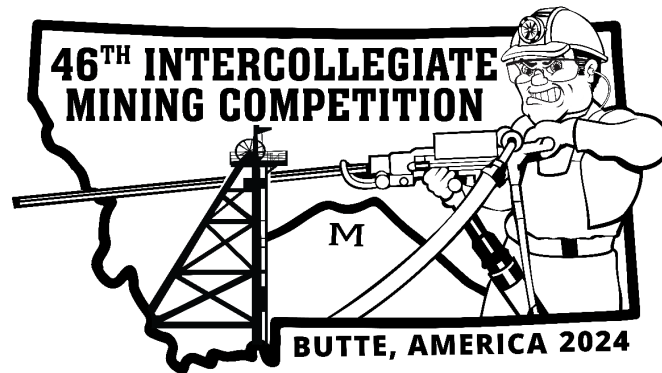


46th International Collegiate Mining Competition 2024

Hosted by the Montana Tech Mining Team Butte, MT



The Montana Tech Mining team of the Montana Technological University would like to invite you to participate in the 46th International Collegiate Mining Competition. The competition is being held on March 20th – 25th, 2024, in Butte, Montana.

From the original trophy announcement:

Sunshine Mining Company is pleased to establish a traveling trophy for this annual student competition in support of the established mining education programs in the United States. We believe these programs are essential to the mining industry; the traveling trophy is intended to stimulate interest in mining and related technical training. We have selected as a trophy symbolic of the industry, a sculpture depicting a mining engineer fully equipped for underground duty. The engineer is standing on a ladder, holding a Brunton compass in his right hand. The statue rests on a base of special wood, Apitong, imported from Malaysia and used for fabricating shaft guides. This wood was selected to complement the engineer, since both the individual and the material "guide" the industry. The trophy was designed and constructed by Mr. Ken Lonn, a Sunshine supervisor and experienced hard-rock miner. As you will see, Mr. Lonn has combined unique craftsmanship with special artistic ability to create a one-of-a-kind treasure. The Sunshine trophy is given to the men's first overall men's team.

Today, the tradition continues as we plan to welcome hundreds of students from all over the world to the home of the Richest Hill on Earth, Butte, Montana. Butte's mining and smelting operations produced more than \$48 billion dollars of ore.

Table of Contents

Table of Contents	2
Itinerary.....	2
Wednesday, March 20th	3
Thursday, March 21st	3
Friday, March 22nd.....	3
Saturday, March 23rd.....	3
More detailed information to come.....	3
Competition Description.....	3
Team Competition	3
Equipment.....	4
Safety	5
Emergency Personnel.....	5
Head-to-Head.....	5
Scoring.....	6
Team Event Rules	7
Swede Saw	7
Hand Muck.....	8
Gold Panning	9
Survey	10
Track Stand.....	11
Jackleg Drilling.....	13
Hand Steel (Single Jack) Drilling	14
Individual Event Rules.....	15
Swede Saw	15
Hand Muck.....	15
Gold Pan.....	15
Spike Driving	15
Jackleg Drilling.....	15
Hand Steel (Single Jack) Drilling	16

Itinerary

Wednesday, March 20th

- Welcome Night - 6:00 PM – Finland hotel – *100 E Broadway St, Butte, MT*

Thursday, March 21st

- Practice Day – 8:30 AM to 4:00 PM – *160 Bluebird Trail, Butte, MT*

Friday, March 22nd

- Alumni & CO-ED – 8:30 AM to 5:00 PM – *160 Bluebird Trail, Butte, MT*

Saturday, March 23rd

- Men's & Women's – 8:00 AM to 4:00 PM – *160 Bluebird Trail, Butte, MT*

More detailed information to come

Competition Description

This document has been updated in accordance with the rulings from the 45th IMG Captains meeting. The rules for the 46th IMG will be finalized at the end of the pre-competition Captains meeting, if required. All teams will be notified of any changes if/when they occur.

Team Competition

Each team shall consist of five (5) competitors; teams may choose to have a sixth (6th) alternate competitor. Teams may interchange competitors for each event at their discretion. Each competitor may only be part of one (1) team. The team competition consists of four (4) divisions.

- Men's
- Women's
- Co-Ed
- Alumni

Co-Ed teams must be composed of at least two (2) women. A minimum of two (2) women in the Co-Ed division must actively participate in each event. At least one (1) woman must participate in any two (2) person event. E.G., One (1) female must shovel & one (1) must screed or One (1) must maul & one (1) must fishplate.

Institutions will NOT be allowed to compete with *more than one* Co-Ed team *unless* they also have a Women's team competing.

Five Competitors are required for the following events:

- Swede Saw
- Hand Muck
- Gold Pan
- Track Stand
- Hand Steel (Single Jack) Drilling

Two Competitors are required for the following events:

- Jackleg Drilling
- Surveying

Equipment

Teams may bring any equipment they wish to use for gold pan, hand steel, hand muck, & track stand events. Equipment cannot be brought for jackleg drilling or surveying; all necessary equipment will be provided. Equipment must be made available for use by all team's for the ENTIRE competition. **All equipment must be checked in to the designated official NO LATER THAN 10:00AM, on practice day, March 21, 2024.** Only equipment checked in to the designated official prior to this time will be permitted for use during the competition.

Prior to equipment being made available for use it will be inspected for compliance with the rules and safety standards. If a piece of equipment is deemed to be in violation of the rules or unsafe, the owner will be notified, and the equipment will not be permitted for use during the competition. Once equipment has been checked in for an event, it will not be permitted to leave the field or be used in other events.

At the end of each day, the officials will store all equipment properly and securely to prevent tampering or theft. Anyone caught tampering with or stealing equipment will be subject to immediate disqualification; legal implications shall be left to the discretion of the owner of the equipment.

In the event of equipment failure, the owner of the equipment will be notified and given an opportunity to make repairs. Once repairs have been made, the equipment will be inspected again to ensure compliance with rules and safety standards. If a team breaks a piece of equipment belonging to another team, the two (2) teams are responsible to reconcile the cost. All equipment will be made available for collection at the conclusion of the Men's Events on Saturday, March 23 and the morning of Sunday, March 24.

NOTE: ALL equipment is brought to competition at your own risk and cost. The 46th Intercollegiate Mining Competition Committee, Judges, Montana Tech Mining Team cannot be held responsible for items damaged during the course of the competition or for any transport costs.

Safety

All competitors are required to comply with the safety regulations throughout the duration of the competition. This includes all listed safety standards and any safety related directions given by a Mining Competition official. The officials (i.e., judges) are there to protect everyone involved in the games. Compliance with safety regulations is required for the duration of the entire games; this includes practice and competition days. Any competitor with repeated safety violations as observed by a competition official is subject to disqualification from an event and/or competition.

Competitors must provide their own Personal Protective Equipment (PPE). Ear plugs will be made available. If, during an event, a piece of PPE falls off a competitor, that competitor **MUST** stop and put back on the PPE prior to resuming. If a competitor continues without stopping and putting the required PPE back on, the team will be disqualified from the event.

Certain events require additional PPE; this is noted in the rules for each event. **ALL** events require competitors to have the following PPE:

- Steel-Toe Boots
- Safety Glasses
- Full Length Pants
- Hard Hats
- Short/Long Sleeved Shirts NOTE: Cold weather during this time of year is extremely likely and teams are advised to bring clothing and PPE suitable for ALL possible conditions!

Emergency Personnel

Emergency personnel will be available in case of a medical emergency or serious injury.

Head-to-Head

In the spirit of competition, the following events will be held in a head-to-head manner:

- Swede Saw
- Hand Muck
- Track Stand
- Surveying

Scoring

Team Events

Points are awarded to each team for each event they complete. If a team is disqualified, they receive last place points for that event. Points are awarded based on how they perform within their division. The first-place team will receive one (1) point, the second place team will receive two (2) points, and so forth.

If at the end of the competition day, multiple teams in a division have the exact same time or measurement score, a tiebreaker will be applied. The teams will compete in the event again for placement, e.g. if the teams tie for second place in an event, they both compete in the event again and the team with the better score will take second and the other team third.

***NOTE:** In order to compete in an event tiebreaker, the team must be present at the final score tally (conducted at the conclusion of the day's events).*

After all event tie breakers have been settled, points will be summed and the team with the lowest total score will be declared the overall winner for the respective division. Should multiple teams have the same overall score within the same division, a tie breaker will be applied. In the event of this circumstance, the team with the most first place finishes will take the higher place; for example, if two (2) teams are tied for second place, Team A has four (4) first place finishes, and Team B has three (3) first place finished then Team A would take 2nd place and Team B 3rd place.

An example of the system is shown for Teams A & B:

Team A	Team B
1st place in 4 events = 4 points	1st place in 3 events = 3 points
2nd place in 3 events = 6 points	2nd place in 4 events = 8 points
10 Total Points	11 Total Points

- Team A is the Winner

Individual Events

The competition will be divided into a Men's and a Women's division. Once all competitors have competed in an event, points will be awarded to each person. If an individual is disqualified, he or she will receive the maximum number of points for that event. Points will be awarded in terms of the individual's position within his or her division. The first-place competitor for each event will receive only one (1) point, the second-place competitor will receive two (2) points, and so forth. Should an event position be tied, a head-to-head event tie-breaker will be arranged. Points will be summed and the competitor with the lowest score will be declared the winner for that division.

Team Event Rules

Swede Saw

The following PPE is required:

- Hard Hat
- Steel Toe Boots
- Safety Glasses
- Gloves (*Recommended*)

Five (5) members from each team will participate in this event. Using two 36-inch bow saws, competitors will alternate cutting through a 6-inch x 6-inch timber. The cumulative time will be used for scoring. Time will start once the first competitor's blade comes in contact with the timber. When one competitor finishes sawing the timber, the next competitor may begin sawing. There may only be one saw in contact with the block of timber at a time. The time will end when the 5th competitor completely saws through the timber. The team with the fastest time wins.

Each team will be given a 28-inch timber, divided into seven, 3-inch sections. Two sections may be discarded at the team's discretion. Sections may be discarded due to poor quality, knots, or any other reason the team decides on. The discarded sections will be denoted by an 'X' through that section. One extra bow saw will be available should one of the other two break. Teams will have the option to replace one blade before time starts. Should a blade break during the competition, the clock will continue to run while the saws are swapped. Once the saw is swapped, the competitor may continue with the same cut. Prior to a team's attempt, if a blade is broken it will be replaced by the judge.

After the team competes, they are required to pick up their cut blocks and discard them in the designated pile. If a competitor breaks out of their designated 3-inch section, they will be told by the judge to restart. A breakout is if the cut crosses completely through the marked line, if the cut is on the line this is not a breakout. If the two discarded blocks, marked with an 'X', have not yet been cut away, a competitor will be allowed to cut into a section marked with an 'X'. Should this happen a second time, the team will be disqualified. If the piece being cut breaks away from the main timber, the competitor must continue to saw off what is remaining before the next person can begin. Penalties will also be given for competitors using a saw to hit a piece of wood off the section: it is a saw, not an axe!

The following penalties will be applied accordingly:

1. Two (2) "breakouts"**Team Disqualification**
2. Hitting or chopping at a piece of timber **1 minute added**
3. Two (2) saws in contact with the wood at a time**Team Disqualification**

Hand Muck

The following PPE is required for this event:

- Hard Hat
- Steel Toed Boots
- Safety Glasses
- Gloves (*Recommended*)

Five (5) members from each team will compete in this event; three (3) participants will be muckers (shovelers) and two (2) will be screeders. The team will be given a ten (10) minute time period to prepare the muck pile before time is started. After this time, any member of the team may not touch the muck pile until the time is started. This includes shovelers situating themselves on the top of the muckpile; however, they may situate themselves on/in the muckpile during the ten (10) minute preparation period.

The event begins by tramping the empty ore cart down the track and back to the muck pile. Muckers may start filling the car once it is returned to the start and touched the bumper. Only two muckers are allowed to shovel material at any one time. The teams may alternate shovelers at their discretion. The two screeders can only touch muck that is within the plane of the ore cart. The judge will give an indication that the car has been filled and leveled. The full cart is then trammed down the length of the track and back again. Time will stop when the full car touches the bumper at the start of the track (by the muck pile). The fastest overall time wins. Tramping must start with the cart touching the backstops at the muck pile end. Once at the far end, it must touch the other backstop before returning and touching the original backstop. This applies for both empty and full ore cart runs. The muck cart must be in the upright position while tramping both empty and full. Competitors must be behind the front lip of the muck cart while it is moving and must never be on the tracks in front of a moving muck cart. Teams must make an effort to slow the car before changing directions or stopping. The women's teams will fill the car to a designated line roughly two-thirds of the volume of a full car. Men's, Co-Ed and all alumni teams will fill the car to the brim. Also, in the Co-Ed division, at least one woman will be required to circuit within the shoveling routine while the other women may muck or screed.

The following penalties will be applied accordingly:

1. Person in front of a moving cart on tracks..... **Disqualification**
2. More than two members shoveling simultaneously..... **Disqualification**
3. Derailing of cart **Disqualification**
4. Hitting stopper too hard (*Judges Discretion*)..... **20 seconds**
5. Screeders hand shoveling muck from pile into cart..... **20 seconds**

Gold Panning

The following PPE is required for this event:

- Steel Toed Boots

Five (5) members of each team are required for this event. Competitors may choose to use any type of available pan. Each gold pan will be filled with approximately one (1) coffee can full of material. The judge will then count and place five (5) flattened BBs (pellets) into the pan in front of the competitor. When a competitor has found all five (5) pellets and placed them into the judges' hand, the competitor will call "time". The maximum time to pan is five (5) minutes. The cumulative time for all five (5) competitors will be added together with the lowest team time declared winner. Teams may choose to pan in groups of two (2) or three (3) with the others acting as spotters.

All competitors will start with the bottom of their pan on the lip of the gold pan trough. Once the judge signals, timing will start and the competitor will be allowed to pan for the pellets. The competitor is responsible for placing each pellet in the judge's hand. Each pellet that is lost in the panning process or in the process of getting the pellet from the pan into the judge's hand will result in a five-minute penalty. Once a competitor has completed their pan, they may help one another spot pellets. No one may touch another competitor's pan or material. The sixth team member is not allowed to act as a spotter. This event is intended to be 'wet' panning and the use of 'dry' panning techniques will result in a penalty per occurrence; competitors must submerge their pan before touching or removing any material. A ten (10) second time period, after the last pellet is placed in the judges hand and the competitor calls time will be used to determine if all pellets are legitimate and not a rock. If it is determined to be a rock and not a pellet the competitors time will continue from the stopped time.

The following penalties will be applied accordingly:

1. Lost BB**5 minutes/BB**
2. Spotter contact (Pan Plane) with competitor's material or pan **Disqualification**
3. Dry Panning**5 minutes/occurrence**

Survey

The following PPE is required in this event:

- Steel Toed Boots

Two (2) members of each team will compete in the surveying event. An antique transit will be used. The hosting committee will provide all required equipment, except calculators and booking sheets. Teams may bring their own calculators and materials (i.e. clipboards, pens, etc). Calculation sheets and non-programmable calculators may only be used. No programmable calculators or mobile/cell phones are permitted. Judges will inspect survey equipment prior to each use and again at the end. Competitors are responsible for damage to the equipment while in their possession. While walking to different stations, the transit **MUST** be secured back in the box to ensure minimal damage. Each team will be given their equipment, coordinates of an initial “A” station (Northing, Easting, Elevation), and a back azimuth. The competitors will then have to transfer the coordinates through an intermediate “B” station to a final “C” station. Each team will be given 45 minutes to take measurements and 15 minutes to complete calculations. Equipment will be boxed up and secured at the beginning of the event. Judges will record a starting time at which the team will begin. Time will be stopped when the crew has completed its survey, and all equipment is boxed properly and returned to the judge.

The judge will check the equipment. If not properly stowed, the judge will indicate a problem and time will resume until the problems are corrected. The judge will not specifically identify the problem; it will be the team’s responsibility to find and correct the issue. Note that the 45-minute measurement time will be stopped when the equipment is properly secured, and the 15-minute calculation time will not start until the team is at the calculation station and ready to begin their calculations.

Each team will be provided with the following items for this event:

1. (1) Optical Transit
2. (1) Tripod
3. (1) 100’ Steel Measuring Tape
4. (1) Plumb Bob
5. (1) Survey Nail
6. (1) Magnifying Glass

Teams will be ranked by their error according to the total error of closure between their calculated coordinates for their “C” station and the actual “C” station coordinates as determined by the judges. The judge will have the right to disqualify any team who is reckless with equipment or causing damage to the equipment. Any team intentionally interfering with equipment or survey stations will also be disqualified. Should two teams obtain the same error, the time to complete the measurements and calculations will be taken into consideration to determine the rankings.

The following penalties will be applied accordingly:

1. Recklessness with equipment **Disqualification**
2. Overtime for measurements..... **Disqualification**
3. Overtime for calculations..... **Add three (3) feet to error per minute**

Track Stand

The following PPE is required in this event:

- Hard Hat
- Steel Toed Boots
- Safety Glasses
- Gloves (*Recommended*)

Four members from each team will compete in the track stand event while the fifth member will act as a coach/foreman for the team. The coach can only give instructions, point out problems, and help keep the team running smoothly. The coach is not allowed to touch any tools or materials. No team member may work on the same tie as someone driving spikes with a double jack, the first instance will result in a warning and the second will result in disqualification.

In the co-ed division, at least 2 women are required to participate in the construction and tear down with at least 1 of those women participating in driving spikes. The teams must install 2, 15 foot lengths of 40 pound per yard rail on five ties.

The rails must be connected to an existing piece of rail by means of four fish plates and eight bolts. Bolts must be tightened to a minimum of 35 foot-pounds (checked with a torque wrench). All necessary equipment will be provided, although personal equipment can also be used if made available to everyone (see EQUIPMENT). The rail must be held in place on the ties by 4 spikes per tie (1 on each side of each rail). Ties must be evenly spaced. Twenty-one spikes will be given to each team; one spike will be spare in case of breakage or loss.

The track must be kept to a gauge along its length with a provided track gauge, which will be made available to the teams for use during the event. Due to variations in the rail, the gauge will only be judged at a specific location specified by the event judge prior to set up.

Teams will be timed for both the construction and tear down of the track. Prior to timing, teams will be given ten minutes beforehand to level and prepare the ground where the track will be constructed. The coach cannot touch any materials during any part of the event. The teams will then stand behind a designated line with all of their materials and equipment. A judge will indicate the time of starting and the team will then be able to bring all material and tools past the line and construct the rail. Once the track has been constructed, all members (including coach) and tools are to be moved behind the line again, and the coach will be required to call 'time' before the judge stops the clock. The coach does not have to remain the same for both construction and disassembly but has to remain one of the five members participating in this event. The team's track will then be inspected for quality and any penalties will be recorded. If any team member travels under or over a piece of elevated rail during the event, they will be disqualified.

Teams will then be timed in the same way on the dismantlement of the rail section. Teams will not be allowed to elevate the section of rail in order to hit the ties loose; doing so will

result in disqualification and possible payments for damages to rails. All materials including tools should be removed behind the line prior to the coach calling ‘time’ for tear down.

Throwing tools or equipment will result in immediate disqualification, throwing is defined as dropping beyond the straight arm reach of the individual. Any items left on the field will incur time penalties, including pieces of broken ties that are larger than a spike. Time for construction and tear down of the rail will be added, along with any penalties incurred. The team with the fastest total time wins.

The following penalties will be applied accordingly:

Traveling under or over an elevated rail	Disqualification
Throwing tools or equipment.....	Disqualification
Elevating constructed track (Jacking the rails)	Disqualification
Coach touches anything	Disqualification
Working on the same tie as a double jack	Warning/Disqualification
.....	Three (3) warnings before disqualification
Any item left in front of the line	10 sec/ item
Spike not driven into tie.....	10 sec/spike
.....	Popsicle stick thickness at all areas between the spike head and tie
Spike not used at all	30 sec/spike
Bolts not tight enough (35 ft-lb or 47.5J)	15 sec/bolt
Not using spike or fish plates in correct manner.....	30 sec/occurrence
Hanging ties	20 sec/tie/side
.....	2 popsicle sticks completely between the tie and rail
Gauge not properly aligned.....	20 sec
Spike left in tie after disassembly	20 sec/spike

Jackleg Drilling

The following PPE is required in this event:

- Hard Hat
- Steel Toed Boots
- Safety Glasses (*No mesh glasses or “bug eye’s”*)
- Gloves (*Recommended*)
- Hearing Protection
- No Loose-Fitting Clothing (*Hood strings must be removed or tied up out of the way*)
- Long-sleeved Shirts or Kevlar Forearm Protectors

Two members from each team are required for this event; one driller and one assistant. The drillers will have three minutes each to drill as far as possible into a high square and a low square. Each square will be 6-inches x 6-inches and will be allocated to teams at random. The teams will drill into the concrete blocks using a 4-foot steel with a 1-1/2 inch bit. Start line will be 15 feet from the front of the concrete block. The clock will not stop for stuck steel. The driller and assistant may choose who drills the high and low holes.

Before time is started, the driller and assistant are allotted 3 minutes each to set up the drill and determine the placement of the air leg. Before the 3 minutes is up the drill must be behind the designated line with the steel out of the chuck. The Drill any single part of the drill steel must start behind the line. If the driller is male, the assistant may not touch the drill or the steel during the event; they may only help by moving hoses and guide rods. The assistant is not allowed to help remove the steel by pulling on the hoses. If the driller is female, the assistant may help with collaring the hole, by touching the steel. For female drillers, if the assistant makes contact with anything besides the steel or hoses, the longest hole will be deducted from your total length. For the co-ed division, each team must have one male and one female driller.

While drilling, it is mandatory that the driller does not straddle the airleg. Failure to do so will result in the air being turned off. The air can be turned off at any time, based on the judge’s discretion with regards to unsafe operations. Hands in pinch points or guards will be considered unsafe operations. In the event of breaking out of any side of the block, drilling into another hole, or drilling outside of the designated square, teams will be penalized. The team that drills the deepest after penalties have been deducted will be the winner. Holes will be measured to the nearest 1/8th of an inch.

The following penalties will be applied accordingly:

1. Unsafe operation of jackleg **Air turned off**
2. Air being shut off twice **Disqualification**
3. Straddling the air leg..... **Air turned off**
4. Driller aided incorrectly by assistant **Longest hole deducted/occurrence**
5. If more than half the drill hole is outside the designated square . **12 inches deducted from overall length**
6. Drilling out of any side of block drill hole **Not counted**
7. Drilling into another drill hole, drill hole..... **Not counted**

Hand Steel (Single Jack) Drilling

The following PPE is required in this event:

- Hard Hat
- Steel Toed Boots
- Safety Glasses
- Glove (*Required on hand holding the steel*)

Five members from each team are required to compete in this event. Each member will be given two minutes to drill as deep as possible into a 4-inch square painted on a concrete block. The hosting team will provide a set of steels and hammers for the event. A set of three drill steels will be provided. The steels will have a maximum length of twelve inches. Steels must have the appropriate chisel width to create a 7/8-inch diameter hole within a +/- 16th tolerance. Steels and hammers will be provided, but personal steels and hammers are also allowed, as long as they are made available to everyone. The drilling medium will consist of concrete blocks constructed using aggregate no larger than 1/2-inch diameter. Water may be used to flush the holes while drilling.

After the last member has finished, the team will have one minute to flush out the holes and remove chips. Plugs will be provided to prevent chips from entering completed holes. Male competitors will be required to use a 4-pound hammer while female competitors may use either a 3-pound or 4-pound hammer. Should a team drill into another hole, that hole's length will not be counted in measuring total length, and a new hole will be required to be started. Time will not be restarted. All competitors will be required to hold the steel while it is being struck with the hammer.

The judge will indicate when the steel is not properly held. On the second offense, the competitor will be disqualified and must forfeit the remainder of his time. Should a team member strike the side of the steel with a hammer, the next member will be required to take over drilling and the team will lose the remaining amount of time that the driller had remaining. All holes will be measured from the surface of the concrete block to the base of the hole to the nearest 32nd of an inch. The deepest total length wins.

The following penalties will be applied accordingly:

1. Steel not held when struck (2nd offense).....**Disqualification of person**
2. Striking side of steel with a hammer.....**Disqualification of person**
3. Steel stuck in hole**(after 1-minute flush) Hole not counted**

Individual Event Rules

Swede Saw

Individuals will begin from behind a designated line. Once time starts, the individual competitor will run up to the timber with their saw, cut their section, and return behind the line. Once the individual passes behind the line time will stop.

Hand Muck

Competitors will be required to fill a two-ton, side-dump ore cart to a designated line in as little time as possible. The competitor may choose to start the ore cart tipped or upright. Screeders will be responsible for tipping the cart up and leveling the muck. Time will be recorded by the judges. Individuals will not be required to tram the cart neither empty nor full. The individual may pick two screeders of his or her choice.

Gold Pan

Competitors will be given a gold pan with dirt. Judges will place 5 flattened lead pellets in the dirt. Starting with the pan on the ledge of the gold pan trough, competitors will pan for and find the five pellets in as little time as possible. Competitors are responsible for picking up and placing the pellets in the judge's hand. Loss of a pellet from the pan to the judge's hand will be counted as a penalty on the competitor. Penalty for a lost pellet is 5 minutes per pellet. Competitors may not search the trough for lost pellets. Competitors will be responsible for calling time once they have completed their search.

Spike Driving

Individuals will begin behind a designated line, and once time starts the individual will set and drive 2 spikes, one spike on each side of a section of rail. Time will stop when the competitor is back across the line. The judge will inspect the spikes to ensure they are installed correctly. Penalties for incomplete setup will be 15 seconds per infraction. Improper use or installation will be decided by the judges and will result in disqualification. The competitor with the fastest time and least penalties wins.

Jackleg Drilling

The driller may pick an assistant of his or her choice to help with hoses. Women may have a nipper. The driller will have 3 minutes to drill as far as they can into one square. Multiple holes may be drilled if the driller should finish drilling the length of the steel before time is finished.

Hand Steel (Single Jack) Drilling

The individual will have 5 minutes to drill as deep as possible using a hammer and steels. The driller may choose a watering assistant of his or her choice. Competitors may use their own sets of steels and will not be required to make them open for public use. A set of steels will be provided by the competition staff.