

How Many Jackrabbits Equal One Buffalo?

Animal Weight Comparisons

Background Information

The animal we commonly refer to as a buffalo is not really a buffalo at all, but rather the American Bison. The real buffalo – an Indian Buffalo, water buffalo, or carabao – roams wild in southeastern Asia and is the principal draft animal in that region's rice-growing countries. A massively built, oxlike animal, a water buffalo is dull black with a sparse coat and large horns. These animals are much different than the buffalo that we think of here in South Dakota. In this kit the American Bison will be referred to as the buffalo because people commonly refer to bison as buffalo.

Related to the cow but much larger, the buffalo can weigh up to 2000 pounds. A male bull may reach six and a half feet in height and be ten feet long from snout to tail. The animal lives from twenty to forty years. Buffalo are the largest land animal in North America. Being big does not make the buffalo slow. With its short, strong legs and large lung capacity, a buffalo can outrun a horse and change direction on the move very quickly. The buffalo's sharp horns can seriously hurt a rider or horse.

Buffalo originally came to North America from Asia, crossing the Bering Strait during the Ice Age. These early buffalo were much larger than the buffalo of today. Other animals also came to North America – camels, woolly mammoths, and a species of the horse. Ancient hunters and harsh weather eventually killed off most of them, but the buffalo survived, and its numbers grew. A single herd or group of buffalo could be several miles wide and fifty miles long. When a massive buffalo herd moved, the ground nearby rumbled.

Just as animals crossed the Bering Strait, so did people. The earliest Plains inhabitants were descendants of those who crossed the Strait 40,000 to 15,000 years ago. Early Plains dwellers hunted buffalo using the natural landscape as well as man-made tools. One hunting method involved starting large grass fires close to ravines. With the wind in the hunter's favor, the fire caused the buffalo to stampede and run off the cliff into the ravine. Many fires were set each year. These fires helped to keep the Plains treeless.¹ Early Plains dwellers also took advantages of natural occurrences and used buffalo that had drowned by falling through winter ice or in spring floods.

Some early hunting methods continued to be used in more recent times. At buffalo jump sites, the animals were stampeded off a cliff or ravine and then collected at the bottom. Over forty jump-kill sites have been identified in the Great Plains. Some of the names for these places are: Head-Smashed-In, Boneyard Coulee, and Bison Trap.² In the winter, buffalo could be hunted by spooking the animals near a frozen river and driving them onto the ice. The buffalos' weight broke up the ice and they would fall into the water. People of the tribe, including women and children, waited at an opening in

¹ Francis Haines, *The Buffalo: The Story of American Bison and their Hunters from Prehistoric Times to The Present*, University of Oklahoma Press ed. (Norman: University of Oklahoma Press, c1995), 10.

² Time Life Books, *The Buffalo Hunter*, (Alexandria, VA: Time-Life Books, c1993), 103.

the river downstream, where they would retrieve the carcasses. This tactic was still used in the 1800's.³ Buffalo caught in deep snow could not escape hunters on snowshoes. Hunters also disguised themselves with buffalo or wolf skins, and crept into the herd with spears or bow and arrows, or they waited by a stream or river for the buffalo to come and drink.

Another hunting method was a *piskin* – a corral or pound. The Indians forced the buffalo into pre-built pens, or into a cul-de-sac or box canyon where they could shoot the trapped animals.

Weapons for hunting buffalo evolved over time. The first hunters used spears, no more than sticks with sharpened rocks attached. Later, the *atlatl* (at-uhl-at-uhl), a spear-throwing tool, increased distance and accuracy for hunters. An atlatl consisted of a stick or paddle about two feet long with a handle on one end and a hook to hold a dart on the other end. Atlatl darts looked like large, flexible arrows. An overhand throw and a sharp snap of the wrist shot the dart forward. It was accurate up to fifty yards, but a skilled hunter could throw an atlatl up to one hundred fifty yards. The atlatl darts penetrated much better than a spear did.⁴ The bow and arrow eventually replaced the atlatl.

European explorers brought horses with them when they came to North America in the 1500s. There had been no horses in North America for over 15,000 years, since the earlier Ice Age animals had died out. Horses profoundly changed the way buffalo could be hunted. A rider could keep up with the fast-paced buffalo. With a bow and arrow, the Indians rode up to buffalo on horseback and shot the animals in a vital spot. Later on, guns brought by traders revolutionized buffalo hunting again. Firearms could knock down a buffalo from a great distance, be reloaded quickly and then shot again.

Although some hunting techniques killed more buffalo than could be immediately used, at the time the buffalo population was huge. Even when the buffalo were stampeded off cliffs, the number of animals that died was insignificant compared to the supply. There is no way to know exactly how many buffalo roamed the plains from the 16th to the 19th century, but estimates put the number between sixty and seventy million.⁵ Some scholars are raising questions about what the buffalo's future would have held even without the massive hunting of the 19th century. They point out that the herds were overgrazing the grassland. When fully grown, buffalo have no real predators other than humans. Weather did not affect the animals except for the occasional tornado. Buffalo were essentially immune to blizzards or cold weather and bugs and flies have little effect on them.⁶ Whether the buffalo herds would have naturally thinned out or not, the demand for buffalo hides hastened the demise of the herds and brought about enormous changes for the tribes who depended on the buffalo.

³ Time Life, 101.

⁴ Haines, 24.

⁵ Albert J. Rorabacher, *The American Buffalo in Transition: A Historical and Economic Survey of the Bison in America*. (St. Cloud MN: North Star Press, [1970, c.1971]), 21.

⁶ Dana Close Jennings, *Buffalo History and Husbandry: The Buffalo Ranchers Handbook*. (Freeman SD: Pine Hill Press, 1978), 196.

The buffalo plays a central role in Lakota culture and religious beliefs. One of the most important stories in their culture is that of the Buffalo Calf Woman. Buffalo Calf Woman appeared to the Lakota and presented them with the sacred pipe. She showed them many important spiritual things, including how to pray. As she walked into the sunset, she rolled over four times and turned into a black buffalo, brown buffalo, red buffalo, and the finally a white buffalo. The Lakota believe that the mighty buffalo herd came about and allowed itself to be killed so that they might survive. The white buffalo is a sacred Lakota symbol.

Indians used every part of the buffalo for one purpose or another. Hides made clothing and tipis, horns made cups and spoons, muscles and tendons provided glue and bowstrings. Nothing went to waste. After the kill, buffalo meat had to be prepared right away, especially during the summer since there was no refrigeration. Some meat was eaten while it was fresh. Cutting the meat into strips and drying it out in the sun made jerky, which would last a long time without spoiling. Some of the jerky was processed into pemmican - a mixture of mashed jerky and fruit. The pemmican kept even longer than the jerky. Pemmican was often stored in a parfleche; a container made from buffalo rawhide.

Before it could be used, buffalo hide had to be prepared. First, any flesh or fat still on the hide had to be scraped off with a flesher, a tool made from the buffalo's leg bone. Stretching the hide out on the ground made scraping the hide to a consistent thickness easier. Untanned fleshed and dried hide made hard leather called rawhide. Rawhide was used to make parfleches, drums, pouches, and rope. Tanning the hide made soft leather, good for buckskin bags, robes, moccasins, and tipis. To tan the hide, it was spread with a paste of fat, cooked brains, and liver and then dried in the sun.

European explorers in North America saw a land full of riches, and one of those riches was fur. Fur trading became a big industry and the Great Plains had a fair number of trading posts. Buffalo hides were one of the major trade items from the plains. Large hides brought between \$1 and \$3.50.⁷

In the 1860's, railroads brought in around 1,200 workers who required fresh meat every day. The vast buffalo herds supplied the meat. Railroads also brought in hunters who had heard about the amazing buffalo herds and wanted to hunt the animals for themselves. Some hunters would shoot from the train as it passed the herds. This shooting did not supply any meat – it was just for sport. Eventually, it became hard to find a herd close to the rail lines. The railroad split the herd into the southern herd and the northern herd. In 40 years, from 1830 to 1874, the southern herd was wiped out.⁸ The meat was rarely taken – possibly the tongue and a few strips off the back. The rest was left for the wolves. In addition to hunters, farmers and ranchers also moved onto the plains. They did not want buffalo grazing on land their livestock needed, so they shot the buffalo to get rid of them.

⁷ Jennings, 239.

⁸ Jennings, 241.

As hunters destroyed the buffalo, they also destroyed the Indian way of life that depended on the buffalo. The Indians had to move much more often to find the remnants of the buffalo herds that had once roamed the plains. The herd that was once sixty million was reduced to 550 by 1889.⁹ The buffalo were almost extinct. Nothing could restore the old herds. The hunters and fur traders moved on to hunt other animals or find a new line of work. The Indians saw their traditional way of life end. As they were forced onto reservations, they could no longer roam the land to hunt.

After the almost total destruction of the buffalo, some people realized they needed to help conserve the buffalo before it was too late. Some states passed laws requiring hunters to keep what they killed instead of leaving it on the ground. The United States government was not all that interested in the fate of the buffalo in the late 19th century. Yellowstone National Park held the highest concentration of buffalo, but poaching was a problem. In 1894, there were less than 20 buffalo in the park.¹⁰ The efforts of a few men saved the buffalo from total extinction. These men rounded up some of the few remaining buffalo and raised and bred them even while others were out hunting them. Some also tried persuading Congress to pass tougher laws against buffalo hunting. In the early 1900's, parks started opening to protect the buffalo. The last of these large parks was Custer State Park. Twenty-five buffalo purchased from South Dakota buffalo conservationist Scotty Philip started the Custer Park herd. Private investors also started to raise buffalo herds.

Today, the buffalo population is around 500,000¹¹. While not close to the sixty million that once roamed the plains, the buffalo is no longer in danger of being completely wiped out. With the push today for healthier foods, providing lean buffalo meat is a growing industry. Mighty herds of buffalo once roamed freely, supporting the Indians who used the animal as a way of life. Greed, sport hunting, and changing uses for the land almost wiped out the animals. Thanks to the efforts of a few far-sighted conservationists, buffalo live strong and plentiful once again.

⁹ "Buffalo and the Plains Indian", www.corpcomm.net/~redeye/buffalo.html, (June 12, 2000).

¹⁰ Rorabacher, 55.

¹¹ Jed Portman, "Five Things You Need to Know About the Great American Bison", <http://www.pbs.org/wnet/need-to-know/five-things/the-great-american-bison/8950/>, accessed February 21, 2013.

How Many Jackrabbits Equal One Buffalo?

Animal Weight Comparisons

Objectives:

- Participants will identify five creatures that share a buffalo's prairie environment.
- Participants will convert weight from pound to ounces to grams.
- Participants will compare weights and determine how many of each creature weigh the equivalent of one buffalo.

Standards:

Common Core Math Standards						
K	1 st	2 nd	3 rd	4 th	5 th	6 th
K.CC.5	1.MD.4		3.MD.2	4.MD.1	5.MD.1	6.NS.3
K.CC.6				4.OA.3	5.NBT.5	
K.MD.2				4.NBT.5		

Timeframe: 45-60 minutes

Materials:

In kit

participants

How Many Jackrabbits Worksheets 1 and 2

Provided by instructor or

Pencil

Scratch paper

Background Information:

Buffalo shared their prairie environment with a wide variety of other mammals, insects, birds, amphibians and other wildlife. In this activity, participants will identify five creatures that shared the prairie environment and use math skills to compare their weight with that of a buffalo.

Activity Steps:

1. Give each participant a copy of Worksheet 1.
2. Working either individually, in pairs, or small groups, have participants complete the animal weight table. Calculate the weight of the buffalo, turtle, jackrabbit and coyote to the nearest pound. Calculate the pheasant to the 10th (0.0) of a pound and the deer mouse to the thousandth (0.000) of a pound.
3. Give each participant a copy of Worksheet 2. Using the table from Worksheet 1, calculate the number of each creature needed to equal the weight of one buffalo.
4. Discuss:
 - What five creatures in this activity shared the buffalo's environment?
 - What other creatures live on the prairie? Option: Choose some other prairie animals and calculate how many would be needed to equal one buffalo's weight.

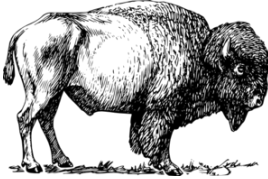





Name _____

How Many Jackrabbits Equal One Buffalo?

Animal Weight Comparisons
 Worksheet 1

Complete the table below by multiplying and dividing.

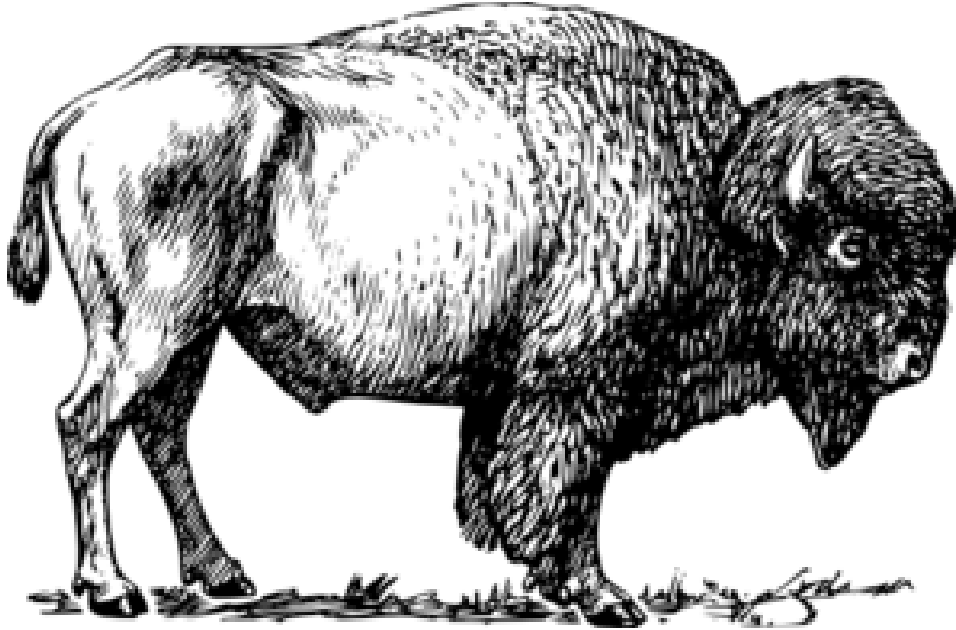
1 pound = 16 ounces = 454 grams
1 ounce = .066 pounds = 28.35 grams

	Pounds	Ounces	Grams
 Buffalo		31,200	
 Pheasant	2.6		
 Coyote			15,890
 Painted Turtle		16	
 Jackrabbit			3,178
 Deer Mouse	.066		





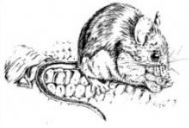
Name _____

How Many Jackrabbits Equal One Buffalo?

Animal Weight Comparisons
Worksheet 2



A 1,950 pound buffalo equals:

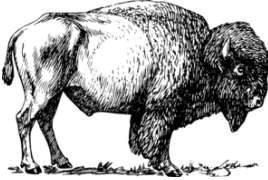





 <p>How many pheasants?</p>	 <p>How many coyotes?</p>	 <p>How many painted turtles?</p>	 <p>How many jackrabbits?</p>	 <p>How many deer mice?</p>

How Many Jackrabbits Equal One Buffalo?

Animal Weight Comparisons
 Worksheet 1 KEY

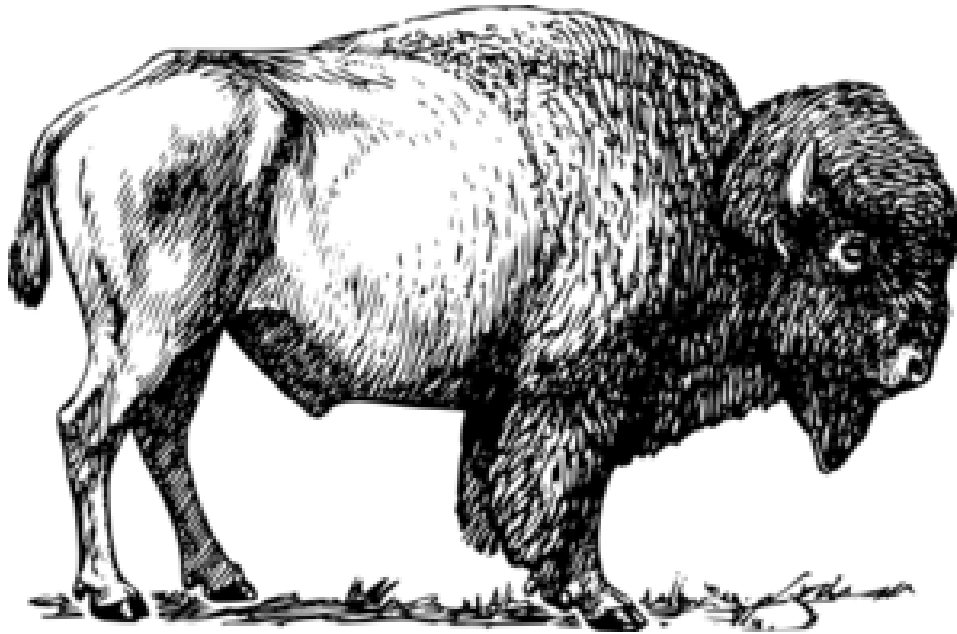
Complete the table below by multiplying and dividing.

1 pound = 16 ounces = 454 grams
1 ounce = .066 pounds = 28.35 grams






	Pounds	Ounces	Grams
 Buffalo	1,950	31,200	885,300
 Pheasant	2.6	41.6	1,180
 Coyote	35	560	15,890
 Painted Turtle	1	16	454
 Jackrabbit	7	112	3,178
 Deer Mouse	.066	1.06	29.96

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Animal Weight Comparisons
Worksheet 2 KEY



A 1,950 pound buffalo equals:

				
How many pheasants?	How many coyotes?	How many painted turtles?	How many jackrabbits?	How many deer mice?
750	55.7	1,950	278.6	29,545