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PUBLISHER:			
SUBJECT:		**SPECIFIC GRADE:**	
COURSE:		**TITLE**	
COPYRIGHT:			
SE ISBN:		**TE ISBN:**	

NON-NEGOTIBLE EVALUATION CRITERIA

2016-2022
Group IV – Science
Grade 7

Equity, Accessibility and Format				
Yes	No	N/A	CRITERIA	NOTES
			1. INTER-ETHNIC The **instructional** materials meets the requirements of inter-ethnic: concepts, content and illustrations, as set by WV Board of Education Policy (Adopted December 1970).	
			2. EQUAL OPPORTUNITY The instructional material meets the requirements of equal opportunity: concepts, content, illustration, heritage, roles contributions, experiences and achievements of males and females in American and other cultures, as set by WV Board of Education Policy (Adopted May 1975).	
			3. FORMAT This resource is available as an option for adoption in an interactive electronic format.	

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			4. BIAS The instructional material is free of political bias.	
			5. **INQUIRY** This resource must include rigorous and developmentally appropriate active inquiry, investigations, and hands-on activities.	
			6. **SAFETY** This resource must include explicit guidance for demonstrating the safe and proper techniques for handling, manipulating and caring for developmentally appropriate science materials and treating living organisms humanely.	

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GENERAL EVALUATION CRITERIA

2016-2022
Group IV – Science
Grade 7

The general evaluation criteria apply to each grade level and are to be evaluated for each grade level unless otherwise specified. These criteria consist of information critical to the development of all grade levels. In reading the general evaluation criteria and subsequent specific grade level criteria, **e.g. means "examples of" and i.e. means that "each of" those items must be addressed**. Eighty percent of the general and eighty percent of the specific criteria must be met with I (in-depth) or A (adequate) in order to be recommended.

(Vendor/Publisher) SPECIFIC LOCATION OF CONTENT WITHIN PRODUCTS	(IMR Committee) Responses							
	I=In-depth, **A**=Adequate, **M**=Minimal, **N**=Nonexistent	**I**		**A**		**M**		**N**
	In addition to alignment of Content Standards and Objectives (CSOs), materials must also clearly connect to Learning for the 21st Century which includes opportunities for students to develop:							
Next Generation Skills:								
Thinking and Problem-Solving Skills Science Content:								
	1. provides opportunities for student collaboration.							
	2. requires students to investigate and discover multiple solutions through inquiry.							
	3. includes options for using technology tools to gather information, make informed decisions and justify solutions.							
	4. engages students in critical thinking and the synthesis of information to analyze real-world problems.							
	5. offers activities to connect multiple scientific phenomena to real-world events.							
Information and Communication Skills *For student mastery of content standards and objectives, the instructional materials will include multiple strategies that provide students with opportunities to:*								

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	6. interact with secure external multimedia resources for local and global collaboration.							
	7. develop conceptual understanding and research skills.							
	8. articulate thoughts and ideas through oral, written, and multimedia communications.							
Personal and Workplace Productivity Skills *For students mastery of content standards and objectives, the instructional materials will provide students with opportunities to:*								
	9. use interpersonal skills to work cooperatively to accomplish a task.							
	10. develop and initiate a plan of action to complete a task or project.							
	11. practice time- and project-management skills							
	12. reflect upon and evaluate the results of a task or project.							
	13. assume various roles and responsibilities when working independently or as a group.							
	14. explore science-related careers.							
	15. conduct research, validate sources, and report findings ethically.							
	16. provide learning experiences for students to demonstrate mastery through multiple efforts.							
Developmentally Appropriate Instructional Resources and Strategies *For student mastery of content standards and objectives, the instructional materials:*								
	17. include multiple research-based strategies for differentiation, intervention and enrichment to support all learners.							
	18. support college and career readiness.							
	19. provide multiple opportunities for incorporating various learning modalities.							

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	20. cultivate investigative abilities leading to logical conclusions.							
	21. incorporate authentic vocabulary acquisition.							
	22. integrate laboratory safety practices within learning experiences.							
Assessment *The materials provide:*								
	23. ongoing diagnostic formative and summative assessments.							
	24. a variety of assessment formats, including performance tasks as well as multimedia simulations, portfolio evaluations, and data-dependent and open-ended questions.							
	25. rubrics wherein all learners demonstrate progress toward mastery.							
Organization, Presentation and Format *The materials:*								
	26. are organized in logical sequence to optimize instructional effectiveness and efficiency.							
	27. connect common themes across multiple science disciplines.							
	28. integrate cross-curricular connections.							
	29. provide educators necessary science content knowledge, pedagogy, and management techniques to guide learning experiences.							
Life Skills *For student mastery of content standards and objectives, the instructional materials will provide students with opportunities to:*								
	30. persevere to complete a task.							
	31. be exposed to varying viewpoints.							

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	32. engage in physical activity to promote the understanding of science content.							
	33. investigate the natural world and universe.							
	34. practice situational language (e.g., presentations, debates, speeches, collaborative discussions, social media) in real-world activities.							
	35. understand the impact of global issues and events on their lives, communities, and greater society.							
	36. use laboratory equipment properly.							

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SPECIFIC EVALUATION CRITERIA

2016-2022
Group IV – Science
Grade 7

Seventh Grade Science objectives build upon students' science understanding from earlier grades and provide deeper understandings in six major content topics: Systems; History of Earth; Energy; Forces and Interactions; Structure, Function, and Information Processing; and Human Interactions. The objectives blend core ideas with scientific and engineering practices and crosscutting concepts to support students in developing useable knowledge across the science disciplines. There is a focus on several scientific practices which include planning and carrying out investigations; developing and using models; analyzing and interpreting data; using mathematical and computational thinking; obtaining, evaluating, and communicating information; and engaging in argument from evidence. Engineering, Technology, and the Application of Science objectives are integrated throughout instruction as students define problems and design solutions related to the course objectives. Students will engage in active inquiries, investigations, and hands-on activities as they develop and demonstrate conceptual understandings and research and laboratory skills described in the objectives. Safety instruction is integrated in all activities, and students will implement safe procedures and practices when manipulating equipment, materials, organisms, and models.

All West Virginia teachers are responsible for classroom instruction that integrates content literacy and *21st Century Learning Skills and Technology Tools.*

General Science Content

The General Science Standard is a content standard that provides an integrated approach to science instruction that is arranged in a coherent manner, follows the logic of learning progressions and spans kindergarten through middle school. The three disciplines of science--Physical Science, Life Science, and Earth and Space Science--are limited to the major topics in the core ideas from each discipline. From the Life Science discipline the core ideas are the following: From Molecules to Organisms: Structures and Processes; Ecosystems: Interactions, Energy, and Dynamics; Heredity: Inheritance and Variation of Traits Across Generations; and Biological Evolution: Unity and Diversity. From the Physical Science discipline, the topics are the following: Matter and Its Interactions; Motion and Stability, Forces and Interactions; Energy; and Waves and Their Applications in Technologies for Information Transfer. Earth's Place in the Universe; Earth's Systems; and Earth and Human Activity are the topics from the Earth and Space Science discipline. Limiting instruction to the main topics of core ideas allows opportunities for deep exploration of important concepts and provides time for students to develop meaningful understandings, engage in science and engineering practices, and reflect on crosscutting concepts and the nature of science. The foundation not only provides an organizational structure for the acquisition of new knowledge, it prepares students to engage in deeper levels of scientific and engineering practices as they continue to high school, college, and beyond.

Earth and Space Science Content

The Earth and Space Standard is a content standard which spans kindergarten through high school and provides opportunities for students to investigate processes that operate on Earth and also address its place in the solar system and the galaxy. The standard encompasses three core ideas: Earth's Place in the Universe; Earth's Systems; and Earth and Human Activity. Beginning in kindergarten, students make observations, ask questions, and make predictions as they describe patterns in their local Weather and Climate. In later grades, the content progresses to include these topics: Space Systems: Patterns and Functions; Earth Systems: Processes that Shape the Earth; Earth's Systems: Space Systems: Stars and the Solar System; History of Earth; and Human Impacts. Elementary students observe and investigate matter and processes in their own yards and neighborhoods with their own eyes; the content continues in the grades that follow to include investigations of invisibly small phenomena to the unimaginably large and distant. As students investigate the atmosphere, hydrosphere, geosphere, and biosphere, they gain understanding of the differing sources of energy, matter cycles, multiple systems' interconnections, and feedbacks which cause Earth to change over time.

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Life Science Content
The Life Science Standard is a content standard which spans kindergarten through high school and focuses on patterns, processes, and relationships of living organisms. The standard includes four core ideas: From Molecules to Organisms: Structures and Processes; Ecosystems: Interactions, Energy, and Dynamics; Heredity: Inheritance and Variation of Traits across Generations; and Biological Evolution: Unity and Diversity. These four core ideas, which represent basic life science fields of investigation—structures and processes in organisms, ecology, heredity, and evolution—have a long history and solid foundation based on the research evidence established by many scientists working across multiple fields. Beginning in kindergarten, curious learners explore Animals, Plants, and Their Environment as they learn of the Interdependent Relationships in Ecosystems. In the grades which follow, the inquiry continues as the standards encompass these topics: Structure, Function, and Information Processing; Inheritance and Variation of Traits: Life Cycles and Traits; Matter and Energy in Organisms and Ecosystems; and Growth, Development, and Reproduction of Organisms. Investigations include single molecules, organisms, ecosystems, and the entire biosphere that is all life on Earth. Students examine processes that occur on time scales from the blink of an eye to those that happen over billions of years. As they make observations, construct hypotheses, perform experiments, evaluate evidence, build models, and use technology to explore how life works, they prepare to answer questions about themselves and the world around them.

Physical Science Content
The Physical Science Standard is a content standard which spans kindergarten through high school as two subjects, physics and chemistry, are presented in a coherent approach which addresses four core ideas: Matter and Its Interactions; Motion and Stability, Forces and Interactions; Energy; and Waves and Their Applications in Technologies for Information Transfer. Beginning in kindergarten, students explore pushes and pulls as an introduction to the Forces and Interactions Topic. The inquiry continues through each programmatic level and includes the following topics: Light and Sound, Structure and Properties of Matter, Forces and Interactions, Energy, Waves and Information, Matter and Energy in Organisms and Ecosystems, Waves and Electromagnetic Radiation, and Chemical Reactions. An understanding of these topics allows students to answer two fundamental questions- “What is everything made of?’ and “Why do things happen?” Students apply these core ideas to explain and predict a wide variety of phenomena, such as the evaporation of water, the transmission of sound, the digital storage and transmission of information, the tarnishing of metals, and photosynthesis, to name just a few. Because such explanations and predictions rely on a basic understanding of matter and energy, students’ abilities to conceive the interactions of matter and energy are central to their science education.

Chemistry Content
The Chemistry Standard is a content standard which focuses on the core concepts: Structure and Properties of Matter and Chemical Reactions. Opportunities are provided for studying in-depth phenomena central not only to the physical sciences, but to life science and earth and space science, as well. The standard includes the chemistry concepts found in the Physical Science Standard, but *not* those emphasizing Forces & Interactions, Energy, and Waves and Electromagnetic Radiation. Instead the standard goes into greater depth in the study of matter, its composition, and its changes by including concepts such as the periodic table and modern theories of bonding, the effects of temperature, concentration, and vapor pressure on solubility, types of chemical reactions, stoichiometry, molarity, and gas laws. The standard blends the core ideas with scientific and engineering practices and crosscutting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. There is an emphasis on several scientific practices which include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking and constructing explanations.

Physics Content
The Physics Standard is a content standard which focuses on the core concepts: Forces and Interactions, Energy, and Waves and Electromagnetic Radiation. Opportunities are provided for studying in-depth phenomena central not only to the physical sciences, but to life science and earth and space science, as well. The standard includes the physics concepts found in the Physical Science Standard, but *not* those emphasizing Structure and Properties of Matter and Chemical Reactions. Instead the standard goes into greater depth in the studies of elastic and inelastic collisions, buoyancy and fluid dynamics, projectile motion, vectors, circuits and currents, and optics. The standard blends the core ideas with scientific and engineering practices and crosscutting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. There is an emphasis on several scientific practices which include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking and constructing explanations.

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Environmental Content
The Environmental Standard is a content standard which focuses on chemical, physical, biological, and geological processes and the interdependent relationships in the natural world. Concepts from the major science disciplines—Life Science, Physical Science, and Earth and Space Science—are integrated into six environmental topics which include: Biogeochemical cycles, Energy Conservation, Ecosystems, Oceans and Climate, Water Management, Land Use. There is an emphasis on several scientific practices that include developing and using models; planning and conducting investigations; analyzing and interpreting data; constructing explanations; engaging in arguments from evidence; obtaining, evaluating, and communicating information; and synthesizing concepts across various science disciplines. The standard provides opportunities for students to develop an understanding of systems of a complex world and the interdependence of organisms as well as an appreciation of the ecosystem in which they live. As students develop an awareness of the environment and its associated problems, they acquire knowledge and skills of how to work individually and collectively toward solutions of current problems and the prevention of new ones.

Forensic Science Content
The Forensic Science Standard is a content standard which applies the knowledge and technology of science to criminal and civil law. Concepts from the three major disciplines--Life Science, Physical Science, and Earth and Space Science--are reinforced and made relevant and pertinent to students as they acquire techniques and skills and learn the limitations of the modern crime laboratories. There is an emphasis on several scientific practices which include planning and carrying out investigations; analyzing and interpreting data; obtaining, evaluating and communicating information; and using mathematics and computations. Students must address the attention to detail and protocol that are necessary for providing impartial scientific evidence that may be used in courts of law to support the prosecution or defense in criminal and civil investigations. These skills and attitudes transfer readily to other areas of science.

Human Anatomy and Physiology Content
Human Anatomy and Physiology is a content standard which addresses the structures and functions of the human body. While concepts from the Life Science discipline are the major focus of study, concepts from the Physical Sciences are incorporated to explain processes and mechanisms of the human body. The interdisciplinary nature of the sciences is revealed through the interdependency of body systems. There is an emphasis on several scientific practices which include asking questions, developing and using models, constructing explanations, and obtaining and communicating information. Engineering Design Standards are integrated throughout instruction as students define problems and design solutions related to the course objectives. The standard encompasses gross and microscopic an atom, basic biochemistry and physiological concepts which are foundational to medical fields of study and useful as students make health related decisions.

Engineering, Technology, and Applications of Science
Engineering, Technology, and Applications of Science Standards (ETS) are included in science instruction, kindergarten through high school, and provide opportunities for students to utilize science and appreciate the distinctions and relationships between engineering, technology, and applications of science. The ETS are in programmatic levels- Kindergarten through Second Grade, Third through Fifth Grade, Middle School, and High School. As Engineering, Technology, and the Application of Science objectives are integrated with content from the three major strands of science- life science, physical science, and earth and space science- students develop understandings of how scientific knowledge is acquired, scientific explanations are developed, and science is applied in the world around us. The interactive cycle of design offers potential in applying science knowledge and engaging in engineering practices. Students gain experiences and understandings about the following: 1.) using technology to modify the natural world to fulfill human needs or desires; 2.) using an engineering approach to design objects, use processes, or construct systems to meet human needs and wants; and 3.) applying scientific knowledge for a specific purpose, whether to do more science, design a product, process, or medical treatment, develop a new technology, or to predict the impacts of human actions.

Literacy
Literacy Standards span middle and high school and address skills which are critical to building knowledge in science. The standards work in tandem with the specific content standard demands outlined in the West Virginia Next Generation Science Standards and Objectives. Reading in science requires an appreciation

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of the norms and conventions of the sciences which includes a working knowledge of domain-specific words, phrases, and symbols; an understanding of the nature of evidence used to support claims; an attention to precision and detail; and the capacity to make and assess intricate arguments, synthesize complex information often presented qualitatively and quantitatively in tables and graphs, and follow detailed procedures and accounts of events and concepts. Students also need to be able to gain knowledge from elaborate diagrams and data that convey information and illustrate scientific concepts. Likewise, writing and presenting information orally are key means for students to assert and defend claims in science, demonstrate what they know about a concept, and convey what they have experienced, imagined, thought, and learned. The skills and understandings students are expected to demonstrate in both reading and writing have a wide applicability outside the classroom and workplace and serve students as they address public and private responsibilities and interests.

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For student mastery of content standards and objectives, the instructional materials will provide students with the opportunity to

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Life Science Content								
Energy								
	1. conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells.							
	2. develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.							
	3. use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.							
	4. gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.							
Energy								
	5. construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.							
	6. develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.							
	7. apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.*							
	8. plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.							

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	9. construct, use, and present arguments to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.							
Forces and Interactions								
	10. apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*							
	11. plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.							
	12. ask questions about data to determine the factors that affect the strength of electric and magnetic forces.							
	13. construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.							
	14. conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.							
Earth's Systems								
	15. develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.							
	16. develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.							
	17. construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.							
History of Earth								

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	18. construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.							
	19. construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.							
	20. analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.							
Human Impacts								
	21. apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*							
Engineering, Technology, and Applications of Science								
Engineering Design								
	22. define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.							
	23. evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.							
	24. analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.							
	25. develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.							
Science Literacy								

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Reading- Key Ideas and Details								
	26. cite specific textual evidence to support analysis of science and technical texts.							
	27. determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.							
	28. follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.							
Reading- Craft and Structure								
	29. determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.							
	30. analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.							
	31. analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.							
Reading- Integration of Knowledge and Ideas								
	32. integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).							
	33. distinguish among facts, reasoned judgment based on research findings, and speculation in a text.							
	34. compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.							
Reading- Range of Reading and Level of Text Complexity								

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	35. by the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.							
Writing- Text Types and Purposes								
	36. write arguments focused on discipline-specific content. • introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims and organize the reasons and evidence logically. • support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. • use words, phrases and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons and evidence. • establish and maintain a formal style. • provide a concluding statement or section that follows from and supports the argument presented.							
	37. write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments or technical processes. • introduce a topic clearly, previewing what is to follow; organize ideas, concepts and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts and tables) and multimedia when useful to aiding comprehension. • develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • use precise language and domain-specific vocabulary to inform about or explain the topic. • establish and maintain a formal style and objective tone. • provide a concluding statement or section that follows from and supports the information or explanation presented.							
Writing- Production and Distribution of Writing								
	38. produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose and audience.							

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	39. with some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting or trying a new approach, focusing on how well purpose and audience have been addressed.							
	40. use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.							
Writing- Research to Build and Present Knowledge								
	41. conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.							
	42. gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.							
	43. draw evidence from informational texts to support analysis, reflection and research.							
Writing- Range of Writing								
	44. write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.							

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