

Montana Tech Regional Science and Engineering Fair

Division 1 High School – Bronze Medal Winners

Grade: 10

Animal Sciences

7101 **An Assessment of the Cognitive Abilities of Domestic Goats: Learning Human-Given Cues**
Swanberg, Madeline Hellgate High School

Earth & Environmental Sciences

7804 **The Journey of a Stream**
Klein, Jourdain Ennis High School

Materials Science

8100 **Analysis of the Effects of Design upon Groupings of Nylon Actuators**
Seielstad, Jim Big Sky High School

Montana Tech Regional Science and Engineering Fair

Division 1 High School – Silver Medal Winners

Grade: 10

Behavioral and Social Sciences

7202 **The effect of dual neurotransmission on courtship and aggression in male *Drosophila***
Sirrs, Lucy Hellgate High School

Computer Science

7700 **Automating the Process of Fitting New Planetary Transit Data in Python**
Robinson, Ailey Hellgate High School

Engineering

8001 **The Development and Testing of a Collapsible, Lightweight, and Portable Wind Turbine**
Lund, Samuel Hellgate High School

Grade: 11

Biomedical & Health Sciences

7405 **Characterization and Testing of Compounds Produced by *Aspergillus turcosus* that Target**
Mondava, Niel Hellgate High School

Microbiology

8302 **Bowman-Birk Inhibitor and its effects on *Micrococcus Luteus* bacteria when treated with UVC**
Sautter, Jade Big Sky High School

Grade: 12

Biomedical & Health Sciences

7400 **The Effect of Mutant Tau Protein on Neurodegenerative Disease Related Loss of Brain and Body**
Skwarchuk, Sophia Flathead High School

Montana Tech Regional Science and Engineering Fair

Division 1 High School – Gold Medal Winners

Grade: 10

Earth & Environmental Sciences

7803 **Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on**
DeGrandpre, Ella Hellgate High School

Grade: 11

Cellular & Molecular Biology

7502 **Investigating the Role of Pseudogenes as the Source of Conserved Non-coding Elements in the**
Liu, Joyce Sentinel High School

7501 **The Role of PAG1 And The SFKs In Neuroblastoma Tumor Formation And Invasion**
Kinch, Shelby Hellgate High School

Mathematics

8200 **A Quantum Attack on the One-Time Pad Cipher**
MacDonald, Kincaid Sentinel High School

Montana Tech Regional Science and Engineering Fair

Special Awards Division 1

Award: Yale Science & Engineering Award

Jade Sautter	Bowman-Birk Inhibitor and its effects on Micrococcus Luteus bacteria when treated with UVC radiation	Big Sky High School
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Award: NASA Earth System Science Award

Autumn Robinson	The Role of Scleractinian Coral Integration on Their Persistence Through the End-Triassic and Early-Jurassic Periods	Hellgate High School
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Award: American Meteorological Society Award

Emmett Lingle	Avalanche Anchors	Ennis High School
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Samuel Lund	The Development and Testing of a Collapsible, Lightweight, and Portable Wind Turbine	Hellgate High School
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Award: American Psychological Association Award

Madeline Swanberg	An Assessment of the Cognitive Abilities of Domestic Goats: Learning Human-Given Cues Through Association	Hellgate High School
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Award: ASM Materials Education Foundation Award

Samuel Lund	The Development and Testing of a Collapsible, Lightweight, and Portable Wind Turbine	Hellgate High School
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Award: Association for Women Geoscientists Award

Ailey Robinson	Automating the Process of Fitting New Planetary Transit Data in Python	Hellgate High School
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Award: George Grant Trout Unlimited

Jourdain Klein	The Journey of a Stream	Ennis High School
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Award: Berkeley Pit Educational Advisory Committee Award

Jourdain Klein	The Journey of a Stream	Ennis High School
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Award: Clark Fork Watershed Education Program (cfwep.org)

Ella DeGrandpre	Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on Daphnia magna Mortality	Hellgate High School
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Award: Big Hole River Foundation Award

Ella DeGrandpre	Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on Daphnia magna Mortality	Hellgate High School
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Award: CTEC

Niel Mondava	Characterization and Testing of Compounds Produced by Aspergillus turcosus that Target Cancer-Associated Pathways	Hellgate High School
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Award: 5518 Design

Ailey Robinson	Automating the Process of Fitting New Planetary Transit Data in Python	Hellgate High School
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Award: W.E.T.

Jourdain Klein	The Journey of a Stream	Ennis High School
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Award: Pioneer Technical Services

Ella DeGrandpre	Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on Daphnia magna Mortality	Hellgate High School
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Award: Highlands College Radiology Award

Jade Sautter	Bowman-Birk Inhibitor and its effects on Micrococcus Luteus bacteria when treated with UVC radiation	Big Sky High School
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Award: Montana Tech Metallurgy Department 2nd Place

Jourdain Klein	The Journey of a Stream	Ennis High School
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Award: Montana Tech Metallurgy Department Top Award

Ella DeGrandpre	Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on Daphnia magna Mortality	Hellgate High School
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Award: Montana Tech Mining Engineering

Ella DeGrandpre	Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on <i>Daphnia magna</i> Mortality	Hellgate High School
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Award: Professional & Technical Communications Award

Joyce Liu	Investigating the Role of Pseudogenes as the Source of Conserved Non-coding Elements in the Human Genome	Sentinel High School
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Award: Society for Science & the Public - Regeneron Science Talent Search

Devin Jacaruso	Gas Separation Capabilities of the Ranque-Hilsch Vortex Tube	Big Sky High School
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Dylan Sorini	Base-4 Computing Power Compared to Standard Binary	Big Sky High School
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Ian Knight	Evaluating the Use of Methane Gas Produced by Compost for an In-Vessel Heating System	Hellgate High School
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Jade Sautter	Bowman-Birk Inhibitor and its effects on <i>Micrococcus Luteus</i> bacteria when treated with UVC radiation	Big Sky High School
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Joyce Liu	Investigating the Role of Pseudogenes as the Source of Conserved Non-coding Elements in the Human Genome	Sentinel High School
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Kaylee McQueary	Menstrual Cycle Effects on Reaction Time	Big Sky High School
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Kincaid MacDonald	A Quantum Attack on the One-Time Pad Cipher	Sentinel High School
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Nicholas Dzomba	Characterizing Pressure Driven Flow in Diffusion Flames	Hellgate High School
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Niel Mondava	Characterization and Testing of Compounds Produced by <i>Aspergillus turcosus</i> that Target Cancer-Associated Pathways	Hellgate High School
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Shelby Kinch	The Role of PAG1 And The SFKs In Neuroblastoma Tumor Formation And Invasion	Hellgate High School
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Sophia Mathis	Finger Printing Analysis After High Heat Events	Big Sky High School
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Award: Montana Tech Biological Science "Best of Show" Award

Shelby Kinch	The Role of PAG1 And The SFKs In Neuroblastoma Tumor Formation And Invasion	Hellgate High School
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Award: Reacher Higher Montana

Zoe Peach-Riley	A Novel Method for Safe and Inexpensive Antibiotic Mechanism of Action Determination	Hellgate High School
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Award: Montana Tech Innovation Award

Ailey Robinson	Automating the Process of Fitting New Planetary Transit Data in Python	Hellgate High School
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Award: MU Alpha Theta

Kincaid MacDonald	A Quantum Attack on the One-Time Pad Cipher	Sentinel High School
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Award: Montana Tech Electrical Engineering Department Award

Jackson Servheen	Designing an Inexpensive, Modular Beehive Monitoring System	Sentinel High School
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Award: Montana Tech Dual Enrollment Award

Shelby Kinch	The Role of PAG1 And The SFKs In Neuroblastoma Tumor Formation And Invasion	Hellgate High School
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Award: Montana Tech TRIO SSS Award

Alyssa West	Bacteria & Medicine	Ennis High School
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Award: Montana Tech Library Award

Wren Cilimburg	Is Environmental Information Important for Aggression: Examining the Role of Pickpocket28 in Drosophila	Hellgate High School
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Award: Montana Tech Petroleum Engineering Department Award

Jim Seielstad	Analysis of the Effects of Design upon Groupings of Nylon Actuators	Big Sky High School
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Award: Ricoh Sustainable Development Award

Ian Knight	Evaluating the Use of Methane Gas Produced by Compost for an In-Vessel Heating System	Hellgate High School
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Award: Intel Excellence in Computer Science Award

Muhammad Arshad	3-Dimensional Magnetic Field Mapping Using A Raspberry Pi	Hellgate High School
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Award: U.S. Air Force

Devin Jacaruso	Gas Separation Capabilities of the Ranque-Hilsch Vortex Tube	Big Sky High School
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Katherine Ball	Heatin' Up the Hen House	Ennis High School
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Seng Yeng Vang	Cultural and Ethnic Background Relationship with Color Discrimination	Big Sky High School
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Sophia Mathis	Finger Printing Analysis After High Heat Events	Big Sky High School
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Award: National Oceanographic Atmospheric Association (NOAA) Award

Chelsea Scheirer	The Impact of Fire Retardant on Tardigrades	Big Sky High School
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Award: Society for In Vitro Biology

Shelby Kinch	The Role of PAG1 And The SFKs In Neuroblastoma Tumor Formation And Invasion	Hellgate High School
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Award: GENIUS Olympiad

Chelsea Scheirer	The Impact of Fire Retardant on Tardigrades	Big Sky High School
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Kirstyn Boyer	A Preliminary Study of the Effects of Different Colored Lights on the Growth Rate and Physical Display of Euphyllia Ancora	Big Sky High School
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Award: Navy

Kirstyn Boyer	A Preliminary Study of the Effects of Different Colored Lights on the Growth Rate and Physical Display of Euphyllia Ancora	Big Sky High School
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Zoe Peach-Riley	A Novel Method for Safe and Inexpensive Antibiotic Mechanism of Action Determination	Hellgate High School
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Award: Stockholm Junior Water Prize Award (Water Environment Federation)

Autumn Robinson	The Role of Scleractinian Coral Integration on Their Persistence Through the End-Triassic and Early-Jurassic Periods	Hellgate High School
Ella DeGrandpre	Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on Daphnia magna Mortality	Hellgate High School
Jourdain Klein	The Journey of a Stream	Ennis High School

Award: Montana Tech Gold Access 2nd Alternate

Niel Mondava	Characterization and Testing of Compounds Produced by Aspergillus turcosus that Target Cancer-Associated Pathways	Hellgate High School
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Award: Montana Tech Gold Access 1st Alternate

Dylan Sorini	Base-4 Computing Power Compared to Standard Binary	Big Sky High School
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Award: Montana Tech Gold Access Award

Kaylee McQueary	Menstrual Cycle Effects on Reaction Time	Big Sky High School
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Award: Highest Scoring 9th Grade Project

Muhammad Arshad	3-Dimensional Magnetic Field Mapping Using A Raspberry Pi	Hellgate High School
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Award: Highest Scoring 10th Grade Project

Ella DeGrandpre	Ion Exclusion in Partially Frozen Water and the Effects of the Newly Concentrated Water on Daphnia magna Mortality	Hellgate High School
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Award: Highest Scoring 11th Grade Project

Shelby Kinch	The Role of PAG1 And The SFKs In Neuroblastoma Tumor Formation And Invasion	Hellgate High School
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Award: Highest Scoring 12th Grade Project

Sophia Skwarchuk	The Effect of Mutant Tau Protein on Neurodegenerative Disease Related Loss of Brain and Body Mass in a Transgenic Mouse Model	Flathead High School
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Award: 2nd Place Grand Award

Joyce Liu

Investigating the Role of Pseudogenes as the
Source of Conserved Non-coding Elements in the
Human Genome

Sentinel High School

Award:*1st Place Grand Award

Shelby Kinch

The Role of PAG1 And The SFKs In
Neuroblastoma Tumor Formation And Invasion

Hellgate High School

Award: 1st Place Small School

Ennis High School

Award: 2nd Place Large School

Sentinel High School

Award: 1st Place Large School

Hellgate High School