

North Magnet High School
Plants and Propagation 2021-2022
Whitaker's Course Syllabus



Tucker Whitaker (he/him/his)

Honors Physical Science – Plants and Propagation

531-299-4026



**PLANTS AND
 PROPAGATION
 COURSE SYLLABUS**

<u>Contact Information</u>		<u>Notes</u>
Name:	Mr. Tucker Whitaker	he/him/his pronouns
School Phone:	531-299-4026	Will leave voicemail- will return call ASAP (within 24-48 hours)
Email:	Tucker.Whitaker@OPS.org	Will respond promptly (within 24-48 hours).
Plan Periods	A3 & B4	

Course Description

This elective course prepares students to produce greenhouse/ nursery plants and to maintain plant growth and propagation structures. Topics to be covered include: soils, plants, plant identification, and plant entomology. Courses examine the importance of plant cell structures, functions of cells, plant processes, nonvascular plants, vascular plants, roots, stems, leaves, flowers, and reproduction of plants. Students may be introduced to the biological, environmental, conservation, and ecological concepts encountered in our environment. This course will reinforce and extend students' understanding of science by associating basic scientific principles and concepts with relevant applications in botany/agriculture. Leadership development and supervised greenhouse experience are an integral part of this course.

LIFE HACK: *To quickly find and jump to a specific section, hold "Ctrl" and press "F" and type a keyword into the dialogue box.*

For example, if you are wondering about my late work policy you would Ctrl+F "late" and jump directly to that section.

Whitaker's Instructional Philosophy

With the successful completion of a science course, students should be expected to look at the world around them making logical connections to science concepts. It is my goal as a science teacher that students leave my classroom with a better understanding how the world around them works and the beauty that comes with that understanding. I believe differentiation and inquiry are strong components used to engage the student in learning scientific concepts. Each student deserves to learn, and an effort should be made to connect with each student to drive that learning. The use of kinesthetic, visual, and auditory based lessons encourages students to be successful, using their personal learning style. Engaging the students in activities and labs will build inquiry skills needed to be taken out into the student's daily environment. Questioning possibilities, problem solving, and critical thinking skills can increase with the use of inquiry and builds well rounded citizens.

Whitaker's Beliefs

Black Lives Matter

No Human is Illegal

Refugees Welcome

Women's Rights are Human Rights

Science is Real

Everyone Deserves Respect

← **Be Inclusive** →
LGBTQ

Course Standards

PP1 Investigate and describe the field of horticultural science

PP1.a Describe the field of horticulture science

PP2 Identify and describe careers in horticulture

PP2.a List skills you should have to ensure success in a horticulture career.

PP3 Investigate and describe the functions, structures, and safety of greenhouses

PP3.a Describe how radiation, conduction, and convection affect temperature in a greenhouse.

PP3.b Differentiate between different types of greenhouse structures

PP3.c Understand the importance of safety practices and equipment in horticulture.

PP4 Investigate and describe different varieties of plants in the greenhouse

PP4.a Identify common plants in the greenhouse

PP4.b Understand and be able to appropriately care for plants in the greenhouse

PP5 Investigate and describe the anatomy and physiology of roots

PP5.a Examine the structures and functions of roots in plants.

PP5.b Differentiate the two major types of root systems.

PP5.c Evaluate the health of a root system.

PP6 Investigate and describe the anatomy and physiology of stems

PP6.a Describe the functions of a stem.

PP6.b Recognize the external and internal structures of a stem.

PP6.c Distinguish between the different types of specialized stems.

PP7 Investigate and describe the anatomy and physiology of leaves

PP7.a Describe the main parts of a leaf.

PP7.b Compare common vein patterns and organization found in leaves.

PP8 Investigate and describe the process of photosynthesis and cellular respiration

PP8.a Understand and describe the process of photosynthesis.

PP8.b Understand and describe the process of cellular respiration.

PP8.c Investigate the impact of photosynthesis and respiration on our biosphere.

PP9 Investigate and describe plants sexual reproduction

PP9.a Differentiate between sexual and asexual propagation.

PP9.b Identify and describe the structures and functions of seeds.

PP9.c Identify and describe the structures and functions of flowers.

PP9.d Differentiate between different types of flowers.

PP10 Understand and describe the propagation of plants by cuttings

PP10.a Understand the purpose of asexual propagation.

PP11.a Understand and describe the effect of light on plants.

PP11.b Understand and describe the effect of temperature on plants.

PP11.c Understand and describe the effect of air on plants.

PP11.d Understand and determine water needs of plants.

PP11.e Understand and determine the effect of soil on plants.

PP12 Identify and explore the varieties of plants native in Nebraska

PP12.a Identify and describe various Nebraska plants and their uses

PP13 Understand and describe best pest management practices

PP13.a Identify and evaluate the best pest management practices

PP13.b Identify and describe the types of pests.

PP13.c Investigate the impact of pesticides on our biosphere.

PP14 Investigate and describe appropriate types and placements of plants in a garden

PP14.a Identify the important factors to consider in garden site selection.

PP14.b Determine the types and amounts of vegetables to be grown.

PP14.c Develop and draw a garden plan.

PP14.d Prepare the planting seedbed.

PP15 Identify and describe appropriate uses of horticultural tools

PP15.a Discuss the types of digging and grading hand tools and their uses and care.

PP15.b Explain the major types of pruning and cutting hand tools and their uses and care.

PP15.c Differentiate between the hand and shop tools used in horticulture.

PP16 Identify and describe the different varieties of herbs

PP16.a Identify the major herbs grown for culinary purposes.

PP16.b Understand and explain herb production.

PP10.b Differentiate and describe leaf, root, and stem cuttings for propagation

Critical Knowledge and Skills Students Will Know:

1. The major subdivisions of the horticulture industry.
2. How improvements in technology has impacted horticulture practices over time
3. The various heating and cooling systems in the greenhouse
4. How to identify and differentiate between the various phases of the water cycle in the greenhouse.
5. The structures and functions of roots in plants
6. The external and internal structures of a stem
7. How to distinguish between the different types of specialized stems
8. The main parts of a leaf
9. The common vein patterns and organization found in leaves
10. The process of photosynthesis
11. The process of cellular respiration
11. Investigate the impact of photosynthesis and respiration on our biosphere

Students will be able to:

1. Demonstrate appropriate safety practices
2. Properly identify horticulture equipment.
3. Identify and distinguish between the common greenhouse plants.
4. Appropriately care for the plants in the greenhouse or at home.
5. Identify edible from non-edible plants.
6. Practice and improve observation skills
7. Differentiate between the two major types of root systems
8. Evaluate the health of a root system
9. Describe the functions of a stem
10. Identify major types of leaves and their arrangements



Major Units of Study

Unit 1: Introduction to Horticulture, Greenhouse Structures, Safety, and Gardening (on-going)

Unit 2: Understanding Plant Anatomy & Physiology (Structure and Function)

Unit 3: Environmental Impacts on Plant Growth

Unit 4: Agriculture, Farming, and Sustainability



Overall Course Expectations: How to be Successful in this Class

- ❖ Complete coursework, both in and out of class, in a timely fashion.
- ❖ Be responsible and respectful towards classes plants- within the classroom, greenhouse, and rooftop garden.
- ❖ Wear appropriate clothing for working with soil, plants, water, etc.
- ❖ Participate during in-class discussion and cooperative learning opportunities.
- ❖ Complete formal lab write-ups.
- ❖ Create technology-based projects and presentations.

Overall Class Rules and Expectations

Be Respectful, Be Responsible, Be accountable

- **Rules and guidelines set forth in the student handbook will be followed in this class.**
 - Student Handbooks can be found in the “Books” Application on student iPads or via email from Dr. Nero
- **Respect yourself and all others**, both students and adults, by allowing all persons to maintain their dignity, **unconditionally**. Language should reflect your understanding that this is a classroom in which **everyone is welcome and respected**, regardless of difference or innate ability.
 - This expectation of respect extends to students’ plants and planting materials!
- **Responsibility falls on you to be in class and on time**; entering after the bell has stopped ringing will be counted tardy. **It is also my class expectation that you are responsible for bringing your school device (w/ charger) to each class session***. You also need to be a responsible, **positive advocate** for your needs and the needs of others.
 - *Much of our work will be done with the aid of technology (school devices). If you have not elected to check out a computer, I will have alternatives for you. However, if you elected to check out a device it is expected that you bring it with you to each lesson.
- **Be accountable for your education!** Be a **positive, active participant** in my classroom. Have learning materials ready, complete your assignments on time, participate in classroom activities and discussions respectfully, and raise your hand to ask or answer questions.
- **Electronic Devices:** No electronic devices (cell phones, mp3 players, games, etc.) are permitted to be seen, heard, or used in the classroom at any time, **per school policy**. **Devices may only be used for classwork, activities, and research.**
 - If you cannot follow this expectation, you will need to do an alternative assignment that does not require the technology.
- **Food:** Water bottles are encouraged. Other FOOD/DRINK should be consumed outside the classroom & lab.

Be A Viking

Be Respectful

- Use appropriate language and volume
- Treat others kindly
- Accept feedback
- Maintain personal boundaries

Be Responsible

- Be on time to class
- Be prepared with all materials
- Actively participate in learning

Be Accountable

- Use technology appropriately
- Follow pass procedures
- Accept redirection calmly

Accountability and Consequences

These classroom rules and expectations are designed to maintain a safe and conducive learning environment for **ALL** students. Student's who violate these rules will be held accountable, with consequences that are aligned with the violation.

I, Mr. Whitaker, will make it a priority to communicate clearly and quickly to students, parents, and other stake holders. Students will always be given a reminder/warning about minor behavior prior to receiving any consequences. Phone calls or email communications will promptly be made to parent/guardian to inform and address the issues. Continued violations will result in detention or referral to administrators.

Safety Expectations

Plants and Propagation is a lab-based course with safety as an essential component. The safety guidelines support and encourage an investigative approach and laboratory instruction, while at the same time assisting in the development of a safe learning environment. Students will follow the Omaha Public Schools district guidelines on safety, which are published in the Science Safety Contract. Students will be provided a copy of the guidelines. The students, parents and/or guardians are expected to read the guidelines and sign and return the signature portion of the contract. The student will not be allowed to participate in the lab activities until the signed contract is returned.

Texts: We will not be using this as a primary resource

- *Introductory Horticulture 7th Edition, Reiley, Shry (@ 2007)* available in the classroom, as well as for check-out to take home.
- Any other reading material required will be supplied by Mr. Whitaker.

Assessment of Learning

Course grades will be determined by planned assessments such as classroom assignments, tests, quizzes, laboratories, and projects scored with rubrics.

- Students should expect to be formatively assessed, for a grade in infinite campus multiple times per week. *Attendance is crucial for success.
- Two or three major tests and/or writing projects are to be expected during, and at the end of, each major unit outlined above. (SUMMATIVE GRADES)

OPS Secondary Grading Practices: these are district guidelines and cannot be altered by me for any reason.

All coursework and assessments are judged based on the level of student learning from "below basic" to "advanced." This course will provide multiple opportunities to achieve at the "proficient" to "advanced" levels. Students are evaluated based on a proficiency scale or project rubric. Proficiency scales for this course are available upon request.

Weighting Assignments (Using A Multiplier):

When entering grades in the grade book, teachers may assign greater weight to some assignments than others. For example, the final exam may impact a student's summative grade more than a unit test. Teachers will have the option to use the multiplier to weigh both formative and summative assessments to a maximum of 4. **If a weight of 2 or more is applied to an assessment, this information will be communicated to students at the time the assessment is announced.**

There are three types of coursework:

- ❖ **Practice** – assignments are brief and done at the beginning of learning to gain initial content (e.g., student responses on whiteboards, a valid sampling of math problems, keyboarding exercises, and diagramming sentences, checking and recording resting heart rate). Practice assignments are not generally graded for accuracy (descriptive feedback will be provided in class) and are not a part of the grade. Teachers may keep track of practice work to check for completion and students could also track their practice work. Practice work is at the student’s instructional level and may only include Basic (2) level questions.
- ❖ **Formative (35% of the final grade)** – assessments/assignments occur during learning to inform and improve instruction. They are minor assignments (e.g., a three-paragraph essay, written responses to guiding questions over an assigned reading, completion of a comparison contrast matrix). Formative assignments are graded for accuracy and descriptive feedback is provided. Formative work may be at the student’s instructional level or at the level of the content standard. Formative assessments/assignments will have all levels of learning – Basic (2), Proficient (3), and Advanced (4), which means that for every formative assessment/assignment, students will be able to earn an Advanced (4). Teachers will require students to redo work that is not of high quality to ensure rigor and high expectations. The students’ score on a formative assessment that was redone will be their final score. It is recommended to have three to five formative assessments for every one summative assessment.
- ❖ **Summative (65% of the final grade)** – assessments/assignments are major end of learning unit tests or projects used to determine mastery of content or skill (e.g., a research paper, an oral report with a power point, major unit test, and science fair project). Summative assignments are graded for accuracy. Summative assignments assess the student’s progress on grade level standards and may not be written at the student’s instructional level. Summative assessments/assignments will have all levels of learning – Basic (2), Proficient (3), and Advanced (4), which means that for every formative assessment/assignment students, will be able to earn an advanced (4).

To maintain alignment of coursework to content standards, which is a key best practice for standards-based grading, teachers will utilize a standardized naming convention for each of the standards within a course. The content standard will be marked on each assignment entered into Infinite Campus (District Grading Program) using all capital letters followed by a colon. After the colon will be the title of the coursework. At the end of the grading period, scores are converted to a letter grade using this grading scale.

A = 3.26 – 4.00
B = 2.51 – 3.25
C = 1.76 – 2.50
D = 1.01 - 1.75
F = 0.00 – 1.00

General Submission Procedure:

ALL assignments will be distributed and completed on the OneNote Application. Assignments completed ON-TIME in OneNote Class Notebook DO NOT need to be shared or otherwise submitted- Mr. Whitaker will check/assess them in your folder regardless of progress.

OneNote



- Feedback/Score will be written directly onto these OneNote pages for reference!
- **You may complete assignments in Microsoft Word, on paper, or otherwise! However, a screenshot or picture (that is legible) must be inserted into the specific page on OneNote.** If technical issues prevent this, it's your responsibility to reach out ASAP!

Redoing/Revising Student Coursework:

- ❖ Students are responsible for completing all coursework and assessments as assigned. Reasonable time will be given to complete assignments **during class**. Only coursework not finished during classtime will be homework, no work will be designed to be done by the student from home.
- ❖ Students **may be allowed to redo and revise coursework for full credit during that unit of study based upon Mr. Whitaker's professional judgment and evidence collected throughout the unit.** Scores for student work after retaking, revising or redoing will not be averaged with the first attempt at coursework or assessment but will replace the original student score.
- ❖ Students are expected to complete assessments when given to the class, or if a student was justifiably absent, at a time designated by Mr. Whitaker.
- ❖ **Redoing, retaking or revising will be done at teacher discretion in consultation with the student and parent(s).** Mr. Whitaker may schedule students before, during, or after school to address needed areas of improvement- if not convenient during class. The time and location for redoing, retaking or revising will be done at the Mr. Whitaker's discretion in consultation with the student and parent(s).

Late Coursework

Students are expected to complete coursework on time. **Late coursework may be accepted for full credit until the end of the unit based on the teacher's professional judgment and evidence collected throughout the unit.** Accepted late work will not result in a reduction in grade and the M (Missing) will be replaced with the score earned by the student. Mr. Whitaker or North High may make exceptions depending upon student circumstances (such as prolonged absences due to illness).

Missing Coursework

Work not turned in at all will be recorded in Infinite Campus (district grade book) as an M for missing, which calculates to a score of zero. **Missing coursework may be accepted for full credit until the end of the unit based on the teacher's professional judgment and evidence collected throughout the unit.** Accepted missing work will not result in a reduction in grade and the M (Missing) will be replaced with the score earned by the student. Mr. Whitaker or North High may make exceptions depending upon student circumstances (such as prolonged absences due to illness).

Independent Practice (Homework)

The role of independent practice is to develop knowledge and skills effectively and efficiently during the unit of study. Independent practice helps guide the learning process by providing accurate, timely and helpful feedback to students without penalty. Assessments will be designed to be completed during classtime!

Please reach out with Questions or Concerns!