

Rockingham County Public Schools

Earth Science Benchmarks

A Guide for Parent Involvement

Students should expect to keep a complete notebook of all work for the entire year. Good attendance and study habits help ensure success in students' first high school science course, and on the end-of-course SOL test that is required to verify the credit earned. Passing the course and the Earth Science SOL test will give students the option of exempting the final exam for the class. Note that due to multiple science teachers using limited supplies, the order of the listed topics may vary by teacher.

1st Nine Weeks

Introduction to Earth Science (ES.2a, ES.11c, ES.12d,e)

Earth as a system

- Lithosphere,
- Hydrosphere,
- Atmosphere,
- Biosphere

Basic study areas

- Astronomy,
- Geology,
- Oceanography,
- Meteorology

Where/What is Earth? (ES.2c, ES.4, ES.12c)

Astronomy overview with

- focus on the Solar System

Detailed tour of the Solar System

Space program history

- exploring the Solar System

Focus on Earth facts and unique characteristics

- compare with other planets
- seasons
- time zones
- moon phases
- eclipses

Review/application of the scientific method

(ES.1)

Measuring applications in scientific investigations

- mass
- volume
- density
- distance
- temperature

Collecting data using technology

Presenting and interpreting data

Utilizing scientific reasoning

Earth materials- Minerals (ES.1c,d; ES.5, ES.7)

Basic Chemistry review

- elements/atoms,
- compounds/molecules
- mixtures

Physical and Chemical properties of matter

Minerals

- Identification
- Properties
- Economic uses/value

2nd Nine Weeks

Earth materials- Rocks and their origins (ES.1c,d; ES.6, ES.7, ES.8b, ES.9a,b)

Intrusive and extrusive

- Intrusions
- Extrusions
- Volcanoes

Weathering and Soils

- Chemical weathering
- Mechanical weathering
- Sediments
- Soil development

Sedimentary Rocks

- Clastic
- Chemical

Metamorphic Rocks

- Foliated
- Non-foliated

The Rock Cycle

- Summary of rock origins

Tectonic Processes (ES.1b,c,e; ES.2, ES.3, ES.8b,c; ES.11d)

Plate Tectonics

- Lithospheric plates
- Mantle convection
- Divergent plate edges
- Convergent plate edges
- Transform plate edges

Earth quake/ seismic activity

Rock deformation

- Folding
- Faulting

3rd Nine Weeks

Landscape Development (ES.1b,c; ES.2a, ES.3, ES.8b, ES.9)

Erosion and deposition

Agents of landscape development

- Gravity/mass wasting
- Running water
- Wind
- Glaciers
- Waves

Groundwater and karst topography

Watershed systems in Virginia

Topographic Maps

- Interpretation of landforms
- Latitude
- Longitude

Earth History (ES.10)

Relative and absolute age-dating

Fossil record

Geologic Time Scale

Geology of Virginia (ES.7, ES.8a, ES.9f, ES.10)

Physiographic provinces

Geologic history

Resources

- Renewable vs. nonrenewable

The World Ocean (ES.2a, ES.3, ES.9, ES.11)

Water distribution, Water Cycle

Physical and chemical changes

- Tides
- Waves
- Currents
- Stored heat and its affect on weather

Economic resources

Influence of tectonic processes

Environmental issues and the impact of human activities

4th Nine Weeks

The Atmosphere (ES.1a,b; ES.2a, ES.3a,b; ES.11c, ES.12, ES.13)

Meteorology, Weather, Climate

Composition, layers, changes over time

Impact of natural phenomena and human activity

Comparison with other planets

Weather instruments, weather data, and maps

Weather Patterns

- Winds
- Humidity
- Air pressure
- Temperature
- Cloud formation
- Air masses
- Fronts
- Storms
- Forecasting

Summarize relationships among the interactive parts of the Earth's System

Return to Outer Space (ES.1e, ES.2, ES.4, ES.14)

Review Earth's place in the Solar System

- The galaxy
- The universe

Evolution of the stars and our Sun

H-R Diagram

Galaxies and the Universe

Origin of the Solar System and the Universe

Space Exploration

Earth Science End-of-Course SOL TEST REVIEW

Students should:

1. Review all class notes, quizzes, and tests.
2. Practice test-taking skills with sample questions.
3. Be well-rested and prepared for the SOL test.

Teachers should:

1. Use example questions as warm-ups or for analysis by the class.
2. Provide students with practice web sites that have released SOL test questions available in a quiz or game format.
3. Hold review sessions that cover the ***Essentials*** from the Earth Science Curriculum Framework provided to teachers by the VA Department of Education.

The Earth Science EOC SOL Test

Projects/ labs (as time allows)

** The numbers throughout the Benchmarks refer to the Virginia Science Standards of Learning objectives. For example, "ES.4" refers to Earth Science SOL objective number "4".