

STEMscopes Science – Grade 2

Instructional Plan / Course Syllabus

Course Description

Second Grade Science using the **STEMscopes Science curriculum** develops students' understanding of scientific concepts through investigation, observation, and hands-on exploration. Students study physical science, earth science, and life science concepts while practicing scientific inquiry and engineering design. Instruction aligns with the **Texas Essential Knowledge and Skills (TEKS) for Grade 2 Science** and encourages students to ask questions, investigate phenomena, and communicate scientific explanations.

Curriculum Units and Instructional Overview

Unit 1: Matter and Its Properties

Focus: Students investigate the physical properties of matter and classify objects based on observable characteristics.

TEKS: 2.6A, 2.6B, 2.6C

Learning Objectives

- Identify and describe physical properties of objects such as size, shape, texture, and color.
- Classify objects based on observable properties.
- Identify matter as solid, liquid, or gas.

Instructional Activities

- Sorting objects by properties
- Observing and describing materials
- Investigating solids and liquids
- Recording observations in science journals

Unit 2: Changes in Matter

Focus: Students explore how matter can change and how materials can be combined or separated.

TEKS: 2.6D

Learning Objectives

- Identify ways materials can change.
- Observe how combining or separating materials creates change.
- Describe physical changes using observations.

Instructional Activities

- Mixing materials investigations
 - Observing melting or dissolving
 - Recording results in science notebooks
 - Class discussions about changes in matter
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Unit 3: Force, Motion, and Energy

Focus: Students investigate how pushes and pulls affect the motion of objects.

TEKS: 2.7A, 2.7B

Learning Objectives

- Identify pushes and pulls as forces.
- Observe how forces change the speed or direction of motion.
- Investigate how objects move.

Instructional Activities

- Push and pull experiments
 - Rolling objects down ramps
 - Observing motion in classroom activities
 - Recording observations in journals
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Unit 4: Earth Materials and Landforms

Focus: Students examine natural materials and how wind and water can change land.

TEKS: 2.10A, 2.10B

Learning Objectives

- Identify different types of earth materials.
- Describe how water and wind shape landforms.
- Observe changes to land over time.

Instructional Activities

- Landform modeling activities
 - Sand and water erosion demonstrations
 - Observing soil and rocks
 - Creating landform diagrams
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Unit 5: Weather and the Water Cycle

Focus: Students observe weather patterns and investigate how weather affects daily life.

TEKS: 2.8A, 2.8B

Learning Objectives

- Observe and record weather conditions.
- Describe how weather affects people and environments.
- Identify patterns in weather observations.

Instructional Activities

- Daily weather charting
 - Observing clouds and temperature
 - Graphing weather data
 - Discussing seasonal changes
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Unit 6: Organisms and Environments

Focus: Students explore how plants and animals depend on their environments.

TEKS: 2.5A, 2.5B

Learning Objectives

- Identify basic needs of plants and animals.
- Describe how environments support living things.
- Recognize relationships between organisms and habitats.

Instructional Activities

- Habitat sorting activities
 - Observing plants and animals
 - Creating habitat diagrams
 - Class discussions about ecosystems
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Unit 7: Plant and Animal Life Cycles

Focus: Students learn about life cycles and how organisms grow and change.

TEKS: 2.5C

Learning Objectives

- Identify stages of plant life cycles.
- Describe stages of animal life cycles.
- Compare life cycles of different organisms.

Instructional Activities

- Life cycle diagrams
 - Plant growth observations
 - Reading informational texts about animals
 - Sequencing life cycle stages
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Unit 8: Engineering and Problem Solving

Focus: Students apply scientific knowledge to design solutions to simple problems.

TEKS: 2.1A, 2.1B, 2.1C, 2.1D

Learning Objectives

- Ask questions about scientific problems.
- Plan and conduct simple investigations.
- Design and test solutions to problems.

Instructional Activities

- Engineering design challenges
 - Building simple models
 - Testing and improving designs
 - Sharing results with classmates
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Assessment Methods

Student progress will be evaluated through:

- STEMscopes scope assessments
 - Science journals and observations
 - Exit tickets and quick checks
 - Classroom discussions
 - Hands-on investigation performance tasks
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Instructional Materials

- STEMscopes Teacher Guides
- STEMscopes digital activities and investigations
- Science journals and recording sheets
- Hands-on lab materials and classroom manipulatives
- Visual models, diagrams, and vocabulary cards