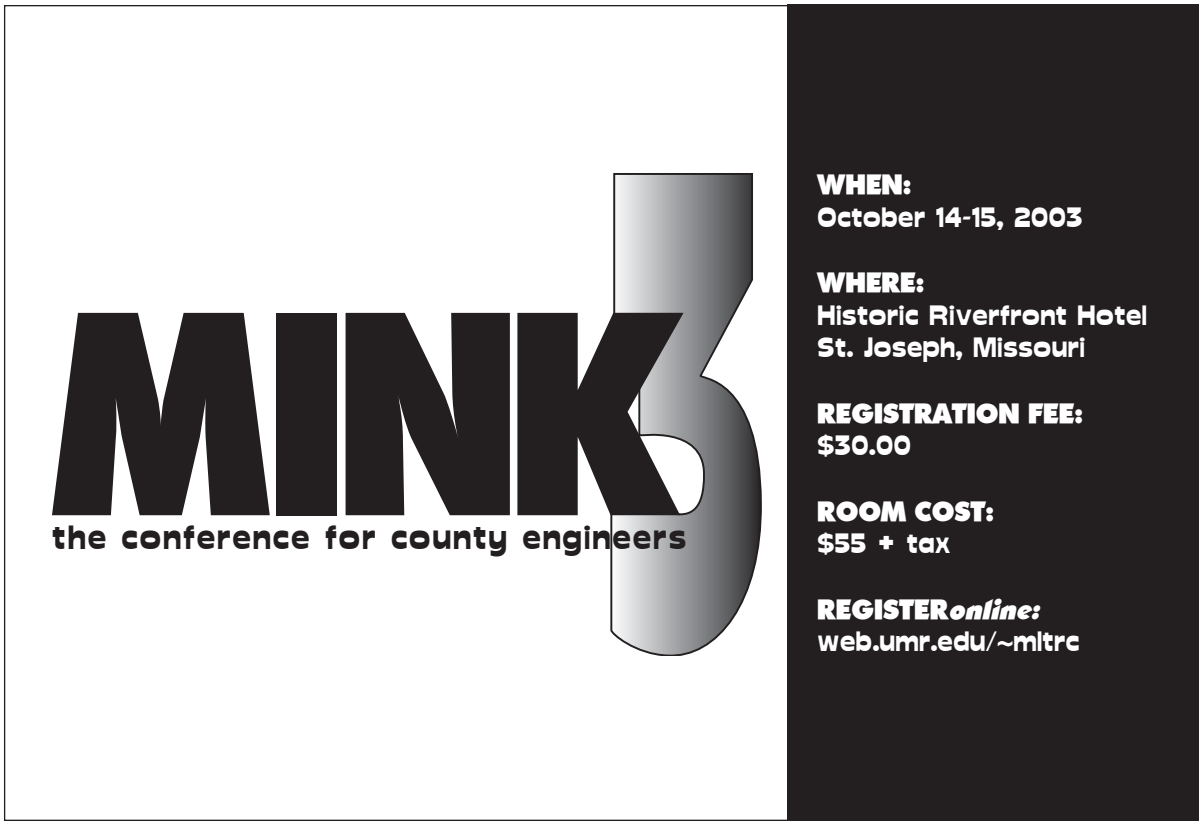
Q: What elements in the card below create contrast?

EXERCISE – Contrast

Take one of your previous exercises (business card, report cover, or advertisement) and redesign it with contrast. Remember: BE BOLD! Make that type BIG and small... **bold** and *italic*.... dark and light.

EXERCISE – All in One

Q: Can you find the use of design principles in the postcard below?



2003 Summer Transportation Institute
Crash Cushion Design Contest

Objective

Crash cushions are used to decelerate vehicles in a way that reduces the severity of head-on impacts with a fixed object. They spread the energy of the moving vehicle over time and space. Such devices are commonly used in front of retaining walls, bridge piers, etc. The objectives of this laboratory are:

1) To determine the speed of a vehicle traveling down a ramp using energy equations and by direct measurement, and to compare the two measurements.
2) To determine the number of crash devices necessary to dissipate the vehicle's energy.

Equipment

Stop watch, scale, rulers, paper, tape, eggs, baggies, Barbie car, track and calculator.

Description

I. Determining vehicle speed

USING ENERGY EQUATIONS: you need to find the vehicle's kinetic energy at the bottom of the incline. Remember that this is equal to the vehicle's potential energy at the top of the incline:

Potential energy = mgh and Kinetic energy = $1/2\ mv^2$

where: m = mass of vehicle, g = 32.2 ft/sec^2, h = height of vehicle off floor in feet, and v = velocity of vehicle at bottom of incline in ft per second.

Step 1. Weigh vehicle
Step 2. Calculate v_e:based upon energy

$$\text{PE at top} = \text{KE at bottom} = mgh = 1/2\ mv_e^2 \text{ so, } v_e = \sqrt{2gh}$$

USING DIRECT MEASUREMENT

Step 1. Place vehicle at top of incline and let it go. Begin timing with stop watch when you let go and end timing when the vehicle reaches bottom. Repeat at least once and calculate an average value.

$$\text{Average velocity} = \frac{\text{Distance fromtop to bottom}}{\text{measured time}}$$

Step 2. This is the average velocity along the incline. Velocity at the bottom of the incline is double the measured value. So:

$$\text{Measured velocity, } v_m = \text{average velocity} * 2$$

COMPARISON

How does the measured velocity, v_m, compare to the velocity based upon energy, v_e?
List three reasons why the values are different.

2003 Summer Transportation Institute
Crash Cushion Design Contest

II. Number of crash devices needed requires that you find the kinetic energy of the vehicle as it reaches the bottom of the incline (you already know this number from I above). Next you will need to find the energy consumption of each paper tube given the following information:

Original diameter = 1"
Force applied = 2 lb 13 oz.
Diameter after force is applied = 1/16"

Egg does not crack when placed at 30" height
Find number of tubes needed to reduce energy to this amount when placed at 50"
Reduction in kinetic energy = KE when placed at 50" height minus KE when placed at 50" height.

Now use KE and energy consumption per tube to determine number of tubes needed:

$$\text{Number of tubes needed} = \frac{\text{reduction in kinetic energy of vehicle}}{\text{energy consumption of tube}}$$

III. Test cushion. Make the number of tubes that you calculated in II and tape them together in any configuration you want. Note however that you may only use 2 – 1 inch pieces of tape on each tube and that you may use only 1 long piece of tape to secure the tubes together. Explain why you used the configuration that you did. The group(s) who are successful in preventing the egg breaking will get free movie passes.

2003 Summer Transportation Institute
Crash Cushion Design Contest

Report

Group Number:_____

Group members:

_____

_____

_____

_____

Part I

Weight of vehicle (containing egg) =	
Height of vehicle=	
Calculated velocity (from energy)=	
Average measured velocity (using watch)=	

Reasons why calculated and measured velocities are different:

1._____

2._____

3._____

Part II

Energy consumption of each tube =	
Number of tubes needed =	

Sketch configuration used for crash cushion below. Also explain why you used this configuration. Report on your results - did your egg crack?

Orientation Session

AGENDA

- Introductions
- Schedule review
- Expectations/Assignments
- Questions
- Pre-test

Orientation Session

THE SCHEDULE

- First week
- Weeks 2 through 5
  - Focus on highway, public, air and rail
  - Panel discussions
  - Laboratories
  - Field trips

Orientation Session

EXPECTATIONS

- **ACTIVELY** participate in **ALL** institute academic activities
- Arrive **ON TIME** for all functions
- Complete all assignments
- Behave with respect at all times, especially during sessions

Orientation Session

EXPECTATIONS

- Report illnesses/emergencies to counselor on duty
- Report unresolved conflicts to counselor on duty
- Curfew
- 3 Strikes!

Orientation Session

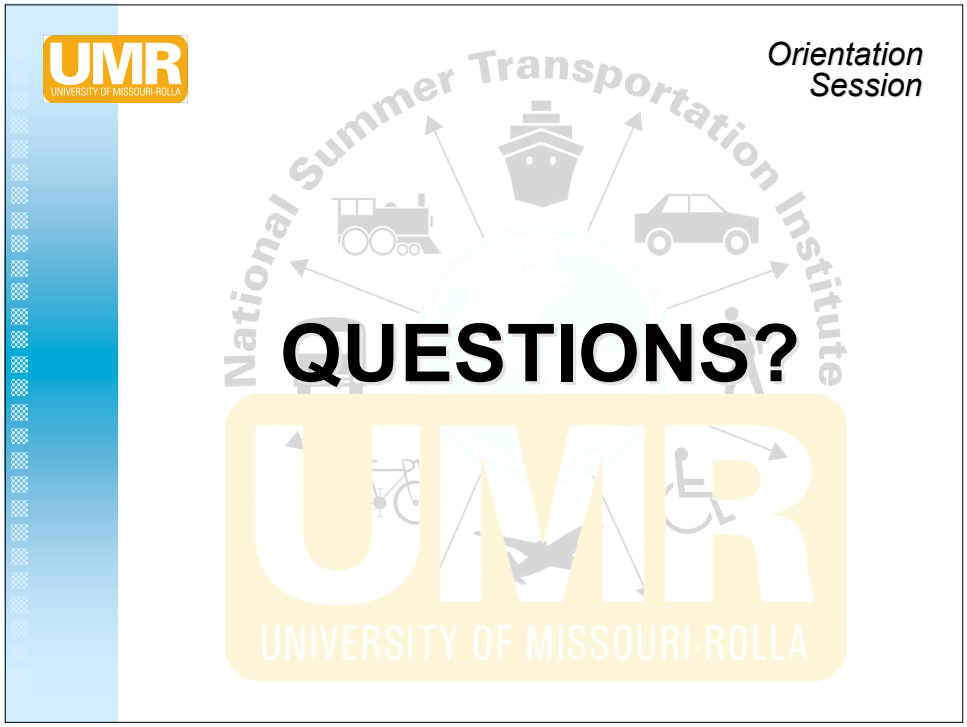
ASSIGNMENTS

- History assignments
- Internet scavenger hunt
- 4 short papers/articles
  - Transportation modes
  - Careers, preparation for careers
  - Leadership
  - Diversity in the workplace

Orientation Session

ASSIGNMENTS

- Personal Mission Statement
- Resume
- Newsletter
- Presentations
- Yearbook


UMR
UNIVERSITY OF MISSOURI-ROLLA
Orientation
Session
National Summer Transportation Institute
QUESTIONS?
UMR
UNIVERSITY OF MISSOURI-ROLLA

June 26 Assignments

Leadership paper – due July 3 at 9 am

Choose someone whom you feel is a great leader. List the characteristics that you feel make him or her a great leader and explain why you feel that these particular characteristics are important in this regard.

The manuscript must be typed double-spaced on one side of 8 1/2 x 11 inch paper and should be about 1 page in length. Margins must equal 1 inch all around. Use 12 point Times font.

Mission Statements – due July 10 at 9 am

STEP FIVE: WRITE A FINAL MISSION STATEMENT
Put everything together from your draft mission statement exercise and complete a final mission statement for submission on July 10 at 9 am. This will be used in the Newsletter.

June 27 Assignment

Careers paper – due July 7 at 9 am

Use the information gained from your session today to write a 1 page paper on a chosen transportation –related career path. Questions that you may want to consider include what course of study should you pursue in college, how much in demand is the path, how much does it pay, what does one do, where does one do it, who would you end up working for, etc.

The manuscript must be typed double-spaced on one side of 8 1/2 x 11 inch paper and should be about 1 page in length. Margins must equal 1 inch all around. Use 12 point Times font.

July 3 Assignments

Modes paper – due July 10 at 9 am

Choose 2 or more modes of transportation and discuss and compare them in terms of their contribution to the well-being of society. What is their relative contribution to things that we value in life such as our mobility, clean air, fuel consumption, safety and security, etc?

Diversity paper – due July 10 at 9 am

Explain why diversity in the work force is so important to all of us.

The manuscript for each paper must be typed double-spaced on one side of 8 1/2 x 11 inch paper and should be about 1 page in length. Margins must equal 1 inch all around. Use 12 point Times font.

Meyers-Briggs
4 areas of your life (not shown to students)

- Where do you get your energy: EI
  - E: external, breadth, gregarious
  - I: internal, depth, reflective
  - In teams: E's are talkers-demand time and attention; I's keep info close to the chest
- How you gather information: SN
  - S: down to earth, details, practical
  - N: head in clouds, concepts, ingenious
- How you make decisions: TF
  - T: laws, firm, just
  - F: circumstances, persuasion, humane
  - In teams: Team spirit unimportant for T, team is a means to accomplish a task. F, team spirit is all important - an opp to get people working together
- How you orient your life: JP
  - J: planners, fixed, structure (want to look at all alts, fly by seat of pants
  - P: spontaneous, Flexible, flow (in teams: need closure and control)

Working in Teams

- Understanding personalities
  - The Meyers-Briggs test
  - The types
- Exercises
  - NASA survival kit
  - Questions for Transportation Careers Session

Meyers-Briggs
4 areas of your life

- Where do you get your energy: EI
- How you gather information: SN
- How you make decisions: TF
- How you orient your life: JP

The 4 Temperaments

- Rationals (NT)
- Idealists (NF)
- Artisans (SP)
- Guardians (SJ)

Rationals

- Engineers
  - The architects (INTP)
    - Albert Einstein, Marie Curie
  - The inventors (ENTP)
    - Walt Disney, Catherine II
- Coordinators
  - The masterminds (INTJ)
    - Dwight D. Eisenhower, Ayn Rand
  - The fieldmarshals (ENTJ)
    - Bill Gates, Margaret Thatcher

Idealists

- The Advocates
  - Healers (INFP)
    - Albert Schweitzer, Anne Lindbergh
  - Champions (ENFP)
    - Carl Rogers, Molly Brown
- The Mentors
  - Counselors (INFJ)
    - Mohandas Gandhi, Eleanor Roosevelt
  - Teachers (ENFJ)
    - Mikhael Gorbachev, Margaret Mead

Artisans

- The Entertainers
  - Composers (ISFP)
    - Johnny Carson, Barbara Streisand
  - Performers (ESFP)
    - Elvis Presley, Elizabeth Taylor
- The Operators
  - Crafters (ISFJ)
    - Clint Eastwood, Emelia Earhart
  - Promoters (ESFJ)
    - Franklin Roosevelt, Madonna

Guardians

- The Administrators
  - Inspectors (ISTJ)
    - Harry Truman, Elizabeth II
  - Supervisors (ESTP)
    - Colin Powell, Elizabeth I
- The Conservators
  - Protectors (ISFJ)
    - Jimmy Stewart, Mother Teresa
  - Providers (ESFJ)
    - George Washington, Dolley Madison

Problem solving

- Gather the facts: S
- Brainstorming possibilities: N
- Analyze objectively: T
- Weight impacts: F

Myers-Briggs Personality Types

GUARDIANS	ARTISANS	IDEALISTS	RATIONALS
ISTJ Life's Natural Organizers Rahul Nemani	ISTP Just do it Lashanta Freeman	INFJ An inspiring leader and follower Claire Lehman	INTJ Life's independent thinkers Paul Tan, Jamie Klemmer, Dr. Spring
ISFJ Committed to getting the job done Erica King, Ashley Barnett, Michael Coyle, Brittney Danielle Sherrod, Lashanta Freeman	ISFP Action speaks louder than words Brandon T. Adams, Camille Renee Brown, Ron Moore	INFP Making life kinder and gentler Larry Gene Hawkins II, Ashley C. Swain, Dominique Crain	INTP Life's problem solvers Erick Webster
ESFJ Everyone's trusted friend Erica King, Ashley Barnett, Michael Coyle, Brittney Danielle Sherrod, Lashanta Freeman	ESFP Let's make work fun Brandon T. Adams, Camille Renee Brown, Ron Moore	ENFP People are the product Larry Gene Hawkins II, Ashley C. Swain, Dominique Crain	ENTP Progress is the product Erick Webster
ESTJ Life's Natural administrators Erica King, Shawn Cross, Steven Phillips	ESTP Making the most of the moment Andrea Elizabeth Bell	ENFJ Smooth talking persuaders	ENTJ Life's natural leaders Crystal Lett, Jamie Klemmer, Dr. Qureshi

Introvert

Extrovert

Sensor *Intuitor*

Meyers-Briggs Personality Test

1. At a party do you
    - o interact with many, including strangers
    - o interact with a few, known to you
2. Are you more
    - o realistic than speculative
    - o speculative than realistic
3. Is it worse to
    - o have your "head in the clouds"
    - o be "in a rut"
4. Are you more impressed by
    - o principles
    - o emotions
5. Are you more drawn toward the
    - o convincing
    - o touching
6. Do you prefer to work
    - o to deadlines
    - o just "whenever"
7. Do you tend to choose
    - o rather carefully
    - o somewhat impulsively
8. At parties do you
    - o stay late, with increasing energy
    - o leave early, with decreased energy
9. Are you more attracted to
    - o sensible people
    - o imaginative people
10. Are you more interested in
    - o what is actual
    - o what is possible
11. In judging others are you more swayed by
    - o laws than circumstances
    - o circumstances than laws
12. In approaching others is your inclination to be somewhat
    - o objective
    - o personal
13. Are you more
    - o punctual
    - o leisurely
14. Does it bother you more having things
    - o incomplete
    - o completed
15. In your social groups do you
    - o keep abreast of other's happenings
    - o get behind on the news
16. In doing ordinary things are you more likely to
    - o do it the usual way
    - o do it your own way
17. Writers should
    - o "say what they mean and mean what they say"
    - o express things more by use of analogy
18. Which appeals to you more
    - o consistency of thought
    - o harmonious human relationships
19. Are you more comfortable in making
    - o logical judgments
    - o value judgments
20. Do you want things
    - o settled and decided
    - o unsettled and undecided
21. Would you say you are more
    - o serious and determined
    - o easy-going
22. In phoning do you
    - o rarely question that it will all be said
    - o rehearse what you'll say
23. Facts
    - o "speak for themselves"
    - o illustrate principles
24. Are visionaries
    - o somewhat annoying
    - o rather fascinating
25. Are you more often
    - o a cool-headed person
    - o a warm-hearted person
26. Is it worse to be
    - o unjust
    - o merciless
27. Should one usually let events occur
    - o by careful selection and choice
    - o randomly and by chance
28. Do you feel better about
    - o having purchased
    - o having the option to buy
29. In company do you
    - o initiate conversation
    - o wait to be approached
30. Common sense is
    - o rarely questionable
    - o frequently questionable
31. Children often do not
    - o make themselves useful enough
    - o exercise their fantasy enough
32. In making decisions do you feel more comfortable with
    - o standards
    - o feelings
33. Are you more
    - o firm than gentle
    - o gentle than firm
34. Which is more admirable:
    - o the ability to organize and be methodical
    - o the ability to adapt and make do
35. Do you put more value on the
    - o definite
    - o open-ended
36. Does new and non-routine interaction with others
    - o stimulate and energize you
    - o tax your reserves
37. Are you more frequently
    - o a practical sort of person
    - o a fanciful sort of person
38. Are you more likely to
    - o see how others are useful
    - o see how others see
39. Which is more satisfying:
    - o to discuss an issue thoroughly
    - o to arrive at agreement on an issue
40. Which rules you more:
    - o your head
    - o your heart

Meyers-Briggs Personality Test

41. Are you more comfortable with work that is
    - o contracted
    - o done on a casual basis
42. Do you tend to look for
    - o the orderly
    - o whatever turns up
43. Do you prefer
    - o many friends with brief contact
    - o a few friends with more lengthy contact
44. Do you go more by
    - o facts
    - o principles
45. Are you more interested in
    - o production and distribution
    - o design and research
46. Which is more of a compliment:
    - o "There is a very logical person."
    - o "There is a very sentimental person."
47. Do you value in yourself more that you are
    - o unwavering
    - o devoted
48. Do you more often prefer the
    - o final and unalterable statement
    - o tentative and preliminary statement
49. Are you more comfortable
    - o after a decision
    - o before a decision
50. Do you
    - o speak easily and at length with strangers
    - o find little to say to strangers
51. Are you more likely to trust your
    - o experience
    - o hunch
52. Do you feel
    - o more practical than ingenious
    - o more ingenious than practical
53. Which person is more to be complimented: one of
    - o clear reason
    - o strong feeling
54. Are you more inclined to be
    - o fair-minded
    - o sympathetic
55. Is it preferable mostly to
    - o make sure things are arranged
    - o just let things happen
56. In relationships should most things be
    - o renegotiable
    - o random and circumstantial
57. When the phone rings do you
    - o hasten to get to it first
    - o hope someone else will answer
58. Do you prize more in yourself
    - o a strong sense of reality
    - o a vivid imagination
59. Are you drawn more to
    - o fundamentals
    - o overtones
60. Which seems the greater error:
    - o to be too passionate
    - o to be too objective
61. Do you see yourself as basically
    - o hard-headed
    - o soft-hearted
62. Which situation appeals to you more
    - o the structured and scheduled
    - o the unstructured and unscheduled
63. Are you a person that is more
    - o routinized than whimsical
    - o whimsical than routinized
64. Are you more inclined to be
    - o easy to approach
    - o somewhat reserved
65. In writings do you prefer
    - o the more literal
    - o the more figurative
66. Is it harder for you to
    - o identify with others
    - o utilize others
67. Which do you wish more for yourself:
    - o clarity of reason
    - o strength of compassion
68. Which is the greater fault:
    - o being indiscriminate
    - o being critical
69. Do you prefer the
    - o planned event
    - o unplanned event
70. Do you tend to be more
    - o deliberate than spontaneous
    - o spontaneous than deliberate

2003 Summer Transportation Institute

TEAM BUILDING

The situation described in this problem is imaginary. Your "life" or "death" will depend upon how well your group can share its present knowledge of a relatively unfamiliar problem so that the team can make decisions that will lead to your survival.

1) You are a member of a space crew drawn from several earth countries participating in a United Nations inner-galactic science project. Originally, your vessel was scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties, however, your ship was forced to land at a spot some 300-kilometers from the meeting point. You were unable to notify anyone of your position before the forced landing. None of you are injured and your space suits are intact.

   However, during landing, much of the equipment aboard was damaged, but your group was able to salvage the fifteen items listed on the next page. Since survival depends on reaching the mother ship, the most critical items available must be chosen for the 300-kilometer trip.

   You may assume:
   A. the number of your crew is the same as the number on your team
   B. you are the actual people in the situation
   C. the team has agreed to stick together
   D. you are on the lighted side of the moon

2) Each member of the team is to individually rank the fifteen salvaged items according to their importance to the team's survival. Do not discuss the situation or problem until each member has finished the individual ranking.

3) After everyone has finished the individual ranking, rank order the fifteen items as a team. Once discussion begins do not change your individual ranking.

4) Discuss the data in regard to the objective.

Adapted from "NASA Exercise" in The Dynamics of Human Communication (A Laboratory Approach). Gail E. Myers and Michele Tolela Myers.

STI 2003
TEAM WORK TABLE 1

	STEP 1 Your Individual Ranking	STEP 2 The Team's Ranking
box of matches		
food concentrate		
50 ft. nylon rope		
parachute silk		
portable heating unit		
two .45 caliber pistols		
one case dehydrated milk		
two 100 lbs. tank of oxygen		
stellar map (of moon's constellation		
life raft		
magnetic compass		
5 gallons of water		
signal flares		
first aid kit with injection needles		
solar-powered FM receiver-transmitter		

STI 2003
TEAM WORK TABLE 2

	STEP 1 Your Individual Ranking	STEP 2 The Team's Ranking	STEP 3 Survival Expert's Ranking	STEP 4 Difference Between Steps 1 & 3	STEP 5 Difference Between Steps 2 & 3
box of matches			15		
food concentrate			4		
50 ft. nylon rope			6		
parachute silk			8		
portable heating unit			13		
two .45 caliber pistols			11		
one case dehydrated milk			12		
two 100 lbs. tank of oxygen			1		
stellar map (of moon's constellation)			3		
life raft			9		
magnetic compass			14		
5 gallons of water			2		
signal flares			10		
first aid kit with injection needles			7		
solar-powered FM receiver-transmitter			5		
			TOTALS (the lower the score the better)	Your Score Step 4	Team Score Step 5

Step 6 AVERAGE INDIVIDUAL SCORE add up all the individual scores (Step 4) on the team and divide by the number on the team.		Step 8 LOWEST INDIVIDUAL SCORE on the team	
Step 7 GAIN SCORE Difference between Step 5 and Step 6. If Step 5 is lower than Step 6, gain is "+"; otherwise, gain is "-".		Step 9 NUMBER OF INDIVIDUAL scores LOWER than the team score	

ITS NOTES

- System is …
- Transportation system therefore is …
- ITS has come to mean the use of advanced technologies applied to TS.
- Main objectives to increase efficiency and safety
- Explain how society pays: you have an accident, insurance rates up etc.

ITS Examples

- In car in strange city. You say where you want to go and computer tells you best way to get there from where you are (shortest time)
- May day
- FIM
- AHS

2003 Summer Transportation Institute

Intelligent Transportation Systems

Class Problems

List the components necessary for a successful freeway incident management system.

If one were to construct a freeway with all lanes providing intelligent control, the problem of getting onto and off of the freeway would present a difficult problem. Devise a system that would allow this to happen at entrance and exit ramps. Describe your design using sketches as well as text.

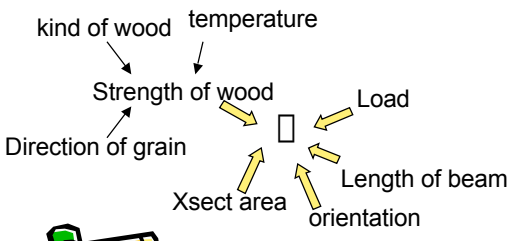
It is not yet practical to provide a whole freeway with intelligent control, however, the City of St. Louis would like to convert the passing lane on I 270 North to intelligent control (leaving 2 lanes for regular traffic). Modify your design from above so that it would work in this situation. Again, use a sketch along with words to describe your ideas.

Purpose today

- Define math models
- What are they used for?
- Examples

Group exercise

Given a simply supported beam (ruler on books), what factors affect deflection of beam?



Strength--E

Orientation, area - - I

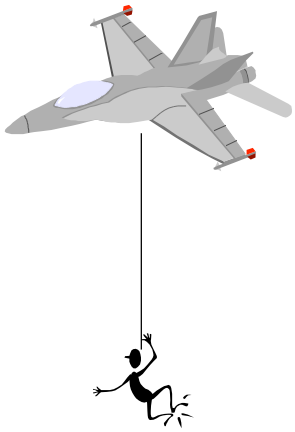
Length - - L

Deflection - - □

Load - - P

Position variables: PL^2/EI

The helicopter wire



The psi concept

Strength of wire = 60,000 psi

Actual stress on wire should be less than or equal to strength. What variables?

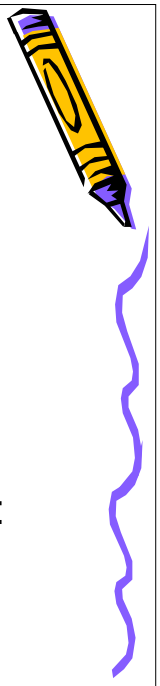
ANS: stress, weight and area

$$\sigma = \frac{W}{A}$$

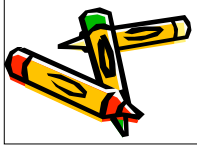
Exercise 2 (answer)

- Part A: weight 150#, Load/Area=stress
- 150/Area = 60000
- Area=0.0025 sq in = = diameter = 0.0025'
- Diameter = 0.056" - - a little less than 1/16"
- Part B: would you be willing to fly 1 mile above the ground to collect your mill?

Engineers' dilemma



- Factor of safety used to assure no failure
  - Too big - will lose contest
  - Too small - will lose contestant
- Common dilemma: min cost vs max safety
- Been around for thousands of years:
  - Hammurabi (2000 BC) - see next page



Code of Hammurabi

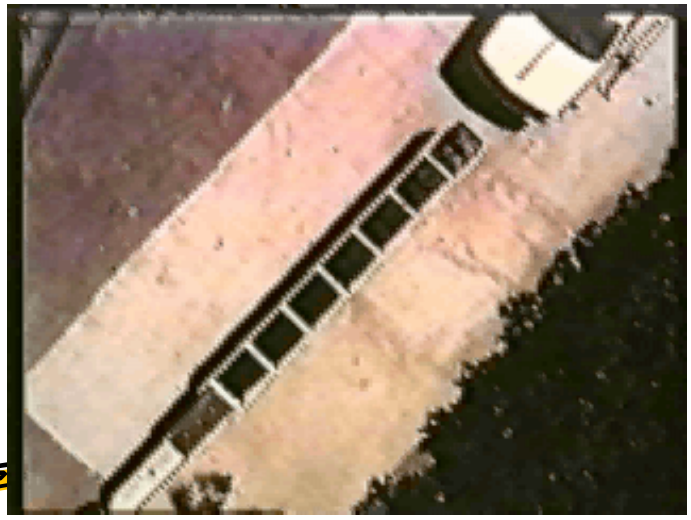
"The Babylonian Laws" G.R. Driver and JC Miles, Oxford Press, 1955, pg 83

- If a builder has built a house for a man and has not made his work sound, the house which he has built has fallen down and so caused the death of the householder, that builder shall be put to death.
- If it causes the death of the householder's son, they shall put the builder's son to death.
- If it causes the death of the householder's slave, he shall give slave for slave to the householder.
- If it destroys property, he shall replace anything that it has destroyed; and, because he has not made sound the house which he has built and it has fallen down, he shall rebuild the house which has fallen down from his own property.

Crash cushions

Crash cushions

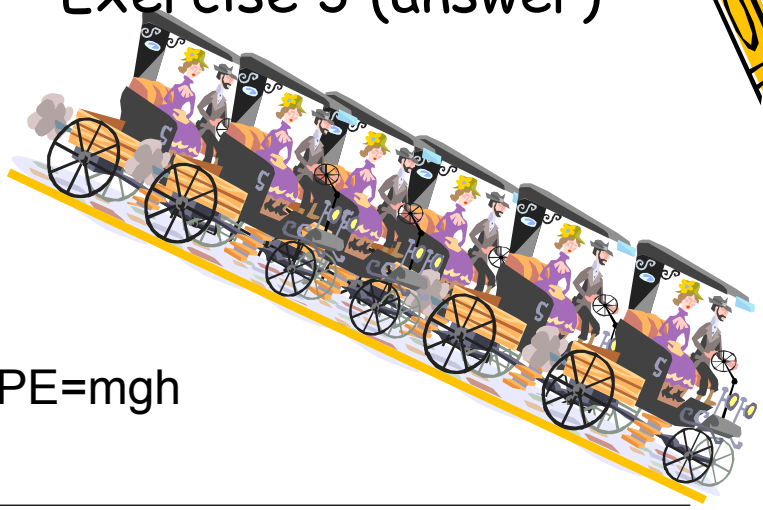
Crash cushions



Crash cushions

- How do they work?
  - Dissipate energy
- Energy - ability to do work
- Two kinds of mechanical energy: PE and KE
- Definition: mass (ability to overcome inertia)
- Do Exercise 3

Exercise 3 (answer)



h

PE=mgh

$KE=1/2*mv^2$

Exercise 3 (answer)

PE=KE

$mgh=1/2*mv^2$

$gh=1/2*v^2$

$v = \sqrt{2gh}$

Crash cushions

- Work - result of application of F over d
- The egg toss - why do you do what you do?
- Energy of egg = energy consumed = Fd
- Same with baseball, do exercise 4

Exercise 4a (answer)

$KE=1/2*mv^2$

$$= \frac{1}{2}\left(\frac{0.5}{32.2}\right)32^2$$

=135 ft-lb

Exercise 4b (answer)

KE=135

= F * 0.5

F=270 lb

Crash cushion design models

- Used to design crash cushions
- Variables include:
  - Mass of traveling object
  - Velocity of object
  - Mass of cushions (in various ways)

Crash cushion design models

- Now let's make it real: given my van and the barrels as described, do exercise 5

Exercise 5a (answer)

$KE=1/2*mv^2$

$$= \frac{1}{2}\left[\frac{4500}{32.2}\right]88^2$$

=541,118 ft-lb

Exercise 5b (answer)

Energy dissipated=
Force x distance

F=9000 lb
Distance = 1.5 ft
Energy=13,500 ft-lb

Exercise 5c (answer)

Number of barrels:

$$\frac{\text{KE}}{\text{Energy per barrel}} = \frac{541{,}118}{13{,}500} = 40$$

2003 Summer Transportation Institute
Math Modeling Exercises

Exercise 1. Group

Given a simply supported beam as described in class, list 3 things that affect its deflection.

See figure in slides

Exercise 2.

Suppose I offered you a chance to win $1,000,000. All you have to do is tell me the smallest diameter steel wire that will hold your weight.

Part 1: Individual
Assume that you weigh 150 pounds, the strength of wire provided is 60,000 psi. What diameter wire do you recommend?

Part 2. Group
To be eligible for the money you must be willing to hang by that wire that you design from a helicopter hovering a mile above the ground. You want to be certain that the wire will hold your weight! Would you be willing to do this? If so, what precautions have you taken to make this wire safe? If not, why not? List 3 reasons.

Exercise 3. Individual

Given Potential Energy (PE) equals Kinetic Energy (KE) for any given object and given that:

PE = mgh and KE = 1/2 mv^2 where m = mass of the object, g = 32.2 ft/sec^2 and v = velocity of the object, find v in terms of m, g and h.

Exercise 4. Group

Mike James, pitcher for the Cardinals, is able to pitch an 8 oz. baseball at 90 mph (132 fps).

a) Find the kinetic energy in the baseball in ft-lb when it reaches that speed.

b) If I were to catch this ball, and typically my hand moves back about 6 inches when I catch it, what force would I feel from this?

Exercise 5. Individual

a) My van weighs 4,500 pounds. Traveling at 60 mph (88 fps), how much energy does it have?

b) Given that a 2 foot diameter barrel crushes down to 0.5 feet when subjected to 9,000 force. How much energy is consumed?

c) HOW MANY BARRELS SHOULD BE USED TO DISSIPATE THE ENERGY OF MY VAN?

Internet Egg Hunt

1. How many vehicle miles did Americans travel on US highways in the year 2000?
2. How many miles of:
    a. public roads were there in the US in the year 2000?
    b. public use airports were there in the US in the year 2000?
    c. Navigable waterways were there in the US in the year 2000?
    d. Amtrak rail were there in the US in the year 2000?
3. How many fatalities occurred on our highways in 2000?
4. How many rail-related fatalities per million train miles occurred in 2000 in the US?
5. What is the Transportation Equity Act for the 21st Century (aka TEA 21)? Provide a brief description to submit
6. Obtain a picture of Interstate 10 and 79th Avenue in Phoenix Arizona
7. List 3 road construction projects taking place right now in St. Louis County
8. Obtain a map of all road construction projects taking place in St. Louis County
9. Find the following information about "Galloping Gertie" - a famous bridge in the state of Washington
    Where was the bridge located?
    What river did it span?
    What caused it to collapse?
    Obtain a picture of the bridge as it collapsed.
10. What president signed into law the interstate highway system and in what year?
11. How many miles was the system originally to include?
12. How much has it cost?
13. Explain the two types of interstate number systems that are used for numbering exits.
    Which one does Missouri use?

14. Describe the Highway Trust Fund - its purpose, how it works, etc. Submit a brief description.

15. Who was Garrett A. Morgan?
    What is he famous for?
    Provide a brief biography of the man.

List of recommended sites:
BTS: Bureau of Transportation Statistics (www.bts.gov) -- use the search engine
http://www.bts.gov/publications/nts/2002/index.html q 1-4
FHWA: Federal Highway Administration (www.fhwa.dot.gov/)
ADOT: Arizona Dept of Transportation - Intelligent Transportation Systems site (www.azfms.com/)
MODOT: Missouri Dept of Transportation (http://www.modot.state.mo.us) - visit the Local Scene
MADSCI: MadSci Network (madsci.wustl.edu) - browse archives and search for Galloping Gertie

Appendix 5

Closing Program

Program
Student Certificates
Awards

Advisory Board

Robert T. Berry
Vice President, Burns & McDonnell

Tricia Bohler
Design Engineer, Jacobs Sverdrup

Jennifer Kuchinski
Design Engineer, Parsons Brinckerhoff

Ray Purvis
RD&T Division Engineer, MODOT

Allen Masuda
Missouri District Office, FHWA

Sherrie Koechling-Andrae
Faculty, Lincoln U

Stephanie Webb
Aviation Education Program Manager, FAA

Sponsors

University of Missouri-Rolla
Missouri Department of Transportation
Federal Highway Administration
Center for Infrastructure Engineering Studies
Jacobs Sverdrup
National Society of Black Engineers

National Summer Transportation Institute

Careers in Transportation
A Universe of Opportunity

U.S. Department of Transportation
2003 Summer Transportation Institute

Closing Banquet

Friday, July 25, 2003

12:00 to 2:30 PM

University Center East

Program
Dr. Gary S. Spring, Presiding

Welcome ..... Dr. Gary S. Spring
STI Director

Greetings from the University of Missouri-Rolla ..... Professor Jerry Bayless
Associate Dean of Engineering

Greetings from the Federal Highway Administration ..... Mr. Allen Masuda
Missouri Division Administrator

Greetings from the Missouri Department of Transportation ..... Mr. Ray Purvis
Missouri DOT Research Division

Student presentations

Reflections ..... a slide show to be presented during lunch

Luncheon

Award presentations ..... Dr. Gary S. Spring and Ms. Lonnajean Yoest
Certificates
Achievement Awards

Special Recognitions ..... Dr. Gary S. Spring

Closing Remarks ..... Dr. Gary S. Spring

2003 STI Graduates

Mr. Brandon T. Adams
Ms. Ashley Barnett
Ms. Andrea Elizabeth Bell
Ms. Camille Renee Brown
Ms. Melanie L. Cosely
Mr. Michael Coyle
Mr. Shawn Cross
Ms. Lashanta Freeman
Mr. Larry Gene Hawkins II
Ms. Whitney Hendrix
Ms. Erica King
Ms. Jamie Klemmer
Ms. Crystal Lett
Mr. Ron Moore
Mr. Rahul Nemani
Mr. Steven Phillips
Ms. Brittney Danielle Sherrod
Ms. Ashley C. Swain
Mr. Paul Tan
Ms. Erin V. Thomas
Ms. Brittanie Autumn Witherspoon

Congratulations!

Appendix 6

Samples of Student Work

Two papers, each, on:
Careers in Tranasportation
Transportation Modes
Leadership

One paper on Diversity
One paper on George Washington Carver
Newsletter
Yearbook
Internet scavenger hunt

Shawn Cross

Careers paper

June 28, 2003

STI 2002

Wow! There was much that I didn't know about the field of transportation. But if I where to pick a career I would like to be an Electrical Engineer working in the Research department of a private company. Here I would develop new and better-integrated systems for traffic signals, Airlines, Railways and many other areas of transportation. How I would get there is a different story.

My career path certainly requires me to go too an Engineering school. Two that come to mind are UMR and MIT both fantastic school that have the well establish Engineering programs. By going to either of these schools and attaining a Masters degree will be hard but worth it. Employers would call me and ask if I wanted to work for them. As an Electrical Engineer I would be high in demand and get paid well. I say this thinking that in the next eight years when I am out of High school and College this slump in jobs will be over.

Some of the companies I would like to work for would be Boeing, Monsanto or Microsoft some of the big corporations of today. In there research departments I would develop integrated systems and the new robots of tomorrow. Robotics is really the field I want to get into because it has so many possibilities that can be adapted to so many things like transportation. When Public buses, trains, and plains are driving not by humans but robots it will be of my doing. That is my career.

Steven Phillips

7-5-03

STI

Transportation Engineering

I am interested in pursuing a degree in Transportation Engineering. Transportation Engineers are involved with the safe and efficient movement of people and goods. Facilities such as airports, highways and railways are planned, designed and operated by transportation engineers.

Transportation Engineering is a study of operating characteristics of transportation modes including highways, railways, inland waterways, airways, and pipelines. Consideration of traffic control devices, safety, system capacity, design of routes, planning of urban transportation systems, and economic evaluation of transportation alternatives.

Various fields of Transportation Engineering include: Highway Engineering, Traffic Engineering, and Pavement Design. Highway Engineering is the study of modern field and office practice in the location and design of highways with an emphasis on right of way, geometrics, economics, earth-work, drainage structures, construction and maintenance. Traffic Engineering evaluates driver, vehicle, and roadway characteristics, traffic control devices, traffic studies, intersection capacity, intersection design, traffic safety, and evaluation of traffic improvements. One must learn the traffic laws and ordinances, traffic engineering, traffic circulation, parking design, and forecasting traffic impacts. Pavement Design is the structural design of rigid and flexible pavements including loading characteristics, properties of pavement components, stress distribution

Camille Brown

Dr. Spring

July 10, 2003

Modes: From Bikes to Cars

The invention of the bicycle made means of transportation more convenient for people. Before the bike was invented, getting around meant walking or riding an animal and was very time consuming. With this new creation moving about became less complicated. People were now given the chance to be mobile and travel a longer distance in a shorter amount of time.

Since air pollution poses a problem and the bike is pollutant free, today people are encouraged to ride the bicycle to commute back and forth. Bicycle safety and bicycle-related injuries are a significant problem in the United States. Cyclists are strongly encouraged to wear helmets and ride cautiously. Due to the invention of the automobile, the use of the bicycle drastically dropped. The bicycle became a symbol of childhood and was seen as a toy and used mainly for a past time.

The automobile, invented by Daimler, was created and made transportation simple and suitable. The car is considered the most revolutionary invention for the average Joe. People were given the opportunity to travel great distances in a small amount of time, giving us greater mobility.

By being fueled by gasoline, the automobile is a major source of air pollution and contributes to problems such as global warming. That is why bicycle are now being encouraged once again. The automobiles safety is a factor because thousands of people die each year in auto-related accidents. The new click it or ticket law is being heavily enforced to ensure that passengers use their seat belt.

Larry Hawkins II
7/8/03
Modes of Transportation

There are many modes of transportation such as: cars, buses, and boats, However, there are two specific modes of transportation that I believe to be very influential in society. To me, airplanes and railroads compare and contrast in their well-being of society.

In the earlier days of society, the railroad industry was one of the most important industries. Whenever there were goods or people that needed to be shipped to a certain part of the country, railroads were used. In contrast to the slow and muddy roads, railroads shipped these items with extraordinary speed. Not in earlier times, but as time progressed railroads became very secure for the cargo and the driver. Railroads used coal for fuel and they used a vast amount of it also. In the 1920's one-fourth of all mined coal went to feeding the railroads. Also in the 1920's the railroads provided 2 million employees with jobs. Another important contribution that the railroad industry provided was that the industry created a time zone system. This system developed into a way to tell how long away in time a destination was instead of how far away in miles a destination was. Railroads were extremely important in the past days of our society.

As we progressed into our modern day, a new mode of transportation began to replace railroads. This mode was the airplane. The airplane increased transportation times of cargo. This increase in time gave the airplane industry an edge on railroads. But just like the railroad, airplanes use an enormous amount of fuel, but this fuel is gasoline instead of coal. Unlike railroads, airplanes move through the air instead of over the ground. Also, the airplane has a lower fatality rate than the railroad does. In our day and age, airplanes have become extremely important.

Erica King

STI 2003

Dr. Martin Luther King Jr.

Someone whom I feel is a great leader is Dr. Martin Luther King Jr. I didn't just pick this person because his last name is the same as mine or because everyone knows him and what he has done. Also, I didn't pick him because he is black but, because I feel Dr. King is a great leader.

To prove this, some characteristics I feel make him a great leader are: his Christianity, leadership, his determination, his caring for others, and last but not least his love. All these things and much more describe and are characteristics of Dr. King.

Therefore, as a leader, Dr. King led. He lead millions of people on a determine walk to there freedom. Lead them to believe what was true, which is that they are equal to everyone of the world. Lead them to be proud of their skin and their people. Lead them and cared for them with his determine struggle through those who doubted him and those who opposed him. He not only cared for his family but, also, other families: Whites, Blacks, Indians, Chinese, Mexicans, and so on. He cared and loved these people. He loved them as his own child, as his own family and even those who tried to stop him, he still loved them.

Dr. King was determined to make others feel the way he felt, the way we should feel. He was determining to gain what was rightly his, the freedom that God gave. He had faith that some day, even if he didn't live to see that day, but some day, the world would be equal. He had faith that, only the Lord could have given him. This faith encouraged, the characteristics of: love, caring, determination, and the leadership he was blessed with. This faith lead him to believe that

Melanie Cosely
July 10, 2003

Leadership – My Parents

To lead is to show the right way by going in advance. Showing leadership means exhibiting guidance and/or direction to others in a course. I feel that my parents are great leaders.

I feel that my parents show great leadership because they encourage me to be a positive and ambitious person. My parents are like the fuel which keeps me working or energetic. My parents are pro-active, encouraging and guiding forces in my life. I feel as if my parents lead the way in many cases and then leave me to soar on my own. My parents also teach me and push me to be all that I can be. I feel that all parents are great people because they just want us to be good and prosperous young adults. My parents want me to have more experiences and opportunities than they had. Parents want their children to be great successful business leaders of America in the future.

When I am undecided about my possible future objects, my parents give me options. After I choose a specific direction they lead an d direct me along my journey. They also encourage me to do my very best. My parents help and instruct me throughout my school work. I thank my parents for always being there to help and guide me into the right way.

In this world leaders are needed. Without leaders people would have no positive direction to be lead. Leaders make this world a better place to live for everyone.

Ashley Swain

July 10, 2003

Diversity in the workplace...

Diversity in the workplace plays a vital role in any business of any area on interest. To me, there are two main reasons why this is true. Not only does diversity in the workplace allow for different aspects and opinions in a team effort, it also creates a reality of the world outside of the workplace

When I say that it helps the team effort, I mean that it allows all opinions from different people's perspective to help come to a common resolution that everyone can benefit from. For example, if my workplace was full of African-American people, our resolution may not allow Asians to benefit from anything. If my team was full of girls, our strategy may be conflicting with what boys can and can't do. With this in mind workplaces should be diverse to not only race, but to gender also. All these perspectives and opinions will help benefit everyone even if we all must sacrifice a little of something. The positive in a situation of this kind will always outweigh the negative.

I also believe that a diverse workplace creates a small microcosm of the real world. In any state of choice, you will notice that they are not full of all blacks, whites, Mexicans, Chinese, or all of any one race or ethnic background. This country, for instance, is full of different colors, races, genders, and backgrounds. A diverse workplace represents the rest of the world coming together to reach a common goal. The main question in any act of life is how can we get this done whether it's building a ship, evacuating a plane, finishing a road by a certain date, or just doing a class project where everyone can play an effective role. Without diversity, we are all blind to the next person's perspective and no one will ever be satisfied.

Outstanding work!

George Washington Carver: Divine Inspiration

Andrea Bell

As we live our lives and become successful, we wonder, what will I be remembered for? Will you make some contribution to society, will your life influence the life of another? Can your life be measured by your success? The legacy of George Washington Carver lives on not only through the inventions he left the world, but his influence on the way those around him lived their own lives.

Born into slavery, January 1, 1860, no one expected Carver to achieve much in life. The period of the Civil War was not a promising time for African Americans. Constantly surrounded by abuse and hatred against African American, like himself, Carver had to struggle to get the things that most are guaranteed just by being born. Carver and his family had to make many sacrifices to get him an education. He saw the opportunities in his life as a blessing from God, an observation that would stick with him and his studies for the rest of his life. He moved quickly away from the farm life he was brought up in, into a life focused on education and learning. His parents taught him at an early age of the importance of nature, learning, and self-sufficiency. Though denied admission several times because of his race, Carver never gave up on his goals of obtaining an education.

As Carver spent more time in and around nature, it became more than a hobby. Nature became a passion and need in his life. Able to identify and find comfort in nature was an inspiration and guide to how Carver would live his life and what would be important to him. Though nature was a passion for Carver, he also enjoyed art and

Freeway to Knowledge

MoDOT: Out of The Mud

By Andrea Bell

The Missouri Department of Transportation, formed in 1979, is responsible for many modes of transportation available in Missouri. MoDOT is responsible for most of the first roads to be paved rather than made of dirt. MoDOT works with highway systems, airports, waterways, and the railroad systems, crucial to the state of Missouri. MoDOT, a sponsor of the STI program, has played an important role in our development in engineering this summer.

Here at the Summer Transportation Institute, we focus on the many systems of transportation. Our partnership with MoDOT gives us the opportunity to learn about these systems hands on. During the first two weeks of STI, we have had multiple interactions with MoDOT, whether it be in panel discussions, presentations, or our actual visit to the MoDOT headquarters located in Jefferson City, MO. We were able to see the Intelligent Transportation System (ITS) that we heard so much about. ITS is a center that can regulate and keep a close eye on the flow of traffic at different busy intersections. The main purpose of ITS, as described by the MoDOT website, is to "improve roadway efficiency and safety through a vast communications network." Through the development of ITS, people worldwide are able to download the highway conditions across regions of Missouri such as St. Louis, Branson, and Kansas City.

We have learned many things about what goes into Transportation Engineering. We have been given a description and overview of the many jobs that go into making the highways and roadways sage and manageable. MoDOT has put together an incredible team of workers, who with the help of the public and higher officials, have worked to provide Missouri with excellent transportation options.

TJ Up Close

Dorm Life

By Brittanie Witherspoon

After hours it was not unusual to find students hanging out in the lounge, learning to cut hair, or just relaxing in their rooms watching their home brought television. Dorm life turned out to be what the STI students lived for. There were numerous things to do in the Thomas Jefferson dorms, many people to meet, and countless games to play; including Life, Twister, and Monopoly. If STI students were lucky enough, they were able to catch the pool open on a really hot day, play ping pong, or get the big screen television for a game of James Bond: 007.

Living in the "TJ" dorms was like having an apartment of my own in the same building with all of my close friends. Between playing hide and go seek and dominoes with the other TJ residents, time passed so quickly that before I knew it, it was midnight curfew; everyone had to be on their own floor. The boys spent their after hours (some up to 3 in the morning) playing video games, while all the girls got together in the lounge for "girl talk," where we shared stories of our most embarrassing moments, and reminisced about our families at home.

Living in the dorms gave many STI students an outlook on college life that we would not get from the classroom. Many of us had to learn how to manage our time. This seemed to come naturally to many of us, for there were only a few students in the computer lab, typing a last minute essay for Dr. Spring. Others needed to gather their discipline when someone ordered that 11 o'clock Domino's large, $5, pepperoni pizza. We made the most of their five weeks by getting to know the good about each other. We became so close from living together that we knew about the crushes, we knew what made each other tick, and we even sensed when a floor meeting was good or bad. Dorm life on the Rolla campus connected us all beyond friends but as family.

The Cafeteria

By Melanie Cosely

The cafeteria food at the University of Missouri - Rolla offers nutritious and appetizing meals. Going from eating home cooked meals to college cafeteria food can be difficult, but we had to adjust. My favorite meal is breakfast. For breakfast the cafeteria offers scrambled eggs, bacon, sausage, fresh fruit, cereal, waffles and syrup, milk, and a variety of juices. Although this may sound delicious one must choose what to eat very carefully. Lunch and dinner consist of fresh salads, hamburgers/cheeseburgers, pizza, spiced chicken, ham/turkey sandwiches, and beverages of one's choice. Although the dinner is nothing like at home, it's edible.

On some field trip days the cafeteria prepares continental breakfast and bag lunches for us. I would like to thank the cafeteria staff at Thomas Jefferson Cafeteria for taking time to do so.

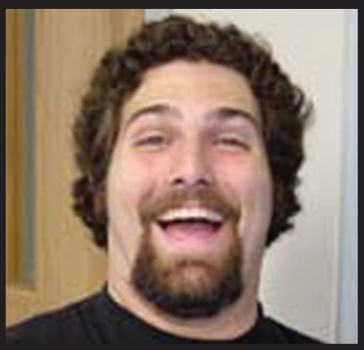
Meet the Counselors

Dominique was born in Oklahoma City and later moved to Kansas City where she resides now. She attended STI last year as a junior in high school and came back this year to be a helping hand. Dominique is an outstanding counselor, but also she is a friend to all of the people in the camp. Dominique fits in with the camp, and she has her own way of doing things. She is a great leader and shows many of these qualities.

Claire was born in St. Louis where she still resides. Claire also attended STI last year as a senior in high school so she knew how good this camp was and came back this year to help in any way she could. Claire has great skills, such as being helpful when we don't understand things, and she always does the best she can. Claire is a wonderful and astonishing person. Maybe it is just her way of doing things, but whatever it is we just hope that she keeps it up.

Samantha is our eclectic counselor that wears the brightest fingernail polish ever created! Samantha Whitwell is a native of Ellsinore, Missouri and is currently enrolled as a UMR student. She majors in history and education and plans on finishing in December 2004. When Samantha learned of STI, she thought it would be a wonderful experience. For this to be her first year participating, Samantha has done an awesome job as counselor. Her energy and excitement is appreciated.

Shannon seems to be the cool and composed counselor of the bunch. Shannon Foil is a student here at UMR. She finished her undergrad in 2002 with a major in civil engineering. She continues her education as a grad student in transportation engineering. This is Shannon's first year working with the Summer Transportation Institute and thinks of STI as a great opportunity-one she wishes she could have had. Shannon also loves the enthusiasm the campers have for the program and the interesting field trips we have taken.



Erick, also known as Webby, is a down-to-earth guy well-known for his t-shirts with wacky messages. Erick Webster is from Springfield, Missouri and is a student at UMR majoring in history and education. Erick will be finishing school in May 2005. Erick contributed to STI last year and returned this year because it was tons of fun. Erick likes the opportunity to travel and the camper's sense of fun.

Staff Interviews

Ms. Lonnajean Yoest

Q: When and how did you develop an interest in computers?
Yoest: I developed my interest when I was 13 years old--my parents bought an Apple IIe that year. I've been interested ever since.

Q: Will you be making any changes to the program when you take over STI next year?
Yoest: Right now the schedule is pretty full, so I want to allow more breaks. I also would like to spend more time on the newsletter and get more student feedback.

Q: What are the biggest challenges you have faced in helping with STI this year?
Yoest: Money and time. Also, learning about the program in such a short time.

Dr. Gary Spring

Q: When and how did you develop the STI program?
Spring: Five years ago, in response to a government need for transportation-related programs.

Q: Do you enjoy teaching STI and will you continue in the future?
Spring: STI is my favorite program, and even though I will be leaving I will continue the program in Boston.

Q: What is your most interesting STI memory?
Spring: I remember in our first year when I had student who was very uninterested in class and even bounced his basketball in class. One day we had a field trip and none of the students understood how to solve the logistical problems except for him. It really surprised me.

Q: What are your words of wisdom for this STI class?
Spring: Go to college, study hard, and don't screw around but have fun.

Dr. Jeff Schramm

Q: When and how did you develop an interest in history?
Schramm: I always had an interest in history, but it developed in my classes at UMR. I originally majored in aerospace engineering.

Q: Who inspired you?
Schramm: Bob Post. He was the curator of the National Museum of American History, and I've met him a few times.

Q: Do you enjoy teaching STI and will you continue in the future?
Schramm: I'm having a lot of fun teaching STI, but I do not know if I will continue. If they offer me the job again I'll take it.

Q: How does STI differ from your college classes?
Schramm: It's much more condensed. STI students don't differ much from college students except in attention span.

Eyes on STI

MISSISSIPPI

Crystal D. Lett is a 17 year old senior from Moss Point, Mississippi. She will be graduating from Moss Point High School where she is active on the Lady Tiger basketball team. After high school, she plans to attend Clark Atlanta University and major in business management while hoping to one day become the CEO of her own company.

MISSOURI

Shawn Cross is a 15 year old sophomore from St. Louis, Missouri. This year he will attend Metro High School where he is active in sports. In his spare time, he likes to take karate, play video games, and play with robots. After high school, Shawn wants to pursue a career in Electrical Engineering.

ARKANSAS

Lashanta Freeman is a 17 year old senior from Eudora, Arkansas. She will be graduating from Eudora High School where she is active in Honor Society, Beta Club, OES, Varsity Basketball, Varsity Softball, and the marching band as a majorette. In her spare time, Shanta likes to sing and dance. After high school, she plans to major in Psychiatry while one day hoping to be a well-known psychiatrist.

VIRGINIA

Melanie Cosely is a 17 year old senior from Richmond, Virginia. This coming school year, she will be graduating from Lloyd C. Bird High School where she participates in FBLA (Future Business Leaders of America) and TSA (Technology Students Association). After high school, Melanie plans to attend North Carolina Agriculture and Technical State University and major in Civil Engineering.

TEXAS

Paul Tan is a 17 year old senior from The Woodlands, a small community north of Houston, Texas. He will be graduating from the "John Cooper School." With MIT as his top choice, Paul plans to major in either Computer Engineering or Computer Science.

INDIANA

Camille Brown is a 16 year old junior from Terrehaute, Indiana. This year she will be attending Terrehaute South Vigo High School. In her spare time, Camille likes to dance, dance, play the piano, and did I mention dance. After high school, she plans on attending college and considering engineering as her major.

The Challenge Center

By Erin Thomas

Throughout our time here at STI, we visited many places. Our trips to MoDOT in Jefferson City and our tour of Boeing and the TWA expansion in St. Louis were exciting, but the one that stood out the most for me was our trip to the Challenge Center in St. James.

After spending time stretching, we began our first exercise, which was a team building activity. The object of the game was to get the whole team through a turning jump rope without getting hit. If one person was hit, the whole team would have to start over. It took us a few tries, but we finally got the hang of it. After completing this activity, we divided into two groups to work on more team building activities. My group had a course that consisted of a rope and a wooden platform. We had to work as a team to get everyone to swing across to the platform without touching the ground. The other team's course was to use five hanging tires to get from one tree to another without touching the ground. The challenge in each course was to strategize as a team to complete each mission.

For the final part of our trip, we got back together as a team for a wall climbing activity. We were given the mission of getting our whole team to the top of a wall with some restrictions. One of our major set backs was that two of the most prominent leaders of our group were not allowed to talk. Even with these restrictions, we were successful. After we completed this task, we had the chance to do rock climbing or a high wire activity.

Overall, I believe this trip was fun. Even though it was a challenge for everyone, it taught us the value of teamwork.

STI participants work together to boost up team members at the Challenge Center.

Leadership Essay

By Brandon Adams

Many characteristics define what makes a great leader. Great leaders are typically committed to their goals and strongly devoted to those who look up to them. They realize the responsibility that they must accept, and the duty that they carry out for all. They step up in times needed and provide a strong hold on to which others can build upon. They work hard even through toughest of times so that in the end a brighter light will break through the darkness. Ultimately revealing what hard work and perseverance can accomplish. Great leaders also know that how to sacrifice themselves for all mankind rather than thinking selfishly.

Personally, I chose these traits, because they most accurately describe a person who has been a great leader throughout my life. This person is my mom. Every since day one, I've admired her as the ultimate leader in my life. I remember the days when others would tell her that she was wrong or that she could never do something right. Rather than letting her head hang low, she would continue on, letting nothing stand in the way of the goals she had set before her. She works hard through all the blood, sweat, and tears that come with being a leader. Even the fact of being a single black mother never slowed her down. She worked hard to provide the needs of her family, even if it meant to sacrifice her own needs to ensure that her children would grow strong and prosperous. During the times that I feel insecure about things, my mom can find the time out of her busy schedule to encourage and counsel me so that I too, can continue to go on as strong as she does. She always provides me with the firm assurance that nothing will go wrong as long as I can continue to fight back. She also helps me point out that at the times when it seems that the world has turned its back on me, more than likely I've probably turned my back on the world. She always knows how to balance her time between being a mother and being a leader. That is why my mom is such a great leader to me.

My mom works hard and perseveres through all her tasks and goals. She knows that in order to be successful first things must come first. She acknowledges that in order to improve mankind she must bring others along with her to rise to the top, because what good is it to rise to the top and to oppress those who you left behind in a rut. My mom takes much pride in realizing how much she has influenced people throughout the years, but also realizes that at times even she can use a little help. My mom holds her head up high and proud, while at the same time remaining humble to those around her, because she knows that it's hard to become great on your own.

Career Essay

By Paul Tan

Based on the sessions I have sat in on so far, a transportation-related profession that interests me is a career in civil engineering--more specifically, work that entails any form of computer-aided design, such as highway design.

A job such as this would attract me primarily because of the focus on ever-changing work and projects. It would be involved with the technological sector as well, with the integration of constant new developments. One thing I loath above all else is being stuck in a stagnant environment. Second, working in such a job would often mean contributing to the development of works that would help someone, somewhere, eventually. As with many other jobs, it would mean helping to serve others. The pay might not be extraordinary, but it would be sufficient, and there would always be opportunities for advancement. Finding a job within the private sector would also improve the wages, though it would mean a tradeoff of the extra benefits and the flexibility of a government job. Furthermore, such a career could provide many opportunities for travel both within the United States and, of particular interest to me, travel abroad.

If I decided to pursue such a profession, I would aim to complete at least a Masters degree in civil engineering. I would also make sure to enroll in the requisite courses, focusing more on those related to mathematics, as well as a few more in computer-aided graphic design. It would also be useful to complete a few business courses in order to provide for future advancement. In addition to this, work experience would prove extremely useful, such as training in project management experience.

While I currently intend to keep all my options open, if I do look into transportation as a profession some time in the future, from what I have learned thus far in the program, I would be most interested in entering a design-related position in civil engineering.

"WE ARE ON A MISSION"

Rahul Nemani

I want to be more diligent and to persevere, and be a better son by cooperation with my parents. I will judge myself before I judge others to gain a better understanding of others. I need to be be more organized and proactive. When these events occur I will have reached my goal.

Assistant Editor and Reporter

Brittanie Witherspoon

My mission is to use my skills to the best of my ability. I plan to stay true to myself through all adversities. I want to leave a legacy as an intelligent woman who had the best interest of her family before herself. I want to remain a respectful, tactful, young lady with so much class.

Reporter

Larry Hawkins

I plan to learn all I can. I want to be the mentor who everyone comes to. I want to become a leader who can make the best of any situation. Wherever I go, I want to leave a positive lasting impression on whooever I touch. I want to be remembered for how I used my personal qualities to help others. I live to learn, and with my acquired knowledge, I will live to help and lead.

Art Director

Crystal Lett

My mission in life is to be the best I can be. I want to be remembered by what I did for society. I want to live up to all my expectations in life. I want to establish a goal and complete it without any struggles. My mission in life is to do what God has planned for me and more.

Graphic Artist

Camille Brown

I vow to live an honorable life, pleasing to both my heavenly father and my family. I aim to be honest, sincere, and maintain my integrity. I pledge to be an obedient daughter, a kind sister, an understandable friend, and a diligent and successful student.

Assistant Editor

Lashanta Freeman

My goals in life are to become very successful by strengthening my weaker areas of skill in order to be a better, more well-rounded person in the future.

Graphic Artist

Shawn Cross

Well my mission is that I hope to achieve high levels of physical and mentalabilities. Through hard work and reflecting I hope to achieve these goals. I hope to attend MIT and graduate as an Electrical Engineer, specializing in the field of robotics. In life I want to live in New Zealand with my family.

Graphic Artist

Paul Tan

My mission is to achieve any goals I set for myself, listen with an open mind and an ear, learn, define a role for myself in society, and experience as much as possible.

Graphic Artist

Ashley Swain

My mission is to acquire all of the skills required for my personal success and for my community. To meet this challenge, I involve myself in comprehensive educational programs that are available to help meet my needs and those that are open, concerned, and progrssive toward those needs.

Reporter

Brittney Sherrod

My goal in life is to be me at all times. Living up to my expectations is the most important issue in my life. Gaining knowledge and learning from my mistakes is the key to success, and that's what I want to manage.

Graphic Artist

"WE ARE ON A MISSION"

continued

Andrea Bell

I hope to accomplish many things in life, but my main focus is to be successful doing whatever it is I feel will make me happy. I hope to reach this goal and remain focused on what's important in life-being humble, honorable and respectful to those around me.

Reporter

Michael Coyle

My mission is to improve my skills, learning habits, and my overall character. I plan to gather as much information as possible in order to become knowledgeable. My main mission is to be able to move on to the next level of learning after this program is over.

Graphic Artist

Melanie Cosley

My mission is to always do my best and do what I am supposed to do. I will consider consequences before acting and know that I am accountable for those actions. I seek to take time every day for reflection, to realize what I learned and what I should learn more about. This way I can say thank you and give myself a pat on the back while looking into what I need to improve upon.

Reporter

Brandon Adams

My mission is to be the best that I can be while encouraging others around me to do so as well. I hope to leave a positive influence on all who look up to me wherever I go. I hope to encourage others not to follow a set path, but to learn how to create their own paths to happiness. My legacy is to be remembered as one who loved to help others, as well as one who never let his struggles stop him.

Lead Photographer and Graphic Designer

Erica King

I will love myself no matter what anyone else thinks or says. I will do what I can and then work harder to make it better. I will take in all knowledge. I will look at things in more than one way and won't judge. I will have a positive balance in all things.

Graphic Artist

Erin Thomas

My mission is to learn more about transportation.

Reporter

Ronald Moore

I vow in life to be a good person and to achieve all my goals. All I really want to do is make a difference and try to be the best person I can be. I like helping people to the best of my ability, and I will try my best to do this within reason.

Reporter

Jamie Klemmer

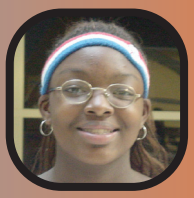
My mission in life is to make my part of the world happier by being a loving daughter, a compassionate neighbor, a trustworthy friend, a hard-working student, an encouraging member of my faith family, and honest and friendly to all people.

Managing Editor

Steven Lontreal Phillips

I vow to achieve every goal set before me. My goals will be accomplished by doing whatever it takes within ethical standards to reach my set targets. My obedience and faith in God will allow me to be a leader for others and continue to take life to the next step without struggling for success. I will always strive for excellence.

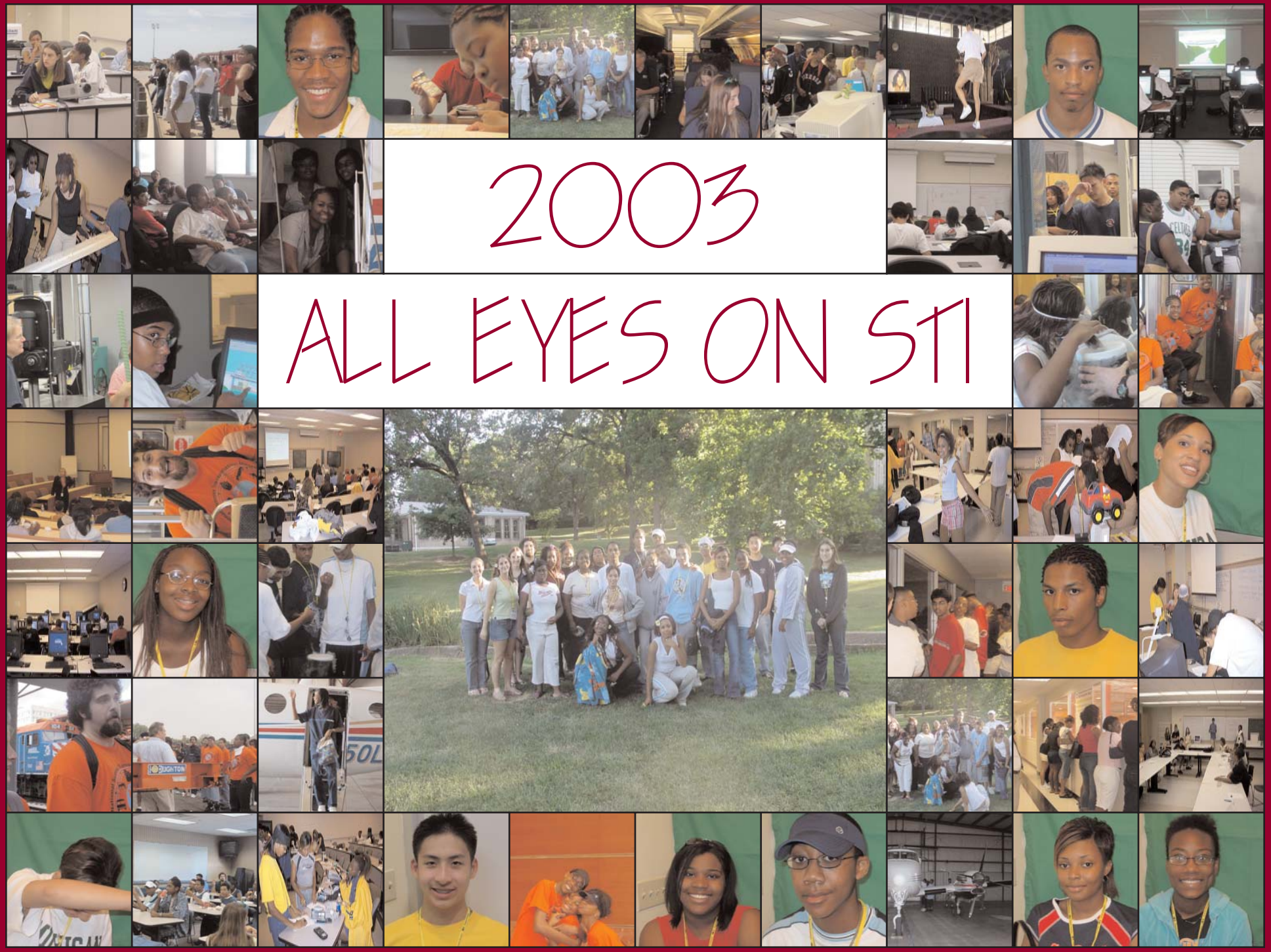
Graphic Artist



Ashley Barnett

The career I chose for life is becoming a successful business woman. I would like to open a nationwide dancing company called Renee Dancers are Real Dancers. I plan to go to college somewhere in the south and obtain a degree in business, but also study theater and dance.

Graphic Designer


2003
ALL EYES ON STI

Claire Josias Lehman

"Claire Bear"

STI Counselor

Hometown: St. Louis, MO

UMR Freshman: Chemical engineering

E-mail: cjlb6e@umr.edu

My most memorable STI moment was tripping and rolling dowm the hallway at the St. Louis Science Center. Luckily, the only witnesses were from STI!

I'm free but I'm focused

se connais

the best part was the trip to chicago. 13 people in the hot tub. thats scientific

DOMINIQUE

Dominique Crain
03 09 86
Olathe, KS
2004
kawaii_kookie@hotmail.com

Success is how high you bounce when you hit bottom.

Melanie

"Sweetie Pie"

Lyna Cosely

L. C. Bird High School
Richmond, Virginia
Senior

Age: 17

lyna804@aol.com

Superlatives: Sweetest

Most Memorable Moment: When we were sitting in a presentation to Public Transportation and Paul was playing with a paper clip and the outlet. I'm sure you can guess what happen!

Dreams: I would love to become a successful civil engineer and work in a large city.

Mei Mei

Shorty Shorty Shorty Shorty Shorty Shorty Shorty Shorty Shorty Shorty Shorty Shorty Shorty

Name
Erin
Age
16
hometown
Arkansas
HIghschool
Mcclellan
year of grad
2005
e-mail
www.eirn__thomas@yahoo.com

Jamie Klemmer

"I loved it when we visited Boeing and were able to learn about how they make the planes."

Natural Born Leader

St. Louis

11/26/85

Nerinx Hall

Class of 2004

Smilz4all@AOL.com

Voted Miss STI

"My favorite STI memory... Probably when we went to Joplin. I might become a truck driver."

Cool guy with fro

Springfield

1/9/82

University of Missouri-Rolla

Ewebs@UMR.edu

Erick Webster

SHAWN CROSS

Age15
Birthday: March 16 1988
Town: St.Louis Mo.
Year of Grad: 2006
E-Mail: scsilver@prodigy.net
Hobbies: Anything athletic-
Fishing, robotics,drawing,
Flirting, video games,
MetroHigh School
E-Mail Me

STI*2003

Steven Steven Steven

From the STL

Age:16
Full Name:
"Steven Lontrel Phillips"
High School: Rockwood Summit
Reppin' the class
2005*
My E-mail addresses:
S_playa2k3@hotmail.com
Splaya2k2@aol.com
My favorite STI Moment: Shawn slipped and fell on the wet lounge floor
Phrase: Pretty Boy
Superlative: Biggest Flirt

Ashley Renee' Barnett
A.K.A. "Clueless"

age: 15

birthday: June 5, 1988

home town: st. louis, mo

high school: university city high

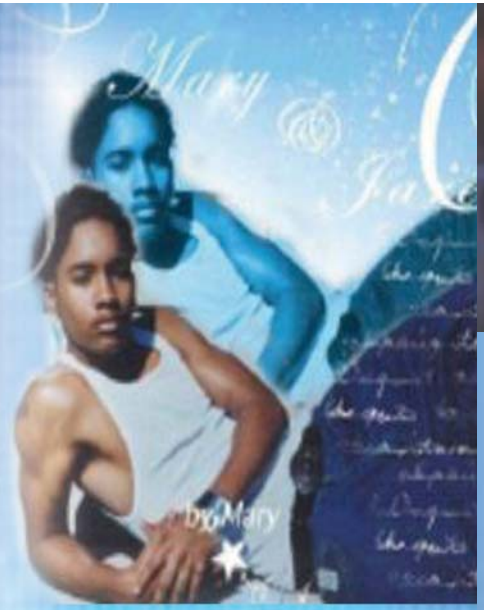
year of grad.: 2006

e-mail adress:stl1dyme314@aol.com

hobbies: dancing, singing, playing volleyball and basket-ball, listening to music, talking on the phone,hanging out with friends, and act a fool

famous qoute: "hating gets you no where."

E-MAIL ME PLEEZ!!!!!!!!!!!!!!!!!!!



Voted
"Most Likely to be Famous"

LaShanta Freeman
A*K*A Snuggles

age:17

birthday: Sept. 01, 1985

home town: Eudora, AR

high school: Eudora High

year of grad: 2004

e-mail: lashanta_2004@blackplanet.com

famous qoute: Put god first and everything will fall in place.

My dreams are to be very successful in life and to be confident and do my best in everything I do.

Voted
"Best All Around"

Multi-

Talented

Multi-Talented

Erica King
louyboo@yahoo.com
St. Louis,Mo
Metro High School
Most memorable moment: When I got my dance on at the party that homegirls Camille and Whitney threw, in the basement of TJ.

Multi-Talented

Talented

Best
Singer
"Debator"

Multi-

Camille

aka
(Light Bright)

(I'm not photogenic)

Camille Brown
16 years old
Terre Haute, IN
class of 2005
milliesue01@yahoo.com

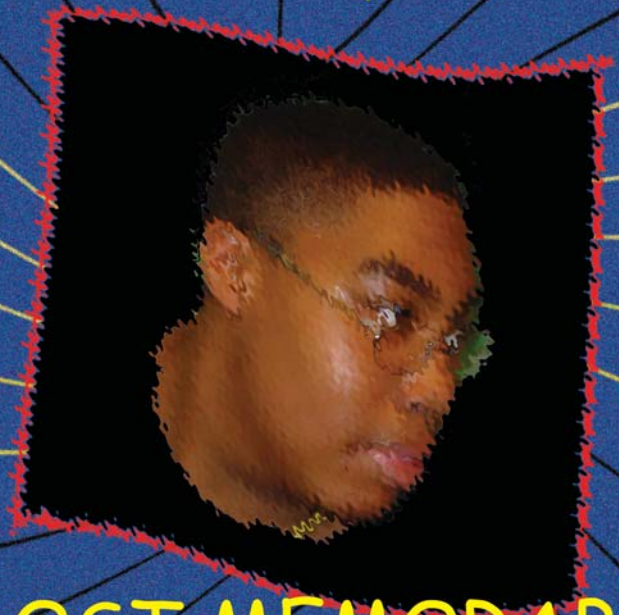
My most memorable moment was when Whitney and I threw a spur of the moment party that was a success!

RONALD MOORE

STI3

C-DUB

ST. LOUIS, MO



MOST MEMORABLE MOMENT

WHEN MAC HIT THE PARKED CAR

Voted: Most Athletic

Class of 2004

"BIG MIKE"

Clayton High School

My most memorable moment is going the wrong way down a one way street.

St.Louis,MO

Email ME at:
BigMCC123@aol.com

Brandon T. Adams
aka "Too Tall"

"Goofy"

Class of
2004

Voted: Best Hair

Luther High School
North

My most memorable
moment is when Erik
and Mac kept
falling through the
tire swings

St. Louis, MO

too_tall04@yahoo.com

ANDREA BELL

"Anna Mae"

Most Helpful

Hometown: St. Louis, MO.
High School: MICDS
Junior, 2005
email: astar2005@hotmail.com
memorable moments:
Paul's paper clip fire

CHYETAL

a*K*a* mIsSiPpI

"0 4"

17 YeArS Old
AtTeNdS MoSs PoInT HiGh

HoBbIeS:sInGiNg,DaNcInG, gOiNg tO tHe MoViEs, and DrIvInG.
Voted Best Dressed
Most memorable moment was when Steve and I was talking and he ran into the water fountain.
Miss_1Pimp@blackplanet

Brittney Sherrod
A.K.A.
"Crazy Dancer"

16 years old

Born: Nov.10,1986

Hometown:
Moss Point, MS

Attends:
Moss Point High School

Year of Graduation:
2005

Voted "Camp Clown"

Biggest Inspiration is
Aaliyah D. Haughton

Likes to play basketball, dance, write and listen to music, and hang out with friends

Email: deuce_deuce16@blackplanet.com

STJ * 2003

Most Memorable moments was waking up to see my friends everyday

Larry Gene Hawkins II

"Knees & Elbows"

Hometown: Pascagoula, MS

School: *Mississippi School for Math and Science*

Year of Graduation: *2005*

Email me @: *daskyhawk1986@aol.com*

Most Memorable Moment: *We went to the CFI trucking headquarters in Joplin, MO and when we came out, Steve wasn't looking where he was going and he ran into a light pole.*

Favorite Quote: "Is that a fact?"

Voted Most Ambitious

2003

Brittanie Witherspoon

"Dancing Queen"

Hometown: St. Louis, MO

School: Metro Academic and Classical High School

Year of Graduation: 2004

Email me at: Brittanie20@aol.com

Most Memorable Moment: When Crystal attempted a cheerleader kick in her socks, and slipped on the floor.

Favorite Quote: "Minding my business!!!"

Voted Best Smile

Rahul Nemani

Voted: Most Likely to be a politician

Year of Graduation: 2005

Hometown: St. Louis

High School: Mehlville Sr. High

E-Mail: sti1@umr.edu

"Jr. Politician"

Favorite STI Memory: Swinging on the rope at the universal challenge course.

Paul Tan

class of '04

resident of Houston, Texas,
the John Cooper School.

MOST MEMORABLE STI MOMENT
-MELTING PAPER CLIPS IN POWER SOCKETS

'electrifying'

(most likely to be an) engineer

Hometown: Ellsinore, Missouri
Education: Undergraduate student at University of Missouri-Rolla (Graduate December 2004 - Yipee Skipee!)
Most Memorable STI Moment: See quote below!
My hopes for you: I hope this opportunity has helped you to realize that there is so much out there and you can do ANY THING you set your mind to...Always remember to set your standards high while enjoying the simple things in life -- they will keep you sane!

Sam..."Is this a one-way street?!?"

Shannon...aka "Mom"

Hometown: Lee's Summit, Missouri
Education: Graduate student at University of Missouri-Rolla (Graduating December 2003 - Yeah!!!)
Most Memorable STI Moment: Being able to see the campers learn and grow in their knowledge of other professions that are available to them.
My hopes for you: I hope that all the campers realized what an awesome and amazing experience they were given. Even if you are not necessarily interested in engineering, I want you to remember all of the opportunities and doors that are open for you.

CLASS OF 2004 FA 3H0

Ashley Christeen Swain

A*K*A

"Chatterbox"

fRoM:
LiTtLe RoCk, Ar

AgE: 16

blrThDaTe: AuG. 16, 1986

sKoOL:
LR cEnTrAl HiGh

c/o 2004

blazy04@hotmail.com

BEST ACCENT

Whitney

"Beautiful"

STI * 2003

Name: Whitney Michelle Hendrix
From: ST. LOUIS, MO
Highschool: Whitfield School
Year of Grad: 2004
E-mail adress: Newayz35@aol.com
Age:17

1. How many vehicle miles did Americans travel on U.S. highways in the year 2000?

   Americans traveled 2.68 trillion miles on U.S. highways in the year 2000.

2. How many miles of
   a. public roads were there in the U.S. in the year 2000?
   b. public use airports were there in the U.S. in the year 2000?
   c. navigable waterways were there in the U.S. in the year 2000?
   d. Amtrak rail were there in the U.S. in the year 2000?

   In the year 2000, there were almost 4 million miles of public roads in the U.S. (160,000 miles of interstate and national highway system roads and 3.8 billion other roads). There were 5,352 public use airports in 2000 along with twenty-six thousand miles of navigable waterways. Amtrak rails spanned twenty-four thousand, five hundred miles.

3. How many fatalities occurred on our highways in 2000?

   One thousand, five hundred eighty-three fatalities occurred on Missouri highways in 2000. Around forty-two thousand fatalities occurred on American highways in 2000.

4. How many rail-related fatalities per million train miles occurred in 2000 in the U.S.?

   Four hundred twenty-five rail-related fatalities per million train miles occurred in 2000 in the U.S.

5. What is the Transportation Equity Act for the 21st century (aka TEA 21)? Provide a brief description to submit.

   Missouri will receive an annual average of six hundred eighteen million dollars for use on transportation projects, including funds for local programs, during the six year life of TEA-21.

6. Obtain a picture of Interstate 10 and 79th Avenue in Phoenix, Arizona.

   Please see attached paper.

STI Participants 2003

Student	High School
Brandon T. Adams 3909 Salvation Rd Florissant, MO 63034 Phone: 314-831-3598 Entering grade: 12	Lutheran High School North 5401 Lucas & Hunt Rd St. Louis, MO 63121 Phone: 314-389-3100
Ashley Barnett 6810 Plymouth St. Louis, MO 63130 Phone: (314) 725-1762 Entering grade: 10	University City High School 7401 Balson St Louis, MO 63130 Phone: (314)290-4100
Andrea Elizabeth Bell 1504 E. Linton Ave St. Louis, MO 63107 Phone: 314-534-3944 Entering grade: 11	Mary Institute St. Louis County Day School 101 N. Warson Rd St. Louis Phone: 314-993-5100
Camille Renee Brown 1231 S. Center Terre Haute, IN 47802 Phone: 812-234-5680 Entering grade: 11	Terre Haute South 3737 S. 7th Terre Haute, IN 47802 Phone: 812-462-4252
Melanie L. Cosely 5817 Winterleaf Dr. Richmond, VA 23234-5945 Phone: 804-743-7804 Entering grade: 12	Bird High School 10301 Courthouse Rd Chesterfield, VA 23832 Phone: 804-768-6110 x 111
Michael Coyle 10289 Lookaway Dr. St. Louis, MO 63137 Phone: 314-868-8044 Entering grade: 12	CLAYTON HIGH SCHOOL #1 MARK TWAIN CIRCLE Clayton, MO 63105 Phone: 314-854-6650
Shawn Cross 5956 Goodfellow Blvd St. Louis, MO 63147 Phone: 314-385-5784 Entering grade: 10	Metro High School 4015 McPherson St. Louis, MO 63108 Phone: 314-534-3894
Lashanta Freeman 703 North Mabry St Eudora, AR 71640 Phone: 870-355-2338 Entering grade: 12	Eudora High School 111 North Archer St. Eudora, AR 71640 Phone: 870-355-6040

STI Participants 2003

Larry Gene Hawkins II 4609 McArthur St. Pascagoula, MS 39567 Phone: 228-769-0128 Entering grade: 11	Mississippi School for Math and Science PO Box W-1627 Columbus, MS 39701 Phone: 800-400-4656 or 662-329-7680
Whitney Hendrix 1601 Stifel Woods Court Town and Country, MO 63017 Phone: 314-514-1238 Entering grade: 12	Whitfield School 175 South Mason Road St Louis, MO 63141 Phone: 314-434-5141
Erica King 1921 Biddle St. St. Louis, MO 63106 Phone: 314-389-4081 Entering grade: 10	Metro High School 4015 McPherson St. Louis, MO 63108 Phone: 314-534-3894
Jamie Klemmer 5177 Green Trace Lane St. Louis, MO 63128 Phone: 314-729-7995 Entering grade: 12	Nerinx Hall High School 530 E. Lockwood Webster Groves, MO 63119 Phone: 314-968-1505
Crystal Lett 5626 Rose Drive Moss Point, MS 39563 Phone: (228)474-7308 Entering grade: 12	Moss Point High School 4924 Church Street Moss Point, MS 39563 Phone: (228)475-6872
Ron Moore 1549 Knollstone Ferguson, MO 63135 Phone: Entering grade: 10	Wentzville Holt High School Phone: 636 3273886
Rahul Nemani 4220 Casa Brazilia Dr, Apt B St. Louis, MO 63129 Phone: 314-487-0372 Entering grade: 11	Mehlville Sr. High School 3200 Lemay Ferry Rd St. Louis, MO 63125 Phone: 314-467-6106
Steven Phillips 2763 Caroline St. St. Louis, MO 63104 Phone: 314-771-3377 Entering grade: 11	Rockwood Summit High School 1780 Hawkins Rd Fenton, MO 63026 Phone: 636-861-7700
Brittney Danielle Sherrod 6332 Mary Ave. Apt. B Moss Point, MS 39563 Phone: (228)475-5406 Entering grade: 11	Moss Point High School 4924 Church Street Moss Point, MS 39563 Phone: (228)475-6872

STI Participants 2003

Ashley C. Swain 3001 S. Spring Rd Little Rock, AR 72206 Phone: 501-372-0864 Entering grade: 12	Central High School 1500 S. Park St Little Rock, AR 72202 Phone: 501-447-1400
Paul Tan 82 Wedgemere Circle The Woodlands, TX 77381 Phone: 281-296-9996 Entering grade: 12	The John Cooper School One John Cooper Dr. The Woodlands, TX 77381 Phone: 281-367-0900 x355
Erin V. Thomas 14803 Hwy 365 Little Rock, AR 72209 Phone: 501-897-0711 Entering grade: 11	McClellan High School 9417 Geyer Springs Rd. Little Rock, AR 72209 Phone: 501-447-2100
Brittanie Autumn Witherspoon 6151 Garesche Ave St. Louis, MO 63136 Phone: 314-883-4349 Entering grade: 12	Metro High School 4015 McPherson St. Louis, MO 63108 Phone: 314-534-3894

DEMOGRAPHIC SUMMARY SHEET

NAME OF HOST SITE: University of Missouri-Rolla YEAR REPORTING: 2003

DATES OF INSTITUTE: June 24, 2003 to July 25, 2003

PROGRAM CLASSIFICATION

x HIGH SCHOOL ___ MIDDLE SCHOOL

x RESIDENTIAL PROGRAM ___ NONRESIDENTIAL PROGRAM

NUMBER OF APPLICANTS: 33

NUMBER OF PARTICIPANTS: 21

NUMBER COMPLETING PROGRAM: 21

ETHNIC BACKGROUND BY NUMBER

___ NATIVE AMERICAN 1 CAUCASIAN 2 ASIAN

17 AFRICAN AMERICAN 1 HISPANIC ___ OTHER

GENDER

8 MALE 13 FEMALE

GEOGRAPHIC REPRESENTATION

NUMBER OF CITIES: 11

NUMBER OF COUNTIES: 6

Evaluation Table 9.1

Speakers	**Mean**	**Median**	**Mode**	**SD**
Speaker were organized	4.3	4.0	4.0	0.6
Academically challenged by activities	3.2	3.0	3.0	0.8
Speakers responded well	4.3	4.0	5.0	0.9
Staff				
Staff were interested in awareness	3.6	3.0	3.0	1.1
Staff were helpful	3.4	3.5	4.0	1.3
Staff encouraged students	3.5	4.0	4.0	1.1
Staff available for questions	3.5	4.0	5.0	1.4
Staff were friendly	3.3	3.0	3.0	1.4
Staff were knowledgeable	3.6	4.0	4.0	1.3
Staff were enthusiastic about careers	3.7	3.5	3.0	0.9
Counselors were helpful	2.9	3.0	5.0	1.6
Activities				
Project activities help students to understand	3.9	4.0	5.0	1.1
Enough time was allotted for projects	3.6	4.0	3.0	1.2
Enough time was allotted for audience participation	4.1	4.0	4.0	0.8
Acitivities gave practical experience related to transportatic	4.2	4.0	5.0	0.8
Project activitites included competition	4.4	5.0	5.0	0.8
Other				
Life in dormitory was fun	3.8	4.0	4.0	1.1
Food in dining hall was delicious	1.8	1.5	1.0	1.0
Number of speaker was appropriate	3.9	4.0	4.0	0.7
Number of field trips was appropriate	3.9	4.0	4.0	0.9
Number of projects was appropriate	3.8	4.0	4.0	0.9
Evening activities beneficial	3.1	3.0	3.0	1.1
Sports/rec activities were fun and worthwhile	3.2	3.5	1.0	1.6

Evaluation Table 9.2	**Median**			
Speakers	**2000**	**2001**	**2002**	**2003**
Speaker were organized	4.0	3.5	3.0	4.0
Academically challenged by activities	3.0	3.0	2.0	3.0
Speakers responded well	3.0	4.0	3.0	4.0
Staff				
Staff were interested in awareness	4.0	4.0	3.0	3.0
Staff were helpful	3.5	4.0	4.0	3.5
Staff encouraged students	3.5	4.0	3.0	4.0
Staff available for questions	4.0	4.0	3.0	4.0
Staff were friendly	3.5	4.0	4.0	3.0
Staff were knowledgeable	4.0	4.0	4.0	4.0
Staff were enthusiastic about careers	4.0	4.0	4.0	3.5
Counselors were helpful	2.0	3.0	4.0	3.0
Activities				
Project activities help students to understand	3.5	4.0	3.0	4.0
Enough time was allotted for projects	4.0	4.0	3.0	4.0
Enough time was allotted for audience participation	3.0	4.0	3.0	4.0
Acitivities gave practical experience related to transportatic	4.0	4.0	3.0	4.0
Project activitites included competition	3.5	3.0	4.0	5.0
Other				
Life in dormitory was fun	3.0	3.0	4.0	4.0
Food in dining hall was delicious	3.0	2.0	2.0	1.5
Number of speaker was appropriate	3.0	4.0	3.0	4.0
Number of field trips was appropriate	4.0	3.5	4.0	4.0
Number of projects was appropriate	3.5	3.0	3.0	4.0
Evening activities beneficial	3.0	3.0	3.0	3.0
Sports/rec activities were fun and worthwhile	4.0	3.0	3.0	3.5

Rap session results – 2003

Program
Do more hands on activities.
Do more academically challenging activities
Give more responsibility to students
Eliminate redundancy in MODOT presentations
Keep Columbia Airport field trip
Eliminate Navy Pier
Schedule field trips to St. Louis in a short time frame and do stayovers
Keep ropes course
Schedule a weekend to 6 flags
Schedule activities on week ends for those who stay
Work out how to accommodate Walmart needs (for some private needs, students may not be comfortable asking for the item)
Keep movie night
Provide more shopping opportunities
Have ropes course earlier in program

Counselors
Be more consistent in applying rules
Returning counselors overstepped their authority
Drivers were sometimes unsafe
Counselors sometimes used negative humor to deal with situations – avoid this
Have counselors act as counselors – not as friends.
No touching
No talking in sessions (counselors should abide by the same rules of respect in sessions that participants do)
Need girl counselors in the dorms
Need to be tougher in issuing strikes
Shannon and Eric were best liked

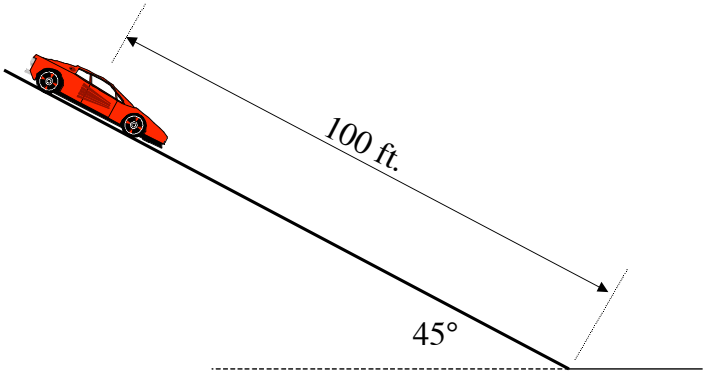
University of Missouri-Rolla
2003 USDOT Summer Transportation Institute

Pre/Post-test

1. Indicate which of the following career paths would not be considered as a transportation path.

	Planning
	Marketing
	Civil Engineering
	Computer science
	Business administration
	Logistics
	Electrical engineering
	All could be considered

2. Given a car sits on the incline shown below, find its velocity when it reaches the bottom of the incline.



3. Why do colleges want me to take the SAT?

4. Is it possible to pass or fail the SAT?

5. Is the SAT useful to me—or just to colleges?

6. Which of the following modes carries the most freight:

	Mode
	Highway
	Air
	Rail
	Water

7. Which of the following modes causes the least number of injuries and fatalities per year:

	Mode
	Highway
	Air
	Rail
	Water

8. A searchlight situated on a straight coast has a range of 43 mi. A ship sails on a line parallel to the coast and 15 mi. from it. What is the distance covered by the ship while it remains within range of the light? What angle is subtended at the light by a line connecting the extreme positions of the ship?

9. List steps that you should take in preparing for college.

10. What are your career goals?

11. Indicate the degree to which you have an interest in a career in transportation by circling the item that best describes your interest right now.

    a I am certain that I will follow a career in transportation
    b I am pretty sure that I will follow a career in transportation
    c I may follow a career in transportation
    d I am unsure
    e Probably not
    f Absolutely not!

12. Describe two fundamental purposes of surveying.

Sponsors
The following provides a narrative description of the types of support provided by our partners. **Total approximate cost match is $60,712.**

University of Missouri-Rolla
Provided all overhead costs - approximately $21,997 (see final budget for exact amount) plus in-kind match of the Director's salary of $3,415 totaling $25,412

Center for Infrastructure Engineering Studies
Provided $25,000

City of Springfield
Arranged and hosted an all-day field trip to tour the City's Traffic Management Center, its sign maintenance facility and a major highway construction project in the area. The City also provided lunch for 25. Approximate cost $500

Jacobs Civil
Hosted the group at their downtown facility and arranged a field trip. Costs to them include preparation time from three to five engineers. Lunch was provided for 25. Several engineers made the trip to Rolla to speak at a session on highway engineering as well. Approximate cost $2,400.

Missouri Department of Transportation
Provided speakers for several sessions and hosted two field trips. This involved at least 15 different engineers at various levels spending anywhere from four to eight hours on the program. Approximate cost $3,800

Federal Highway Administration
Hosted the group at the Missouri Division Headquarters and sent Missouri Division Administrator to closing luncheon –costing from 4 to 8 hours of time for him. Approximate cost $350

CFI
Hosted the group for a half day tour of its Joplin facility. This included a presentation by the President of the Company. Approximate cost $200.

Parsons Brinckerhoff
Sent several engineers to speak to the group. Approximate cost: $800

Chicago Regional Transportation Authority
Arranged for and hosted several activities for the Chicago trip. Approximate cost $200

Others
There are myriad others who travelled to Rolla or hosted the group for tours (FAA's arranged for and hosted a tour of Columbia Airport (including lunch for 25); the City of Columbia provided its airport manager along with staff for that same tour; Bi-State Development's tour involved several personnel spending hours hosting the group; TWA provided a tour of its Training Center; and, other invited speakers. Approximate cost: $1,700

NATIONAL SUMMER TRANSPORTATION INSTITUTE

Careers in Transportation • A Universe of Opportunity

UMR Civil engineering department

UMR
UNIVERSITY OF MISSOURI-ROLLA

The Summer Transportation Institute is a four-week-long intensive program sponsored by the U.S. Department of Transportation, Missouri Department of Transportation and the University of Missouri-Rolla. The Institute seeks to aid in developing a diverse and robust workforce for the transportation industry by exposing 10th, 11th and 12th grade high school students to transportation careers.

SUMMER TRANSPORTATION INSTITUTE

The STI provides a broad array of opportunities for its participants including:

CLASSROOM ACTIVITIES — work in teams; learn key principles of a highly effective life; meet with transportation professionals from across the Midwest; develop communication and interview skills; learn good study habits; discuss the art and science of mathematical modeling; and earn four college credits transferable to any university in the country.

LABORATORY ACTIVITIES — build a magnetically levitated train and race it; design, build and test a highway crash cushion; design and test highway bridges; and learn about surveying methods.

FIELD TRIPS — an airline's pilot and staff Training Center, one of Missouri's Intelligent Transportation Systems Centers in Springfield, the 2nd largest intermodal facility in the United States in Chicago, Ill., one of the largest and most complex highway construction projects in the State of Missouri, the third largest trucking facility in the United States, Chicago's public transit operations center, and much more.

RECREATION — major league baseball game, science "magic show," ropes course, ice cream social by the pool, barbeques, access to UMR's full-featured fitness facility, golf course, tennis courts, and more.

web.umr.edu/~tranist/sti

ELIGIBILITY

- Rising 10th, 11th or 12th grade high school student
- 3.0 grade point average
- High school algebra

BENEFITS

- Worth approximately $6,000
- Four college credits transferable to any university in the United States
- Fees
- Workshops and Handouts
- Free room and board
- Facility use, lab fees
- Equipment and supplies
- Text books
- Travel (field trips — including a trip to Chicago and a stay at a Marriott Hotel)

CONTACT

Dr. Gary S. Spring, *Director*
Transportation Institute
University of Missouri-Rolla
Department of Civil Engineering
Rolla, MO 65409-0030
PHONE 573-341-6286
FAX 573-341-4729
EMAIL spring@umr.edu

explore and apply @ web.umr.edu/~tranist/sti

SUMMER TRANSPORTATION INSTITUTE

PROGRAM SUMMARY

- **USDOT-funded, 5 weeks long, in residence**
- **Purpose:** to expose 10th, 11th and 12th grade students to a variety of aspects of the transportation industry
- **Curriculum includes**
  - **seminars** on career opportunities in transportation, university life and technical topics in transportation; leadership and team building activities;
  - **lectures** on a variety of technical and non-technical topics,
  - **hands-on laboratories** (e.g. students build and race magnetically levitated trains, design and test highway bridges using bridge design software)
  - **field trips** (e.g. TWA's training simulator, St. Louis public transit operations center, Springfield's traffic operations center, Boeing's airplane fabrication facility, Alton Lock and Dam, MoDOT's laboratories, Lambert air traffic control centers, Chicago's Regional Transit Authority, Corwith Intermodal facility)
  - **evening activities** (e.g. a ropes course, pool parties, magic show)
  - **3 credit college history course**

ELIGIBILITY

- **Grade level:** *10th, 11th, or 12th* grade for the 2003-2004 school year.
- **Academics:** cumulative grade point average of 3.0 on a 4.0 scale (minimum).
- **Interest:** Engineering, Science, Transportation, or Technology based career.

ITEMS PROVIDED

- **Accommodations:** Thomas Jefferson Residence Hall and will dine in the University Cafeteria, except for special functions, such as field trips.
- **Academic resources:** Course notes and laboratory supplies will be provided as will access to the University's computer facilities and Library.
- **STI T-shirt**.

BENEFITS

- **Fees**
- **Workshops and Handouts**
- **Room and Board**
- **Facility Usage, Lab fees**
- **Equipment and Supplies**
  - **Travel** costs for field trips
  - $25 per week **stipend**
  - **Credit** for a 3 credit hour college-level history course

CHECKLIST

- Completed **Application Form**
- **Letter of recommendation** (teacher or counselor)
- Essay stating student's interest in transportation
- Unofficial **transcripts**

WEBSITE: http://www.umr.edu/~tranist/sti/

Deadline for application package: May 15, 2003

Mail to:

Dr. Gary S. Spring, Department of Civil Engineering, UMR, Rolla, MO 65409-0030
email: spring@umr.edu; phone: 573-341-6286

STI Parents
2003

Beatrice Adams	Freddie Hendrix/Monica Thorntonn
Sharon Anhalt	Cynthia Ballentine
Terry and Mary Armes	Henriett Hopson
Susan and Brent	Stan and Lois Howdeshell
Rosalind T. Thomas	Steven and Maria Huck
Craig and Cynthia	Richard/Angela Hudson
Brenda Barnett	Carolyn and Ricky Hunt
Rochelle D.Bates	Theresa & Jack Kessler
Floyd and Alice Bell	Camelia Williams
Herbert & Teri Blockton	Jon and Karen Klemmer
Fanaris Bogle	Ricky & Angela Knox
James Bridgeford	Donald & Wanda Lange
Mathew and Corinne	Richard and Mary Sue Lehman
Charles and Scotia Brown	Mary and Willie Leng
Lisa Burgess	Melvin and Shirley Lett
Betty Williams and William Burns	Rodney & Connie Lofton
Carolyn and Arnold Cohn	Christina Mann & Dennis Callie
Ronion Henry	Gregory and Sharon Matthews
Melvin L. Cosely	Sharon and Gregory
Anna Coyle	Vicky Minter
Lee Crain	Ron Moore
Roberta and John Cross	Rama and Ramana Nemani
M/M Charles Davidson	Marylynn and Omodele Oredugba
Tom & Brenda Degonia	Ida Phillips
Eva and Ponce Durr	Rodney & Cathleen Powers
Anthony,Sr&Deborah Edwards	Denise Ruffin
Calvin Ellis	Cheryl and David Scurry
Marcel&Daphne Esubi	Theresa Sherrod
Synthia and Marvin Freeman	Scott and Michelle Robertson
Anna and John Gibbs	Sessie and JoAnn Spencer
Robyn L., Maurice Gibson	Andy and Fayette Stewart
Zhiming Yang Gu	Phyllis Nichols
Larry and Carol Hawkins	Tan Geok Hoo, Josephine Mo
Kathy and Randy Hendrickson	Patricia Thomas

DEPARTMENT *of* CIVIL ENGINEERING
Dr. Gary S. Spring, P.E.
208 Butler-Carlton Hall
1870 Miner Circle
Rolla, MO 65409-0030
Phone: (573) 341-6286
FAX: (573) 341-4729
email: spring@umr.edu

MEMORANDUM

TO: Secondary School Guidance Counselors
SUBJECT: Summer Transportation Institute
DATE: July 29, 2003
FROM: Gary S. Spring, Director

The University of Missouri-Rolla will host the 2003 Summer Transportation Institute for secondary school students on June 22 - July 25, 2003. The objectives of the Institute are to motivate students to pursue careers in the transportation field through a series of academic and practical experiences, and to enable them to pursue those careers by providing math and science enrichment activities. The Federal Highway Administration-sponsored program is open to students attending public and private secondary schools across the State of Missouri. The five-week residence program is an extremely intense and structured learning opportunity for youth in the secondary school systems of Missouri.

The curriculum exposes students to new frontiers and adventures such as highway design, transportation of people and cargo, intermodalism, laws, regulations, safety, environmentalism and career opportunities. In addition, students participate in computer training sessions, academic enhancement activities, field trips, student projects and will receive college credit for a three credit history course.

A maximum of twenty (20) rising eleventh and twelfth grade students will receive full scholarships to participate in the five-week summer program. Scholarships will include the following:

- Tuition
- Room and Board
- Equipment
- Supplies
- Lab Fees

and

- Workshops and Handouts
- Facility Usage
- Travel (Field Trips)
- College tuition for a 3 credit history course

I have sent the attached application form to public and private secondary schools across the state, former STI attendees and Missouri high school students with an expressed interest in engineering. Please submit at least two (2) two student candidates for the Summer Transportation Institute Scholarship. Please complete the enclosed application package for each of the students.

We will notify successful applicants to the Summer Transportation Institute no later than May 15, 2003. The following criteria will be used in selecting scholarship recipients:

1. Students must be in the *10th, 11th or 12th* grade for the 2003-2004 school year.
2. Should have completed Pre-Algebra.
3. Cumulative grade point average 3.0 on a 4.0 scale (minimum).
4. Expressed interest in Engineering, Science, Transportation, or Technology-based career.
5. Letter of recommendation from high school principal, counselor or teacher.
6. Standardized Test Score(s).
7. Essay. (Why student wants to participate in the program and how the STI can assist in meeting individual career goals.)
8. Transcript

Please consult with your science, mathematics and technology education teachers for the names of potential students who may qualify for the Institute.

Return all applications to the address below not later than May 15, 2003:

Gary S. Spring, Director
Summer Transportation Institute Program
The University of Missouri-Rolla
208 Butler-Carlton Hall
Rolla, Missouri 65409-0030

Thank you for your assistance.

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MEMORANDUM

TO: Former STI Participant
SUBJECT: Summer Transportation Institute
DATE: July 29, 2003
FROM: Gary S. Spring, Director

The University of Missouri-Rolla will once again host the 2003 Summer Transportation Institute for secondary school students on June 22 - July 25, 2003. The objectives of the Institute, as you know, are to motivate students to pursue careers in the transportation field through a series of academic and practical experiences, and to enable them to pursue those careers by providing math and science enrichment activities. The program is sponsored by the Federal Highway Administration (FHWA) and is open to students attending public and private secondary schools across the State of Missouri.

The curriculum will expose students, as were you, to new frontiers and adventures such as highway design, transportation of people and cargo, intermodalism, laws, regulations, safety, environmentalism and career opportunities. In addition, students will participate in computer training sessions, academic enhancement activities, field trips, student projects and will receive college credit for a three credit history course.

Twenty (20) rising eleventh and twelfth grade students will receive full scholarships to participate in the five-week summer program. Scholarships will include the following:

- Tuition
- Room and Board
- Equipment and Supplies
- Lab Fees
- Workshops and Handouts
- Facility Usage
- Travel (Field Trips)
- College tuition for a 3 credit history course

I have sent the attached application form to public and private secondary schools across the state, former STI attendees and Missouri high school students with an expressed interest in

engineering. Please share the enclosed application package with anyone that you feel would benefit from this program and urge them to apply.

Notification of scholarship award will be made by the Summer Transportation Institute for each of the selected students no later than May 31, 2003. The following criteria will be used in the selection of scholarship recipients:

1. Students must be in the *10th, 11th or 12th* grade for the 2003-2004 school year.
2. Should have completed Pre-Algebra.
3. Cumulative grade point average 3.0 on a 4.0 scale (minimum).
4. Expressed interest in Engineering, Science, Transportation, or Technology-based career.
5. Letter of recommendation from high school principal, counselor or teacher.
6. Standardized Test Score(s).
7. Essay. (Why student wants to participate in the program and how the STI can assist in meeting individual career goals.)
8. Transcript

Please consult with your science, mathematics and technology education teachers for the names of potential students who may qualify for the Institute.

Return all applications to the address below not later than May 15, 2003:

Gary S. Spring, Director
Summer Transportation Institute Program
The University of Missouri-Rolla
208 Butler-Carlton Hall
Rolla, Missouri 65409-0030

Thank you for your assistance.

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email: spring@umr.edu

MEMORANDUM

TO: High School Student
SUBJECT: Summer Transportation Institute
DATE: July 29, 2003
FROM: Gary S. Spring, Director

The University of Missouri-Rolla will host the 2001 Summer Transportation Institute for secondary school students on June 22 - July 25, 2003. We want to motivate students to pursue careers in transportation by exposing them to academic and practical experiences, and math and science enrichment activities. This Federal Highway Administration-sponsored program is open to students attending public and private secondary schools across the State of Missouri. The five-week residence program is an extremely intense and structured learning opportunity for youth in the secondary school systems of Missouri. It is open however to students across the country.

The curriculum exposes students to new frontiers and adventures. How are roads designed? What are the issues involved in transporting goods and people safely and efficiently, and how is it done? How does technology play a role in the process? What are the career opportunities in the transportation industry? All questions that will be addressed during the five weeks through participation in panel discussions with transportation leaders, computer training sessions, academic enhancement activities, field trips and student projects. Students also receive college credit for a three credit history course.

A maximum of twenty (20) rising tenth, eleventh and twelfth grade students will receive full scholarships to participate in the five-week summer program. Scholarships include the following:

- Tuition
- Room and Board
- Equipment and Supplies
- Lab Fees
- Workshops and Handouts
- Facility Usage
- Travel (Field Trips)
- College tuition for a 3 credit history course

I have sent the attached application form to public and private secondary schools across the state, former STI attendees and Missouri high school students with an expressed interest in engineering. Please consider spending part of your summer with us as part of this valuable program. Complete the enclosed application package and return it to me.

If you are chosen, we will notify you no later than May 30, 2003. The following criteria will be used in selecting scholarship recipients:

1. Students must be in the *10th, 11th or 12th* grade for the 2003-2004 school year.
2. Should have completed Pre-Algebra.
3. Cumulative grade point average 3.0 on a 4.0 scale (minimum).
4. Expressed interest in Engineering, Science, Transportation, or Technology-based career.
5. Letter of recommendation from high school principal, counselor or teacher.
6. Standardized Test Score(s).
7. Essay. (Why student wants to participate in the program and how the STI can assist in meeting individual career goals.)
8. Transcript

Return all applications to the address below not later than May 15, 2003:

Gary S. Spring, Director
Summer Transportation Institute Program
The University of Missouri-Rolla
135 Butler-Carlton Hall
Rolla, Missouri 65409-0030

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