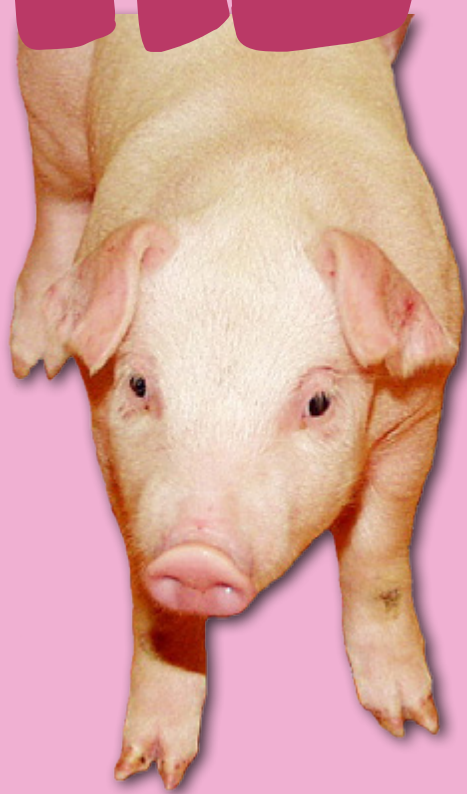


Pig mania

Teacher's Guide

Grades 4-6



Written By Sandy Dorn & Jane Nyffeler
Adapted from lessons originally by Lois Linke & Rhonda True

Graphic Design by Tara Grell



Background Information



BACKGROUND

Hogs are also called swine. They were among the first animals to be domesticated, possibly as early as 7000 B.C. Pork, the meat from hogs, was widely consumed throughout the ancient world and the Roman Empire.

Hogs were first introduced to North America in 1539 when Hernando de Soto brought 13 to the Florida mainland. Most of the hogs in the United States are produced in the Midwestern states, including Nebraska, Iowa, Illinois and Ohio. Worldwide, China is the country that produces the most hogs.

GROWTH

A young female is called a gilt and an adult female is a sow. A neutered male is a barrow and the adult male is a boar. The offspring of a male boar and a female sow are called piglets, or just pigs.

There are many breeds of hogs, such as Duroc, Hampshire, Poland China, Landrace and Yorkshire. However, many hogs are crossbred, which incorporate the traits of two or more breeds.

Sows give birth, called farrowing, to an average of eight to twelve piglets, which as a group are called a litter. The average gestation period is three months, three weeks and three days (about 114 days). An average sow will raise six to eight litters of pigs in her lifetime.

Piglets are born with eight needle-sharp teeth and curly tails. The teeth are trimmed to prevent injury to the sow and other piglets. The tail is shortened to prevent tail biting. Pigs are also born without sweat glands. A cool environment needs to be provided for them at all times.

Piglets weigh about three pounds when born and are approximately 11½ inches in length. They are weaned from the sow at 16 to 22 days of age because the pigs no longer need to nurse and can eat solid foods. At this point, pigs average 15 pounds. They gain 12 pounds during the first month.

FEEDING/PRODUCTION

The piglets are fed a diet which is primarily ground corn and soybeans. This supplies the nutrients needed for heat and energy. They are fed a product such as soymeal to provide the protein needed to build muscle. Vitamins and minerals are also included in their feed. It takes approximately 920 pounds of feed to raise a hog for market. This same hog would drink about one-and-a-half to two gallons of water a day.

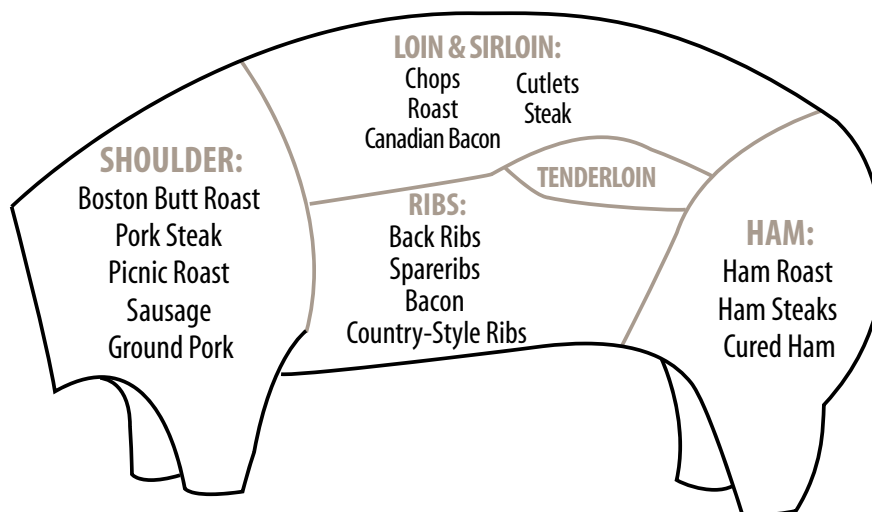
Hogs are sold at market when they reach a finish weight of about 265 pounds and are about five to six months of age. A lean hog is considered high quality. Some gilts are usually kept in the herd for breeding to produce the next generation of pigs. Hog producers vary their production practices according to such variables as market prices, grain prices, weather conditions, global issues, etc.

PRODUCTS

After finished hogs are sold at the market they are processed into a number of important products for people. Pork is the meat that comes from a hog. People eat many different pork products, such as bacon, sausage, pork chops and ham. A 265-pound market hog will yield about 160 pounds of pork for the grocery store's meat case. Pork is the most widely eaten meat in the world. It is an excellent source of protein, B vitamins, iron and zinc.

In addition to meat, other products or by-products come from hogs. These include insulin for the regulation of diabetes; valves for human heart surgery; suede for shoes and clothing; and gelatin for many food and non-food uses. Hog by-products are also important parts of such products as water filters, insulation, rubber, antifreeze, certain plastics, floor waxes, chalk, adhesives, crayons, fertilizer, glue, artists' brushes and buttons. The amazing utility of the hog has led to the saying, "We use everything but the oink."

CUTS OF PORK





Vocabulary



Bacon – A cut of meat from hogs which is cured by smoking.

Barrow – A neutered male pig.

Boar – A breeding male hog.

By-product – A substance produced during the making of another product.

Corn – A high energy content grain fed to pigs.

Crossbred – An animal which is the combination of two or more animal breeds.

Domesticated – Animals trained and adapted to live with and/or be of use to human beings.

Farrow – To give birth to a litter of piglets.

Finished – The hog is ready for market.

Gestation – Length of pregnancy.

Gilt – A young female pig, usually under 12 months of age.

Hog – Another word for pig.

Litter – A group of piglets born at the same time by the same sow.

Loin Chop – A cut of meat from the back/loin of a hog.

Market Weight – Weight at which a hog may be sold and then processed into pork products.

Meat Grader – A person that evaluates the cuts of pork for tenderness, juiciness and flavor and grades them accordingly.

Meat Packer/Processor – One who processes meat for sale to restaurants and grocery stores.

Piglet – A young pig.

Retail Meat Cutter – Takes large cuts of meat from packer and cuts them into small cuts and packages for sale in grocery stores.

Sausage – Pork which is ground up and mixed with herbs, spices and salt, and processed for food.

Soybeans – A plant of the legume family that produces seeds used for food, livestock feed and other commercial uses.

Sow – A female pig that has given birth to a litter.

Swine – Another name for pigs or hogs.

USDA Inspector – A person who inspects the meat, meat products and processing facilities. Inspection is mandatory when meat is being processed for sale.

Wean – When a piglet is removed from its mother's milk and given solid food to eat.



Go Hog Wild



Test your trivia knowledge. True or False.

Use the Background Information & Vocabulary from pages 3 and 4.

- _____ 1. Pork is the world's most widely-eaten meat.
- _____ 2. Hogs were among the last animals to be **domesticated**.
- _____ 3. The United States is the country that provides the most **swine**.
- _____ 4. A young female pig is called a **gilt**.
- _____ 5. A neutered male pig is a **barrow**.
- _____ 6. Hogs are not **crossbred**.
- _____ 7. During **farrowing**, a **sow** will usually have a **litter** of four to five **piglets**.
- _____ 8. Pigs are born without sweat glands.
- _____ 9. Some **by-products** from swine include crayons and chalk.
- _____ 10. The **gestation** period of a sow is nine months.
- _____ 11. When a hog is ready for market, it weighs between 150-200 pounds.
- _____ 12. Meat from hogs is called pork.
- _____ 13. A breeding male hog is known as a **boar**.



Go Hog Wild

ANSWER KEY



1. True
2. False Hogs were among the first animals to be domesticated, as early as 7000 B.C.
3. False China is the number one producer and consumer of fresh pork. The United States is second.
4. True
5. True
6. False Many hogs are crossbreds, which combines the traits of two or more breeds.
7. False The average litter size is from nine to thirteen piglets.
8. True
9. True
10. False On average, the gestation period is three months, three weeks and three days.
11. False An average hog that is ready for market weighs between 260-290 pounds.
12. True
13. True



A Litter Bit of Math



1. Hogs were domesticated possibly as early as 7000 B.C.

How long ago was that? _____

2. Hogs were first introduced in North America in 1539.

How long have they been here? _____

3. The average litter size is 8-12 piglets. A sow has 5 litters in her lifetime.

If a sow averages 12 piglets per litter, how many piglets will she produce in her lifetime? _____

4. When a pig is born, it weighs about 3 pounds and is 11 1/2 inches long.

Name one object in the classroom that is the approximate weight of a newborn pig. _____

Name one object in the classroom that is the approximate length of a newborn pig. _____

5. The gestation period for pigs is 3 months, 3 weeks and 3 days.

How many days is that (there will be more than one right answer)? _____

6. It takes approximately 920 pounds of feed to raise a hog for market.

If a farmer has 24 market hogs, how many pounds of feed will it take to feed them? _____

7. A hog drinks about 2 gallons of water each day.

How much would 24 market hogs drink in a week? _____

8. Hogs are ready for market in about 6 months. At that time they weigh approximately 265 pounds.

What is the average weight gain per month? Round your answer. _____

9. Nearly every part of the hog is utilized. A 265-pound hog will yield 160 pounds of meat.

How many pounds are utilized for things other than meat? _____

10. The costs of finishing a market hog from 50 pounds to 260 pounds are: corn \$30.00, supplement \$25.16, non-feed costs \$24.64 and transportation \$1.75.

What would be the finishing cost of a litter of 11 pigs? _____



A Litter Bit of Math

ANSWER KEY



1. $7000 + \text{current year}$
2. $\text{Current year} - 1539$
3. 60 pigs
4. Answers will vary
5. Answers may range from 113-116
6. 22,080 pounds
7. 336 gallons
8. 44 pounds
9. 100 pounds
10. \$897.05



Food Chain of Pork Production



Production

Pork producers are concerned about the comfort and well being of their animals. The building that pork producers provide for their animals has controlled temperature. It keeps the hogs cool in the summer and warm in the winter. The piglets and sows are also safe from predators in the building. The sows are kept in farrowing stalls next to the piglets to prevent the sow from accidentally harming any of the piglets. The sow nurses her piglets as warming pads or heat lamps keep them warm. The piglets receive care and preventive medicine within 24 hours of birth to help fight disease and keep them healthy. With this type of environment the pigs stay as healthy as possible. This allows the pork producer to provide the consumer with good quality pork products.

When the piglets are three weeks old, they are weaned from the sow and ready for solid food and water to drink. At this point the pork and grain producers are partners in the production of pork. The grain producers grow corn, soybeans and other grains which are a part of a healthy feed ration for the piglets. These grains mixed with vitamins and minerals provide nutrients for energy and building muscle. To complete this partnership, the pigs produce manure which is applied to the grain producer's fields. These nutrients from the manure enrich the soil for the next year's crop. This cycle or partnership continues year after year.

Processing

When the feeder pigs reach an average weight of 265 pounds, they are transported to a processing plant. As the hogs are processed they are inspected by personnel from the United States Department of Agriculture (USDA) to ensure each one was a healthy animal before it was processed. The processing plant maintains a cool temperature and a clean environment. The meat is cut into pork products such as bacon, sausage, pork chops, roasts and ham. Other products or by-products from pigs include medicines, crayons, fertilizer, brushes, buttons and many other products we use every day.

Distribution

Now pork products are ready to be distributed to retail centers, grocery stores, restaurants and schools across the United States and throughout the world. During the distribution of the pork, it must be stored at a certain temperature, in a clean environment and arrive at its destination in a timely manner.

Marketing

Marketing or advertising is an important step in getting the product to the consumer. The grocery store meat manager works to display or package their pork products in an attractive manner for the consumer. They may display colorful posters showing cuts of pork on a dinner plate or time-saving recipes for the consumer to take home to prepare a meal. The meat manager may offer a sale price on certain cuts of pork. A great deal of work is done to show the consumer how easy it is to prepare a nutritious, healthy meal that includes pork.

Consumption

The end of the food chain is the consumer. At each step in the food chain the pork products must be kept in a cool, clean environment to help ensure it is safe and of the highest quality when it reaches the consumer. A family will either consume pork at the family dinner table, restaurant, school cafeteria or even at a sporting event (hot dog, anyone?) Along the way many people are involved in producing pork starting with the hog and grain producers, builders, equipment dealers, veterinarians, meat inspectors, processors, food scientists, truck drivers, pharmacists, researchers and financial institutions. Animal agriculture is a vital part of the economy. Pork production adds \$34.5 billion to the country's Gross National Product each year. The pork production industry provides more than 550,000 jobs in the United States.



Pork I.Q. Quiz



Choose the best answer:

1. Why do sows give birth in farrowing stalls?

- a. To give the sow and piglets more room.
- b. To allow the sow and piglets to be together.
- c. To keep the piglets warm when they are little.
- d. So the sow doesn't lay on any of the piglets.

2. What happens in one day after a piglet's birth?

- a. Piglets are separated from the sow.
- b. Piglets receive care and preventive medicine.
- c. Piglets eat a special diet of grain.
- d. Piglets eat solid foods.

3. Which of the following is a false statement?

- a. Piglets do not have teeth at birth.
- b. Piglets weigh about 3 pounds at birth.
- c. Piglets do not have sweat glands.
- d. Piglets stay with the sow for 16-22 days.

4. What is included in a pig's feed ration?

- a. Mixture of corn, soybeans and other grains.
- b. Soybean meal supplement.
- c. Vitamins and minerals.
- d. All of the above

5. What is the approximate weight of a full-grown pig?

- a. 550 pounds
- b. 450 pounds
- c. 350 pounds
- d. 265 pounds

6. Which of the following cuts of meat come from hogs?

- a. bacon and sausage
- b. hamburger and T-bone steaks
- c. ham and pork chops
- d. A and C

7. Which of the following is not a by-product of hogs?

- a. crayons
- b. footballs
- c. medicines
- d. buttons

8. Which of the following is NOT done at a grocery store to market pork products?

- a. Display colorful posters promoting the product.
- b. Offer free recipes to consumers.
- c. Keep the pork products at room temperature.
- d. Offer sales of certain cuts of pork.

9. What kinds of jobs are created because of pork production?

- a. Producers and processors.
- b. Truck drivers.
- c. Researchers, pharmacists and veterinarians.
- d. All of the above.

10. This non-fiction article was written to

- a. Entertain
- b. Inform
- c. Persuade
- d. Explain



Pork I.Q. Quiz

ANSWER KEY



1. Why do sows give birth in farrowing stalls?

- a. To give the sow and piglets more room.
- b. To allow the sow and piglets to be together.
- c. To keep the piglets warm when they are little.
- d. So the sow doesn't lay on any of the piglets.**

2. What happens in one day after a piglet's birth?

- a. Piglets are separated from the sow.
- b. Piglets receive care and preventive medicine.**
- c. Piglets eat a special diet of grain.
- d. Piglets eat solid foods.

3. Which of the following is a false statement?

- a. Piglets do not have teeth at birth.**
- b. Piglets weigh about 3 pounds at birth.
- c. Piglets do not have sweat glands.
- d. Piglets stay with the sow for 16-22 days.

4. What is included in a pig's feed ration?

- a. Mixture of corn, soybeans and other grains.
- b. Soybean meal supplement.
- c. Vitamins and minerals.
- d. All of the above**

5. What is the approximate weight of a full-grown pig?

- a. 550 pounds
- b. 450 pounds
- c. 350 pounds
- d. 265 pounds**

6. Which of the following cuts of meat come from hogs?

- a. bacon and sausage
- b. hamburger and T-bone steaks
- c. ham and pork chops
- d. A and C**

7. Which of the following is not a by-product of hogs?

- a. crayons
- b. footballs**
- c. medicines
- d. buttons

8. Which of the following is NOT done at a grocery store to market pork products?

- a. Display colorful posters promoting the product.
- b. Offer free recipes to consumers.
- c. Keep the pork products at room temperature.**
- d. Offer sales of certain cuts of pork.

9. What kinds of jobs are created because of pork production?

- a. Producers and processors.
- b. Truck drivers.
- c. Researchers, pharmacists and veterinarians.
- d. All of the above.**

10. This non-fiction article was written to

- a. Entertain
- b. Inform**
- c. Persuade
- d. Explain



From Production to Consumption Graphic Organizer



Identify the chain of pork production to consumption by correctly numbering the squares from 1 to 5.

Add at least one fact under each of the five areas.

Production

Consumption

Distribution

Marketing

Processing



Nutrition Promotion



The Pork Producers have hired your ad agency to develop an advertising presentation that promotes “Pork – A Healthy Option for You” and “Delicious Pork on Your Plate”. Use a variety of visuals and media in the presentation. Your group’s presentation should include the following:

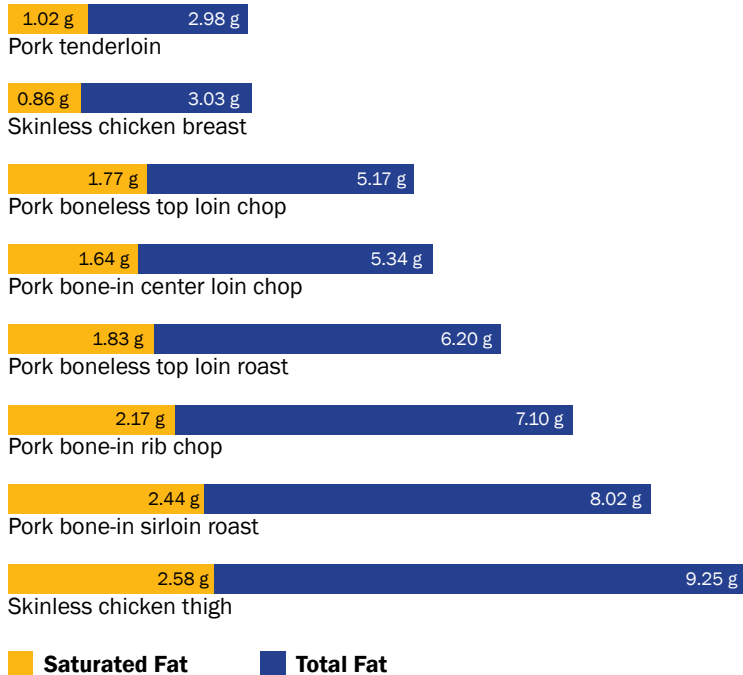
- pork’s place on MyPlate
- vitamins and minerals found in pork
- fat, calories and cholesterol of pork
- suggested ways that pork fits into your diet (recipes, menus, etc.)
- an explanation as to why pork is a healthy or delicious option on your plate

The following information on both sides of this paper may be helpful in developing and designing your presentation:

Pork’s Slim 6

Six common cuts of pork are, on average, 16% leaner than 15 years ago.

The pork industry has responded to the consumer’s desire for lean pork products. Through efforts in feeding and management practices by pork producers, six of the most common cuts of pork have, on average, 16% less total fat and 27% less saturated fat than 15 years ago.



Based on 3-ounce cooked servings (roasted or broiled), visible fat and skin trimmed after cooking.

Reference: U.S. Department of Agriculture, Agriculture Research Service, 2006

Lean: Less than 10 grams total fat, 4.5 grams saturated fat and 95 milligrams cholesterol per serving.

Extra Lean: Less than 5 grams total fat, 2 grams saturated fat and 95 milligrams cholesterol per serving.

Keeping Your Pork Meals Lean

- Trim any visible fat before cooking.
- Control portion size: 3 ounces is about the size of a deck of cards.
- Use low-fat preparation techniques: broil, grill, roast on a rack or stir-fry in minimal fat.
- Marinate lean pork cuts for extra flavor.
- Use non-fat, low sodium herbs and spices to season instead of high-fat sauces.
- Do not overcook lean pork. Cook until 160°F or until slightly pink.

Sodium

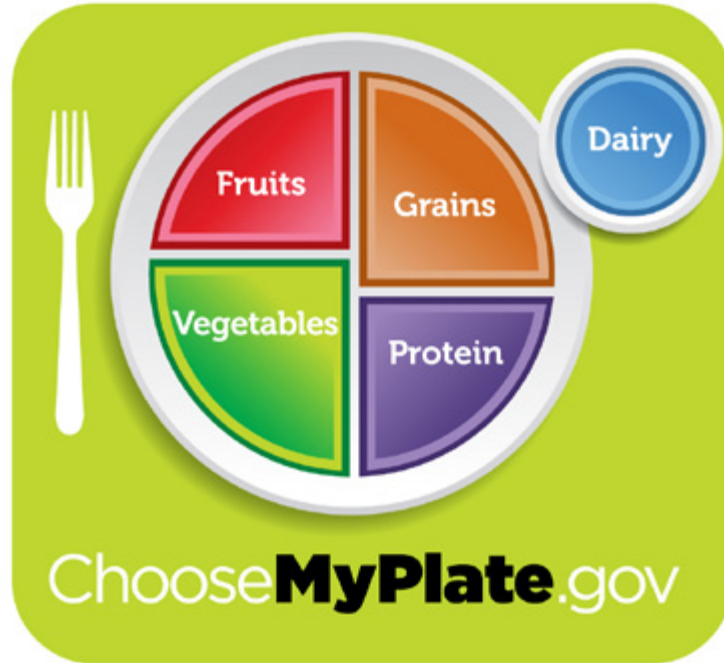
Like other fresh meat, fresh pork is naturally low in sodium. A 3-ounce serving has only about 60 mg of sodium. A processed food is considered to be low-sodium if the sodium content is 140 mg or less per serving.

“Loin” = Lean

When shopping, make sure to look for lean cuts of pork with the word “loin” on the label, such as pork tenderloin or loin chop.



Nutrition Promotion (cont.)



Pork Nutrients



Iron – Helps your body produce energy and builds red blood cells.

Minerals – Inorganic elements obtained from foods essential for the human body to function.

Niacin – A B vitamin that helps maintain healthy skin and nerves.

Phosphorous – Builds strong bones and helps give you energy.

Potassium – Helps maintain your blood pressure.

Protein – Responsible for growth and repair of your body's tissues in addition to making strong muscles, maintaining of blood, and keeping you disease-free.

Riboflavin (Vitamin B-2) – Gives you energy, healthy skin and good vision in bright light.

Thiamine (Vitamin B-1) – Helps the body digest food, release energy, promote a normal appetite and develop a healthy nervous system.

Vitamins – Substances that are essential to the nutrition of animals and humans.

Zinc – A mineral the body needs to form enzymes and insulin, fights off infection.

Adapted from Producers, Pigs & Pork



Everything But the Oink



The meat portion of the pig is about 75% of the hog. By-products are made from the other 25%. Listed below are some of the many non-meat products made from the pig. Categorize these by-products into the following three areas at the bottom of this page.

Antifreeze

Artist Brushes

Bone China

Buttons

Cement

Chalk

Cosmetics

Crayons

Fabric Dye

Fertilizer

Floor wax

Glass

Glue

**Heart Valves
for Human Transplants**

Insulation

Insulin to Treat Diabetes

Leather

Linoleum

Matches

Pet Food

Pharmaceuticals

Plastic

Putty

Skin to Treat Burn Victims

Upholstery

Weed Killers

SCHOOL

HOME

MEDICAL

Adapted from: Quick Facts – The Pork Industry at a Glance



Everything But the Oink



ANSWER KEY

SCHOOL

crayons
chalk
cement
floor wax
linoleum
glue
glass
artist brushes

HOME

matches
buttons
pet food
insulation
fertilizer
fabric dye
leather
putty
bone china
weed killers
cosmetics
upholstery
plastic
antifreeze

MEDICAL

insulin to treat diabetes
heart valves
for human transplant
skin to treat burn victims
pharmaceuticals

Additional Info:

- Original footballs were made of genuine pigskin.
- When pigs grow older, their hair becomes stiff and coarse and is used to make natural bristle artist's paint brushes.
- Many lotions and soap have glycerin as the second ingredient which comes from a pig and is used to moisturize.
- Pigskin is used extensively as high-quality leather for clothing, shoes, handbags, sporting goods, upholstery, etc.
- Jell-O is made from gelatin, which is made from the hooves of a pig.
- Gelatin is a very good binding agent – glue, chewing gum and marshmallows are also made from gelatin.