



Michigan FFA Agriculture, Food, & Natural Resources Education Career Development Event Handbook (2nd Edition)

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Michigan FFA

Agriculture, Food, & Natural Resources Education

Career Development Event Handbook (2nd Edition)

AFNR Education Career Development Event Goal

The goal of this Career Development Event is designed to provide high school students (grades 9-12) with an opportunity to develop and present a teaching lesson related to agriculture, food, and/or natural resources education broadly defined.

AFNRE Educational Career Development Event Objectives and Rules

I. Objectives

1. To provide an opportunity to expose a wide variety of students to the planning, development and implementation of an agriculture, food, and/or natural resources education lesson plan in a simulated classroom setting.
2. To acquire knowledge and skills in teaching agriculture, food, and natural resources education for present and future use.
3. To become knowledgeable of, and familiar with, a wide variety of curriculum opportunities that instructors of agriculture, food, and natural resources education must utilize.
4. To understand the principles and fundamentals of agriculture, food, and natural resources instruction.
5. To further the opportunities for students to become proficient in the techniques used by agriculture, food, and natural resources educators.
6. To promote agriculture, food, and natural resources education career opportunities.
7. To promote career choices by providing an opportunity for individuals to become acquainted with professionals in the industry.
8. To foster learner centered instruction, leadership, and communication skills.

II. Qualification Procedures

1. Students will upload and submit an electronic lesson plan and video (**unedited**) of the student presenting that lesson to the Michigan FFA Office by October 15 (see **Agriculture, Food and Natural Resources Education [AFNRE] CDE Submission Procedures**).
2. Lesson plans and videos must be developed and presented in a 9th grade AFNRE classroom setting. Submitted videos will not be edited for content. Any videos that are edited will be disqualified for consideration from the AFNRE CDE finals.
3. Students and teachers **MUST** adhere to appropriate consent policies affecting other students who may be videoed as mock students for lessons.
4. Judges will determine the top six lessons using the scoring sheet for the contest.
5. The top six participants will be notified and invited through their program instructor.
6. The top six invited participants will present their lessons at Fall PDI to three unbiased judges and a mock classroom of students.
7. Students may consider using the following web-based lesson plan development tool.
https://msu.co1.qualtrics.com/jfe/form/SV_4MgtBnuvCOpzUTH

III. Finals Event Rules

1. One high school FFA member (9-12 grades) who is presenting and is available to answer judges' questions.
2. Members may present their lessons in Official FFA Dress or business casual.
3. Guidelines of eligibility for the Agriculture, Food, and Natural Resources Education CDE and Outreach CDE will be consistent with other Michigan FFA Career Development Events. Individuals will be certified by respective state staff from authentic state guide forms.
4. A total of three competent and unbiased judges will be provided. They will be instructed not to take sides on the lesson(s). Professors, K-12 educators, and extension educators are recommended. The contest chair of this CDE will adequately prepare the judges before the event competition.
5. Seating of individuals for the state contest will be done by the FFA contest chairperson in a fair and impartial manner.

6. The Agriculture, Food, and Natural Resources Education CDE contest will include a simulated classroom with students that may ask questions during the course of the lesson presentation.
7. This contest will be limited to 2 participants per chapter for the AFNRE CDE finals. However, chapters over 75 members may have 3 participants in the AFNRE CDE finals.
8. Fire, live animals, weapons (guns, bows, knives, etc.) and operational engines cannot be used due to building limitations. Electric motors may be used.
9. Invited students will provide a copy of the certification form and appropriate copies (See IV, 2A below).

IV. Finals Event Format

1. EQUIPMENT PROVIDED – Equipment provided by the contest coordinator will include: tables and a mock classroom set of students. Other equipment is allowed, but the presenting individual must provide it.
2. The event will be divided into four parts as follows:
 - A. Lesson Planning, Student Situation Summary, and Motivation for the lesson summary
 - 1) Each student must present **3 copies of the lesson plan, 10 copies of the student situation summary, and 3 copies of a brief summary on the motivation for the lesson to the contest chair prior to the start of the contest finals.** See the AFNRE lesson planning, student situation summary, and motivation for the lesson summary score sheet for the breakdown of the various scoring components.
 - i) The lesson plan must include the following information: The lesson plan will include all relevant educational materials needed to deliver the lesson. Examples may include, however are not limited to PowerPoint summaries, note outlines, student worksheets, and copies of assessments.
 - ii) The student situation summary will be given to the simulating students during the contest. This will be used as a guideline for students to determine the types of learners they will be representing. Note that these students may ask questions during the contest for clarification or a better understanding from a learner perspective.

- iii) The motivation of the lesson summary is a brief paragraph that will give the judges the rationale behind the contestant choosing this area of instruction. This may also include a brief timeline of where the lesson falls within the unit sequence.

B. Lesson Delivery Components

- 1) The preparation and delivery of the lesson should rely on learner centered teaching principles. Students have 10 to 12-minutes (See Time Limits below) to instruct the simulated classroom of students their instructional lesson. The use of teaching aids to convey this message may be appropriate. Examples of teaching aids may include, however are not limited to, AV equipment, handouts, technology, laboratory equipment.

C. Student Assessment/Evaluation

- 1) Within the 10 to 12-minute teaching lesson the contestant may elect to assess students during the lesson. Assessments and/or evaluations may also take place after the lesson (within the 10-12 minutes); however, the assessments/evaluations will be directed at the simulating students in the classroom.

D. Questioning and Reflection of Lesson

- 1) During the 5-minute questioning session judges may ask any questions of clarification from the lesson plan, materials, or lesson delivery of the lesson. Judges will also ask the contestants to reflect on their performance of the teaching of the lesson from a learner-centered approach.
4. Time Limits: students will be allowed time for setup. The lesson delivery will be 10-12 minutes in length. Students will receive a signal at 9 minutes and 11:30 minutes for the lesson delivery. A maximum of 5 minutes for questions and answers will be allotted. Questions and answers will terminate at the end of 5 minutes. Five minutes will be allowed for take down. The timekeeper should record the length of the presentation and report to the judges. The exact total minutes and seconds must be recorded showing under time or overtime for which deductions will be made. Deductions of 2 points will be made for each minute over 12:30 minutes and 4 points for each minute under 10 minutes based on the timekeeper's record. To avoid penalty, a lesson delivery must be over 10 minutes and under 12 minutes and 30 seconds.) Official time does not include the time required for the individuals' introduction.
5. The lesson should be designed to be viewed by the judges and a group of students that will be simulating a classroom.

6. The lessons shall be presented to a minimum of two relevant groups that represent populations that are appropriate to the lesson being presented. An additional point will be awarded for each presentation conducted within an appropriate classroom setting (up to 2 additional). All presentations must be **certified using the appropriate AFNRE certification form.**

7. Official dress for FFA members is as follows:

Female Members: Black skirt or dress slacks, White-collared blouse, Official FFA blue scarf, Black dress shoes with a closed heel and toe, Black nylon hosiery or socks, Official FFA jacket zipped to the top and worn in the manner prescribed by the National FFA Constitution.

(The skirt is to be at least knee length, hemmed evenly across the bottom, with a slit no longer than two inches above the knee, excluding the kick pleat.)

Male Members: Black dress slacks, White-collared shirt, Official FFA tie, Black dress shoes, Black socks, Official FFA jacket zipped to the top and worn in the manner prescribed by the National FFA Constitution.

8. Gold or silver trophy awards will be given to all six finalist participants at the judge's discretion. The contest winner will receive a \$2,000 scholarship to MSU as a student majoring in Agriculture, Food, and Natural Resources Education (AFNRE), and a traveling trophy that can be put on display at the home school of the winner. The names of both the winner and respective teacher will also be included on the traveling trophy.

(Revised 6/25/18)

AFNRE CDE Lesson Plan and Presentation Rubric

Lesson Component	Improvement Needed <i>0 to 41 points</i>	Developing <i>42 to 52 points</i>	Sufficient <i>53 to 62 points</i>	Proficient <i>63 to 70 points</i>	Score
Building Interest – Teacher creates a felt-need to learn and sets context of learning for students	Interest approach may grab students' attention, but does not set the context for learning and does not create a felt-need to learn.	In addition to grabbing attention, it either sets context OR creates a felt-need to learn.	In addition to grabbing attention, it sets the context for learning AND creates a felt-need to learn.	In addition to including essential elements, approach displays proficient command of content and pedagogy.	
Designing Instruction and objectives – based on how learning occurs, using variety of strategies; lesson and objectives are age appropriate	Does not include a variety of strategies OR strategies are not appropriate for student ability and/or content. Objectives do not align with instructional strategies.	May include either a variety of strategies OR appropriate use of strategies. Objectives may not align with instruction, and may or may not challenge students at the appropriate level.	Includes both a variety of strategies and appropriate use of strategies. Objectives are aligned with instruction, and may or may not challenge students appropriately.	Includes variety and appropriateness, as well as includes higher order thinking skill requirements of students. Objectives are aligned, and students are challenged at appropriate level.	
Delivery and Engagement – engage students in active learning. Visual aides are used.	Visual aids not present, and students not actively engaged.	May be missing visual aids OR students not actively engaged. If students engaged, may lack higher order thinking skills.	May include visual aids and engaging to students, but may lack inclusion of higher order thinking skills.	Includes visual aids and actively engages students, while incorporating higher order thinking skills.	
Command of Content, meaningful learning experiences	Not enough content is provided to utilize lesson OR content is inaccurate OR content is inappropriate for student ability.	Enough content may or may not be provided, content may have inaccurate or inappropriate elements. Pedagogical content knowledge may be missing.	Content provided is sufficient to teach lesson, is accurate, and appropriate for learner ability. May display some use of pedagogical content knowledge.	In addition to sufficient levels, preservice teacher demonstrates a high level of Pedagogical content knowledge by utilizing teaching strategies most appropriate for content.	
Assessment – collects student data during the lesson	No evidence of assessing students during the learning period.	Some assessment used in one situation, but may not be aligned with objectives and/or instructional strategies.	Sufficient assessment opportunities in more than one situation that are aligned with objectives and strategies.	Ample assessment opportunities in multiple situations that are aligned with objectives and strategies.	
Questions and Reflection of Lesson <i>0 to 50 points</i>			Certification – Meet the certification minimum (+5) Additional Certifications (+1) (Extra Points)		
			Total Points		/400

AFNRE CDE Certification Form

LESSON PRESENTATION (CERTIFICATION FORM)

The Agriculture, Food, and Natural Resources Educator must certify the lesson presentations prior to the date of competition. Each participant must present his or her lesson presentation to a relevant group or organization. Examples may include teaching classrooms, 4-H groups, governmental boards, farm related organizations, community organizations, etc. Each participant is required to present to a minimum of two distinct relevant groups, however each participant may present their lesson to an additional 1 to 2 relevant groups for additional points.

Lesson Presentation #1

(Name of Group or Organization and Setting)

(Print Name of Representative)

(Signature of Representative)

(Date of Presentation)

Lesson Presentation #2

(Name of Group or Organization and Setting)

(Print Name of Representative)

(Signature of Representative)

(Date of Presentation)

Lesson Presentation #3

(Name of Group or Organization and Setting)

(Print Name of Representative)

(Signature of Representative)

(Date of Presentation)

AFNRE CDE Lesson Plan Template

MSU AFNRE Lesson Plan Template

Unit Title:

Lesson Title:

Last Revision:

Segment(s) & Standard(s):

Objectives:

Materials needed: What will you need to gather ahead of time? During instruction?

Computer/Projector

Daily Announcements: Important information for students related to classroom and FFA activities

Interest Approach: How will you set the context for the day?

Chunk One Expected Time: For examples 15 to 20 minutes	
Chunk Introduction and Key Questions:	
Content: What main and supporting points will you reference?	Delivery: What strategies will you use to keep students engaged related to the main points?
Formative Assessment: How will you make sure students are ready to move on? (key questions, summarizing activity, learning check, etc)	

Transition: What will you do to create a shift between chunks?

Chunk Two Expected time:	
Chunk Introduction and Key Questions:	
Content:	Delivery:
Formative Assessment:	

Transition:

Chunk Three Expected time:	
Chunk Introduction and Key Questions:	
Content:	Delivery:
Formative Assessment:	

End of Class Review: Revisit daily objectives and summarize learning.

Final Call Announcements: Last minute reminders about class activities (tests, ect) and FFA activities

AFNRE CDE Lesson Plan Example

Unit Title: Discovering Animal Domestication (**NOTE: this is a ~50-minute lesson**)

Lesson Title: Jumping Beyond Current Animal Domestication.

Last Revision: 4/12/18

Segment(s) & Standard(s):

- Describe trends in the animal systems industry. (Pathway I.A.3)
- Explain the variety and scope of managed animal systems in the United States and around the world including: livestock, poultry, aquaculture, companion animals, zoo animals, and exotic animals. (Pathway I.A.1)

Objectives:

1. Students will be able to explain at least one current domestication issue in the areas of farm animal, wild animal, and pet animal production.

Materials needed:

- Projector
- PETA videos
 - https://www.youtube.com/watch?time_continue=57&v=H0-CRX6uclI
 - https://www.youtube.com/watch?time_continue=144&v=6Ga0V1mrZDo 2:25-3:20
 - Computers/technology and internet
 - Posters/large pieces of paper
 - Markers
 - Paper/pencils

Daily Announcements:

Interest Approach: ~5 min

Show the following PETA videos without any prior explanation:

https://www.youtube.com/watch?time_continue=57&v=H0-CRX6uclI

https://www.youtube.com/watch?time_continue=144&v=6Ga0V1mrZDo (2:25-3:20 minutes)

“Yesterday we looked at the history of animal domestication. But domestication is an ongoing process and is occurring today just as much as it was occurring hundreds of years ago. Turn to your table partner and discuss what you saw in these videos, your feelings about them, and how they relate to our topic of animal domestication.

Allow groups about a minute to discuss. Bring the groups back to a full class discussion and gives students about a minute or two to share their thoughts.

These videos that you just watched were put out by PETA, an organization against human use or domestication of animals. While organizations like PETA attempt to push future domestication

of animals in one direction, the agricultural industry and the demand for food pushes future animal domestication in the other direction. This creates many current animal domestication “issues” about how humans will use animals and animal products in the future.”

Chunk One Expected Time: 15 min	
Chunk Introduction and Key Questions: <i>What animal domestication issues are common today?</i>	
Content: (Content will be dependent on what issues the students find. Following is an example of how students might find an issue and some information regarding it.) In Wikipedia: Domestication → Animal Husbandry → Intensive Animal Farming (this page has information on chicken, pig, cattle, and aquaculture issues)	Delivery: “Today we are going to play a game! Everyone needs to go and grab a laptop and go to Wikipedia’s website. I am going to give you a word, and you will type that into Wikipedia’s search engine so that you get to that page. Once you are on that page, your job is to click on embedded links until you find a current domestication issue. Remember that not all domestication issues involve common farm animals! Use the piece of paper and a pencil to write down some facts or ideas regarding the issue. See if you can find and record 2-3 issues. Any questions? Alright, is everyone ready? Your word is “domestication.”
Formative Assessment: Walk around room and visually assess student understanding. Answer any questions that students might have.	

Transition:

“It looks like you have some really good examples of current domestication issues written down! Next we are going to use these issues that you have identified in a chalk talk.”

Chunk Two Expected time: 15 min	
Chunk Introduction and Key Questions: (topics for chalk talk) <i>What animal domestication issues are common today in the area of farm animal production?</i> <i>What animal domestication issues are common today in the area of wild animal production?</i> <i>What domestication issues are common today in the area of pet animal production?</i>	
Content: (Content will depend on what information students found in the first chunk.)	Delivery: “There are three posters hanging up in the room. Your job is to add information that you found on current domestication issues to these posters. Feel

<p>Examples:</p> <ul style="list-style-type: none"> • Farm animal production <ul style="list-style-type: none"> ○ Horse slaughter ○ Cage free chickens ○ Farrowing crates for pigs • Wild animal production <ul style="list-style-type: none"> ○ Bees (colony collapse, pesticide use, etc.) ○ Fish farming ○ Deer farming ○ Zoo animals • Pet animal production <ul style="list-style-type: none"> ○ Puppy mills ○ Dog fights 	<p>free to write a description and a fact or two about the issue. Don't forget to read what other people have written! If you have questions about a particular issue, write your questions next to that issue. Remember that there is no talking in a chalk talk! You will have four minutes at each poster." <i>Split the students into three groups and assign each group a poster to start at.</i> "Alright, any questions? If not, you may begin!" <i>Rotate groups every four minutes.</i> <i>Remind students that there is no talking.</i></p>
<p>Formative Assessment: Walk around classroom as students are writing on the posters. Read what students have written in order to gauge understanding.</p>	

Transition:

"Now that we have our ideas written down, let's discuss them as a whole class."

<p>Chunk Three Expected time: 15 min</p>	
<p>Chunk Introduction and Key Questions: <i>What animal domestication issues are common today in the area of farm animal production?</i> <i>What animal domestication issues are common today in the area of wild animal production?</i> <i>What domestication issues are common today in the area of pet animal production?</i></p>	
<p>Content: (Content will depend on what students wrote during the chalk talk.) Examples:</p> <ul style="list-style-type: none"> • Farm animal production <ul style="list-style-type: none"> ○ Horse slaughter ○ Cage free chickens ○ Farrowing crates for pigs • Wild animal production <ul style="list-style-type: none"> ○ Bees (colony collapse, pesticide use, etc.) ○ Fish farming ○ Deer farming 	<p>Delivery: <i>Pick a poster to start the discussion with.</i> "Alright, let's talk about what you wrote down on this poster." <i>Read an example off the poster, along with any associated questions.</i> <i>Ask questions to stimulate discussion about the issue:</i> "Who can tell me more about this issue?" "What are your thoughts on this issue?" "Does anyone have an answer to the question left on this issue?" <i>Repeat this format with all of the issues on all</i></p>

<ul style="list-style-type: none"> ○ Zoo animals • Pet animal production <ul style="list-style-type: none"> ○ Puppy mills ○ Dog fights 	<p><i>of the posters.</i></p> <p>“Are there any other issues that we haven’t covered yet?”</p> <p><i>If there is an issue that students didn’t identify, but that you want them to think about, introduce it now.</i></p>
<p>Formative Assessment:</p> <p>“What are your overall thoughts about these issues?”</p> <p>“What surprised you about our conversations today?”</p>	

End of Class Review:

What animal domestication issues are common today in the area of farm animal production?

What animal domestication issues are common today in the area of wild animal production?

What domestication issues are common today in the area of pet animal production?

Ask for one example for each of the key questions listed above.

“What questions do you still have?”

“Tomorrow we will be diving deeper into some of these issues.”

Final Call Announcements:

AFNRE CDE Student Classroom Background Example

If a student is invited to participate in the finals of the AFNRE CDE competition, they will need to provide a Student Classroom Background sheet. The Student Classroom Background sheet is intended to provide the mock students with a background of the individuals that they will be playing during a students' lesson. Note that the Student Classroom Background does not need to be complex. See the example below.

Student Classroom Background

This is a class of 9th grade Natural Resources students (30 students). Half the class is female students with varying backgrounds in natural resources. About half of the students are current users of animals for food consumption and understand the role of animals as a food source.

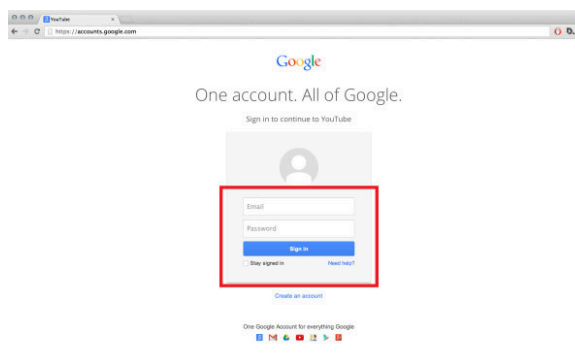
AFNRE CDE Submission Procedures

- Students interested in participating in this contest must do the following:
 - 1) Submit their lesson plan to Mr. Dave Wyrick via email dwyrick@msu.edu
 - 2) The lesson plan must include the link to the students public YouTube video.
 - 3) All submissions must be received by 5:00 p.m., October 15, 2018.
 - 4) Students selected to compete in the finals will be notified through the Michigan FFA Office within 1 week of submission deadline.
 - 5) Students selected need to bring 3 copies of their lesson plan and written materials (worksheet, PPT outline, etc.), 10 copies of a brief class background summary for students, and any materials and technology needed to present the lesson to a group of students.

AFNRE CDE Video Uploading Procedures

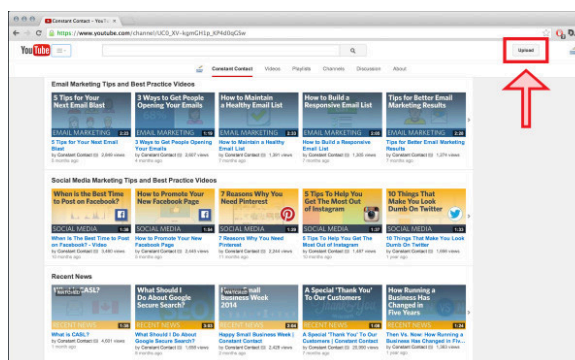
Getting Started

The first thing you will want to do is to log in to YouTube. To do this, you'll need to set up a Google account if you do not already have one. Your Google account can be used for YouTube, Google+, Gmail, and any other YouTube platforms.



Choosing a File

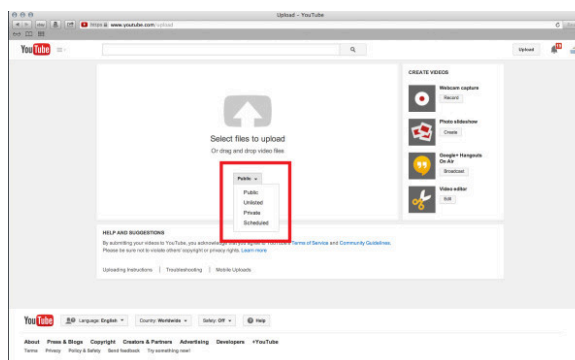
After logging in to YouTube, choose the "Upload" button near the upper right hand corner of the page. From there you will be taken to the Upload page.



Privacy Settings

Different types of videos should have different types of privacy on your YouTube channel.

It's important to set the privacy before uploading videos you do not want available to the public or visible on your channel. *For the purposes of the AFNR Ed CDE, your video must be set to Public.*

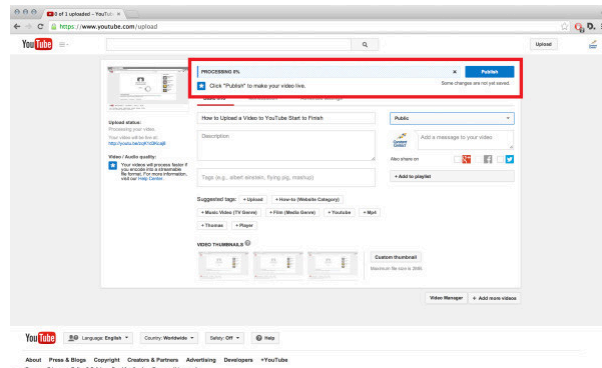


Once you choose your privacy, click the big arrow button and select the video you want to upload from your files, or simply drag and drop the file.

Uploading

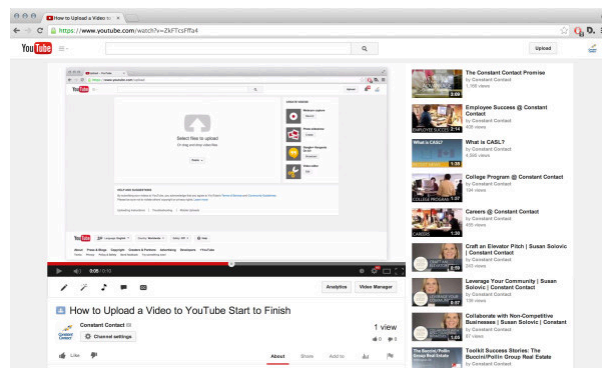
While the video uploads to your channel, you can see its progress on a status bar. Once uploaded, the video then has to process. You can see the progress for that in the status bar as well.

At this time, you will have the opportunity to name your video. Please name it with your last name and FFA chapter. For example: “Smith - Lansing FFA”.



Your Video's Page on YouTube

Now that you have uploaded your video, you can go to its dedicated YouTube page. When you submit your lesson plan for the AFNR Ed CDE, you must include the link your this video.



AFNRE CDE – Principles of Teaching and Learning

PRINCIPLES OF TEACHING AND LEARNING (Newcomb, McCracken, Warmbrod, & Whittington, 2004)

- Organization and Structure of Subject Matter

- ☐ Principle 1 – When subject matter to be learned possesses meaning, organization, and structure that is clear to students, learning proceeds more rapidly and is retained longer.
- ☐ Principle 2 – Readiness is a prerequisite for learning. Subject matter and learning experiences must begin where the learner is.

- Motivation

- ☐ Principle 3 – Students must be motivated to learn. Learning activities should be provided that reflect the wants, needs, interests, and aspirations of students.
- ☐ Principle 4 – Students are motivated through their involvement in setting goals and planning learning activities.
- ☐ Principle 5 – Success is a strong motivating force.
- ☐ Principle 6 – Students are motivated when they attempt tasks that fall in a range of challenge such that success is perceived to be possible but not certain.

- Reward and Reinforcement

- ☐ Principle 7 – When students have knowledge of their learning progress, performance will be superior to what it would have been without such knowledge.
- ☐ Principle 8 – Behaviors that are reinforced (rewarded) are more likely to be learned.
- ☐ Principle 9 – To be most effective, reward (reinforcement) must follow as immediately as possible the desired behavior and be clearly connected with that behavior by the student.

- Techniques of Teaching

- ☐ Principle 10 – Directed learning is more effective than undirected learning
- ☐ Principle 11 – To maximize learning, students should *inquire* into rather than be *instructed* into subject matter. Problem-oriented approaches to teaching improve learning.
- ☐ Principle 12 – Students learn what they practice.
- ☐ Principle 13 – Supervised practice that is most effective occurs in a functional educational experience.

- Transfer of Learning

- ☐ Principle 14 – Learning is most likely to be used (transferred) if it is learned in a situation as much like that in which it is to be used as possible and immediately preceding the time when it is needed.
- ☐ Principle 15 – Transfer of learning is more likely to take place when what is to be transferred is a generalization, a general rule, or a formula.
- ☐ Principle 16 – Students can learn to transfer what they have learned; teachers must teach students how to transfer learning to laboratory and real-life situation.

Newcomb, L. H., McCracken, J. D., Warmbrod, J. R., & Whittington, M. S. (2004). *Methods of Teaching Agriculture*, 3rd Edition. Pearson Education, Inc., Upper Saddle River, NJ.

AFNRE CDE – Traits of Effective Learning

TRAITS OF EFFECTIVE TEACHING (Rosenshine and Furst, 1973)

- Clarity

- ☐ Explain concepts clearly
- ☐ Plan for and demonstrate knowledge of subject matter
- ☐ Answer student questions intelligently

- Variability

- ☐ Use multiple strategies to communicate their message
- ☐ Use a variety of instructional materials
- ☐ Employ a variety of types of evaluation

- Enthusiasm

- ☐ Use movements, gestures, and voice inflections (smile, greet)
- ☐ Show genuine care for students
- ☐ Use excitement, involvement, or passion regarding the subject matter

- Students' Opportunity

- ☐ Identify their post-instructional outcomes prior to instruction
- ☐ Provide ALL students the opportunity to learn AND to SHOW they have learned
- ☐ Teach toward students' successful attainment of these outcomes during the instructional time

- Task Oriented

- ☐ Project a manner of knowing what they expect concerning learner performance
- ☐ Efficiently and effectively use class time
- ☐ Know how to accomplish the necessary activities related to the successful attainment of the performance identified

Rosenshine, B., & Furst, K. (1973). Second Handbook on Research of Teaching.

AFNRE CDE Resources

Mager, R. F. (1997). Preparing Instructional Objectives, 3rd Edition. CEP Press, Atlanta, GA.

Newcomb, L. H., McCracken, J. D., Warmbrod, J. R., & Whittington, M. S. (2003). Methods of Teaching Agriculture, 3rd Edition. Pearson Education Inc., Upper Saddle River, NJ.

Rosenshine B., & Furst, K. (1973). Second Handbook on Research of Teaching.