Odysseyware®

CURRICULUM OVERVIEW

Science 600

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Science 600 Course Overview

Science 600 is a basic intermediate course intended to expose students to the designs and patterns in the physical universe. This course expands on the Science 300-500 elementary courses, providing a broad survey of the major areas of science. Some of the areas covered in Science 600 include the study of plant and animal systems, plant and animal behavior, genetics, the structure of matter, light and sound, kinematics, planet earth, the solar system, and astronomy.

The curriculum seeks to develop the students' ability to understand and participate in scientific inquiry. The units contain experiments and projects to capitalize on children's natural curiosity. The students will explore, observe and manipulate everyday objects and materials in their environment. Students at this level should begin to understand interrelationships between organisms, recognize patterns in ecosystems, and become aware of the cellular dimensions of living systems. Collectively, this should help students develop and build on their subject-matter knowledge base.

Upon completion of the course, students should be able to do the following:

- Use their main senses for observation of the world around them.
- Describe the different systems in plants and animals.
- Explain the various ways plants and animals behave.
- Explain how Mendel used observation to develop his theories.
- Demonstrate a basic knowledge of chemical structure and the periodic table.
- Discuss the layers of the atmosphere.
- Describe motion as it relates to force and work.
- Explain how time and season are related to the rotation and revolution of the earth.
- Explain the different forms of energy.

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Unit 1: Plants

Assignments

1.	Course Overview	11.	Experiment: Root Observation
2.	Lab Safety	12.	Stems and Leaves
3.	Photosynthesis	13.	Experiment: Celery
4.	Experiment: Anacharis	14.	Growth Regulators
5.	The Leaf Factory	15.	Experiment: Growing Roots*
6.	Experiment: Seeds	16.	Quiz 2
7.	Products of Photosynthesis	17.	Special Project*
8.	Experiment: Digestive Enzymes	18.	Test
9.	Quiz 1	19.	Alternate Test*
10.	Roots	20.	Glossary and Credits

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Unit 2: The Human Body

Assignments

1. Digestive System
2. Mouth and Stomach
3. Experiment: Digesting Protein
4. Small and Large Intestines
5. Experiment: Digesting Fat
6. Experiment: Absorbing Food
7. Quiz 1
8. Circulatory System
9. Experiment: Pulse Rate
10. Blood
11. Project: Heart*
12. Respiratory System
13. Experiment: Carbon Dioxide
14. Project: Lungs*
15. Quiz 2
16. Excretory System
17. Muscles
18. Bones and Joints
19. Quiz 3
20. Special Project*
21. Test
22. Alternate Test*
23. Glossary and Credits

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Unit 3: Animals, Plants, and Nature

Assignments

1. Animals: The Brain
2. Project: The Cerebrum
3. Animals: The Nervous System
4. Project: The Eye
5. Animals: Response
6. Experiment: Trial and Error
7. Quiz 1
8. Plants: Tropisms (Part 1)
9. Plants: Tropisms (Part 2)
10. Quiz 2
11. Nature: Biomes (Part 1)
12. Nature: Biomes (Part 2)
13. Project: Biomes
14. Nature: Balance
15. Project: Symbiosis
16. Quiz 3
17. Special Project*
18. Test
19. Alternate Test*
20. Glossary and Credits

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Unit 4: Reproduction and Genetics

Assignments

1. Flower Reproduction
2. Experiment: Flower Structure
3. Mitosis and Meiosis
4. Experiment: Embryo Formation*
5. Quiz 1
6. Inheritance
7. Project: Traits
8. Punnett Square
9. Experiment: Mendelian Genetics*
10. Dominance and Multiple Genes
11. Experiment: Taste Test
12. Quiz 2
13. DNA
14. Genetic Mutation
15. Experiment: Albinism*
16. Quiz 3
17. Special Project*
18. Test
19. Alternate Test*
20. Glossary and Credits

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Unit 5: Chemistry

Assignments

1. Matter
2. States of Matter
3. Experiment: Solid, Liquid, Gas
4. Chemical Changes
5. Atoms and Elements
6. Molecules and Compounds
7. Experiment: Make a Compound
8. Experiment: Limewater*
9. Quiz 1
10. Chemical Symbols
11. Atomic Number and Weight
12. The Periodic Table
13. Project: Element Organization
14. Quiz 2
15. Electron Arrangement
16. Project: Atom Diagram
17. Acids and Bases
18. Experiment: Acid or Base?
19. Project: Cause and Effect*
20. Quiz 3
21. Special Project*
22. Test
23. Alternate Test*
24. Glossary and Credits

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Unit 6: Motion

Assignments

1. Force
2. Work
3. Project: Calculating Work
4. Experiment: Work
5. Power
6. Project: Horsepower
7. Experiment: Calculating Horsepower
8. Quiz 1
9. Newton's First Law of Motion
10. Experiment: Inertia
11. Newton's Second and Third Laws of Motion
12. Experiment: Newton's Laws
13. Experiment: Force, Motion, and Energy Transfer
14. Machines and Motion
15. Quiz 2
16. Special Project*
17. Test
18. Alternate Test*
19. Glossary and Credits

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Unit 7: Energy

Assignments

1. Mechanical Energy
2. Heat Energy (Part 1)
3. Heat Energy (Part 2)
4. Project: Minimizing/Maximizing Thermal Energy Transfer
5. Quiz 1
6. Chemical Energy
7. Project: Nuclear Power
8. Energy Conversion
9. Project: Energy Conversion
10. Atomic Energy
11. Quiz 2
12. Energy Conservation
13. Project: Energy Conservation
14. Special Project*
15. Test
16. Alternate Test*
17. Glossary and Credits

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Unit 8: The Atmosphere

Assignments

1. Atmospheric Gases
2. Atmospheric Layers
3. Project: The Atmosphere
4. Solar Radiation
5. Experiment: The Greenhouse
6. Quiz 1
7. The Atmosphere at Work
8. Water Cycle
9. Gas Cycles
10. Pollution
11. Project: Pollution
12. Quiz 2
13. Project: Climate Change Research*
14. Project: Climate Change Presentation*
15. Special Project*
16. Test
17. Alternate Test*
18. Glossary and Credits

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Unit 9: Earth and Space

Assignments

1. Earth's Shape
2. Experiment: Earth's Shape*
3. Earth's Surface
4. Earth's Rocks
5. Quiz 1
6. Earth's Rotation
7. Earth's Revolution
8. Experiment: Shadows
9. Time
10. Quiz 2
11. Eclipses
12. Experiment: Making an Eclipse*
13. Our Solar System
14. Project: Planets*
15. Asteroids, Comets, and Meteors
16. Quiz 3
17. Special Project*
18. Test
19. Alternate Test*
20. Glossary and Credits

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Unit 10: Review

Assignments

1. Photosynthesis
2. Plant Systems
3. Human Body Systems (Part 1)
4. Human Body Systems (Part 2)
5. Human Body Systems (Part 3)
6. Project: Body System Interaction
7. Quiz 1
8. Genetics and Reproduction
9. Ecological Systems
10. Project: Biomes*
11. The Atmosphere
12. Work and Force
13. Quiz 2
14. Motion
15. Matter
16. Chemistry
17. Earth's Motion
18. Our Solar System
19. Quiz 3
20. Special Project*
21. Test
22. Alternate Test*
23. Glossary and Credits

(*) Indicates alternative assignment