

## **2015 NYS District Junior 4-H Dairy Quiz Bowl Contest**

### **Junior Packet 1, Phase A**

1.) What do the letters CNMP stand for in reference to CAFO legislation?

Comprehensive Nutrient Management Plan

2.) What is the name of the structure that holds the uterus and ovaries in their proper position?

Broad Ligament

3.) What is the enzyme needed by humans to digest lactose?

Lactase

4.) What is the term for a firm that is owned by its members, is operated for their benefit, and distributes earnings on the basis of patronage?

Cooperative

## Junior Packet 1, Phase B

- 1.) What are the three volatile fatty acids produced by microorganisms in the rumen that are absorbed through the rumen walls?

Acetate (acetic acid)  
Butyrate (butyric acid)  
Propionate (propionic acid)

- 2.) Name 3 of the 5 parts of a milking unit.

Claw  
Milk tube  
Short air tube  
Teat cup shell  
Teat cup liner or inflation

- 3.) Name the 4 components of the PDCA Dairy Cow Unified Scorecard.

Frame  
Dairy Strength  
Rear feet & legs  
Udder

- 4.) Name 3 types of silos.

Bunker silo  
Trench silo  
Upright/tower silo  
Plastic bag  
Oxygen limiting silo  
Concrete stave  
Poured concrete

## Junior Packet 1, Phase C

1.) In regards to dairy cattle digestion, what do the initials HBS stand for?

Hemorrhagic Bowel Syndrome

2.) What is the term describing a basic unit of inheritance?

Gene

3.) Which feedstuff is a byproduct of ethanol production?

Distillers grain

4.) What is the most common reason a farmer might cull an animal in U.S. dairy herds?

Reproductive failure

5.) What is the process by which white blood cells engulf microorganisms?

Phagocytosis

6.) What is the most effective management practice to control flies on a dairy?

Proper sanitation

7.) What is the most common type of manure storage on dairy farms?

Slurry manure storage

8.) Where are cows in the most need of heat abatement with a freestall or parlor setup?

Holding area

9.) CLA is an 18-carbon fatty acid found in milk. What do the initials CLA stand for?

Conjugated Linoleic Acid

10.) What is the most common reason why farm owners adopt grazing?

Cost reduction

11.) What does the acronym YDLI stand for?

Young Dairy Leaders Institute

12.) Where on your cow would you find her jugular vein?

Neck

13.) From which country did the Holstein cow originate?

Netherlands

14.) What body structure diverts the milk into the abomasum when a calf nurses?

Esophageal groove

15.) What body system is affected by osteoporosis?

Skeletal

16.) What disease stopped the importation of cattle from Europe in 1905?

Hoof and mouth disease

**2015 NYS District Junior 4-H  
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**Junior Packet 2, Phase A**

1.) Who is the current U.S. Secretary of Agriculture?

Tom Vilsack

2.) What country is the largest exporter of dairy products?

New Zealand

3.) In what year was the first commercial cheese factory of the U.S. established?

1851

4.) What is the ideal rumen pH?

5.9 – 6.2

## Junior Packet 2, Phase B

1.) What two reproductive measurements are used to calculate pregnancy rate?

Conception Rate  
Heat Detection rate

2.) Name three byproducts that are commonly used as feed for cattle.

Cottonseed hulls  
Dried brewers grain  
Soybean hulls  
Wheat middlings  
Cottonseed meal  
Distillers grains  
Soybean meal  
Whole cottonseed  
Peanut meal  
Citrus pulp  
Wet brewers grain  
Hominy feed

3.) Name 3 methods that can be used to reduce soil erosion.

Contour cropping  
Cover crops  
Grass waterways  
Reduced tillage  
Soil seeding  
Strip cropping  
Terracing  
Wind breaks

4.) Name 3 metabolic diseases.

Ketosis  
Retained placenta  
Displace abomasum  
Milk fever  
Laminitis  
Grass tetany

## Junior Packet 2, Phase C

1.) Where are subcutaneous injections given?

Under the skin

2.) What is the name of the only smooth muscle cells in the udder that oxytocin interacts with?

Myoepithelial cells

3.) What month is National Grilled Cheese month?

April

4.) How many points are assigned to the Dairy Strength category of the PDCA Dairy Cow Unified Scorecard?

25 points

5.) What is one example of an on-farm tool that may be used to estimate colostrum quality?

Brix refractometer and/or colostrometer

6.) What is the proper term for the belching of gas from the rumen?

Eructation

7.) What company has been named the official yogurt sponsor of the NFL?

Dannon

8.) What is the term for a substance that can reduce changes in pH when an acid or alkali is added?

Buffer

9.) What state leads the nation in milk production?

California

10.) What does term polled mean in dairy animals?

Naturally born without horns

11.) During the cooler months, how many inches of silage from the bunker face should be removed per day?

6 to 12 inches

12.) What group of people believe that animals are not ours to own, enjoy, or use in any way?

Animal rights activists

13.) In order to have sufficient stimulation of the teats, how many strips from each teat is necessary to obtain oxytocin release and efficient milk letdown?

3 to 4 strips

14.) In regards to dairy cattle reproduction, what does the acronym CIDR represent?

Controlled Internal Drug Release

15.) What is the technical term for mulefoot, a condition where only one toe appears on the hoof?

Syndactylism

16.) What is the name of the hormone that is produced by the pancreas and promotes cell growth and division?

Insulin

**2015 NYS District Junior 4-H  
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**Junior Packet 3, Phase A**

- 1.) It is recommended that fresh cow pens be stocked at what percent of maximum occupancy to give transition cow's sufficient opportunity to fulfill their time budgets?

80 percent

- 2.) What is the term describing a farm's total assets minus its liabilities?

Equity or net worth

- 3.) What does the acronym BLV stand for?

Bovine Leucosis Virus

- 4.) When should a necropsy exam occur: When a calf is healthy, when a calf is sick, or when a calf has died?

When a calf has died

### Junior Packet 3, Phase B

1.) Name 3 items that a judge looks for in a fitting and showmanship contest.

Animal's condition  
Cleanliness  
Clipping  
Grooming  
Appearance of exhibitor  
Leading the animal  
Posing the animal  
Showing the animal to the best advantage  
Poise  
Alertness  
Attitude

2.) Name 2 fat soluble vitamins.

Vitamin A, D, E, and K

3.) Name 3 legumes used for grazing or hay.

Alfalfa  
Clover  
Lespedeza  
Vetch  
Soybeans  
Peanuts  
Peas  
Birdsfoot trefoil

4.) Name 4 of the 6 major parts of the dairy cow's reproductive tract.

Cervix  
Ovaries  
Oviducts  
Uterus  
Vagina  
Vulva

### Junior Packet 3, Phase C

1.) What metabolic disease can farmers easily test for on farms using a urine strip test?

Ketosis

2.) How old is a calf when it begins to chew its cud?

2 to 3 weeks old

3.) What is the name of the fluid milk beverage that Coca-Cola is producing with Select Milk Producers?

Fairlife

4.) What is the name for the category of mastitis in which there is not a detectable change in the udder itself and no observable abnormalities of the milk?

Subclinical

5.) What is parturition?

The act of giving birth

6.) What is the calculation describing how well a cow turns her feed into milk?

Feed efficiency

7.) What tool is used to administer an animal a pill, bolus, or magnet?

Balling gun

8.) What process did Dr. Louis Pasteur develop to extensively destroy bacteria in milk?

Pasteurization

9.) Feeding an excess of what is the principal cause of over conditioning in heifers?

Energy, carbohydrates, or fat

10.) What reproductive structure, also known as the yellow body, is a temporary gland that forms on the ovary after the ovum is released?

Corpus luteum

11.) Which forage characteristic indicates maturity in grasses and legumes?

Fiber

12.) What type of immunity is established in newborn calves by properly feeding colostrum?

Passive immunity

13.) What is the term describing anything with a pH less than 7?

Acidic

14.) What term describes excessive fluid accumulation in the mammary gland?

Udder edema

15.) What does the acronym BSE stand for in regards to animal health?

Bovine Spongiform encephalopathy

16.) When looking at a fertilizer label you will see NPK listed. What does the K stand for?

Potassium

## 2015 NYS District Junior 4-H Dairy Quiz Bowl Contest

### Junior Packet 4, Phase A

- 1.) What functions to alternate vacuum and atmospheric pressure between the liner and the teat cup shell of a milking machine?

Pulsator

- 2.) On the farm, where is copper sulfate most commonly used?

Footbath

- 3.) A new app is changing the way dairymen track milk quality. The Milk Quality app allows for an instant cowside somatic cell count using what device?

iPhone or smartphone

- 4.) Four elements are key to silage quality: plant sugars, lactic acid bacteria, oxygen-free conditions, and what else?

Moisture content

## Junior Packet 4, Phase B

1.) Name 4 signs of illness in calves.

Decreased appetite  
Coughing  
Heavy breathing  
Nasal discharge  
Watery manure  
Drippy ears  
Abnormal temperature  
Dull eyes and hair coat  
Lack of energy

2.) Calculate: If a dairy cow is producing 100 pounds of milk per day that contains 4.0% fat, how many pounds of fat is she producing daily?

4.0 pounds

3.) Name 3 ways for testing pregnancy in cows.

Palpation  
Testing hormones in milk  
Testing hormones in blood  
Ultrasound

4.) Greenhouse gases from dairies have received much attention in recent years. Name 2 of the 3 most important greenhouse gases in animal agriculture.

Carbon dioxide  
Methane  
Nitrous oxide

## Junior Packet 4, Phase C

1.) Which reproductive hormone does the corpus luteum produce?

Progesterone

2.) Where would you find a crowd gate on a dairy farm?

In the holding area

3.) What does the acronym NDF refer to in regards to animal nutrition?

Neutral Detergent Fiber

4.) What food was declared the official state snack of New York?

Yogurt

5.) At first breeding, heifers should be what percent of their dam's mature body weight?

55 percent

6.) What is the main reason that antibiotic residues are not allowed in milk for human consumption?

Allergies

7.) When discussing farm quality control, what do the initials HACCP stand for?

Hazard Analysis of Critical Control Points

8.) What is the largest cost associated with raising heifers?

Feed

9.) What is the proper name of the 2014 Farm Bill?

The Agricultural Act of 2014

10.) What is the main reason that a dairy cow would refuse to use a freestall?

Improper size

11.) Brown midrib, or BMR, corn varieties are more digestible than conventional corn varieties because of their decreased concentration of what forage component?

Lignin

12.) What is the scientific name for Hardware disease?

Traumatic gastritis

13.) In what year did the Jersey breed arrive in the USA?

1815

14.) What volatile fatty acid is used by the liver to make glucose?

Propionate

15.) What flavor in milk is characterized by a sharp, unclean, astringent taste that lingers as an unpleasant aftertaste?

Rancid

16.) What is the name of the grape-like clusters of cells in the udder that produce milk?

Alveoli

**2015 NYS District Junior 4-H  
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**Junior Packet 5, Phase A**

1.) Define the transition period of a cow.

The last three weeks of gestation through the first three weeks after freshening.

2.) True or false: Digestibility of plant fiber increases as the plant increases in age.

False

3.) True or false: All cows contribute somatic cells to the bulk tank.

True

4.) What does the acronym FSH stand for in regards to dairy cattle reproduction?

Follicle Stimulating Hormone

## Junior Packet 5, Phase B

1.) Name 4 signs of estrus (heat) in dairy cattle.

- Restlessness
- Bellowing
- Following and smelling other cows
- Mounting other cows
- Standing to be mounted
- Discharge of clear mucus from the vulva
- Swollen and red vulva

2.) Name 3 ways a dairy cow excretes or loses water.

- Breathing
- Feces
- Milk
- Sweat
- Urine

3.) Give 4 examples of a farm's assets.

- Cows
- Land
- Tractors
- Equipment
- Feed
- Lumber
- Cash
- Buildings
- Stocks and bonds
- Co-op equity
- Milk check receivables

4.) Name an example of a product in each of the 4 major classes of dairy products.

- Class I: Fluid Milk
- Class II: Fluid cream, yogurt, ice cream, cottage cheese, sour cream, and soft cheeses
- Class III: Cream cheese and hard manufactured cheeses
- Class IV: Butter and dried milk

## Junior Packet 5, Phase C

1.) What percent of ova in a mature cow's ovaries were present when she was born?

100 percent

2.) In regards to Holstein genetics, what do the initials BLAD represent?

Bovine Leukocyte Adhesion Deficiency

3.) If a disease is zoonotic, what does this mean?

It can be transmitted from cattle to humans.

4.) Milk fever is a metabolic disease mainly associated with a deficiency of what mineral?

Calcium

5.) What is the hormone a cow releases in response to longer day length?

Melatonin

6.) What does the term CIP stand for in regards to milking equipment?

Clean in Place

7.) What is the name of the column in DairyBusiness East that focuses on developing employee management skills and teambuilding within the farm?

Dairy Coach

8.) When breeding cows, what type trait has the highest heritability?

Stature

9.) All land leases should be in the form of what type of agreement?

Written contract

10.) What is the name of the muscle responsible for closing the teat end?

Sphincter muscle

11.) Your cow has a cystic ovary. What treatment is your vet most likely to recommend to luteinize the cyst?

Gonadotropic releasing hormone (GnRH)

12.) What term describes an animal infected with a disease that shows no clinical symptoms?

Carrier

13.) What is defined as the distance from the udder floor to the point of the hock?

Udder depth

14.) What structure connects muscle to bone?

Tendon

15.) What is the name of the milk remaining in the mammary gland following the completion of milking?

Residual milk

16.) Heifers should be at what percent of mature body weight at first calving?

85 percent

## 2015 NYS District Junior 4-H Dairy Quiz Bowl Contest

### Junior Packet 6, Phase A

1.) The standards for Grade A milk are established by what document?

Pasteurized Milk Ordinance

2.) What three-letter code is used to represent a hundredweight?

cwt

3.) How many quarts of saliva does a mature dairy cow produce daily?

50 to 80 quarts

4.) What are the tiny, finger-like projections that line the wall of the rumen called?

Papillae

## Junior Packet 6, Phase B

1.) Name 3 diseases of dairy cattle with a color in their name.

Red water  
Red nose  
Black leg  
Blue tongue  
White muscle disease  
Pink eye  
White heifer disease

2.) What are the two simple sugars that make up lactose?

Glucose  
Galactose

3.) Name the three main structures that provide support to the cow's udder.

Median suspensory ligament  
Lateral suspensory ligament  
Skin

4.) Name 2 methods that can be used to store colostrum.

Freeze  
Refrigerate  
Add preservative acid  
Ferment

## Junior Packet 6, Phase C

1.) What practice is used to reliably learn the nutrient content of a farm's forages?

Forage testing

2.) What number range is used when assigning dairy animals a body condition score?

1 to 5

3.) What is the term for the release of the egg from the ovary?

Ovulation

4.) How many gallons of water does an average cow consume per day?

30 to 50 gallons

5.) Which fast food chain uses the most milk in the US?

McDonalds

6.) What is the maximum legal limit of somatic cells per mL that milk to be exported to the EU can contain?

400,000 cells/mL

7.) How many ounces of milk are in one serving?

8 ounces

8.) A dairy heifer should have her first calf at about how many months of age?

22 to 24 months

9.) A sterile female calf born twin to a bull is known as what?

Freemartin

10.) Which hormone blocks milk letdown?

Adrenaline or Epinephrine

11.) If a farmer asks you to disinfect your boots before you step onto his farm, what management practice is he or she enforcing?

Biosecurity

12.) What is the primary hormone that is critical in the initiation and maintenance of lactation?

Prolactin

13.) What is the most costly disease in the dairy industry?

Mastitis

14.) What disease is caused by the bacterium *Mycobacterium paratuberculosis*?

Johne's disease

15.) How many pounds of whole milk does it take to make a gallon of ice cream?

12 pounds

16.) What nutrient is required for all bodily functions and is considered the most essential of all nutrients?

Water

**2015 NYS District Junior 4-H  
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**Junior Packet 7, Phase A**

- 1.) What are chemical agents given to animals that kill or stop the growth of bacteria?

Antibiotics

- 2.) What disease can be identified in cattle using the milk ring test?

Brucellosis (Bang's disease)

- 3.) What term is defined as the loss of feed from the point of harvest or delivery, to what is actually consumed by the cows?

Feed shrink

- 4.) What term describes the return of the uterus to normal size and function after calving?

Involution

## Junior Packet 7, Phase B

1.) Name 3 of the top 5 considerations of superior calf housing.

- Ventilation
- Comfort
- Isolation or group housing
- Labor efficiency
- Cost

2.) Name 3 diseases calfhood vaccinations should be considered for.

- Blackleg
- Brucellosis
- BVD
- Clostridia
- IBR
- Leptospirosis
- Malignant edema
- PI- 3
- Scours

3.) Name 4 advantages of feeding a total mixed ration, or TMR, to your cows.

- Eliminate selective feeding
- Consistent ration
- Higher dry matter intake
- Free-choice minerals not needed
- Higher milk production
- Lower percent fiber needed in ration
- Easier to balance precisely
- Fewer digestive upsets
- Can feed a variety of byproducts

4.) What are the two peak times of water consumption for a dairy cow?

- After milking
- During feeding

## Junior Packet 7, Phase C

1.) What is the most frequent cause of high bacteria counts in milk?

Dirty equipment

2.) Where is the site of semen deposition in the reproductive tract when breeding an animal using artificial insemination?

Uterine body

3.) In regards to transition cow health, what does the acronym DA represent?

Displaced Abomasum

4.) What is the waxy-like substance produced by cells lining the teat canal that serves as a plug between milking's?

Keratin

5.) What is the most common type of parlor used on today's dairies?

Herringbone

6.) What material is generally considered best for covering a bunker silo?

Plastic

7.) When cows are resting, at least what percent should be ruminating?

60 percent

8.) Why would a dairy farmer place a Kamar detector on the rump of their cows?

To help detect heat or estrus

9.) What is another name for the skin condition known as papillomas?

Warts

10.) How many cows can one robotic milker efficiently manage?

60 to 70 cows

11.) Where did Mad Cow disease originate?

United Kingdom

12.) Cover crops such as alfalfa can help restore subsoil that has been compacted. What is the key characteristic of these cover crops that enable them to do so?

Deep-rooting systems

13.) What is the desired angle of a dairy cow's hoof?

45 degrees

14.) Cattle that continually shed the BVD virus are referred to as PI. What does PI stand for?

Persistently infected

15.) On average, cows have a flight zone of how many feet?

5 feet

16.) A feed's dry matter is the amount of the feed remaining after what is removed?

Water

**2015 NYS District Junior 4-H  
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**Junior Packet 8, Phase A**

1.) What is the name of the enzyme that is added to milk to make cheese?

Rennet

2.) The release of what hormone causes the uterus to contract more forcefully and initiates the expulsion of the fetus at the onset of labor?

Oxytocin

3.) Foot baths should be used at least how many days per week on a farm?

3 to 4 days

4.) How many pairs of chromosomes do dairy cattle have?

30 pairs

## Junior Packet 8, Phase B

1.) Name 3 factors that a dairy manager may consider when grouping the milking herd.

- Body condition
- Lactation number
- Reproductive status
- Production
- Stage of lactation
- Stall size
- Availability of stalls
- Distance from milking facility/parlor

2.) Name 3 of the major nutrients contained in feedstuffs.

- Energy
- Protein
- Vitamins
- Minerals
- Water

3.) Name 3 different areas on the farm that contribute waste to the nutrient management program.

- Feeding area
- Housing or loafing area
- Holding pen
- Return alley
- Foot baths
- Milking parlor
- Milk house
- Run-off areas (bunker silos)

4.) Name 3 symptoms of clinical mastitis.

- Flakes
- Clots
- Presence of blood
- Stringy milk
- Watery milk
- Swollen quarter
- Hot quarter
- Ropy milk
- Decreased milk production

## Junior Packet 8, Phase C

- 1.) When a dairy farm decides to go organic, how long must the dairy animal be fed and managed organically before the milk produced is classified as organic milk?

One year (HD, 12/08, p.768)

- 2.) During which season of the year is pinkeye most common?

Summer

- 3.) What is it called when a cow's energy requirements are higher than the amount of energy she is receiving through her feed intake?

Negative energy balance

- 4.) Which parent determines the sex of the calf?

Sire

- 5.) What class of milk encompasses fluid milk products?

Class I

- 6.) What process is used to remove solid impurities from milk prior to pasteurization?

Clarification

- 7.) What tool can be used on a farm to safely and evenly remove silage from the face of the bunker silos for feedout?

Defacer

- 8.) In regards to embryo transfer, what is the name for the animal that receives a fertilized ovum from a donor animal?

Recipient

- 9.) What organelle is known as the powerhouse of the cell?

Mitochondrion

- 10.) What is another name for fats?

Lipids

11.) What term describes the number of sick animals over a given period of time?

Morbidity rate

12.) What is “nature’s most nearly perfect food”?

Milk

13.) What is the primary result when an animal is infected with Neosporosis?

Abortion

14.) What is the term that describes difficulty calving?

Dystocia

15.) What is the process of planning a farm business transition of ownership from a senior generation member to the next generation?

Succession planning

16.) What is another term for diarrhea in calves?

Scours

## 2015 NYS District 4-H Junior Dairy Quiz Bowl Extra Questions

1.) A deficiency of what vitamin causes white muscle disease?

Vitamin E

2.) What is the term for the milk-mineral deposit found on manure handling equipment?

Milk stone

3.) What does the acronym CAFO represent?

Concentrated Animal Feeding Operation

4.) During what season of the year is consumer demand and milk sales the highest?

Fall

5.) What term describes the appearance and performance characteristics of an animal?

Phenotype

6.) Cows milked three times a day produce what percent more milk than cows milked twice?

8 to 15 percent

7.) Limestone contains high amounts of what mineral?

Calcium

8.) There are two main sources of exposure to environmental pathogens on a dairy that can cause mastitis: moisture and what else?

Manure

9.) Where is the national 4-H Dairy Conference Held?

Madison, Wisconsin

10.) What organization owns and manages the "Real Seal"?

National Milk Producers Federation

11.) What is the adult cow's body structure through which an unborn fetus receives its nutrients?

Placenta

12.) When is the peak period of silo gas formation?

2 to 3 weeks after filling

13.) Due to cortisol's effect on the immune system, veterinarians recommend that vaccinations should be given at what point after calving?

3 to 4 weeks

14.) Rumen bacteria digest carbohydrates to produce volatile fatty acids (VFAs). After VFAs are absorbed into the blood, what are they used for?

Energy

15.) What condition describes an inflammation of the udder?

Mastitis

16.) What milking production measurement does the term RHA stand for?

Rolling Herd Average

17.) What is the principal protein found in milk?

Casein

18.) What tool should be used to measure particle length of chopped forages?

Shaker box or particle separator

19.) The Milk Producer Education Program launched what campaign last spring to replace "Got Milk?"

Milk Life

20.) What is the average length of the dairy cow's estrous cycle?

21 days

21.) To maximize efficiency, soil samples should be taken at least every how many years?

3 years

22.) What structure of the bulk tank stirs the milk to help with cooling and to ensure a uniform product mixture for sampling?

Agitator

23.) A lack of which nutrient causes the quickest reductions in growth rates or milk production?

Water

24.) In dairy cattle, what is the most commonly used reproductive technology?

Artificial insemination

25.) Traditionally, what is the recommended length of a cow's try period?

45 to 60 days

26.) How often should a bulk tank be washed and sanitized?

Every time it is emptied

27.) What term describes the days from calving until the first breeding date?

Days to first service

28.) What is the condition called when a person cannot metabolize, or break down, milk sugar?

Lactose intolerance

29.) Vitamins are classified in one of two categories: water soluble and what else?

Fat soluble

30.) What measure is calculated when you divide the total liabilities of a farm by its total number of cows?

Debt per cow

31.) What is an infection of the uterus called?

Metritis

32.) A dry cow requires the largest quantity of which mineral?

Potassium

## Team Questions

- 1) Name the two most effective practices used on a dairy to prevent new mastitis infections.

Teat dipping  
Dry cow antibiotic treatment

- 2) What are 3 types of bedding commonly used on dairies?

Newspaper  
Recycled manure solids  
Sand  
Sawdust (green or kiln-dried)  
Shavings  
Straw  
Hay

- 3) Name 3 reasons why a dairy cow may be culled from the herd.

Low production  
Mastitis  
Reproduction  
Udder  
Feet and legs  
Disease  
Injury  
Disposition

- 4) What do the 4 Hs of 4-H stand for?

Head  
Hands  
Heart  
Health