2018 - 2019 Curriculum Catalog

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 God's 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 course seeks to develop the student's ability to understand and participate in scientific inquiry. The units contain experiments and projects to capitalize on children's natural curiosity. The student 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 different 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 light and sound waves.
- Describe motion as it relates to force and work.
- Explain how time and season are related to the rotation and revolution of the earth.
- Identify common stars and constellations.

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Unit 1: Plant Systems

Assignments

1. Course Overview
2. Photosynthesis: Location
3. Experiment: Anacharis Photosynthesis
4. Photosynthesis: The Leaf Factory
5. Experiment: Seeds
6. Photosynthesis: Products
7. Experiment: Digestive Enzymes
8. Photosynthesis: Raw Materials
9. Investigation: Plant Growth
10. Quiz 1
11. Transport System: Roots
12. Experiment: Root Observation
13. Transport System: Stems and Leaves
14. Experiment: Celery
15. Quiz 2
16. Regulatory System
17. Experiment: Growing Roots*
18. Quiz 3
19. Special Project*
20. Review Game
21. Test
22. Alternate Test*
23. Reference

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Unit 2: Body Systems

Assignments

1. Digestive System: Structure
2. Digestive System: Function
3. Experiment: Digestion
4. Digestive System: Function (Part 2)
5. Experiment: Oil and Soap
6. Experiment: Passing Food
7. Quiz 1
8. Circulatory System
9. Experiment: Pulse Rate
10. Project: Heart*
11. Excretory System
12. Experiment: Carbon Dioxide
13. Project: Lungs*
14. Experiment: Evaporation and Cooling
15. Quiz 2
16. Muscular System
17. Skeletal System
18. Quiz: Bone Quiz*
19. Quiz 3
20. Special Project*
21. Review Game
22. Test
23. Alternate Test*
24. Reference

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Unit 3: Plants and Animal Behavior

Assignments

1. The Nervous System
2. Report: The Eye
3. Report: The Ear
4. Nerves and Spinal Column
5. Response and Intelligence
6. Report: Instincts*
7. Experiment: Response*
8. Experiment: Trial and Error*
9. Quiz 1
10. Plant Behavior
11. Investigation: Tropisms
12. Quiz 2
13. Terrestrial Biomes
14. Aquatic Biomes
15. Food Chains
16. Nature: Cycles and Balance
17. Report: Man's Influence*
18. Quiz 3
19. Special Project*
20. Review Game
21. Test
22. Alternate Test*
23. Reference

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Unit 4: Molecular Genetics

Assignments

1. Reproduction
2. Project: Flower Structure*
3. Male-Female Reproduction
4. Project: Lima Bean Embryo*
5. Quiz 1
6. Inheritance
7. Project: Mendel's Discovery*
8. Taste, Dominance, and Multiple Genes
9. Experiment: Taste Gene Lab
10. Project: Traits*
11. Quiz 2
12. DNA
13. Experiment: Albinos*
14. Report: Genetics*
15. Mutation
16. The Use of Mutations
17. Project: Pea Pod*
18. Temperature Influence on Coloration
19. Quiz 3
20. Special Project*
21. Review Game
22. Test
23. Alternate Test*
24. Reference

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Unit 5: Chemical Structure and Change

Assignments

1. Chemical Structure
2. Experiment: Solid, Liquid, Gas
3. Chemical Elements and Atoms
4. Molecules and Compounds
5. Experiment: Copper Iodide
6. Experiment: Calcium Carbonate
7. Quiz 1
8. Periodic Table
9. Project: Water Molecule Model
10. Atomic Mass
11. Project: Atomic Number*
12. Arrangement of the Periodic Table
13. Project: Use the Periodic Table
14. Quiz 2
15. Chemical Change
16. Project: Chart and Diagram*
17. Report: Chemical Discoveries*
18. Acids and Bases
19. Experiment: Acid or Base?
20. Project: From Memory*
21. Project: Cause and Effect*
22. Project: Chemical Symbols*
23. Project: Discussion*
24. Quiz 3
25. Special Project*
26. Review Game
27. Test
28. Alternate Test*
29. Reference

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Unit 6: Light and Sound

Assignments

1. Waves: Sound
2. Experiment: Test Tube Tunes
3. Project: Sound Vibrations
4. Light Waves
5. Project: Light Waves
6. Project: Refracted Light
7. Quiz 1
8. The Spectrum
9. Project: Color Spectrum
10. Project: Create a Rainbow*
11. Quiz 2
12. Colors
13. Project: Color Wheel
14. Experiment: Subtractive Colors
15. Experiment: Mixing Colored Lights*
16. Mixing Colors
17. Experiment: Mixing Colorants*
18. Quiz 3
19. Special Project*
20. Review Game
21. Test
22. Alternate Test*
23. Reference

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Unit 7: Motion and Its Measurement

Assignments

1. Motion, Force, and Work
2. Measurement of Work
3. Experiment: Forces of Lifting and Pulling
4. Project: Unscramble Activity*
5. Quiz 1
6. Power and Newton's Laws of Motion
7. Report: Horsepower and Watts*
8. Experiment: Your Horsepower*
9. Newton's Laws of Motion and Gravitation
10. Experiment: The Law of Inertia
11. Quiz 2
12. Change in Motion
13. Quiz 3
14. Special Project*
15. Review Game
16. Test
17. Alternate Test*
18. Reference

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Unit 8: Spaceship Earth

Assignments

1. Earth's Motion
2. Experiment: Balloon Globe*
3. Earth's Rotation
4. Time
5. Experiment: Observing Shadows
6. Earth's Orbit
7. Quiz 1
8. Eclipses
9. Project: Fact or Opinion*
10. Experiment: Eclipses
11. Quiz 2
12. The Solar System
13. Report: Planets*
14. Asteroids, Comets, and Meteoroids
15. Quiz 3
16. Special Project*
17. Review Game
18. Test
19. Alternate Test*
20. Reference

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Unit 9: Astronomy and the Stars

Assignments

1. Astronomy
2. Report: Great Astronomers*
3. Astronomy Today
4. Quiz 1
5. Stars
6. Elements and Spectra
7. Project: The Spectroscope*
8. Experiment: Spectrography*
9. Experiment: Oil on Water*
10. Magnitude and Luminosity
11. Light Years and Astronomical Units
12. Quiz 2
13. Constellations and Major Stars
14. Project: Betelgeuse and Aldebaran
15. Project: Constellations*
16. Quiz 3
17. Special Project*
18. Review Game
19. Test
20. Alternate Test*
21. Reference

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Unit 10: The Earth and the Universe

Assignments

1. The Photosynthesis System
2. The Transport System of Plants
3. The Digestive System
4. The Excretory System
5. Skeletal and Muscular Systems
6. The Nervous System
7. Genetics and Reproduction
8. Ecological Systems
9. Report: Biomes*
10. Quiz 1
11. Physics and Chemistry: Matter
12. Physics and Chemistry: Light
13. Physics and Chemistry: Sound
14. Physics and Chemistry: Motion
15. Physics and Chemistry: Machines
16. Quiz 2
17. Earth's Rotation
18. Earth's Revolution
19. Our Solar System
20. Quiz 3
21. Special Project*
22. Review Game
23. Test
24. Alternate Test*
25. Reference

(*) Indicates alternative assignment