

Cowboys

Field Guide

Kids dream about being cowboys. The Cowboy discovery group is a chance for students to step into the past and learn the cowboy way at the Witcher Ranch.

In the scope of US History, cattle drives were only a short burst of activity after the Civil War. The demand for beef in a new Western economy grew with the migration of settlers in many professions. These new westerners prompted the movement of millions of cattle north from Texas. These cattle needed caretakers, and the cowboy was born.

The all-day trip to the working cattle ranch at Witchers offers insight into a profession that from the remote day of deomestication has given attention to the breeding, feeding, management and marketing of animals. We wil learn about grasses, cattle management, crop rotation and barnyard mysteries. We will sing, brand, play games, cook and learn about the life of a cowboy.

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Cowboys for Staff and Teachers

The six hour trip to the Witcher Ranch takes some organization and preparation. Staff should contact the Ranch Manager 5-7 days before students will be arriving. Sometimes the ranch hand or ranch manager will have time to take an active role in your teaching day. Staff should also head out to the Witcher Ranch to check on materials and supplies for the cowboy activities, as well as the condition of the tour stations. Collect all cooking supplies, check the costume box and plan the route of your cattle drive. The hike out should be about 1.5 hours, and the hike back an hour. This gives you approximately 4 hours at the ranch. Each tour station should be 15 minutes and activity stations 15-20 minutes. Take time to prepare the high school students to be experts in teaching stations, as you manage the rotations and start to set up the activity stations for after lunch.

Students love the Cowboy discovery group!

Colorado State Standards Met:

Cattle Drive	E/LA 4, M1,3,4,5,6, S1, H2,3,4,5, G2,3,4,5,6
History of Cattle Ranching	H2,3,4,5
Jobs and Life on the Ranch	
Tours	
Blacksmith Shop	S1, H2,3,4,5, G2
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Concluding Discussion	E/LA2,4, H4,5, G5

Materials Checklist: Costumes: cowboy hats, bandanas, jean jackets,
 Cooking Supplies: frying pan, oil, eggs, wood, paper, matches, glass jar, cream, salt
 Wood at Witcher
 Songbooks

Setting the Role - The Cattle Drive

Objectives: 1. Recommend solutions to decisions cowboys in the 1860's made.
2. Relive a successful cattle drive.

Approx. Time: 1.5 hours

After taking roll at the stake, greet students as the trail boss for the great cattle drive to the Witcher Ranch. In the 1860's, the demand for beef increased with the influx of miners, railroads, reservation lands, military outposts and new towns in the west. These cattle drives stocked the first ranches in Colorado, Kansas, Wyoming and Nebraska with longhorn cattle. It was a trip of over 1,000 miles, and with the cows came Colorado's first cowboys. Like these first cowboys, we are starting from San Antonio, Texas for the Witcher Ranch in Colorado Territory. Hike to the fenceline on the A-Bluff trail and have students pick their positions. The high school counselors will start out as cattle.

Why has our drive started? The ranch owner, Mr. Witcher, sent one of his representatives (probably one of his sons) to Texas, to 'collect' (buy) a herd. After the herd was collected, he hired a trail boss who would then hire the cowboys needed to make the trip. The trail boss needs to disclose to prospective cowboys that the trip will not be easy. The trip will be long, 3-5 months, 10-15 miles/day, and the pay will be \$100 plus food and horses for the trip.

Who was on a cattle drive?

Cowboy - 10-12 cowboys were hired to work about 1000 cattle. The most important piece of equipment a cowboy needed was a good horse. 6-8 horses per cowboy were provided by the trail boss. The cowboys' average age was 24. They were paid so badly, and worked so hard, that two-thirds of them made only one trail drive before finding something better to do. They owned their saddle, but not the horse they rode. Communication between cowboys was by hand signals, adapted from Plains Indian sign language, or gestures with hats.

What are the positions that the cowboys rode on trail drives?

Point - at the front, most dangerous position because if there is a stampede or if cattle try to go the wrong way, the point had to stop them - alone.

Swing - along the sides, hardest working position as they were riding twice as much over rough country as the other cowboys, chasing strays back into the herd.

Drag - ride at the back, worst position riding all day in the dust from the herd. They had to do the most pushing in order to keep the herd moving. Usually reserved for a first timer.

Trail Boss - decision maker and leader of the herd, ultimately responsible to the herd owner for delivery of the cattle. Biggest responsibility was finding a good water source at the end of each day. They usually did this by riding ahead of the herd to scout the country.

Camp Cookie - most important job on the drive. Responsible for feeding cowboys after 16 hour days and setting up camp. Often drove a Chuckwagon ahead with bedrolls and got a hot fire going before cowboys arrived.

Horses - needed the endurance to go long distances and be sure-footed to hand rough terrain. Cowboys usually had a favorite horse for night riding because its vision was better than that of others.

Cattle - worth \$5-\$10 in Texas, their value increased as they moved north and would fetch \$50-\$100 in Colorado. Calves born on the trail were trailered in a wagon so as not to slow down the herd. Beef was never eaten on the trail, as it would be eating away at the cowboys paychecks. Cattle had to graze on the move so the herd needed lots of room to spread out while being herded. Cattle do not trail in a group, but strung out in a long line. Several natural leaders usually take their places in front, while all the others fall into an irregular line behind them. A herd of 1,000 head might stretch out one to two miles on the trail. A cowboy had to keep the herd moving at a slow pace, while keeping an eye open for any strays that may slip between him and the next rider. He had to take it slow because running or frightening the cattle could cause a stampede.

Challenges on the Trail

After the high school leaders are cattle, switch roles, now with students as cattle. Try to get everyone into each role. Use the challenges to break up the long hike to Witcher, giving students a chance to rest and learn more about the development of the west on the way and obstacles the cowboys had to overcome.

Challenge #1 - A lightning strike spooked the cattle, causing a stampede. What do the cowboys do?

Stampedes were the worst thing that could happen on a cattle drive. It was dangerous to the cowboys who could be trampled or gored, valuable time was wasted rounding up the herd after a stampede, some cows were lost and a cow would lose 50 lbs after running 4 miles, which could fatally weaken the cow. Stampedes were caused by loud noises like gunshots or lightning. Sometimes cowboys would encourage cows to stampede, such as when they were crossing a poisonous alkali river, so that the cattle wouldn't stop to drink. *How can you avoid a stampede?* "The singing was supposed to soothe the cattle and it did... The two men on guard would circle around with their horses on a walk, if it was a clear night and the cattle was bedded down and quiet, and one man would sing a verse of a song, and his partner on the other side of the herd would sing another verse; and you'd go through a whole song that way... To stop a stampede, the drovers nearest the head of the herd would get in front of the leaders and turn them to the right, causing them to move in a circle, then bring the rest of the herd into the circle as they approached. The riders would then make the circle smaller and smaller, until the entire herd was moving slowly in a tight circle.

Challenge #2 - Homesteaders have fenced off part of the trail your cattle need to cross. How do you negotiate with the farmer who owns this land?

A herd of 1000 cattle could destroy cropland in a hurry, and the homesteading farmers invented barbwire to keep cattle out of their valuable pastures. The problem became so bad that Kansas enacted strict laws to protect the farmers. Many cattle drivers had to go around the state. It became harder and harder for the cowboys to drive their herds in a straight line. At a fenceline have a counselor or teacher play the role of a farmer, forbidding the cowboys and cattle to cross.

How will the cowboys handle the farmer? Try to work out a peaceful deal with him. We don't want problems with the sheriff.

Besides a right of way, what does the farmer have that we need? Fresh fruits and vegetables.

What do we have that the farmer needs? Manure - one of the best and most available fertilizers.

How about a trade? If he gives us some fruit and vegetables, we will cross his land and fertilize his fields.

Challenge #3 - There are rustlers in the valley. Trail boss fears a raid and the cowboys are tired from a 16 hour day in the saddle. How do you deal with the threat of losing cows?

Every cow represents money to the cowboys, so they will do anything to protect the herd. Cowboys would most likely take shifts overnight, and between 10-15 cowboys, shifts would be short. The cowboys already take shifts riding the herd at night singing songs

*Discuss some of the other hazards on the journey. Poisonous weeds, snakes, weather, quicksand, prairie fires and overgrazed land, droughts that caused 'water crazed' cows were obstacles all trail bosses faced.

Challenge #4 - It's been a long day and you finally make it to the river where 4 other outfits are grazing. How do you get your cows adequate water?

Cattle need food and water to survive the long haul north. It was in the cowboys best interest to keep the cows as healthy, strong and fat as possible . A cow drinks about 12 gallons of water a day. If the trail boss had a hard time locating a good water source, there was an easy solution: let the cows find it! Cows can find water by scent much better than cowboys.

When approaching the river, the best bet would be not to get the herds mixed up, as it could take alot of extra time and man-power to separate the cattle. Also, head upstream as far as possible, where the cleanest water would be. Imagine what the river would look like downstream of 4000 cattle!

When ranchers set up their own homesteads (parcels were limited to 160 acres, which was enough to support about 5 cows), they claimed parcels with watering holes. The cattle then grazed on the public lands.

If possible, stop at a spring tank. See resources for spring tank math.

Challenge #5 - An angry group of Ute Indians in Southern Colorado have approached the herd and require payment of 50 cattle for crossing "Indian Territory". What do you do?

In order to get from Texan to the plains of Colorado, all trails had to go through "Indian Territory" - Oklahoma, Northern Texas, Northern New Mexico, Southern Colorado. This was one of the most dangerous parts of the cattle drive.

Why should the Indians care about the cattle drive?

- It was easier to get cows than to hunt bison.
- The buffalo were beginning to disappear.
- The Indians didn't want 'invasions' of their remaining territories.

There are lots of options... encourage the cowboys to consider all of them in solving this problem.

Ignore them... if you do, they'll come tonight, stampede the cows and catch the strays, you stand to lose more than 50 cows.

Shoot them... dramatic, but they'll still stampede the cows at night and might shoot a few cowboys out of spite.

Give them 50 cows... Okay, but they aren't your cows. Mr. Witcher bought 1000 cows and you promised to deliver 1000 cows. Cows cost \$10 each...do you have \$500 to give to Witcher when you get to Colorado?

What can you do? Were any calves born on the trail?

Of 1000 cows, probably so! Calves born on the trail were a nuisance to cowboys because they slowed down the herd. Keeping the calf often caused the cow and calf to die on the trail. So give them the calves! Note that while the movies make a dramatic battle of such encounters, real cowboys knew that their job was to move cattle, not fight Indians, and it was a good way to get rid of unwanted cows.

History of Cattle Ranching and the Witcher Ranch

Objectives: 1. Explain the reasons for the growth of cattle ranching in the post-Civil War western US.
Approx. Time: 10 minutes

Stop when you have a view of the ranch from a decent vantage point. This is a good time to discuss the history of cattle ranching in the west.

Cattle had been raised in Texas from the time the Spanish attempted to establish missions and domesticate the Indians, beginning in the mid-18th century. It was a small-scale industry. Most cattle were slaughtered for their hides and tallow, since the meat could not be preserved for long with the methods then used. The early cattle were longhorns, descendants of Spanish ranch and mission herds, with horn spreads up to eight feet.

Early cattle drives headed west to the California gold fields after 1850, when cattle worth \$5 to \$10 a head in Texas would garner five to 20 times that amount in San Francisco. These drives slowed by 1857, as the cattle market in California reached a glut. By 1859, only a trickle of cattle moved to the West Coast. After gold was discovered in the Rocky Mountains, some cattle were driven to the gold fields there, starting about 1858.

Ranchers also supplied beef to frontier forts and to Indian reservations in West Texas, Oklahoma and New Mexico beginning in the late 1850s. Cattle ranching halted during the Civil War years, but beginning in 1866, ranching – and cattle trailing – expanded rapidly.

Cattle drives to northern and western markets, and later to railroad-loading facilities, started in earnest in 1866. The drives were conducted for only about 20 years, becoming unnecessary with the advent of the railroads and refrigeration in the 1880s.

Cattle drives usually began in the spring after roundup, as grass was available then and the herd could be delivered to its destination in the north before cold weather set in. Livestock from several different owners was usually included in a trail herd. The trail boss obtained documentation from each rancher noting the owner's brand, earmark and number of cattle. Then all animals in the drive were branded with the same road brand, regardless of ownership.

Legendary ranchman and trail driver Charles Goodnight invented the chuckwagon in 1866 for use by his crews. The chuckwagon, sometimes drawn by oxen, but usually by mules, carried not only food, utensils and a water barrel, but also tools and the crew's bed rolls. We'll get to use a chuckwagon today!

The first cattle drives from Texas was on the legendary Chisholm Trail, crossing Central Texas toward the markets and railheads in Kansas. The trail was named for Indian trader Jesse Chisholm, who blazed a cattle trail in 1865 between the North Canadian and Arkansas rivers. The trail was not one fixed route. As one historian remarked, "trails originated wherever a herd was shaped up and ended wherever a market was found. A thousand minor trails fed the main routes." Roughly, the Chisholm Trail went from the Rio Grande, crossed the Red River and continued to Abilene, Kans. The peak year on the Chisholm Trail was 1871. After interstate railroads came to Texas in the mid-1870s, trailing cattle to the Midwest became unnecessary.

The era of the cattle drive was at its peak for only about 20 years – from after the Civil War until the coming of the railroads to Texas made the long trek to northern markets unnecessary.

The Witcher Ranch is over 100 years old, and is reminiscent of the ranches developed north of Texas after the era of the great cattle drives. It is a working cattle ranch, with over 100 horses and 75 cattle.

Life on a Working Ranch

Objectives: 1. Understand the typical work day, roles and skills necessary to run a cattle operation.
Approx. Time: 15 minutes

Questions to ask:

*Has anyone here spent any time on a ranch?
What kinds of jobs are there on a working cattle ranch?
What skills might be useful on a typical ranch?
What did a typical day look like for a rancher?
What are some basic 'rules' for life on a ranch?*

Vladimar 'Jake' Vaseen moved to the Witcher Ranch when he was fifteen and lived here for 60 years until he died in 1976. Jake really knew what was involved in working a ranch like this. He was a model of independence and self-sufficiency. In the early days of ranching, a man had to be master of many jobs. Not only did he have to wrangle cattle and horses, but he had to be his own blacksmith, butcher, cook, mechanic, plumber and eventually electrician.

Jake could undertake any of these tasks. Ranchers of today have changed very little from those of Jake's time. However, on large ranches of today, cowboys can specialize in a certain job.

Wrangler - main job was working with the horses and cows. Riding, roping, branding, feeding, shoeing, assessing and treating medical needs with livestock, running the hay operation, maintaining tack.

Manager - makes the big ranch decisions, negotiates cattle prices, hires seasonal help, collaborates with neighbors, buys and sells horses, deals with ranch finances.

Ranch Hand - responsible for general ranch chores, usually inexperienced and paid low wages.

Cook - keeps staff well fed, take care of the chickens and potato cellar, highest paid on the ranch.

Blacksmith - fixes broken machinery, wagons, makes horse shoes/nails.

Butcher - responsible for processing cattle for sale.

Delivery Driver - drives butchered and live cattle, picks up supplies needed in town.

Mechanic - responsible for maintaining physical plant, machinery.

Some basic rules of the ranch:

Keep all gates closed.

Stay away from the livestock. Some of them may bite or kick!

Don't drink the water out of the spring tank!

Be careful how well you say 'Yee Haw!', you may get hired as a ranch hand!

Tours of the Ranch

Objectives: 1. Students experience a working cattle ranch.

Approx. Time: 1 hour

Setting up your tour groups:

Students should be placed into 'outfits' led by one of the high school counselors. While the teacher is leading a short discussion about the jobs on a ranch, take each of the high school leaders to their respective stations and prepare them to teach showing them the highlights of the station. They will be teaching for 15 minutes.

Calving/Milking Shed

Calving Shed

Ranchers work in shifts to monitor pregnant calves during calving season, doing checks every 4 hours. Calving season starts in February when temperatures can read -20 at night. *Why do you think calves are born at such a cold time of year?*

The calves must be sold in the fall because there is not enough winter pasture to support them. The earlier they are born, the larger they will be when they go to sale.

When a cow is due to deliver, the rancher brings her into the barn to have her calf. Notice the calf puller hanging on the wall in the deliver room. When a cow is having trouble delivering, the rancher attaches the chains to the calves front legs (which usually come out first) and helps pull the calf out of the cow.

Take a close look at the construction of the walls. A cow giving birth needs more shelter, so the delivery room walls are doubled with sawdust between them for insulation. There is also a bottle of aftershave lotion in the delivery room. Cows recognize their calves by scent. Sometimes a cow won't accept her calf. If a strong smell is sprinkled on the calf and the cows nose, she might connect the smells and accept her calf. It doesn't always work but its worth a try.

Look at the windows and vents. *Why do you think the windows are so high? How does the barn get any ventilation if the windows don't open?*

Milk Barn

In addition to a chicken house and potato cellar, most ranches had a milk cow to provide fresh dairy products.

Questions to ask:

Have you ever tasted fresh milk? How is it different from store bought milk?

How much milk does a cow give?

What would a rancher do with the extra milk? What other products are made from milk?

Would cows from the main herd be used for milk?

What were the stocks for?

Why is the floor made of stone?

Commercial milk is pastuerized to kill all the bacteria and germs. It is also homogenized to prevent the various ingredients from separating into layers. Only milk cows can give up to 4 gallons of milk a day, which often left alot of extra milk used to make cheese, butter, sour cream and other dairy products. The stocks held the cows head while it ate and was milk and the stone floor was easier to clean.

The Blacksmith Shop

Questions to ask:

Why would a working ranch need a blacksmith shop?

If your parents' lawnmower breaks what do they do? Would ranchers here go to a repair shop?

What kind of tools can be made in the shop?

Look all around at the tools, implements. What do you think each of these things was for?

Where would you heat metal?

The forge is where the blacksmith heated the metal so that it would become soft enough to shape or weld. The major parts of the forge are:

Tuyere - a nozzle between the firepot and the blast pipe which delivers air to the forge.

Bellows - a device for forcing oxygen into the fire. This one cranks. *Are there other types?*

Hood - by means of a wind blown turbine on the roof, the hood draws up all the smoke from the forge. *Can you locate these forge structures?*

Let's take a look at some of the other tools:

Anvil - *Why does the anvil have a 'horn' or 'beak'? What is the chipping block? Prichel Hole? How is the anvil set for the most efficient work?*

Hammers - *Find the soft face, ball-pein, cross pein, straight pein and what are there different uses?*

Tongs - named for what they held...link, belt, horse shoe, etc...

Punches - *what are punches used for?*

Top Swage - used for making round pieces of rod.

Leg Vice - *How did this get its name?* - one side of the vice has a leg that goes all the way down into the ground. This gives the vice more support so that metal can be hammered out on the vice.

What is the blacksmithing process?

It takes great skill to build the proper forge fire for different blacksmithing techniques.

In an **oxidizing fire**, more air is supplied than is needed for combustion. The excess oxygen comes in contact with the iron or steel being heated, causing rapid oxidation of the metal and cooling rather than heating it. This is not a desirable fire for smithing. It has a very hollow appearance with a ring of live coals around the edge of the firepot and a thin layer of coals and cinders above the tuyere

In a **reducing fire**, all the oxygen is consumed to make the fire hotter. it requires a heavy compact bed of live coals over the tuyere - banked well on three sides with wet, unburned coal.

Coke - residue of coal left after it has been used as a fuel. Good smithing coal is soft and should crumble easily in the hand. It should not split into layers and should be bright and glossy.

Other interesting things in the shop: large bellows in the ceiling, tool to make wagon wheels

Slaughterhouse

Questions for discussion:

Why would a ranch have a slaughterhouse? How often would Mr. Witcher want a cow slaughtered?

In the 1900's-1920's, Witcher Ranch was contracted to supply beef to the state prison in Canon City. Butchering here was a big operation.

How many steps does a cow go through before it reaches your table as a hamburger?

Rancher - Feedlot - Slaughterhouse - Wholesaler - Retailer - Consumer

What kind of nutritional value does beef have?

Protein, phosphorus, Vitamin A, Iron, Thiamine, Fat, Niacin, Copper, Riboflavin

Only about 50% of a cow is used for meat. The rest is by products.

What are these by products and what can they be used for?

Leather from Hides (shoes, harness, saddles, belts, luggage, footballs, furniture)

Fats (Soap, lubricants, candles, leather dressings, candy)

Variety meats (ear, kidney, brain, liver, tongue, tail, feet, tripe, mountain oysters)

Hair (artist brushes from fine hair on inside of cattle ears, hair and toothbrushes, mattresses, upholstery and air filters.

Hornes/Hooves (napkin rings, knife/umbrella handles, combs, dog treats)

Blood (used in refining sugars, blood sausage, shoe polish)

Meat scraps/tissue (after grease is removed, used for animal feed or tankage)

Bones (animal feed, fertilizer, glue, buttons, dice)

Intestines (sausage containers, surgical sutures, strings for musical instruments and tennis rackets)

Glands (over 100 medicines and medical products are produced from meat animals...1500 pancreatic glands will produce 1oz of insulin for diabetics)

Collagen (glue for woodworking, gelatin for baking, ice cream, photography)

What alternatives to beef are available to consumers at the grocery store today?

How much meat does the average American eat per year? 220lbs per person each year. With a population of over 300 million, that over 45 trillion lbs of meat/year.

The actual method of slaughtering animals has not changed much over the years. First the steer was run up the pen, into the killing chute and shot in the head - this is done as quickly and humanely as possible. *Why?* Not only is this less cruel, but fear and pain create chemical reactions in the blood which make the meat less choice. *What does your body do when your frightened?*

Next the horizontal door is raised and the winch is used to hoist the animal by its hind legs. It is then bled and eviscerated. *What do you think the groove in the floor and the small door on the back wall are used for? What was done with the waste?* The groove drained all the blood and made removal of waste easier. Waste was thrown out each night and eaten by the coyotes.

Why is the front door so large? To make it easier to remove the large sides of beef.

How did they keep the meat from spoiling? Since there was no refrigeration, most of the butchering was done during the colder months. The meat, left hanging, froze and prevented spoilage.

Dehorning

Why dehorn the cattle? A person can be gored easily while working with horned cattle. When being shipped by truck or box car, they can injure one another, decreasing the quality of meat and lowering the value of the cattle. Less room is required to feed dehorned cattle. Horn is made of keratin, a substance like that in your fingernails. Today, saws and clippers are still used to remove the horns of older cattle. On young calves, a caustic dehorning paste is applied to the small horn buttons to prevent future growth.

Potato Cellar, Hay Barn and Equipment, Calf Chute, Chicken Coop

Potato Cellar

Would the cook's kitchen just be in the house? Where would he keep his food? The potato cellar was used for potatoes, of course, but also for other types of storage. Apples, onions, carrots, turnips, and most root crops also keep with little refrigeration.

How does the potato cellar work? Why not just stack the potatoes outside? Most things can only be frozen once before spoiling. This is true of potatoes. The temperature underground is more constant year round (60-65) - warmer in winter, cooler in summer. If you have a basement at your house you know it is often the coolest part of the house when the heat is not on. Because the ground insulates a cellar it helps maintain a constant temperature. The double doors of the potato cellar further add to the insulation.

How did the big roof timbers get into place? By hand, horses and pulleys.

What would you use today?

What were the holes in the roof for? Ventilation and potatoes could be dumped down these chutes directly from the wagons.

Hay Barn and Equipment

Why can't we just let the cows forage all year? Unlike horses and buffalo, cows won't or don't know enough to dig through snow to get grass. As you learned on the way over, the cowboy has to do a lot of thinking for a cow!

Check out the hay equipment. The hay is harvested in late summer. The first step is to cut the hay with a swather. This machine not only cuts it, but crimps the head to help it dry faster and kicks it into a windrow for easy pick up. On large windrows, when the grass at the bottom has not dried, a rake will be used. It flips the windrow over so the damp grass on the bottom is exposed to the drying effects of the sun and wind.

When the grass is dry, a baler comes down each windrow, picks up the grass, cuts it into proper length, packs it and wires it into bales of uniform size and weight. Finally the bales are loaded onto a truck and stacked in the haybarn. Depending on the amount of moisture that year, we will put up to 140-240 tons of hay. Have a student lift a bale and carry it 20 feet to a wagon to lift it onto. It's hard work!

What happens if you don't let the hay dry out? How much does the barn hold? Hay will mold and rot if left wet, losing much of its nutritional value. If tightly stacked in the barn, it can also cause fires through spontaneous combustion. *How would the cowboy have processed hay in the good old days?*

Squeeze Chute

Each fall, when the young calves have matured for a few months, they need to be given shots, wormer and brands. The Squeeze Chute is where all this individual attention happens. The calves are singly pushed through a long alley chute and into the squeeze, where they are held in place and put on their sides. This keeps the cows and ranch-hands safe when administering the necessary medical and identification procedures on the cows. Check out how the cage works!

Chicken Coop

The chicken house used to provide plenty of meat and eggs for a ranch family. Today, on most chicken farms, chickens live in 2' x 2' cages on a long conveyor belt. Every hour or so, food is deposited in front of the chicken. Eggs are carried away on another conveyor belt. This is very efficient and costs very little to operate, however eggs produced in this manner are as much as 60 days old when they reach the consumer.

Producers also found that if a hen "broods" (sits on her eggs), she doesn't lay, so they've bred out the instinct to brood. If you took a factory chicken into a barnyard, it would never have chicks - it wouldn't know how. Not only that, but they discovered that egg laying is controlled by the pituitary gland and that gland is stimulated by light. So, by leaving bright lights on 20hrs/day, the factory chickens produce more.

Witcher Ranch Today

Seasonal Calendar

Fall - Hay Cutting, Fix Fencing, Corral Repairs, Winter Prep, Livestock vaccinations

Winter - Feeding, Indoor Projects, Chopping Ice, Calving starts, checking pasture herd

Spring - Calving ends, livestock vaccinations, brand calves, move cattle to pasture rotations, bring horses home, shoeing, camp prep, etc.

Summer - Summer camp, pack trips, moving cattle, doctoring calves, maintaining horses, tack

Then and Now....

100 Year Old methods still used...

Gathering / Working / Doctoring Cattle - We use 1-20 riders to get behind cattle and “push” them to their destination. We want the cattle to move at a walk and trot, but never a run because that can cause a stampede. Some riders will gather stray cattle that may have gotten away from the herd. Our horses do most of the work, but we use whistles and yells to get the cattle moving up steep hills or rocky areas. We also use special dogs, called Blue Heelers, Australian Shepards or simply cattle dog, to help us move cattle through thick areas of bushes or trees. After a long drive we try to keep things quiet so the cattle don’t get excited or scared and become aggressive. Sometimes the cattle have other ideas and they chase us over fences or on top of gates. Usually the more quiet and calm we can keep the animals the safer and smoother it is for the cowboys. When a cow or calf is sick at pasture, and we don’t have the aid of corrals and squeeze chutes, we use our horse and a rope to catch the sick cow or calf and give them a shot of medicine. Cowboys have been roping and doctoring cattle this way forever! Not only is it the only way, but it can also be fun!

Branding Cattle - We brand calves the same way they did in the past. Riders with ropes couple with a good ground team used for wrestling, holding and branding. A rider will rope a calf’s back legs (called a heel shot) and will “dally off” the rope to the saddle horn. Then the horse and rider will drag the calves over to the branding oven or fire pit. From this point, the ground team will “toss” the calf on it’s side and hold it down while the branding person brands the calf. After the brand is on the calf the ground team lets the calf back up to it’s feet and it returns to the herd. Unbelievably there are still people that rustle (steal) cattle. A ranch’s brand is the only way to permanently identify their cattle.

Gathering Horses - We still use 1-6 riders to round-up our entire herd of horses and run them to our corrals. There is a Lead Rider (the one who leads the horses to the corrals). A few Flank Riders (riders on either side of the herd that keep them from spreading out). And lastly, there are a few Drag Riders (riders that ride behind the group and keep pushing the herd forward). Unlike cattle that will walk/trot when being moved, when moving horses like this the horse run 99% of the time. The action is fast-paced, fun and sometimes dangerous. Riders that fall off their horses can be trampled or drug along the ground or have to walk home if they fall off and their horse becomes part of the herd.

Catching Horses in the Corral - Usually we can walk right up to the horses that are older, gentle and more broke. For the younger and inexperienced horses we have to chase them around or corner them so we can catch them. And if all else fails, sometimes we have to rope a horse to catch it. We usually run the horse in a separate round pen and work with it until we can catch it or eventually have to rope it. Whether a horse is easy to catch or must be roped has no bearing on whether the horse will be good to ride. Some of our best horses are tough catch and must be roped. Conversely, some of our un-broke horses will let you catch them easy. It just depends on the horse’s personality and the patience of the person catching them.

Use of Pack Horses to Carry Food and Supplies - During our summer camps our riders will take 2-5 day pack trips into the mountains with horses. They use pack horses to carry all their supplies and food. A pack horse might carry items like sleeping bags, tents, flashlights, maps, compass, first aid kit and extra horse equipment like hobbles, halters and brushes. And of course, the pack horse carries all the food for the people. The best thing about having a horse carry your food is that you can bring all types of really good food on the trail. Our trips will cook eggs, bacon, steaks, fajitas, chicken parmesan, spaghetti, cinnamon rolls, cherry cobbler and sometimes junk food like Oreo’s, Pop Tarts, and candy! All the horses get to eat is grass. Bummer.

New technology used...

Cell Phones or Walkie-Talkies - Helps cowboys/cowgirls communicate with each other over long distances when gathering cattle or horses. Sometimes it can save someone a trip up and over a ridge, river or mountain.

Squeeze Chutes / Head Catches / Branding Stocks - These contraptions help keep the cowboys safe as well as the animals. Be sure to check them out on you tour of Witcher!

ATV's and Helicopters to Gather Horses - On the great ranges of Utah and Nevada, where there are thousands of wild horses, the cowboys will use a helicopter to find and move horses. It's faster and easier when you have to cover thousands of square miles. We do not have any helicopters on our ranch.

Microchips / GPS - Some ranches use microchips injected into their horses and cattle for identifying and tracking them. They then use a radio or GPS to locate and gather their animals. We do not microchip or use GPS.

Types of Horses on the Ranch...

Quarterhorses

Mustangs

Thoroughbreds

Appaloosa

Arabian

Paint

Native American Horses

Draft Horses

Pinto

and many combinations of each!

Sometimes a combination of horses can be very beneficial to the horse and cowboy. For instance a quarter horse and mustang cross bred horse will have good size, great strength, durability and endurance. However it might also have a short temper, be harder to train, and might buck a cowboy off a few times!

Types of Cows on the Ranch...

Hereford

Angus

Hereford cattle are from England originally. They are known for their thick strong bones and durable hides and coat. They also have a good temperament and tend to be very easy to handle. Angus cattle have the same characteristics as a Hereford, but they can be a little livelier and sometimes pushy with cowboys. They are also more durable in this mountain winter environment. We cross breed our cows to make them stronger and get the best of both breeds.

Check out the 'Ranch Math' section in the Resources Pages for more interesting information about Witcher Ranch and some great numbers practice, cowboy style!

Activity Stations at Witcher Ranch

Objectives: 1. Practice ranching and cowboy skills.
Approx. Time: 1 hour and 15 minutes

Setting up your activity stations:

Each 15-minute station can be set up by the staff person while lunch is being served. Students will then get back into their outfits and rotate through the 4 stations. Each station will be staffed by a high school student and teachers will be assigned to work at the branding or chuckwagon stations that need fires built. Be clear on the direction of the rotation.

Branding

Have an adult run the branding station as you will be using hot irons from the fire or propane heater. Show students the brand examples in the potato cellar and ask them to start to brainstorm ideas for their own brand based on the letters in their name, street, school, or a combination. Be sure there are pre-cut boards.

Questions to ask:

How do you keep track of over 1000 cattle?

What happens when you come to a river crossing and there are 3 other outfits already there?

Can you think of any business 'logos' you recognize?

Cattle brands were necessary for the cowboys to maintain the herd on a long cattle drive. Brands were registered by the cattle owners. Some cattle had owner brands and 'road' brands for the long trek north. Today, eartags have replaced brands by some large outfits. Branding a calf is like having a really bad sunburn; it hurts for a few days and then begins to heal. It's state-law and a good idea to brand your calves.

Each animal is branded when they are calves. A hot iron is used to singe the flesh to make the marking. Most branding irons are simple 1-2 inch bars or half circles, of which most letters of the alphabet can be made.

Every brand was unique. Brands reflected the owner's name or ranch name using modified letters. Some brands were simply initials or owners names (LT, FORD). Many brands used a picture to reflect the owner/ranch name (examples). In order not to duplicate registered brands, ranch owners were creative in their brand development, using modified letters as brands. Others went so far as to develop intricate combinations of letters and symbols (bars, dashes, diamonds), many of which became famous in the west. Brands are read from

Sanborn Brands

S-Laxy Diamond (horses)

Box - L (cows)

Roping

Using a lariat to catch a running calf while mounted on a moving horse is a serious skill. And one that the cowboys mastered in their time on the trail. Roping is still today an important part of being a successful rancher, especially when trying to separate the cows from their calves. Competitive rodeos feature roping as a main event and many seasoned ropers have taken to 'trick' roping by using the lariat to do amazing things!

Practice roping the plastic cow heads mounted on hay bales. First from a stationary position then while running. Next try a moving target, a volunteer or even the teacher! Be sure there are at least 3 lariats and two plastic cow heads to practice with. To throw the lariat, keep the rope free of twists and kinks. The loop must be oval when thrown. Hold the loop about a foot from the honda (knot) and twirl the loop above your head using a lot of wrist movement. Be sure to throw the rope with enough force to reach the target. It takes years of practice to become a good roper.

Saddling and Shoeing

The most important piece of equipment a cowboy owned was his saddle. 8-10 horses were provided by the trail boss for each cowboy for the 1000 mile trip and a comfortable, practical western saddle was necessary as most cowboys sat in their saddles for 14-16 hours/day.

Take a look at the saddle found in the hay barn on the wooden horse. *Why is it made of leather? How would it feel to sit in this saddle all day? What is the horn used for? What purpose do the long leather straps on the sides serve?* Use the saddle diagram in the resources page to familiarize yourself with the components of the saddle and their uses.

Horses walking, trotting, and running needed a good pair of shoes to keep healthy feet. Horses were invaluable to the cowboy and foot maintenance such as checking shoes and scraping mud from the bottom of the horses feet was part of the daily routine. Putting shoes on and taking them off is the work of a Ferrrier. A ferrrier will measure the size of the horses foot, choose the right shoe, trim the hoof (a horses foot grows like a fingernail and needs to be trimmed every 8-10 weeks), and put on the shoes. Ferrriers have a specific set of tools for the job. Using the shoeing simulators, try to measure and nail the right shoe on, then take it off.

What are the challenges a ferrrier must face?

Would you like to float a horses teeth? Check out the horse skull!

Uses of a cowboy hat...

protect from sun/rain
gather food/water
fan a fire
cover face while sleeping
waterproof
what else?

Other great activities:

Tall Tales
Cowboy Songs and Poetry
Cowboy Olympics

See Resources page for specific stories, songs and olympic events

Chuckwagon Cooking

In the early days of the great trail drives the cowhand had to make do with what he could carry with him. This caused some rather hungry, uncomfortable times on the trail. Texas rancher Charles Goodnight saw an opportunity to fill this basic need and in 1866 created the prototype for the chuck wagon.

By the 1870's, dozens of cattle drives were moving millions of cattle from Texas to markets in the midwest. As a result, there was a shortage of cowboys and there was tremendous competition in recruiting good cowboys. To gain the recruiting advantage, Goodnight decided to improve on the quality of meals served along the trail. What he needed was a good cook and a mobile kitchen.

To that end, Colonel Charles Goodnight purchased a sturdy war-surplus munitions wagon strong enough to make the journey of more than a thousand miles along difficult trails under all kinds of weather.

Goodnight outfitted the wagon with a kitchen on the back of the military wagon and with the help of his cook, developed an efficient layout that was soon adopted by all trail drovers across the west and named the chuckwagon after founder Chuck Goodnight.

The boot carried the Dutch ovens and other cooking utensils the cook would need to provide hot meals for ten or more cowboys on long trail drives. A water barrel large enough to hold two days' water supply was attached to the side of the wagon along with an assortment of tool and catch-all boxes, hooks, brackets and the vital coffee grinder. Naturally, wood for cook fires is scarce on the prairie. By suspending a canvas beneath the wagon in hammock fashion the cook had a convenient container for any fuel he collected during each day's move. The wagon box was used to carry the cowboys' bedrolls and personal effects as well as bulk food supplies, feed for the horses and what ever else the crew felt was needed. In some cases a second "hoodlum" wagon was used to carry the gear and supplies of large crews. It was not uncommon to hear a cowboy say that he worked for a "wagon" as opposed to a particular ranch.

The chuckwagon was used to transport food and supplies for trail crews and cattle drives and served as the cowboy cook's home on long trail drives. The chuckwagon also carried provisions for the trail hands, especially water, plus bedrolls, shovels, axes, rope, and even a few personal items.

Cowboy Cooking

Setting up the chuckwagon:

Open the back gate of the chuckwagon and take out the cooking materials to display. Get the fire going to boil water in the tea kettle. Give students a mini-tour of the wagon including all cooking supplies, where camp cookie stored firewood, basic ingredients needed. *What else would students want on the chuckwagon?* Check out the recipes to choose from in the resources page.

The most important job on the trail!

Camp Cookie!

Ranch Management

Carrying Capacity, Nutritional Value of Grasses

Activity:

Analyze on square meter of land for plant diversity.

- in teams of two, stake out one square meter of land using a tape measure.
- count the variety of plants in the square
- are there any signs of animal life in your square? Insects?
- which plant do you think has the most nutritional value? Why?
- which plant would taste best to livestock? Why?

How much land does one horse/cow need to subsist?

Ranch managers are scientists, conservationists and environmentalists!

Carrying Capacity of a biological species in an environment is the population size of the species that the environment can sustain indefinitely, given the food, habitat, water and other necessities available in the environment. Carrying capacity is based on climate, location, type of cows, condition of pastures, soil, type of vegetation, and topography.

Acreage Per Cow -

In our mountain environment there no set laws for acres per cow. Cows have no upper teeth (incisors) so they do not nip the grass right down to the dirt. They are easier on pasture grass than horses. Also, our rainfall and snowfall are factors in the quality of our pasture grass. In wet years our grass is waist tall or higher! And in some dry years we have to buy and feed more bailed hay. A rancher always wishes for a wet year, which increases feed quality for the animals. A wet year also increases hay production so that we can bail more hay for the winter months. Cattle are beneficial to pasture because they cannot eat the grass down to dirt and their feces helps to fertilize the grass for the next year.

Acreage per Horse --

As mentioned above, the weather plays a major factor in our pasture rotations. A pasture rotation is what we do every year to ensure that we are getting the most use out of each pasture without overusing and damaging a pasture. Unlike cows, horses are able to nip grass down to dirt because of their upper and lower incisors. Horses can severely and permanently damage pasture if they are not rotated throughout the year. Horses, their pasture and their grazing must be monitored very closely. Here on the ranch we are constantly moving horse to new and unused pasture to help manage the land.

Horse Chow! - Check out a hay bale and an alfalfa bale....what are the differences?

Alfalfa has the highest feeding value of all common hay crops. Its primary use is as feed for dairy cattle—because of its high protein content and highly digestible fiber—and secondarily for beef cattle, horses, sheep, and goats. The nutritional value of hay is related to leaf content. The leaves of grass hay have more nutrients, are more digestible when the plant is immature and growing, and more fiber when the plant has reached full growth.

Closing Discussion

Objectives: 1. summarize the life of a historic and modern rancher and decide if ranching is a potential career.

Approx. Time: 10 minutes

Questions to ask:

Would you like to be a cowboy?

What would be fun? What would you not enjoy so much?

What did you believe about cowboys when you started today?

Take a few minutes now to sit by yourself and imagine seeing the landscape around you as a cowboy. Does the land look harsh? Do you have an easy life? Why do you think you became a cowboy?

Does American need the cowboy today?

Cowboy Myths and Realities:

Now that you have been to a working cattle ranch, determine the truth behind the following about cowboys:

The cowboy life was glamorous.

Myth: It was very difficult working 18-hour days and the long trail rides were sometimes boring.

Most cowboys had small or medium physical frames.

Truth: Large men were too heavy to ride mustangs.

A cowboy would ride his favorite horse all day.

Myth: Cowboys would ride a string of horses depending on what task was at hand. For example, a mild horse would be used at night and a quick horse would be used for cattle roping and tending.

Many Texas cowboys were Mexican or African-American.

Truth: During the Cowboy Era (1866-1886) one sixth of the cowboys were Mexican, and many others were African-American or Native American.

Most Texas cowboys were older, experienced wranglers.

Myth: Most cowboys were young men who learned on the job.

Women could not be cowboys.

Myth: Several women owned ranches and ran their own cattle drives, including Amanda Burks and Lizzie Johnson.

Cowboys often had to fight off Native Americans.

Myth: Cowboys rarely if ever fought Native Americans.

The word “cowboy” was invented in Texas.

Myth: Actually, the job of a “cowboy” came from the Mexican and Spanish “vaquero.” Many cowboy words and practices come from the Spanish language and Mexican culture

COWBOYS RESOURCES

Chuckwagon Recipes

Make Your Own Hardtack Recipe

* Hardtack ingredients:

- 4 cups flour, preferably whole wheat
- 4 teaspoons salt
- Water - about 2 cups

Preheat your oven to 375 degrees F. Mix your flour and salt in a bowl, adding just enough water to form dough that does not stick to your hands or the bowl as you knead it. Then roll the dough out into a rough rectangle about half an inch thick. Cut into three inch squares.

Now using a nail or other object press a patten of four rows of four holes each in each square. Do not go through the entire thickness of the dough. Then turn the hardtack dough over and do the same on the other side.

Next put the squares on an ungreased pan and bake in the oven for half an hour. Then turn the hardtack squares over and bake for another half hour so that the hardtack is just a bit brown on both sides.

When you take the hardtack out of the oven it will be somewhat brittle, but as it cools it will become very hard – hopefully as “hard as a brick”!

Camper's All Purpose Baking Mix

Use this for just about any kind of bread, biscuits, cinnamon rolls, pizza dough, pancakes, and more! The recipe below will make a large batch that can be stored in a zipper-lock bag or other container, and you can take just the amount you are going to need and just add water for the appropriate consistency.

- 8 Cups All Purpose Flour
- 1/2 Cup Powdered Milk
- 5 TBS. Baking Powder
- 4 tsp. Salt

The easiest method for getting the Chuckwagon going is to dump a can of beans in the pot, fry some biscuits in a pan and have some hot chocolate ready to go! Otherwise utilize these recipes and get fancy!

Hearty Trail Beans

- 2 lbs. dry pinto beans; soaked overnight
- 2 yellow onions; diced
- 10 cups hot water
- 8 cloves garlic; minced
- 24 oz. (3 cups) Coca-Cola
- 1 lb. smoked sliced bacon; cut into 1” pieces
- 3/4 cup catsup
- 6 Tbs. chili powder
- 1/4 cup Worcestershire sauce
- 3 serrano peppers; minced
- 1/4 cup Heinz 57 steak sauce
- 4 tsp. toasted caraway seeds; ground
- 1 (30 oz.) can whole tomatoes

Add all ingredients to a 12” deep Dutch oven. Bring to a boil using 18-20 briquettes bottom stirring beans frequently. Cover beans and continue to simmer using 6-8 briquettes bottom and 12-14 briquettes top for 2-3 hours. Stir beans from the bottom up every 15 minutes. Add additional water if beans begin to dry out. Beans should be soft but not mushy and just a bit soupy.

Best Ever Cornbread

- | | |
|----------------------|--------------------------|
| 1 cup butter; melted | 2 cups cornmeal |
| 4 eggs; beaten | 3 cups all-purpose flour |
| 3 cups milk | 4 tsp. baking powder |
| 2 cups sugar | 1 tsp. salt |

In a large bowl mix together butter, eggs, and milk. In a separate bowl sift together sugar, cornmeal, flour, baking powder, and salt. Mix dry ingredients into wet ingredients 1 cup at a time until well blended. Spoon cornbread mixture into a lightly greased 12” Dutch oven and spread evenly.

Cover Dutch oven and bake using 8-10 briquettes bottom and 14-16 briquettes top for 45 minutes or until cornbread turns golden brown.

Cowboy Lingo

Here's a list of terms used in the old west...which ones are still used today and do they have the same meaning?
Activity Idea: have each student group use the terms to write/act/tell a short story...see if the other groups can decipher the story!

Cowpoke	gully washer (heavy rain)	squinny (to laugh, smile)
Cowpuncher	hair case (hat)	talk a donkey's hind leg off (talk with no purpose)
Buckaroo	high tail (leave quickly)	two whoops and a holler (not far away)
Dogie (undersized calf)	hit pay dirt (find something of value)	tombstones (teeth)
Cookie	hook (to steal)	tear squeezer (sad story)
Necktie Social (hanging)	hop (a dance)	yarn (story)
On the Dodge (on the run)	horse feathers (ridiculous)	windies (tall tale)
Road Agent (robber)	hot rock, sourdough bullet (biscuit)	top sawyer (excellent, superior)
Sold his saddle (disgraced)	iron horse (railroad train)	vamoose (disappear)
Tenderfoot (new to the job)	jawing (talking)	walk the chalk (walk straight)
Shindig (party)	jump the broom (get married)	wattles (ears)
Rustler (cattle thief)	lammy (blanket)	brown gargle (coffee)
Smokewagon, Canister, Barking	lincoln skins (money)	
Irons (pistol)	madder than an old wet hen (very angry)	
Above-snakes (alive)	make tracks (walk away)	
Chink (money)	mud pipes (boots)	
Can openers (spurs)	notions (random stuff for sale)	
Button (young kid)	nipper (baby)	
Ace in the hole (hidden gun)	of the first water (high class)	
Air in the lungs (cussing)	old pie (expression of admiration)	
All the caboose (everywhere)	on the shoot (looking for trouble)	
Axl grease (butter)	on the fence (undecided)	
At sea (not comprehending)	overland trout (bacon)	
Barefoot (unshod horse)	pass in ones chips (die)	
Bazoo (mouth)	pig trail (small side road)	
Bee in your bonnet (idea)	plank down (pay in cash)	
Big guns (important men)	pop your corn (speak up)	
Clean your plow (given a whoopin)	prairie pancake (cow pattie)	
dilly dally (delay)	put on the nose bag (eat)	
dive (bunkhouse)	rattling (excellent)	
don't get your dander up (excited)	rattle your hocks (hurry up)	
down to the blanker (almost broke)	ride out on a rail (forced to leave town)	
duddy (term of endearment)	rock, scuds (piece of money)	
dusted (thrown from a horse)	sand (courage, 'guts')	
eaten irons (silverwear)	to saw (play a joke on)	
fandango (party)	scad (large quantities)	
fiddle faddle (nonsense)	shoal (lounging about lazily)	
fix (predicament/dilemma)	skunk eggs (onions)	
flannel mouth (smooth talking)	small fry (kid, unimportant person)	
flea trap (bedroll)	snuffy (wild/spirited horse)	
get a wriggle on (hurry up)		
go boil your shirt (bug off)		

Cowboy Characters

Lizzie Johnson (1840-1924)

Lizzie started out as a school teacher and, because of her education, she was able to invest in cattle. Eventually, she bought her own herd and drove them “up the trail” to Kansas to be sold. “The Cattle Queen of Texas”. She is believed to be the first woman to have ridden the Chisholm Trail. An innovator in private life as well, Lizzie Johnson kept her business property separate from that of her husband. A worker in the Woman’s Christian Temperance Union, she also was a pioneer in prison reform. She died leaving diamonds hidden in her room and property all over Central Texas.

William ‘Buffalo Bill’ Cody (1846-1917)

A seasoned plainsman at age 14, Cody grew up on the prairie, worked for a chuckwagon freight company, tried his luck as a prospector in the Pikes Peak Gold Rush, rode for the pony express and served in the army as a union scout. Finally in 1867 he took up the trade that gave him his nickname, hunting buffalo to feed construction crews of the Kansas Pacific Railroad. He won the name ‘Buffalo Bill’ in an eight hour shooting match. He soon took to acting and starred as his self on stage, but regularly guided rich Easterners on hunting expeditions in the West. He made a bundle of money (and eventually lost it as well) by organizing ‘Buffalo Bill’s Wild West Show’, an outdoor extravaganza dramatizing the frontier life. He died Jan. 10, 1917, and is buried in a tomb blasted from solid rock at the summit of Lookout Mountain near Denver.

Charles Goodnight (1836-1929)

Goodnight invented the chuckwagon, established one of the first cattle ranches on the Texas panhandle, the JR Ranch, and blazed one of the most important cattle drive trails in the west, the Goodnight-Loving Trail. He fought Comanche raiders with the Texas Rangers, fought for the Confederacy during the Civil War, and prompted the state wide roundup of cattle that roamed free during the four long years of war.

Joseph Farwell Glidden (1813-1906)

Glidden developed a commonplace product that would transform the West: barbed wire. Before this innovation, settlers on the plains had no easy way to fence livestock away from cropland. Ranchers had no way to prevent their herds from roaming far and wide. Patented in 1874, the new wire opened the plains to large-scale farming, and closed the open range, bring the era of the cowboy close to its end. Glidden quickly became one of the wealthiest men in the nation.

Ranch Math Supplementary Activities/Facts

General Ranch Costs

Cow - \$1000 cost to buy
Year 1 Calf - \$485
Year 2 Calf - \$485
Year 3 Calf - \$485
Total - \$1455

Lesson to Learn: A cow will pay for herself after she has her 3rd calf. If one of her calves dies then it will take even longer to pay for her. It's the reason we take such good care of them throughout the year.

Steer and Heifer Calves -

Steers (boys) and Heifers (girls) have an average weight of 500lbs each. So if the ranch has 70 calves the total at sale time is \$35,000. So if the ranch spent \$10,000 on feed the ranch makes \$25,000. It's a good chunk of money if the conditions are good... good weather, no deaths, good grass and lots of hay. However, if those conditions are worse the ranch might spend \$20,000 on feed for the calves then the ranch only makes \$15,000. Lesson to Learn: There's always a cost associated with everything. We try to limit our costs on the ranch, but sometimes it's unavoidable. The animals always have to eat!

Horse Math -

The costs and benefits of owning and caring for horse is a little difficult to determine. The beauty of our ranch is that we have 100 head of horses that people pay to ride during the summer for three months. In simplistic terms, our horses are an asset and a liability to the ranch because although they are expensive to keep on the ranch but they also attract our campers and guests to the ranch in the summer.

Lesson to Learn: You have to spend money to make money.

Water and Spring Tank Math

Stop at a running spring. Test it to see how many cattle it could water. There is a cup in the pack.

Steps:

1. Hold the cup under the spring and count how many seconds it takes to fill the cup.
2. Divide the number of seconds into 60, this gives cups per minute.
3. There are 16 cups in a gallon: figure out the water flow in gallons/minute.

How many cows could drink here in an hour? (Cows drink about 12 gallons water/day)

Where does the water come from?

How does it get to the pipe?

Can you find the 'real' spring?

Actually, the water is located above the spring and flows by gravity to the spring tank. Therefore, if the pipe is 2 feet high, the real source of the water must be over 2 feet above the tank. The water then flows through a gravel trench (man-made) to purify and clarify it.