

Ag in the Playing Fields

Skills: Visual Arts, Language Arts, Math, Social Studies, Science

Objective: Students will learn the many ways agriculture is involved with sports.

Background

What would sports be without agriculture? Footballs, soccer balls, basketballs, volleyballs and baseballs all are made with leather from the hide of cattle. The best shoes, protective gloves and mitts are made from leather, too. Ball caps are made with wool from sheep, and uniforms are wool or cotton. Nets for volleyball, basketball, tennis, badminton and soccer are made from nylon blended with cotton, one of Oklahoma's top crops. Socks and shoelaces are also made from cotton. Baseball bats are made from the wood of ash trees, and the flooring for basketball courts is from hardwood maple trees.

For more information and fun facts about agriculture in sports, go to the OAITC website; click on "Lessons;" Click on "Quick Ag Facts;" and click on "Agriculture in Sports."

Sports would not be the same without all the great foods we eat while we're watching—hot dogs, hamburgers, pretzels, peanuts, sunflower seeds and Cracker Jacks. Even pop and chewing gum depend on agriculture. Syrup from corn is what makes pop and gum taste sweet.

Tickets and programs are printed on paper made from trees and with ink made from refined soy oil from soybeans. Gelatin from the bones of cattle helps transfer ink to copy paper.

Even the best athletes get injured sometimes, and agriculture helps patch them up. Bandages are made from corn dextrose, and cattle gelatin is used as adhesive and binding agents. Cattle gelatin is also used as a coating for vitamin capsules. Cattle fat and fatty acids are used in various medicines, creams and lotion. Corn-based syrup and dextrose are used in various injections, pills and tablets.

Possibly the most important agricultural commodity used in sports is turf-grass—the grass on which the game is played. The condition of the grass on a sports field can make all the difference. Athletic field grasses must have dense, thick sod that can withstand impact and grow back quickly when it is damaged. This is especially true in soccer. When the field is in bad shape, the ball can't move easily across the field, the players have trouble passing and

P.A.S.S.

GRADE 3

Reading—6.2b

Writing—2.1,3

Oral Language—3.2

Math Process—3.4

Math Content—4.1a; 2.ac

Science Process—

3.2,3

Physical Science—1.1

Social Studies—1.1

Visual Arts—2.1; 3.2

Physical Education—

1.4,5,7,9,10; 2.1,2; 3.2,3;

5.3; 6.2,3

GRADE 4

Reading—5.1a; 2d

Writing—2.1,3

Oral Language—3.2

Math Process—3.4

Math Content—4.1a; 2.ac

Science Process—

3.2,3

Physical Science—1.1

Social Studies—1.1

Visual Arts—2.1; 3.2

Physical Education—

1.5,7; 2.3,4; 3.3; 5.2; 6.3;

7.1,2,3

Vocabulary

adhesive—A substance (as glue or cement) that tends to stick.

agriculture—The science, art, and business of cultivating soil, producing crops, and raising livestock; farming.

athlete—A person who is trained in or good at games and exercises that require physical skill, endurance, and strength

bermudagrass—a trailing grass that is native to Europe and is used for lawns and pasture especially in the southern US.

commodity—A product of agriculture or mining.

cotton—A soft usually white fluffy material made of the hairs around the seeds of a cotton plant and spun into yarn.

dextrose—The naturally occurring form of glucose found in plants, fruits, and blood

fatty acid—Any of numerous acids that contain only carbon, hydrogen, and oxygen and occur naturally in fats and various oils.

flannel—A soft cloth made of wool or cotton.

gelatin—Gummy or sticky protein obtained by boiling animal tissues.

leather—Animal skin prepared for use

recreation—A way of refreshing mind or body.

(Continued on next page.)

poorly kicked balls are constantly flying over the touch lines. Players are more likely to get hurt on bad fields.

One of the best grasses for athletic fields in the southern US was developed at Oklahoma State University. Riviera bermudagrass is a tough grass that grows back quickly when it is damaged. It is also the only bermudagrass to grow from seed. Grass that grows from seed works better for playing fields because it can be planted when and where it is needed.

Visual Arts

1. Pennants are traditionally made from wool flannel. Have students use construction paper or felt to design sports pennants for your school or for their favorite college or professional team.
2. Have students devise a poster for their favorite sporting event, using all the agricultural products involved as a selling point.
3. Have students design uniforms for their favorite teams or a made up team.

Social Studies

1. Have students research to find the origins of their favorite sport and design programs which include that information.
2. Have students research the origins of five major sports and place them correctly on timelines.
3. Have students research to find which sport uses the largest number of agricultural products and which uses the least.
4. In other countries around the world, “football” is what we know as soccer. Discuss the reason for this. Have students research to find the origins of both sports.
5. Have students research the influence of Native American games on games we commonly play today.

Language Arts

1. Have students choose a sport and research some aspect of the uniform or equipment (baseball hat, football, etc.) then draw timelines showing the evolution of the item. Have them compare materials used originally with materials used now and discuss possible reasons for the changes.
2. Have students write a story about a day in the ballpark, tracking all the agricultural products used.
3. Have students work in groups to make up agriculture-related names for imaginary sports teams. Then have them explain the names.
4. Have students write essays comparing two different sports.

Math

1. Have students count the stitches in each of a variety of recreational balls and graph the results.
2. A soccer field is 100 yards long and 50 yards wide. A football playing field is 100 yards long (not including the goal posts) and $53\frac{1}{3}$ yards wide. Find the area of each. If one pound of grass seed per thousand

square feet is needed to seed the fields, how many pounds would you need for each field?

3. The traditional soccer ball's outer covering consists of 12 pentagons and 20 hexagons of leather sewn together. Bring a soccer ball to class, and have students identify each of the polygons.
4. Have students use pipe cleaners to make the skeleton of a soccer ball, using the specifications in #6.
5. Have students devise a strategy to measure a football.
6. The geometrical name for a football is "prolate spheroid." This means its axis of symmetry is longer than its other axes. An M&M candy is an oblate spheroid. Its axis of symmetry is shorter than its other axes. Have students find other examples of these two kinds of spheroids.
7. Have students draw accurate replicas of fields for their favorite sports to scale and measure to mark the lines correctly.
8. Bring an assortment of recreational balls (basketball, tennis ball, golf ball, softball, soccer ball) to class. Have students take turns throwing each of the balls and measure where the ball hits. Have students record and analyze the data.
9. Draw a chalk or flour circle in the grass, and have students take turns tossing different kinds of balls into the circle. Have students predict which way the balls will bounce and collect and analyze data. Try the same exercise in different parts of the playground.

Science

1. Bring an assortment of recreational balls (basketball, tennis ball, golf ball, softball, soccer ball) to class, and have students arrange them according to size. Have students measure the circumference of each.
2. Provide an assortment of recreational balls for students to take apart. Have students hypothesize what materials are in each and then record what they find. What agricultural products do they find in each ball? (Note: materials will vary, but some products will include wool yarn, cotton string, cork, wood, and rubber.)
3. Grow your own miniature ballfield. Fill an aluminum pan (rectangle for football or soccer, square for baseball) in which you have poked holes with potting medium. Moisten the potting medium, and sprinkle rye grass over it. Gently press the rye grass into the potting medium to cover it. Let students decorate with toothpicks or other materials to make the pans look like their favorite kind of playing field. You may also let students use flour to mark the lines. Keep the "field" watered, and use scissors to keep it mowed. When the grass has filled in, conduct experiments with ping pong balls or marbles. Find the length of grass at which the balls move best.

Physical Education

1. Divide the class into teams and play one of the games discussed, or have a sports week and play a different game for two or three days.

Vocabulary (Cont.)

sod—The grass-covered and herb-covered surface of the ground.

soybean—A hairy annual Asian plant of the legume family widely grown for its edible seeds rich in oil and proteins.

sports—Physical activities (as running, or an athletic game) engaged in for pleasure.

syrup—The juice of a fruit or plant with some of the water removed.

turfgrass—The upper layer of soil bound by grass and plant roots into a thick mat.

wool—The heavy soft wavy or curly hair of various mammals and especially the sheep.

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