



World Hunger Relief, Inc.
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Highlight Tour – 6th Grade

TEKS Overview:

English Language Arts and Reading: 1A-C, 4A

Math: 11A-C **Science:** 3A, D; 4A-B, 5A-B, 8A-C, 9A-B, 12A-C, 14B

Social Studies: 6A, 15A-C **Health:** 1A

Tour Objectives:

- Students will see how plants and animals live; learn what they need to survive; and how they participate in life cycles.
- Students will learn about sustainable food production systems.
- Students will understand that hunger is an important issue in many cultures around the world.
- Students will use math and science skills to explain and record observations of plant growth, climate control and soil properties

Introduction

TEKS: English Lang Arts 1A-C, 4A Science 3A, 15A-C,

- Students gather in the Education Building and sit on the floor. Leaders welcome them to WHRI, introduce themselves, and explain the purpose of WHRI. *[Teachers and students should already be familiar with WHRI purpose and mission by way of the pre-tour information sheet – if for some reason they did not receive or use the information you will need to spend more time with introduction.]*
 - Ask students what they know about farms. What are the types of things that farmers do and what do they expect to see on a farm?
 - Dialogue briefly about what farmers do and what they will see on the WHRI farm. Mention: growing food/vegetables, taking care of animals, etc.
 - Explain that the students will see many of the “normal farm things” at WHRI but they will also see many things that are different because we are more than just a farm, we are also a kind of school
 - Use the analogy of a school, showing that the farm has teachers and students just like they do except at WHRI we are learning to take care of the land, gardens, and animals so that we can help people all over the world feed themselves and their families. Here at WHRI we are interested in plants and animals because we want to be able to teach hungry people how to use them to feed their families.
 - Take one or two questions if there is time but assure the students that you will be explaining these things more while they walk around the farm.
 - Tell students some of the things that they will be able to see and do today at the farm. *[Be sure to emphasize those things that will create anticipation and excitement in the students, i.e. baby animals, tasting vegetables, planting seeds, etc)*
- Leader establishes the rules or *agreements* for the students’ visit to the farm. Have students repeat after each. (*Show poster).
 - ✓ I agree to stay with the group.
 - ✓ I agree to be gentle and quiet with the animals.
 - ✓ I agree to walk and NOT run.
 - ✓ I agree to use my quiet voice and NOT shout.
 - ✓ I agree to raise my hand if I have a question or I need to use the bathroom.
 - ✓ I agree to have fun.

Fair Trade

- Explain the concept of fair trade and its importance:
 - Most of the day-to-day work that we do here at the farm has to do with the production of food and the care of livestock so that we can work with other people around the world to help them feed themselves, their families and their communities. However, when we talk about people being hungry, and especially about those who are trapped in extreme hunger, often these people need help with more than just getting food on their table. They need help getting access to the kinds of things we often take for granted but which are often simply not available to people in developing countries. Things like: the chance to go to school, to get a job, or to go to the doctor

- Finding solutions to these problems is also part of the answer to helping people emerge out of hunger and poverty for the long run – not just for a few meals! One way that we encourage ourselves and others to help with these bigger picture issues is to purchase what are called “fair trade goods.”
 - We all know that many of the things that we buy come from different places all over the world. You may be wearing a shirt that was made in Indonesia, or shoes that were made in Chile or a watch that was made in Vietnam. The people who make these things are just like you and I, and they have the same needs, dreams and hopes for their family that we have.
 - Unfortunately many of the things that we buy are made by companies who don’t pay their workers enough money to feed their families. Many are made in factories and workshops that are very dangerous to work in because the owners do not make them safe. This often means that they are doing things that are very bad for the environment as well. Some of them are even made by boys and girls just like you who aren’t allowed to go to school but instead work long, hard, often dangerous jobs even though they are so young.
 - We don’t think these are good situations for people to live and work in, so we don’t want to buy things that are made like this. If these companies get our money it will encourage them to keep making things in a way that takes advantage of the people who are working for them. Sometimes it is hard to know what to buy, but one way that you can know that you are not buying products that hurt people is to buy products that are labeled “fair trade.” If you see the words “fair trade” on something it is a promise that the people who made that product were paid the right amount of money to feed their families, that they were not in danger of being hurt while they were making things and that children were not forced to do the work.
 - You can ask your parents what they know about the things that they buy and that you heard about fair trade today.

Landscape/Native Plants

TEKS: English Lang Arts 1A-C, 4A Science 3A, D; 4B, 5A-B, 12A-C, 14B

- Walk to the front of the Education Building, focusing on the landscape in front.

- **Native Plants/Ecosystems:** Explain to students that most of the plants used in this landscape are native to the broader Texas ecosystem, which means that they are adapted to the hot dry weather and don’t require as much water to live and grow. This is one way that we are working to conserve water on our farm – by encouraging the growth of plants that naturally belong on our farm-not trying to bring in plants that don’t belong in Texas. In this way we are trying to work with the existing ecosystem, not trying to create an artificial system that has to be maintained with lots of outside resources, especially water.

What do plants need to survive?

1. Light
2. Air
3. Water
4. Soil

Basic Parts of a Plant:

1. Roots
2. Stems
3. Leaves
4. Flowers
5. Fruits
6. Seeds

- **Plant Types, Parts and Variety:** Walk through the landscape showing students several plants to touch. Point out the different parts of the plants and then ask the students to name the parts on other plants as you make your way through the landscape. Emphasize the diversity and variety in the plants found in the landscape, reminding them that these plants are all native to Texas and of their ability to thrive in our area.

- - Catmint - not native to Texas, but to the Mediterranean which has a similar climate to this part of Texas, names so because cats are attracted to the smell of the plant
 - Roses -
 - Grasses -
 - Rosemary – not native to Texas, but to the Mediterranean which has a similar climate to this part of Texas so it does very well
 - Vines on the trellis, if growing
 - Buffalo grass – a native Texas grass, point out the numerous dense stolons by which the grass spreads
 - Mexican plum – beautiful white flowers, small red fruit that birds really like, very hardy so it is often used for root stock in this area.
 - Dessert willow – not related to the weeping willows but the leaves look very similar, hummingbirds really like their flowers
 - *Hoja santa*, (if growing) – “sacred leaf,” also known as the “root beer plant” because of its distinctive smell, leaves are used to wrap smoked fish in.

- Ask if there are any last questions before leaving the landscape area.

Nicaragua House

TEKS: English Lang Arts 1A-C, 4A Math 11A-C Science 6A, C; 8A-C, 9A-B, 14B Social Studies 15A-C

- Ask students if they know where the country of Nicaragua is? *[Depending on the age of the students an easy way to tell them where Nicaragua is: have them all turn to face Houston – roughly southeast, and tell them if they walked to Houston, almost 200 miles, and then just kept walking through Houston and across the Gulf of Mexico for another 1300 miles they would eventually end up in Nicaragua very wet and very tired.]*

- Explain that people in Nicaragua, just like people all over the world, have the same basic needs that they have. Ask the students if they can think of what some of those needs might be.



- Food
- Water
- Shelter
- Clothing

- Explain that this is an example of the type of house you might find in the country of Nicaragua. Ask the students if they have ever heard of Habitat for Humanity – an organization that helps build houses for people who do not have homes of their own all over the world, including in Waco, TX and in the country of Nicaragua – this is an example of the type of house that Habitat for Humanity builds in Nicaragua.

- Ask the students why they think we have a house like this.

- Explain how we want to learn and experience how people live in other parts of the world.
- Remind them of our mission to fight hunger and that an important part of that mission is learning how people in other cultures and countries live. This helps us to better understand them, it helps us to learn things from them and it helps us better understand how we might be able to help them.

Habitat for Humanity has built over 3,500 homes in Nicaragua and 30,000+ in the United States!

- Allow the students to step inside the house and encourage them to look around. *[If people are currently living in the Nic House make sure the students stay in the entrance to the house and are respectful of the residents' belongings.]*
 - Ask the students to look around and name some ways that this house is just like the house where they live (Ex: roof, door, floor, a stove, a bed, etc).
 - Ask the students to look around and name some of the ways that this house is different from the places they live. (Ex: no electricity, phone, TV, bathroom, kitchen, air conditioning, glass in windows, only one room for 8-10 people, etc)
 - Ask the students that even if this house is different from where they live and even if it does not have some of the things that we think that we need in our houses do they think that it meets the need that people have for shelter.

- Outdoor Kitchen:

- Ask the students if they know what this building is used for.
- Explain how food is prepared in a kitchen like this and some of the challenges involved in doing so.
- Lorena Stove vs. Three Stones and a Pot – the problem of energy transformation and control: Explain to the students that a major issue in many parts of the world is how to cook food in a way that uses energy efficiently. Not everyone has a gas/electric oven or a microwave to cook their food and many people rely on fires that are fueled by wood or dung. It is a lot of work to collect enough fuel to keep all the fires burning that you need to cook food, wash clothes, take baths, etc. The problem with cooking is that you have to find a way to focus and control the energy you produce by burning the fuel in a way that you can control for cooking your food.

- Almost 1/3 of the world does not have access to safe, clean water.
- In the U.S. we use an average of 100 gallons of water a day!
- 2/3 of the world gets by on only 13 gallons a day or less.

- Three-stones: with this technology you just stick the wood under your pot resting on the three stones and light the fire. Ask the students where they think the energy is going? How much of it is being transferred to the pot and into heating your food? How much fuel/energy are you wasting? Why? How would they solve this problem? What are some possible solutions?
 - i. Enclosing the pot – lid or pot skirt
 - ii. Enclosing the fire
 - Lorena Stove: with this technology you put the wood into an enclosed space that channels the heat in several directions with some ability for control. Ask the students where the energy is going? How much of it is being transferred to the pot and into heating your food? How much fuel/energy are you wasting? Why?
 - Which method makes more efficient use of your fuel and the energy it produces?
- Rainwater catchments/Shower/Water Conservation
- Take the students to the back of the Nicaragua house and show them the shower there. Ask them what they think this area is used for. Ask them where they think the water comes from.
 - Where would this method of water collection be useful – in what types of climates? How is this making wise use of the water cycle?

Greenhouse

TEKS: English Lang Arts 1A-C, 4A Science 4A-B, 5A-B, 12A-C

- Visit the greenhouse:
- Ask students what they know about greenhouses, what are they used for.
 - Ask for observations about the greenhouse – what does it feel and look like.
 - Ask what plants need to survive and grow:
 - Explain that greenhouses are a controlled environment which allow us to provide the plants with water, soil and temperatures that are very close to ideal for their growth – we have much more control over this environment than we do in the garden so the greenhouse is an ideal place to start the plants growing from seed when they are most vulnerable.
 - What affects would the presence or absence of water and heat have upon the seeds and plants in the greenhouse? What are we hoping will be their response?
 - Ask if the greenhouse could be described as an ecosystem?
 - Compare the climate and conditions inside the greenhouse with those outside the greenhouse.
 - Show the students how we track and record rainfall and temperatures both inside and outside the greenhouse and why this is important.
 - Take the temperature of the air and the soil inside the temperature to be compared with temperatures in the garden.
 - Show students seeds and a variety of plants at various stages of germination and growth in the greenhouse.

Education Garden

TEKS: English Lang Arts 1A-C, 4A Math 11A-C Science 3A, C; 12A-C

- OPTIONAL: Measurement Exercise: using the raised beds walk the students through the process of determining the volume of the raised beds and how much dirt is needed to fill them:
 - Divide the students into teams of three. Hand out measuring tapes, paper and pencils.
 - Instruct each team to measure and record the length, height and width of the raised bed using the measuring tapes – rounding to the nearest foot.
 - With the help of the teacher help the students calculate the volume of the raised beds.
 - Show the students the 5-gallon bucket used for measuring soil. Give them the conversion rate and ask them to calculate the number of 5 gallon buckets that would be needed to fill the raised bed with soil.
- The raised beds in the Education Garden area are a great place to let the students interact more closely with plant and vegetable production.
 - Explain to students the benefits, and sometimes the necessity, of using raised beds for food production in many parts of the world. What are some limitations to using raised beds?
 - Herbs:
 - Without telling them what it is give each student a piece of mint leaf and ask them what it smells like.
 - Point out other herbs that the students can touch and or smell (will vary as to season)
 - Basil
 - Rosemary
 - Lambs Ear
 - Lemon Balm
- Show plants in various stages of growth.
 - Bring along some seeds of plants that are growing in the garden and show them to the students.
 - Point out plants that are at different stages of growth, especially those that are now producing fruit.
 - Let students harvest something from the garden, if possible. (Students must wash their hands and the vegetables before eating.)
- Roof-top gardening:
 - Explain to the students that many of the people in the world that are in danger of being hungry live in cities and therefore they do not have land where they can grow food. However, there are many creative ways that you can grow fresh vegetables for your family to eat even if you do not have a place to plant them in the ground. Many of these creative ways involve recycling materials that we might normally think of as trash but which can be transformed into small gardens!

Volume:

length x width x height

1 cubic foot = 7.5 gallons

- Explain to the students that this is a simulated rooftop, similar to one you might find all over the world. Ask them to name some of the things that we are using to grow food in on the rooftop:
 - Tires
 - Swimming pool
 - Used bags
 - Benefits of roof-top gardening:
 - Makes use of existing space/materials – you do not have to spend money renting land to grow food or buying materials.
 - Out of the reach of animals that might eat the plants
 - Plenty of sunlight
 - Easy to manage – no need to travel far from home to tend crops
- Ask if there are any last questions before leaving the area

Vegetable Garden

TEKS: English Lang Arts 1A-C, 4A Math 11A-C Science 3A, 4A-B, C; 5A-B, 8C, 12A-C, 14B
Social Studies 6A Health 1A

- Point out the vegetable rows. Help students identify various vegetables that they have eaten before and those that they have never eaten.
 - Ask students to name as many vegetables as they can think of. Ask students what their favorite vegetable is.
 - Ask what role gardens play on a farm. What would happen if we didn't have gardens? Emphasize the connection between gardens just like this one and the food they eat at home or buy in the grocery store.
- Examine the soil in the garden with the students.
 - Instruct each student to hold a small amount of soil in their hand, explaining to them that there are unique qualities to this soil because of the historical physical processes in this ecoregion.
 - Waco is part of the ecoregion known as the Texas Blackland Prairies. The climate is temperate to subtropical and shares many characteristics with savannas and grasslands around the world. It is the growth and decay of these grasslands over thousands of years that give the soil such a dark color.
 - Instruct the students to squeeze the soil in their hand and explain that it is composed primarily of clay. Explain some of the characteristics of clay soil and some of the challenges to growing in it.
 - Take the temperature of the soil and the air and compare it with the readings from the greenhouse.
 - Ask students to describe the weather and conclude what kind of weather is good for the plants/farmers. What challenges does the climate here at the farm provide for growing food? How do we deal with those challenges?

What do plants need to survive?

1. Light
2. Air
3. Water
4. Soil

6 Major Nutrients:

1. Carbohydrates
2. Protein
3. Fat
4. Vitamins
5. Minerals
6. Water

- Water/Irrigate
 - Mulch – how does this help?
- Let students harvest something from the garden, if possible. (Students must wash their hands and the vegetables before eating.)
 - Ask what plants need to grow/survive.
 - Ask what our bodies need to grow. (Some of the same things as plants!)
 - Ask if vegetables are good for their bodies. Why?
 - Which of the six major nutrients are found in the vegetables in our garden?
 - Show plants in various stages of growth.
 - Bring along some seeds of plants that are growing in the garden and show them to the students.
 - Point out plants that are at different stages of growth, especially those that are now producing fruit.

Vitamin/Mineral Content:

- Bell Pepper: A, C, potassium
- Broccoli: C, K, protein
- Carrots: A, K, C
- Tomatoes: C, A, copper
- Spinach: K, A, manganese
- Collard Green: K, A, calcium

Rabbits/Vermicompost

TEKS: English Lang Arts 1A-C, 4A Science 3A, D; 4A-B, 5A-B, 8A-C, 12A-C

[Tour leaders should be aware that depending upon the age/maturity of the students some groups will be more sensitive to the idea of rabbits as a food source as opposed to the pets that they usually are in American culture, so tread gently especially with younger students.]

- As you approach the rabbit cages take the opportunity to remind the students to the rules you all agreed to – especially those regarding being very quiet around the animals, and the need to be especially quiet around the rabbits, as they frighten very easily.
 - Have the students gather on one side of the cages, with further reminders not to touch the cages/rabbits while you remove one of the rabbits from its cage to hold while you talk to the students.
 - Ask what they know already about rabbits.
 - Ask what role the rabbits play in their habitat. Do they affect any other organisms?
- As you hold the rabbit point out characteristics of the rabbit:
 - Ears – *[importance of]*
 - Teeth – *[connection to diet]*
 - Nose – *[importance of for survival]*
- Have the students to form a line and allow them to pet the rabbit, 1 at a time.
 - Hold the rabbit’s head hidden in your elbow to keep it calm.

Female rabbits are does, males are bucks, baby rabbits are kits or kittens and a group of young rabbits is called a kindle. Does usually have litters of 6 to 10 kits at a time with a gestation period of 28-31 days.

- Ask the students why they think we have rabbits on our farm, why do we think they would be important for hungry people around the world – what do rabbits give us?

- Food

- If age appropriate, mention that with only two female rabbits and one male rabbit over the course of one year a family can have the same amount of meat that they would get from a cow. But there are decisive benefits to being able to acquire meat from rabbits as opposed to meat from cows – ask if they can think what that might be. In developing contexts one of the biggest benefits is that a rabbit can be eaten/prepared in one meal/day and thus there is no need for refrigeration (a scarce resource in many developing contexts) or preservation as would be needed if you butchered a cow.

Marasmus and Kwashiorkor are two types of protein malnourishment especially affecting children under the age of five in developing countries. Rabbits are an excellent source of high quality protein and introducing them to a family's diet can dramatically increase the health of the children.

- Fertilizer

- Fertilizer/Vermicompost

- Many people around the world depend on their gardens for the food they eat. They don't have the money (or the store!) to buy what they need. So growing vegetables and fruits are very important for the health and survival of their family. Fertilizers help plants grow by providing them with nutrients that they need to grow bigger and faster. Many fertilizers are very expensive and they are made from materials that might not be healthy for the soil or for people, so many people can't and don't use these chemical fertilizers. However there are fertilizers that they can use that are free and safe – and rabbits help these farmers produce these fertilizers.

- Scrape away the top layer and take a shovel full of worms and bedding from the vermicompost.

- Ask the students what they see.

- Explain to the students that the type of fertilizer that the rabbits help us make is called vermicompost – which is just a fancy way of saying that the fertilizer is made by worms. Ask the students if they know how worms could help us make fertilizer?

Red wigglers are the worms most commonly found in vermicompost because they thrive in rotting vegetation and manure, so much so that they are rarely found in soil.

- Explain that rabbits eat grasses, weeds, hay and even fruit and vegetable scraps (teach them the word 'herbivore') and then turn their food into poop/manure. The worms eat the rabbit droppings and the leaves which we mix in for them and then turn their food into worm poop or *worm castings* – these worm castings are in fact the beginnings of little pieces of soil and all over the world, under the ground worms are doing the very same thing all the time. The worm castings help make great, nutrient rich soil and that helps our plants grow – remember what we said about rabbit manure, it is very high in nutrient content because of the way the rabbits digest their food, and thus some of those nutrients make their way back into the soil with the help of the worms! Rabbits and

worms take things that we think of as waste (scraps and droppings) and turn them into something very useful for helping us to grow food.

- Why is rabbit manure such a great source of nutrients for fertilizer? Unlike most animals that eat grasses, rabbits are not ruminants – meaning that they don't have stomachs that are specially designed to break down the very hard to digest plant fibers. Thus when rabbits eat grasses some of the plant passes through the rabbits system undigested and thus, still containing many of the nutrients. Some of the rabbits manure is thus undigested grass and the rabbit will eat this again, attempting to get the remaining nutrient content – animals that do this are called coprophagic.
- Show students the finished vermicompost pointing out that it looks, feels and smells like dirt – because that is what it is!
- Ask what students do at home with fruit and vegetable scraps. Remind them about recycling with the rabbits and tell them about the process of composting. Ask what is different about the soil with worm castings and soil without them.

Rather than chewing their cuds rabbits pass two types of feces: a hard fecal pellet and a soft cecal pellet which they re-ingest to extract nutrients.

- Allow students to hold a worm in their hands.
 - Ask what the worm feels like.
 - Worm secretions – the “slime” that the worm leaves on your hand is a combination of proteins and nitrogen that serves several purposes: it keeps the worm from drying out and enables it to tunnel through the dirt; and along the way it helps collect/aggregate the soil and casting particles that make up our soil.
 - Ask if the students can tell which end is the head and which is the tail. The head will be the end that is most actively moving around – the worms head/anterior is very sensitive to light and it is this sensitivity towards light that is the source of the worms navigation.
 - Explain that worms are hatched from tiny white cocoons – point these out if any are in the vermicompost.
 - Explain that in the process of making all of this great fertilizer for us that worms will eat at least their weight in food every day! Ask how much food they would have to eat to do the same thing!
- OPTIONAL: Have students place their worms on their ‘measurement bookmarks’ and mark the length. (leader should bring the bookmarks and some crayons in his or her pocket.)
 - Ask students to explain/share about their measurements.
 - Ask students to sort their worms from shortest to longest.
- Ask students to make a big circle with their fingers. Review the nutrient cycle they have learned about: plants-animals-droppings-worms-soil-plants. *Each part depends on each other.

Chickens/Eggs

TEKS: English Lang Arts 1A-C, 4A Science 3A, D; 5A-B, 8A-C, 12A-C

- Guide the students to make observations about the chickens and their environment.
 - Ask the students how many different types/colors of chickens they see.
 - Explain that just like with cats and dogs there are many different breeds of chickens and that they have different characteristics.
 - Ask what they notice about the chickens. What are the chickens doing to the ground? Why?
 - Ask which are the female chickens and which are the male.
 - Why does the rooster crow? Protection (Which is why he is probably crowing right now!). Wakes the chickens up in the morning and calls them back to their home at night for safety.
 - If possible take a chicken out of the laying box. Hold it firmly and allow students to feel its feathers and feet.
 - Point out the parts of the chicken (head, feet, wings, claws, beak) and ask students why each part is important/what it is used for.
 - Ask how chickens help us here on the farm – what do chickens give us?
 - Eggs
 - Help us control bugs and weeds by scratching around and eating them
 - They also help us fertilize our fields by leaving behind all that nutritious poop/manure.
 - Meat
 - Explain to the students that for all these reasons chickens are very important to us here at the farm and for the very same reasons they can be important to hungry people all over the world, so by learning all about how to take care of our chickens we can help other people do the same thing.
 - Let's talk about eggs!
 - Have students observe the eggs- If possible, show students where eggs are collected.
 - Ask if they notice any differences in the eggs.
 - If possible, show students differences in egg sizes and colors and explain that different breeds of chickens lay different color eggs
 - Ask the students if they can guess how often a chicken can lay an egg?
 - Most healthy chickens can lay one egg every 26-27 hours.
 - Ask the students if they know how long it takes an egg to hatch into a baby chicken?
 - By sitting on the eggs the hens are able to keep the temperature of the eggs at almost 100 degrees – hens will often take turns sitting on the eggs so that everyone gets a chance to eat. They will turn the eggs several times during the day to keep them warm all over and after 21 days the eggs should be hatching.

Chicken breeds at WHRI:

- Ameraucana
- Barred Rock
- Rhode Island Red
- Leghorn
- Australorp

The crest on a chicken's head is called a comb and the flaps of skin underneath the beak are called waddles, both help the chicken to cool off on hot days.

Ask if there are any last questions before leaving the chicken area.

Dairy/Goats and Cows

TEKS: English Lang Arts 1A-C, 4A Science 3A, D; 5A-B, 8A-C, 12A-C

(It may be helpful to have another person waiting nearby with a goat already on a lead for students to view, or to leave one goat in the dairy barn so that younger students may see the goats up close.)

- Goats: Hold one of the goats by the collar or hold a small kid in your arms while you talk to the students.
 - Ask students what goats need to stay alive. (food, water, minimal shelter)
 - What do goats like to eat?
 - Grasses
 - Woody shrub and tree leaves
 - Ok, just about any plant
 - Ask how goats help us - what do goats give us.
 - Milk – important source of protein, calcium, riboflavin, magnesium, phosphorus, niacin equivalents, vitamin B12, vitamin B6, and vitamin A.
 - Ask the students if they think a goat or a cow produces more milk?
 - Explain how fresh milk can help small children who are not very healthy grow much faster and stay healthy, so we want to learn how to help families raise their own goats and give milk to their children.
 - Meat
 - Ask the students what we can make out of milk.
 - Cheese, yogurt, butter, ice-cream
 - If possible, show students how we milk the goats or describe the process to them by walking them through the dairy facility.

WHRI goat breeds:

- Alpine
- Saanen
- Nubian

Contrary to popular belief goats will not eat anything and everything, including metal cans. They have a very wide diet which allows them to eat a little bit of just about any plant. It is their extremely curious nature and their natural habit of using their upper lip and tongue, much like a dog, to explore anything new or unfamiliar that gives rise to this myth.

TEKS Referenced:**110.22. English Language Arts and Reading, Grade 6**

(6.1) Listening/speaking/purposes. The student listens actively and purposefully in a variety of settings. The student is expected to:

- (A) determine the purposes for listening such as to gain information, to solve problems, or to enjoy and appreciate (4-8);
- (B) eliminate barriers to effective listening (4-8);
- (C) understand the major ideas and supporting evidence in spoken messages (4-8)

(6.4) Listening/speaking/culture. The student listens and speaks to gain and share knowledge of his/her own culture, the culture of others, and the common elements of cultures. The student is expected to:

- (A) connect his/her own experiences, information, insights, and ideas with experiences of others through speaking and listening (4-8)

111.22. Mathematics, Grade 6.

(6.11) Underlying processes and mathematical tools. The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:

- (A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;
- (B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
- (C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem;

112.22. Science, Grade 6

(6.3) Scientific processes. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:

- (A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information
- (D) evaluate the impact of research on scientific thought, society, and the environment;

(6.4) Scientific processes. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:

- (A) collect, analyze, and record information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, timing devices, hot plates, test tubes, safety goggles, spring scales, magnets, balances, microscopes, telescopes, thermometers, calculators, field equipment, compasses, computers, and computer probes; and
- (B) identify patterns in collected information using percent, average, range, and frequency.

(6.5) Scientific concepts. The student knows that systems may combine with other systems to form a larger system. The student is expected to:

- (A) identify and describe a system that results from the combination of two or more systems such as in the solar system; and

- (B) describe how the properties of a system are different from the properties of its parts
- (6.8) Science concepts. The student knows that complex interactions occur between matter and energy. The student is expected to:
 - (A) define matter and energy;
 - (B) explain and illustrate the interactions between matter and energy in the water cycle and in the decay of biomass such as in a compost bin; and
 - (C) describe energy flow in living systems including food chains and food webs
- (6.9) Science concepts. The student knows that obtaining, transforming, and distributing energy affects the environment. The student is expected to:
 - (A) identify energy transformations occurring during the production of energy for human use such as electrical energy to heat energy or heat energy to electrical energy;
 - (B) compare methods used for transforming energy in devices such as water heaters, cooling systems, or hydroelectric and wind power plants
- (6.12) Science concepts. The student knows that the responses of organisms are caused by internal or external stimuli. The student is expected to:
 - (A) identify responses in organisms to internal stimuli such as hunger or thirst;
 - (B) identify responses in organisms to external stimuli such as the presence or absence of heat or light; and
 - (C) identify components of an ecosystem to which organisms may respond.
- (6.14) Science concepts. The student knows the structures and functions of Earth systems. The student is expected to:
 - (B) identify relationships between groundwater and surface water in a watershed; and

113.22. Social Studies, Grade 6

- (6.6) Geography. The student understands the impact of physical processes on patterns in the environment. The student is expected to:
 - (A) describe and explain how physical processes such as erosion, ocean circulation, and earthquakes have resulted in physical patterns on Earth's surface;
- (6.15) Culture. The student understands the similarities and differences within and among cultures in different societies. The student is expected to:
 - (A) define the concepts of culture and culture region;
 - (B) describe some traits that define cultures;
 - (C) analyze the similarities and differences among selected world societies

115.22. Health Education, Grade 6

- (6.1) Health information. The student comprehends ways to enhance and maintain personal health throughout the life span. The student is expected to:
 - (A) analyze healthy and unhealthy dietary practices