



Lesson Plan (LP)	Author: Hannah McTier
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Course: General Horticulture & Plant Science (01.46100)
LP Title: Diseases Common in Squash Plants
Estimated Time: 90 minutes (2, 45-minute class periods)
Grade Level: 9 th – 12 th Grade

Materials, Supplies, Equipment, References, and Other Resources:
<p><u>Materials:</u> whiteboard with dry erase markers, Smartboard with projector, student access to internet or library, Disease Presentation rubric, ammonia or lye, 1 cup of water per student, phenolphthalein</p> <p><u>References:</u> https://www.georgiaffa.org/curriculum2/topic.aspx?ID=6&TID=4 , Interest Approach : National Agriculture in the Classroom Microbes – They’re Everywhere lesson plan, Squash Diseases: https://hgic.clemson.edu/factsheet/cucumber-squash-melon-other-cucurbit-diseases/</p>
Standards:
<p>AG-GHPS-10 Evaluate the damage caused to plants by insects, weeds, diseases, and physiological disorders.</p> <p> 10.1 Identify common insects, weeds, diseases and physiological disorders.</p> <p> 10.5 Describe common plant diseases and compare and contrast solution methods.</p> <p> 10.6 Identify the proper methods of controlling pests.</p>
Essential Questions/Objectives:
<p>The student will be able to...</p> <ol style="list-style-type: none"> 1. Identify diseases common in summer squash by working in a group to research and deliver a presentation on an assigned disease. 2. Describe plant diseases common in summer squash and compare and contrast solution methods by working in a group to research and deliver a presentation on an assigned disease. 3. Identify the proper method for controlling diseases common in summer squash by working in a group to research and deliver a presentation on an assigned disease.



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🕒 90 min

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Accommodations

For students with disabilities, the instructor should refer to the individual student's IEP to insure the accommodations specified in the IEP are being provided within the classroom setting. Instructors should familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation within any given instructional activity or requirement.

Interest Approach

Estimated Time: 10 minutes

1. Ask for a volunteer, and then invite the volunteer to take a drink from either of two glasses of water. Tell the students that you spit into one glass before class. Discuss the responses. Why wouldn't you want to drink water someone else had spit in? Make the point that disease-causing organisms are found all around us, even in our water.
2. Continue the exploration by indicating that the class is going to play a "kissing game." Distribute the pre-prepared cups of water to each member of the class. (Prior to class time, add 1/8 teaspoon of ammonia or lye to two of the glasses of water. CAUTION: Warn students to not taste any of the samples.) Each student should have a cup of water.
3. Indicate that you are going to exchange water from the cups ("kiss"). The procedure is to allow someone to pour some water from their glass into yours. For each amount added, each individual must pour this amount into another person's glass. Continue this exchange for three minutes.
4. After the water exchange, indicate that two of the cups contained germs (represented by ammonia or lye). As with most microorganisms these germs are not easily seen, but they can be detected with a chemical indicator. Speculate on how far you think the germs were spread during the three minutes.
5. Add a few drops of phenolphthalein to each glass. If the germ (ammonia or lye) is present, the water will change color. Those with colored water will have been infected.
6. Discuss the results. Explain to students that in the following lesson, they will learn more about disease-causing microorganisms and how they can devastate plants.

Learning Activity 1

Estimated Time: 30 minutes

Instructor Directions/Materials/ Teaching Procedure

Brief Content Outline

Squash Disease Presentation Creation & Presentation

Assign groups
Monitor computer usage
Maintain order
Instruct students to take notes during the presentations

Students will be divided into groups of 2 or 3 and assigned a disease common to squash plants in Georgia. The following are appropriate diseases for summer squash: Bacterial Wilt, Powdery Mildew, Downy Mildew, Gummy Stem Blight, Anthracnose, Alternaria Leaf Spot, Cercospora Leaf Spot, Fusarium Wilt, Blossom-End Rot, etc.

Each group will research their disease using computers or the library and create a presentation on it using Google Slides or PowerPoint. Presentations should include but are not limited to the following information: common and scientific names, plants impacted, symptoms, origin, history, how it's spread, how it's cured, etc.

They will turn this presentation in on Google Classroom or by email. Each student should contribute to the creation of the presentation.



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	Remind students to cite their sources! Each group will present their disease presentation to the class. Students in the crowd are responsible for taking notes and being respectful of their peers. The rubric for the presentation is found below.
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Summary (Reflection)	Estimated Time: 5 minutes
As a ticket-out-the-door, ask students to write down one new and interesting fact they learned about one of the diseases their classmates presented on.	

Assessment
Formative: Students will be informally assessed based on the group disease presentations.
Summative: N/A



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Squash Disease Presentation Rubric

The plant disease presentations will be completed in small groups. Each group will be responsible for creating a presentation on an assigned squash plant-related disease and then teaching the class about it by presenting to the class. All presentations should be created on PowerPoint or Google Slides then submitted on Google Classroom or by email. Please use the rubric to assist in the development of your presentation!

	Possible Points	Final Score
Description of the Disease (common name, scientific name, symptoms, plants impacted, origin, history, how it's spread, how it's cured, etc.)	40	
Creativity and Quality of Physical Presentation	20	
Quality of Verbal Presentation	20	
Inclusion of All Team Members	10	
Overall Effort	10	
Total Points	100	
Group 1:		
Group 2:		
Group 3:		
Group 4:		
Group 5:		



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Group 6:

Group 7:

Group 8:

Group 9:

Group 10:



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