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Work-Based Learning Through
**SUPERVISED AGRICULTURAL
EXPERIENCE**

RESEARCH

IMMERSION SAE

**SAE for All
INDEPENDENT
LEARNING GUIDE**
Teacher Edition

LAUNCHING RESEARCH SAEs

Once students have established their career plans through Foundational SAEs and identified specific AFNR pathways of interest, it is time to introduce students to the Immersion SAE resources. Immersion SAEs give students the chance to build their knowledge and skills in a specific AFNR pathway and practice their career readiness skills. Specifically, with a Research SAE, they will create opportunities to test their chosen career goals through authentic research experiences. The Research SAE Independent Learning Guides are an easy way to get your students started with Research SAEs.

In a Research SAE, the student will identify the variation of research they would like to pursue as Experimental, Analytical or Invention. They will identify their research question and work through the scientific method to acquire new knowledge and insights, or support existing research. The student's experience will be defined through an SAE agreement that you and any other supervisor help the student create, and the student's development will be evaluated throughout his or her SAE. The student will also keep track of hours worked, income/expenses, tasks completed, and knowledge and skills attained.

The student will likely seek guidance from you to determine what is feasible and realistic in pursuing their research. To get them started, consider having the students watch the What is a Research SAE? sketch video. Then, provide the students with the Research SAE Independent Learning Guide.

The guide will instruct students to complete five activities, each of which incorporates authentic experiences. The activities are aligned to the Agriculture Food and Natural Resources (AFNR) content standards and Career Ready Practices. Additionally, they continue to reinforce the five Foundational SAE components, which include:

- Career Exploration and Planning
- Employability Skills for College and Career Readiness
- Personal Financial Management and Planning
- Workplace Safety
- Agricultural Literacy

That said, students should still, simultaneously, return to the Foundational SAE Independent Learning Guide to continually initiate new Foundational SAEs as well.

How to Use the Independent Learning Guides

Each guide contains:



The set of resources is intended to serve as a semester-long project.

Activities in this independent learning guide will likely require effort both during and outside of class. Sample task evaluation rubrics and point values are included for ease of implementation. However, feel free to adjust the activities and grading system to fit your program and school requirements.

Bell ringer and enrichment activities are also included to help you maintain student interest and SAE momentum throughout the semester.

Instructional Resources

Connecting SAE to Your School's Career Development Program

Many states and school districts are now requiring that students have some form of individualized career and academic plan prior to graduation. With the addition of the Foundational and Immersion SAEs and their required career exploration and planning, agricultural education students can meet or exceed district requirements through their SAEs.

Prior to teaching the unit introducing Ownership/Entrepreneurship SAEs, visit with your administrator and school counselor about how SAE can support the college and career readiness work within the school district.

Classroom Kickoff (15 - 20 Minutes)

1. Create a list on the board that categorizes the agricultural classes, or topics taught your school. For example: Plant Science, Animal Science, Agricultural Mechanics, Food Science, Natural Resources, Leadership, etc.
2. Have each student pick a topic they feel they know something about.
3. Next have them write How or Why questions about things they still are curious about within the topic.
4. Have students share their questions aloud. Provide insight as you see fit.
5. Reinforce the importance of gaining knowledge and skills through well asked questions and purposeful research.
6. Have students watch the Research SAE Video individually or as a group.
7. Introduce students to the Research SAE Independent Learning Guide. Explain that the activities in this guide will be a graded component of their class. All items must be complete by the end of the semester or as set by you, the instructor.

RESEARCH

SAE INDEPENDENT LEARNING PLAN OVERVIEW

The following plan is a guide for students throughout the semester – during or outside of class. It is recommended that you provide bi-weekly guidance and feedback to students on their progress. A suggested format for these conversations is included in the Supervision section of the SAE for All Teacher Guide. For more information on each of the independent learning activities, see the student version of the Research SAE Independent Learning Guide.

Activities	R1	Opportunity Identification - What to Study <i>Task: Identify research topics of interest and start drafting questions to research.</i>
	R2	Opportunity Identification - Identifying My Research <i>Task: Identify the variables and question you want to research. Choose the variation of Research SAE that fits your question.</i>
	R3	Career Plan Connection <i>Task: Create a one-minute verbal summary that describes the value of your Research SAE to your overall career plan.</i>
	R4	Outcome Brainstorming <i>Task: Create a "vision board" that shares your personal intended outcomes for your SAE.</i>
	Final Product (Documentation)	RFP

Research SAE Evaluation Grading Rubric

Activity	Below Standard (69% or less points)	At Standard (70-89% of points)	Above Standard (90-100% of points)
R1	Student identifies two or less topics of interest with no potential questions for research.	Student identifies three topics of interest with one potential question for research in each area.	Student identifies four or more topics of interest with two or more potential question to research in each area.
R2	Student was unable to identify variables that are needed for their investigation.	Student identified dependent and independent variable(s) that are needed for their investigation.	Student identified dependent and independent variable(s) that are needed for their investigation, and chose the best Research SAE variation to test their research.
R3	Students' thoughts on the value of the SAE lacked reflection, and the student's verbal summary was disorganized and less than one minute in length.	Student briefly reflected on the value of the SAE and described the value through a one-minute verbal summary.	Student thoroughly reflected on the value of the SAE and described the value through an organized thoughtful, one-minute verbal summary.
R4	Student identified fewer than five intended outcomes for the SAE and did not create a visual representation of the outcomes.	Student identified five intended outcomes for the SAE and created a visual representation of the outcomes.	Student identified five specific, measurable intended outcomes for the SAE and created an organized, professional visual representation of the outcomes.
RFP	Student did not complete the required documentation or additional planning needed to initiate a Research SAE.	Student completed all required documentation and additional planning needed to initiate a Research SAE.	Student completed all required documentation and additional planning needed to initiate a Research SAE, and established a record-keeping system to use throughout the duration of the SAE.

Foundational SAE Grading Plan

NOTE: Please refer to the Foundational SAE Independent Learning Guide for activities to complete for this section of the grading plan.

A1. Career exploration and planning	20 points
A2. Employability skills for college and career readiness	20 points
A3. Personal financial management and planning	20 points
A4. Workplace safety	20 points
FP. Career plan	60 points

Research SAE Grading Plan

R1-4. Activity Completion	20 points
RFP. Document Completion	40 points

Total 200 points

*It is recommended that all students complete the Foundational SAE - Awareness activities even if they have already started an Immersion SAE. The activities will help students verify that the Immersion SAE aligns to their career areas of interest. Additional points or an alternative evaluation system can be established for students that have an Immersion SAE.

BELL RINGER & ENRICHMENT ACTIVITIES

R1: Opportunity Identification – What to Study

E-mail USDA ARS researcher - Each article on the ARS website will have contact information for one or more of the researchers working on the project. Many of the researchers embrace outreach in their research area. Teach students how to format and draft an email that would inquire about the research.

R2: Opportunity Identification – Identifying My Research

Agriscience Interviews - Invite a student into the class who has completed, or is currently doing, a research project. The invited student can share their research and then field questions. IF the students do not have any questions, have the invited student ask the participants to identify what they would change or do differently if they were to pursue similar research.

R3: Career Plan Connection

Practice Makes Perfect - Ask one student every other week to share their business's elevator speech. Classmates may provide feedback or ask further questions about the research.

R4: Outcome Brainstorming

Research SAE Mirror - Using a blank sheet of paper, students create the front and back of their Research SAE Mirror. On the front are the things that people would see if they were introduced to your research, the physical or tangible things used to do the research. On the back are all the things that have happened which someone would not see, these could be actual tasks, insights gained, plans, hours put in, etc.

Bonus Activities

Review the Next Generation Science Standards Science and Engineering Practices. This resource explains how NGSS is essentially just a collection of research-based criteria for helping to determine the extent to which students are scientifically literate enough to be prepared for careers in science and research. It will help you relate to students the important connection between scientific literacy and career preparation.

Research your state extension service or land grant university to identify potential mentors who research similar topics that interest you.

If FFA members from your chapter have competed in the Agriscience Fair, keep the research boards and create a gallery for other members to view.

Provide students an opportunity to showcase their “vision boards” from *R4: Outcome Brainstorming*. For example, host an SAE fair, put them on display at the chapter banquet, etc.

*NOTE: The students should also be encouraged to maintain their verbal SAE summaries and vision boards, as these could be helpful when completing documentation or follow-up items required for their SAEs.