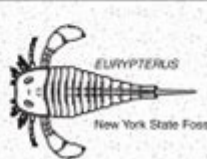


New York State Earth Science Reference Table

The University of the State of New York • THE STATE EDUCATION DEPARTMENT • Albany, New York 12234 • www.nysed.gov

Earth Science Reference Tables

PHYSICAL CONSTANTS		
Radioactive Decay Data		Specific Heats of Common Materials
RADIOACTIVE ISOTOPE	DISINTEGRATION	SPECIFIC HEAT (calories/gram • °C)
Carbon-14	$C^{14} \rightarrow N^{14}$	Water { solid 0.5 liquid 1.0 gas 0.5
Potassium-40	$K^{40} \rightarrow Ar^{40}$ $K^{40} \rightarrow Ca^{40}$	Dry air 0.24
Uranium-238	$U^{238} \rightarrow Pb^{206}$	Basalt 0.20
Rubidium-87	$Rb^{87} \rightarrow Sr^{87}$	Granite 0.19
		Iron 0.11
		Copper 0.09
		Lead 0.03
Properties of Water		
Energy gained during melting 80 calories/gram		
Energy released during freezing 80 calories/gram		
Energy gained during vaporization 540 calories/gram		
Energy released during condensation 540 calories/gram		
Density at 3.98°C 1.00 gram/milliliter		
EQUATIONS		
Percent deviation from accepted value	$\text{deviation (\%)} = \frac{\text{difference from accepted value}}{\text{accepted value}} \times 100$	
Eccentricity of an ellipse	$\text{eccentricity} = \frac{\text{distance between foci}}{\text{length of major axis}}$	
Gradient	$\text{gradient} = \frac{\text{change in field value}}{\text{distance}}$	
Rate of change	$\text{rate of change} = \frac{\text{change in field value}}{\text{time}}$	
Density of a substance	$\text{density} = \frac{\text{mass}}{\text{volume}}$	
2001 EDITION This edition of the Earth Science Reference Tables should be used in the classroom beginning in the 2000-2001 school year. The first examination for which these tables will be used is the January 2001 Regents Examination in Earth Science.		
 ELVYPPTERIUS New York State Fossil		

(Revised November 2006)

New York State Earth Science Reference Table is an essential tool for students and educators involved in the Earth Science curriculum of New York State. This comprehensive reference table serves as a vital resource for understanding various geological, hydrological, and atmospheric concepts. It encompasses a wide array of data and charts that facilitate the learning process and help students prepare for their exams. This article will delve into the importance of the Earth Science Reference Table, its components, and its applications in the educational framework of New York State.

Importance of the Earth Science Reference Table

The New York State Earth Science Reference Table is crucial in the educational landscape for several reasons:

1. **Standardized Resource:** It provides a uniform set of data and information that all students can rely on, ensuring consistency across various educational institutions.
2. **Supports Curriculum:** The reference table aligns with the New York State Science Learning Standards, making it an integral part of the Earth Science curriculum.
3. **Facilitates Learning:** It aids students in understanding and applying complex concepts through visual aids, simplifying the learning process.
4. **Exam Preparation:** The table is invaluable for students preparing for the Earth Science Regents Exam, as it contains many of the data sets and information they will encounter in test questions.
5. **Encourages Critical Thinking:** By providing data on various Earth science topics, the reference table encourages students to analyze and interpret information critically.

Components of the Earth Science Reference Table

The New York State Earth Science Reference Table consists of various components that cover a wide range of topics. These components include charts, graphs, and tables, each serving a specific purpose in the study of Earth Science.

1. Physical Setting: Earth Science

This section provides essential information about Earth's processes, structure, and materials. It includes:

- **Rock Cycle:** An overview of the processes that change rocks from one type to another, including igneous, sedimentary, and metamorphic rocks.
- **Plate Tectonics:** Diagrams illustrating the movement of tectonic plates and their associated features, such as earthquakes and volcanoes.

2. Atmosphere and Weather

Understanding weather patterns and atmospheric phenomena is crucial for Earth

Science. This section covers:

- Weather Maps: Explanation of symbols used in weather forecasting, including fronts, pressure systems, and precipitation.
- Climate Zones: A breakdown of various climate types found across the globe, with emphasis on New York State's climate characteristics.

3. Earth's Resources

This component addresses natural resources and their significance, including:

- Mineral Identification: A chart listing common minerals, their properties, and uses.
- Energy Resources: Information on renewable and non-renewable energy sources, such as solar, wind, coal, and natural gas.

4. Geologic Time Scale

The geologic time scale is a vital concept in Earth science, providing context for the age of Earth and its formations:

- Eons, Eras, and Periods: A detailed chart that outlines major geological events and the timeframes in which they occurred.
- Fossil Record: Insights into how fossils help in understanding Earth's history and the evolution of life.

5. Hydrology and Oceanography

This section focuses on water's movement and properties:

- Water Cycle: A diagram illustrating the continuous movement of water on, above, and below the surface of the Earth.
- Ocean Currents: A map showing the major ocean currents and their effects on global climate patterns.

Using the Earth Science Reference Table in Education

The Earth Science Reference Table is not just a collection of data; it is a valuable educational tool that can be used in various ways to enhance learning.

1. Classroom Instruction

Educators can integrate the reference table into their teaching strategies:

- Interactive Lessons: Use the charts and diagrams to create interactive lessons that engage students in discussions about Earth processes.
- Group Activities: Assign group projects that require students to analyze specific sections of the reference table and present their findings.

2. Study Guides

Students can utilize the reference table to create effective study guides:

- Condensed Notes: Encourage students to summarize key points from the reference table in their own words.
- Practice Questions: Develop practice questions based on the information found in the table to prepare for exams.

3. Laboratory Activities

Laboratory activities can also benefit from the reference table:

- Experiments: Design experiments that require students to apply concepts from the reference table, such as simulating the rock cycle.
- Field Studies: Utilize the reference table during field studies to identify rocks, minerals, and geological formations.

Challenges and Considerations

While the New York State Earth Science Reference Table is an invaluable resource, there are challenges and considerations to keep in mind:

1. Accessibility: Ensuring that all students have access to the reference table may be a challenge, particularly in underfunded schools.
2. Overwhelm: The sheer volume of information can overwhelm students, necessitating guidance from educators on how to navigate the table effectively.
3. Updates and Revisions: As scientific knowledge evolves, the reference table must be updated to reflect new discoveries and understandings, which requires ongoing attention from educational authorities.

Conclusion

In summary, the New York State Earth Science Reference Table is an indispensable resource for students and educators alike. It serves as a comprehensive guide to understanding the fundamental concepts of Earth science, providing essential data that supports curriculum objectives and enhances learning. By integrating the reference table into classroom instruction, study practices, and laboratory activities, educators can help students develop a deeper understanding of Earth processes and their significance. Despite the challenges that may arise in its application, the reference table remains a cornerstone of Earth Science education in New York State, preparing students for future academic pursuits and fostering a lifelong appreciation for the natural world.

Frequently Asked Questions

What is the purpose of the New York State Earth Science Reference Table?

The New York State Earth Science Reference Table is designed to provide students with essential data, charts, and information necessary for understanding earth science concepts and for use during standardized testing.

Where can I access the New York State Earth Science Reference Table?

The New York State Earth Science Reference Table can be accessed online through the New York State Education Department's website, typically under the curriculum resources for earth science.

What types of data are included in the New York State Earth Science Reference Table?

The table includes various types of data such as geological maps, mineral properties, weather patterns, rock cycle diagrams, and information on plate tectonics and natural disasters.

How can students effectively use the Earth Science Reference Table for exams?

Students can effectively use the table by familiarizing themselves with its layout, practicing with past exam questions that reference the table, and using it as a study guide to reinforce key concepts and data.

Are there any updates or changes to the New York State Earth Science Reference Table for the current academic year?

It is important to check the New York State Education Department's website regularly for any updates or changes to the Earth Science Reference Table, as revisions can occur to reflect new scientific findings or curriculum adjustments.

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