



Lab #8: Exploring Plant Responses

45 Points

PART 1: BACKGROUND: Plants can respond to their external environment. A **tropism** is a plant's growth in response to an environmental condition. When plants grow toward something it is called a **positive tropism**. Stems and leaves are positively phototropic, they grow toward light. This is called phototropism. **Phototropism** is plant growth toward a light source. When a plant grows away from something, it is called **negative tropism**. Roots are negatively phototropic, they grow away from the light and into the soil, but they have positive **gravitropism** – meaning the roots grow into the soil with the force of gravity. Leaves and stems have negative gravitropism because they grow against the force of gravity. Another form of tropism is **thigmotropism** which is the response plants have to touch.

Virtual Video: Click on the following link to watch the virtual lab, then proceed to each part of the lab below and complete each section.
<https://www.youtube.com/watch?v=5oEaC8bxClc>

PURPOSE: In this lab, you will observe how plants respond to the following stimuli: light, gravity, and touch and hormones

PROCEDURE: Go through the steps below and look at the pictures for information. The information can be found in the pictures below for each step of the lab. Zoom your screen so you can see the details of each step of the lab.

PRE-LAB – Plant Responses Predictions: Describe how you think plants may respond to each of the stimuli listed.(3 points)

Table 1:

Stimulus	Response – will some or all parts grow or move towards or away from the stimulus?
Light	The plants will grow towards light
Gravity	Will grow dependent on gravity
Touch	Will respond negatively to touch

MATERIALS: Look at the pictures below or from the online simulation. List the materials needed for this lab simulation.



List of Materials	
150 ml beaker with potting soil	Wet filter paper
radish seeds	wet cotton bunting
Cardboard box	Folded index cards
Aluminum foil caps	cover
corn seeds	Mimosa plant
petri dish with cover	Water bottle

PART A - Responses to Light: You will observe the effects of light on the direction of radish plant growth. Read the steps and study the pictures from the simulation, then complete table 2.

Step 1:



Radish seeds were planted in the petri dish then watered to moisten the soil.

Step 2:



The seeds were left in the dark and allowed to grow for three to five days.

Virtual Lab Exploring Plant Responses Answers

Jianjun Gao



Virtual Lab Exploring Plant Responses Answers:

Teaching Community College and Historically Underserved Students Melissa Dennihy, Zivah Perel Katz, 2024-11-15 This textbook develops and presents a new hybrid pedagogy that integrates the best practices of both face to face and online teaching within community colleges and other access oriented institutions Focusing specifically on historically underserved students this text demonstrates how online pedagogy offers new and different approaches to learning engaging collaborating and communicating which can also be adapted for face to face classrooms creating an innovative blended pedagogy that builds upon both course experiences Recognizing that higher education is at a unique turning point as the Covid 19 pandemic and its effects become endemic this volume offers educators ways to forge new paths forward and prepare for future crises by learning how to maximize the possibilities of both face to face and online learning tools and approaches

Carolina Science and Math Carolina Biological Supply Company, 2003 *Answers to Your Biggest Questions About Teaching Secondary Science* Karen Mesmer, Enya Granados, Kevin Gant, Laura Shafer, Ayanna D. Perry, 2024-01-16 Your guide to grow and flourish as a science teacher The past two decades have seen a paradigm shift in science education thanks in large part to the Next Generation Science Standards NGSS which advocate a move away from procedural lab investigations and direct instruction and toward increased emphasis on reasoning sensemaking phenomena exploration problem solving and collaboration Under this new paradigm students are learning real science as scientists practice it so that more and more students are actively investigating questions and pursuing solutions of their own making As part of the Five to Thrive series for early career educators this comprehensive guide provides those who are new to teaching science as well as seasoned teachers looking to enhance their practice the fundamentals to develop best teaching practices that reflect their students experiences and requirements Written by experienced science educators *Answers to Your Biggest Questions About Teaching Secondary Science* provides practical guidance on successful strategies and techniques for teaching science in a way that gives every student the opportunity to learn grow and achieve at high levels while providing opportunities to develop their agency and authority in the classroom ultimately resulting in a positive science identity The book is organized around five overarching questions and answers that will help you most thrive in your secondary science classroom How do I build a positive science community How do I structure organize and manage my science class How do I engage my students in science How do I help my students talk about science How do I know what my students know and how can I use that information to plan and move them forward The book concludes with a sixth question Where do I go from here that provides guidance for growing your practice over time including discussions on self care advocating for students and an extensive discussion on growing your professional network Woven throughout you ll find helpful sidebar notes on fostering identity and agency access and equity teaching in different settings and invaluable resources for deeper learning Strive to become the best science educator you can be your students are counting on it *Energy Research Abstracts* ,1988 *Resources in*

Education ,1984 **Applied Mechanics Reviews** ,1984 **Keywords Index to U.S. Government Technical Reports**
 United States. Department of Commerce. Office of Technical Services,1963 **Keywords Index to U.S. Government**
Technical Reports (permuted Title Index). United States. Department of Commerce. Office of Technical Services,1963
Government-wide Index to Federal Research & Development Reports ,1967 **Scientific and Technical Aerospace**
Reports ,1995-08 **Title List of Documents Made Publicly Available** U.S. Nuclear Regulatory Commission,1980
Fusion Energy Update ,1986 Nuclear Science Abstracts ,1974 **Selected Water Resources Abstracts** ,1986-07
Handbook of Water Analysis Leo M.L. Nollet,Leen S. P. De Gelder,2000-06-27 This work details water sampling and
 preservation methods by enumerating the different ways to measure physical chemical organoleptical and radiological
 characteristics It provides step by step descriptions of separation residue determination and cleanup techniques for a variety
 of fresh and salt waters It also discusses information regarding the analysis and detection of bacteria and algae
Cumulated Index Medicus ,1967 Index Medicus ,2001 *The Software Encyclopedia 2000* Bowker Editorial
 Staff,2000-05 **Toxicology Research Projects Directory** ,1979 **Climate Change Education Across Disciplines**
K-12 Lauren Madden,2025-02-15 Climate change is one of the greatest challenges humanity has ever faced One of the most
 effective ways to combat climate change is education In New Jersey standards to support teaching and learning about
 climate change were introduced for children of all ages beginning in 2022 In this edited volume experts from across the state
 offer strategies suggestions advice and vignettes to support educators as they begin to implement climate change instruction
 in their classrooms With a foreword by our state s First Lady Tammy S Murphy it also includes a scientific perspective on the
 effects of climate change in New Jersey the history of climate change education in the US and perspectives from colleagues
 in other states who are also beginning to adopt instructional practices to address this important topic

Virtual Lab Exploring Plant Responses Answers: Bestsellers in 2023 The year 2023 has witnessed a noteworthy surge in literary brilliance, with numerous compelling novels enthralling the hearts of readers worldwide. Lets delve into the realm of bestselling books, exploring the fascinating narratives that have charmed audiences this year. The Must-Read : Colleen Hoover's "It Ends with Us" This heartfelt tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover masterfully weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can prevail. Virtual Lab Exploring Plant Responses Answers : Taylor Jenkins Reids "The Seven Husbands of Evelyn Hugo" This captivating historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reids compelling storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. Virtual Lab Exploring Plant Responses Answers : Delia Owens "Where the Crawdads Sing" This mesmerizing coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens weaves a tale of resilience, survival, and the transformative power of nature, entrancing readers with its evocative prose and mesmerizing setting. These bestselling novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of captivating stories waiting to be discovered. The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is a masterful and thrilling novel that will keep you guessing until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

<https://movement.livewellcolorado.org/book/publication/Documents/Tcad%20Synopsys%20Simulator%20Manual.pdf>

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