

A. BEHAVIOR/EDUCATION

- 8:00 – 8:15 a.m. 1. “The Effects of Mnemonic Devices on Memorization of Multiplication Facts” by **Victoria M. Fritchey**, Tuscomb High School, Tuscomb, MO, Constance Wyrick, Sponsoring Teacher
- 8:25 – 8:40 a.m. 2. “Using Personality Type to predict Personal Susceptibility to the Placebo Effect” by **Lydia Harvengt**, Wentzville Holt High School, Wentzville, MO, Jennifer Berendzen, Sponsoring Teacher
- 8:50 – 9:05 a.m. 3. “Graphic Content: The Effect of Graphical Quality on Video Game Rating” by **Jonathan Isaac Kimbel**, St. Charles West High School, St. Charles, MO, Heather Horstmann, Sponsoring Teacher
- 9:15 – 9:30 a.m. 4. “The Pursuit of Positivity” by **Mioshi Scott**, Maplewood-Richmond Heights High School, St. Louis, MO, Kathleen Dwyer, Sponsoring Teacher
- 9:40 – 9:55 a.m. 5. “The Effect of Human Pheromones on Olfactory Relationships” by **Jordon Leo Shultz**, Thayer High School, Thayer, MO, Peggy Veatch, Sponsoring Teacher
- 10:05 – 10:20 a.m. 6. “Distraction by Convenient Technological Communication” by **Sara Voisard**, Mid-Buchanan High School, Faucett, MO, Tereasa Freeman and Lindsay Ussary, Sponsoring Teachers

B. CHEMISTRY/BIOCHEMISTRY

- 8:00 – 8:15 a.m. 1. “Carbon’s Use as a Reduction Agent in the Laser-Induced Magnesium Production from Magnesium Oxide” by **Kevin Bird**, Camdenton High School, Camdenton, MO, Christopher Reeves, Sponsoring Teacher
- 8:25 – 8:40 a.m. 2. “The Effects of the Type of Resin on the Purification and Separation in Parts per Million of Lycopene using Absorbance Readings” by **Hunter Jeffrey Faris**, West Platte R-II High School, Weston, MO, Janel Coulson, Sponsoring Teacher
- 8:50 – 9:05 a.m. 3. “The Effects of Competing Metals on the Corrosion of Iron” by **Christian Gray** and **Emily Neal**, Mansfield High School, Mansfield, MO, Pam Probert, Sponsoring Teacher
- 9:15 – 9:30 a.m. 4. “The Extraction/Production of a Bio-fuel from Saltwater Algae” by **Alicia Marie McCabe**, Incarnate Word Academy, St. Louis, MO, Tom Conley and John Gundy, Sponsoring Teachers
- 9:40 – 9:55 a.m. 5. “Catalytic Investigation of a Novel Phosphinooxazoline-Ruthenium Complex Utilizing Gas Chromatography” by **Tia Harper**, Wentzville Holt High School, Wentzville, MO, Jennifer Berendzen, Sponsoring Teacher
- 10:05 – 10:20 a.m. 6. “The Transesterification of Peanut Oils to Determine the Heat of Combustion” by **Anna Marie Waldschlager**, Pleasant Hope High School, Pleasant Hope, MO, Jim Flora, Sponsoring Teacher

C. ENVIRONMENTAL SCIENCE

- 8:00 – 8:15 a.m. 1. “A Pilot Study to Determine the Efficiency of Unconventional Plant Residues on Energy Production for the Development of Sustainable Biofuels” by **Nathan Coulson**, West Platte High School, Weston, MO, Janel Coulson, Sponsoring Teacher
- 8:25 – 8:40 a.m. 2. “Using *Chlorella vulgaris* to Remove Carbon Dioxide from Power Plant Effluents” by **Carolyn G’Sell**, Cor Jesu Academy, St. Louis, MO, Bill Joern, Sponsoring Teacher
- 8:50 – 9:05 a.m. 3. “Reduction of Ammonia Concentration by *Chrysanthemum morfolium*” by **Anna Marie Logsdon**, Mid-Buchanan High School, Faucett, MO, Lindsay Ussary and Tereasa Freeman, Sponsoring Teachers
- 9:15 – 9:30 a.m. 4. “A Bioassay Analysis of the Effects of Glyphosate and Alternative Herbicides on *Daphnia pulex*” by **Connie Shen** and **Jeffrey Zhao**, Parkway South High School, Manchester, MO, Michael Herrmann, Sponsoring Teacher
- 9:40 – 9:55 a.m. 5. “The Effects of Crude Oil and Iron on the Growth of Shallow Water Corals” by **Ellen S. Wu**, Marquette High School, St. Louis, MO, Leonard Sonnenschein, Sponsoring Teacher
- 10:05 – 10:20 a.m. 6. “Disruptive Artificial Selection of *Caenorhabditis elegans*: Developing a Model for Sustainable Fisheries” by **Kara K. O’Connor**, Camdenton High School, Camdenton, MO, Christopher Reeves and Kimberly Griggs, Sponsoring Teachers

D. GENERAL BIOLOGY

- 8:00 – 8:15 a.m. 1. “Determining the Allelopathic Interactions between Zebra Mussels (*Dreissen polymorpha*) and Sympatric Sponge Species: Developing a New Approach to Zebra Mussel Control” by **Kyle V. Gulshen**, Camdenton High School, Camdenton, MO, Christopher Reeves, Sponsoring Teacher
- 8:25 – 8:40 a.m. 2. “EpCAM Up-regulates Micro-RNA-21 and Suppresses PDCD4 Tumor Suppressor through AP-1 in Breast Cancer Cells” by **Suhani Goyal**, Parkway Central High School, Chesterfield, MO, Adam Bergeron, Sponsoring Teacher
- 8:50 – 9:05 a.m. 3. “The Effect of Iron as a Micronutrient on Algal Cell Growth and Lipid Biosynthesis” by **Chandler Brian Est**, Wentzville Holt High School, Wentzville, MO, Jennifer Berendzen, Sponsoring Teacher
- 9:15 – 9:30 a.m. 4. “Identification of the Source of Indeterminate DNA in Fluorescence Assays of Sterile Seed Corn (*Zea mays*)” by **Kaitlin Elizabeth Larkin**, Wentzville Holt High School, Wentzville, MO, Jennifer Berendzen, Sponsoring Teacher
- 9:40 – 9:55 a.m. 5. “Forensic Entomology: Using Insects from the Genus *Sarcophaga* for Cost Effective and Efficient Cadaver Detection” by **Bailee Lynn Slack**, Camdenton High School, Camdenton, MO, Kimberly Griggs, Sponsoring Teacher

- 10:05 – 10:20 a.m. 6. “Taxonomic Revision of Three-lobed *Philodendron* (Araceae)” by **Gechen Zhang**, Rockwood Summit High School, Fenton, MO, Tracie Summerville, Sponsoring Teacher

E. MICROBIOLOGY AND MEDICINE

- 8:00 – 8:15 a.m. 1. “Living Bacteria into Electrical Energy” by **Mrigank Gupta**, Parkway West High School, St. Louis, MO, Connie Allard, Sponsoring Teacher
- 8:25 – 8:40 a.m. 2. “Exploring the Relationship Between Anxiety of Negative Food Attitudes Which Might Display a Reversal in Brain Reward Circuitry Found in Anorexia Nervosa and the Effects of Yoga on Normalizing the Research Circuitry” by **Joy Michelle Ciskowski**, Rockwood Summit High School, Fenton, MO, Tracie Summerville, Sponsoring Teacher
- 8:50 – 9:05 a.m. 3. “The Effects of Nutritional Variation on the Fitness and Vitality of *Mus musculus*” by **Chelsea Redekah Ehret**, Thayer High School, Thayer, MO, Peggy Veatch, Sponsoring Teacher
- 9:15 – 9:30 a.m. 4. “Antibacterial Properties of Wild Edible Missouri Mushrooms” by **Alexis R. Ash**, Tuscumbia High School, Tuscumbia, MO, Constance Wyrick, Sponsoring Teacher
- 9:40 – 9:55 a.m. 5. “Accurate Detection of Breast Tumor Cells using Gold Nanorods as Sensors” by **Mythili Ramachandran**, Hickman High School, Columbia, MO, Christine Roberson, Sponsoring Teacher
- 10:05 – 10:20 a.m. 6. “Role of PLC-a and Myb-a in Oil Accumulation and PLC-a in Response to NaCl Stress in *Camelina sativa*” by **Elise Genevieve Viox**, Cor Jesu Academy, St. Louis, MO, Dr. Bill Joern, Sponsoring Teacher

F. PHYSICS, ENGINEERING, MATH, AND COMPUTER SCIENCE

- 8:00 – 8:15 a.m. 1. “The Measurable Temperature Differences between Black/White Roofs and Green Roof Blocks” by **Sereno John Adams**, Wentzville Holt High School, Wentzville, MO, Jennifer Berendzen, Sponsoring Teacher
- 8:25 – 8:40 a.m. 2. “Generating Electricity for portable Devices from the walking Motion of an Individual” by **Anthony Christian Black**, Camdenton High School, Camdenton, MO, Christopher Reeves, Sponsoring Teacher
- 8:50 – 9:05 a.m. 3. “The Effect of Thermochromic and Hydrochromic Paint Application for Roadway Paint Marking on Automobile Driver Recognition of Dangerous Driving Conditions” by **Nicholas Huey**, Camdenton High School, Camdenton, MO, Kimberly Griggs and Christopher Reeves, Sponsoring Teachers
- 9:15 – 9:30 a.m. 4. “Retrofitting Medium-Range Ultrasonic Sensor to Assist as a Vehicular Correction Strategy” by **Robert Hutchinson**, Camdenton High School, Camdenton, MO, Christopher Reeves, Sponsoring Teacher

- 9:40 – 9:55 a.m. 5. “Designing a Cost-Efficient Microbial Fuel Cell for Use in Third-World Countries” by **Kishan Patel**, Camdenton High School, Camdenton, MO, Chris Reeves and Kimberly Griggs, Sponsoring Teachers
- 10:05 – 10:20 a.m. 6. “The Effect of Window Configuration on the Aerodynamic Efficiency of a Pickup Truck” by **Brian D. Sawyer**, Central High School, St. Joseph, MO, Jay Meyers, Sponsoring Teacher