



Lesson Plan

SAEs: Biomedical Research

Created: 10/2017 by the National FFA Organization

STUDENT LEARNING OBJECTIVES:

After completing these activities, students will...

1. Describe a supervised agricultural experience (SAE) program in the area of biomedical research.
2. Develop a plan to improve attention to details in the lab setting.
3. Discover science-related SAE topics.

TIME REQUIRED: 50 minutes

RESOURCES:

1. FFA.org
2. Video — "Morgan Weidow-SAE-Biomedical Research," <https://vimeo.com/224365925>
3. Website — SAE Idea Cards, <https://ffa.box.com/s/6nsap60dc4hhogodgvi37ygry4y1zudu>
4. Website – AgExplorer, <https://agexplorer.ffa.org/>

EQUIPMENT AND SUPPLIES NEEDED:

1. A copy of the "Biomedical: Focusing on Details" worksheet for each student
2. Internet access to play the video in real time or embed it in a PowerPoint ahead of time
3. Internet access or printed SAE idea cards for students.

THIS QUICK LESSON PLAN WOULD WORK WELL AS:

1. Part of an SAE lesson/unit.
2. A lesson on career preparation/employability.

STUDENT ACTIVITY SHEETS:

Direct access to student activity sheets without lesson plan or answer key for easy upload to learning management systems or printing for classwork.

<https://ffa.box.com/s/dyzoyxkb2br81tzobzfhnxyb5nenz0r3> (Word)

<https://ffa.box.com/s/g2gy06fkf36bdqzb526gixevpsw292h> (PDF)

THESE ACTIVITIES ARE ALIGNED TO THE FOLLOWING STANDARDS:

AFNR Performance Element

- CS.05. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources career pathways.

FFA Precept

- FFA.PL-C.Vision: Visualize the future and how to get there.
- FFA.PL-F.Continuous Improvement: Accept responsibility for learning and personal growth.
- FFA.PG-I.Professional Growth: Assume responsibility for attaining and improving upon the skills needed for career success.
- FFA.CS-M.Communication: Effectively interact with others in personal and professional settings.

Common Career Technical Core

- AG5 Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways.

NASDCTE

- AGC09.02 Select, research and examine critical aspects of career opportunities in one or more AFNR career pathways in order to gain an understanding of the breadth of occupations within this cluster.

Common Core-Writing

- CCSS.ELA-Literacy.W.9-10.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- CCSS.ELA-LITERACY.W.9-10.4 Produce clear and coherent writing in which the development, organization, and style

are appropriate to task, purpose, and audience.

AFNR Career Ready Practices

- CRP.04. Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.10. Plan education and career path aligned to personal goals. Career-ready individuals take personal ownership of their own educational and career goals, and the regularly act on a plan to attain these goals.

Partnership for 21st Century Skills

- Communication
- Information, Communications, and Technology Literacy
- Initiative and Self-direction
- Leadership and Responsibility

LESSON PLAN:

- 1. Introduction:** *Today, we will discuss SAEs and improving attention to detail for an SAE or a lab project.* Ask the class the following questions to introduce the lesson:
 - a. *What are three SAE topics that are science related?*
 - i. Examples: working for a testing laboratory, start a water sample-collecting service, work at a fishery monitoring water quality, research the environmental effects on milk, etc.
 - b. *Sometimes we overlook details and that hinders the quality of a project or plan. To help you focus on details, answer this question:*
 - i. *In five detailed steps, explain how you got to this room.*
 - c. Discuss the answers with the students.
- 2. Activity:**
 - a. Each student needs a copy of the worksheet "Biomedical: Focusing on Details." Students should complete Part 1 of the worksheet while watching the video, and they should complete the rest of the worksheet after watching the video.
 - b. Show the video "Morgan Weidow – SAE – Biomedical Research." The direct URL is <https://vimeo.com/224365925>.
- 3. Follow-up:** Have students answer the following questions and discuss them as a class:
 - a. How can you apply what you have learned from this lesson in your future SAE or in your current SAE?
 - b. How can you take your agricultural interests and apply them in your SAE?
- 4. Leveling Up:** Have students go to AgExplorer (<https://agexplorer.ffa.org/>) and research four of the careers they identified through the SAE Idea cards. Students should answer the following questions related to those careers:
 - a. What are the educational requirements?
 - b. What is the salary?
 - c. What are two responsibilities/duties for the job?

NAME: _____

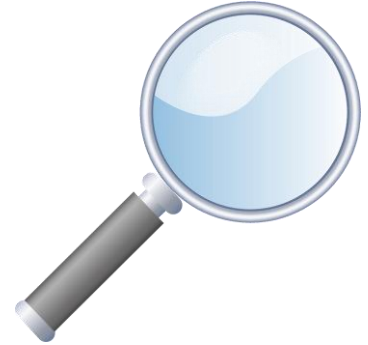
Biomedical: Focusing on Details

DIRECTIONS:

Watch the video "Morgan Weidow-SAE-Biomedical Research." The direct URL is <https://vimeo.com/224365925>. Complete Part 1 of the worksheet as you watch the video, and then finish the other parts of the worksheet after the video.

Part 1 – Review

1. Where is Morgan's internship located?
2. What are her job responsibilities?
3. What are some skills she has gained through her SAE?
4. What is her favorite part of her SAE?
5. What has been a big challenge in her SAE?



Part 2 – Attention to Detail

1. As part of Morgan's SAE, she has learned how to pay close attention to detail. In the space below, develop a step-by-step plan to improve attention to details in the lab setting, agriculture shop or classroom setting.

Example:

Step 1: Gather all materials needed to complete the task, including all safety equipment.

Step 2: Identify people who can assist with the plan.

NAME: _____

Aligned to the following standards:
CS.05; FFA.PL-C., FFA.PL-F.; FFA-PL-I.; FFA-PL-M.; AG5;
AGC09.02; CCSS.SL.9-10.2; CCSS.W.9-10.2; CCSS.W.9-10.4;
CRP04; CRP10

2. Why is it important to pay close attention to details in the lab setting?

3. How can you apply the concepts of paying attention to details in school and in your SAE?

Part 3: SAE Idea Cards – Science-based SAEs

DIRECTIONS:

Access the SAE Idea Cards and complete the following steps:

- a. Click on a focus area. (You will choose five focus areas total.)
- b. In that focus area, choose one SAE topic that is related to science.
- c. Answer the following questions related to the SAE topic you chose.

1. **Focus Area:** _____
Where could I take this project?

What is a possible career related to this project?

How is this topic related to science?

2. **Focus Area:** _____
Where could I take this project?

What is a possible career related to this project?

How is this topic related to science?

3. **Focus Area:** _____
Where could I take this project?

What is a possible career related to this project?

How is this topic related to science?

NAME: _____

4. **Focus Area:** _____
Where could I take this project?

What is a possible career related to this project?

How is this topic related to science?

5. **Focus Area:** _____
Where could I take this project?

What is a possible career related to this project?

How is this topic related to science?

NAME: _____

Biomedical: Focusing on Details – KEY

DIRECTIONS:

Watch the video "Morgan Weidow-SAE-Biomedical Research." The direct URL is <https://vimeo.com/224365925>. Complete Part 1 of the worksheet as you watch the video, and then finish the other parts of the worksheet after the video.

Part 1 – Review

1. Where is Morgan's internship located?

Rocky Mountain Laboratories in Hamilton, Montana

2. What are her job responsibilities?

Assist with laboratory procedures and experiments, maintain laboratory safety supplies and equipment.

3. What are some skills she has gained through her SAE?

Attention to detail, doing your job right the first time, communication

4. What is her favorite part of her SAE?

Getting to work with people who are passionate about science.

5. What has been a big challenge in her SAE?

Overcoming the learning curve with only having a basic high school science education.



Part 2 – Attention to Detail

1. As part of Morgan's SAE, she has learned how to pay close attention to details. In the space below, develop a step-by-step plan to improve attention to details in the lab setting, agriculture shop or classroom setting.

Answers will vary but could include (but are not limited to) the following:

Step 1: Gather all materials needed to complete the task, including all safety equipment.

Step 2: Identify people who can assist with the plan.

Step 3: Determine your goal for the project in the lab, agriculture shop or classroom setting.

Step 4: Complete task.

Step 5: Double check work.

2. Why is it important to pay close attention to details in the lab setting?

Answers will vary but could include ensuring that the job is done correctly and that all safety procedures are followed.

3. How can you apply the concepts of paying attention to details in school and in your SAE? Answers will vary but could include double checking work to ensure it is completed correctly and focusing on safety procedures in the shop/lab setting.

Part 3: SAE Idea Cards – Science-based SAEs

Answers will vary.