

Science Content Standards Resources

Content Area: Science Fundamentals

Standard Statement	SV GED Science	SV GED Science Exercise	SV GED Skill Book Life Science	SV Building Strategies	New Readers Press Pass the Science Crit. Thinking Skills	NR Press Scales, Charts, & Diagrams	NR Press Maps, Photos, Ed. Cartoons	Contemp. Science Satellite	Top 50 Science Skills	MHC Interactive
1. The learner will understand and apply the concept of scientific thinking by: a) Distinguishing facts from hypotheses and opinions b) Recognizing unstated assumptions c) Identifying cause-and-effect relationships d) Distinguishing a conclusion from supporting statements	50-65 82-89 118-126 198-205		All lessons	98-99 130-131	5 (q 1, 2) 9 (q 2) 11 (q 2, 4) 15 (q 1, 2) 3 (q 1,2) 7 (q 1,2) 16-38 19 (q 1,2)	24-28 31 34-37	34-35 41	88-92	26-27 28-29 30-31 32-33 34-35	
2. The learner will evaluate scientific information by: a) Distinguishing relevant from irrelevant information b) Determining if there is enough information to support a conclusion	126-133 174-181 190-197		Les. 4 Les. 14	16-17	22 (q 4) 27 (q 5) 31 (q 23) 32 (q 26-29) 34 (q 34)	4-7 11 16 18 43			24-25 36-37	
3. The learner will objectively evaluate evidence using the scientific method . Steps in the scientific method include: a) Identifying “the” problem b) Collecting information c) Forming a hypothesis d) Testing the hypothesis e) Analyzing results and drawing conclusions	176-181		Les. 15	12-15	13 (q 2) 17 (q 1, 2) 26 (q 2) 31 (q 25) 35 (q 39, 40) 36 (q 43) 20 24 29 (q 1) 30			88-92	22-23 38-39 40-41	

Science Content Standards Resources

Content Area: Earth & Space Science

Standard Statement	SV GED Science	SV GED Science Exercise	SV GED Skill Book Physical, Earth,Space	SV Building Strategies	New Readers Press Pass the Science Crit. Thinking Skills	NRP Scales,Charts & Diagrams	NR Press Tables, Graphs Maps, Photos, Ed. Cartoons	Contemp. Science Satellite	Top 50 Science Skills	MHC Interactive
1. The learner will gather, analyze, and interpret information from maps, models, charts, graphs, and other geographical and informational representations. Key concepts include: a) Maps b) Directions, measurements, and distances on any map c) Understanding the concept of latitude & longitude d) Two- and three-dimensional representations of scientific theories, properties, or principles, such as line graphs, bar graphs, and globes	108-155	Unit 2 21-31	Les. 1-6	64-65 84-85 104-105 110-111 120-121	15 (q 3, 4) 19 (q 1, 2)		3-5 11 3-18	339-352		
2. The learner will examine and comprehend the structure of the Earth, including the geosphere, hydrosphere, and atmosphere.	90 110-121 150	Unit 2 21-31		60-63		28	41	353-355 364-366	154-156	4.3
3. The learner will describe basic geologic processes and predict how these processes are factors in the ever-changing face of the Earth. Key concepts include: a) The rock cycle b) Fossils and the changing Earth c) Geologic processes including continental drift , volcanoes, earthquakes, weathering, and erosion	112-125 151-152	Unit 2 21-31	Les. 5	70-73	7 (q 3, 4) 22 (q 3) 33 (q 30)		9 33-35	347-352 361-368		4.1 4.2
4. The learner will interpret basic information from weather maps, charts, & imagery & recognize the effects of weather phenomenon and climate on human activities. Key concepts include: a) Influence of the sun on weather b) The water cycle c) Factors affecting climate d) Earth's season	126-133	Unit 2 21-31	Les. 2	64-65	9 (q 3, 4) 27 (q 7) 31 (q 24) 37 (q 48) 30	28 31 36-37	13 16-17 22 26-27 8 10 33-35	356-363	110-111 112-113	4.1

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5. The learner will understand that oceans are complex, interactive systems that have a major impact on the climate, environment , and life of humankind. Key concepts include: a) Effects of the oceans on weather, climate, and the environment b) Tides and currents, such as El Nino c) Effects of the oceans on human activities d) Effects of human activities on the oceans	126 130 206-207	Unit 2 21-31	Les. 2		7 (q 3) 19 (q 3, 4) 34 (q 36) 30	31 36-37	33-35	369-384		4.4
6. The learner will comprehend the basic theories of the origin & characteristics of the Earth & Solar System . Key concepts include: a) Formation of the Universe , including the Big Bang Theory b) Position of the Earth, planets, and other spatial bodies in the Solar System c) Relationships among the Sun, Earth, and moon (tides, eclipses , seasons)	143-149	Unit 2 21-31	Les. 1 Les. 3 Les. 6	76-83 122-125	35 (q 41) 3 (q 3,4) 34	24-25	27 32	370-371 379-381	106-107 108-109 114-115 116-117 157-159	
7. The learner will compare and differentiate renewable resources from non-renewable resources . Key concepts include: a) Fossil fuels b) Alternative energy sources c) Water & soil conservation, including watershed systems such as the Chesapeake Bay d) Recycling, pollution, and depletion	134-141	Unit 2 21-31	Les. 4	66-69	33 (q 32, 33)	34-35	17	120-123 330-332	110-111	5.2

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Content Area: Life Science

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1. The learner will identify the components of cells , comprehend the organization of cells, and understand how cellular components function. Key concepts include: a) Structure of cell and its organelles b) Meiosis & mitosis c) Difference between plant & animal cells d) Life functions that are the end result of cellular functions	34-42	Unit 1 4-20	Les. 1	18-21 46-49	29 (q 16) 36 (q 46)		25-36	164-170 175-178	42-42 48-49 144-145	3.1
2. The learner will know the characteristics of living things and recognize the basic needs of organisms that must be met to supply energy needed for life processes. Key concepts include: a) Photosynthesis b) Respiration	44-49 91	Unit 1 4-20	Les. 2 Les. 3	46-49		32-33	25-36	168	146-149	3.5
3. The learner will understand how and why organisms are classified, and will apply that knowledge in using a dichotomous key . Key concepts include: a) Comparing & contrasting physical traits that scientists use to classify organisms b) Using a simple dichotomous key	74-81	Unit 1 4-20		46-49			25-36	175-199	50-51 52-53	1.1

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4. The learner will analyze the complex relationship between the living and non-living elements of Earth's environment by looking at the basic cycles that take place in ecosystems . Key concepts include: a) Concept of an ecosystem b) Energy flow that keeps an ecosystem c) Interlinked cycles of nitrogen, water, & carbon	90-97	Unit 1 4-20	Les. 7	46-49	33	36-37 41	13-16	96-97	149	3.4
5. The learner will understand that organisms within an ecosystem are dependent upon one another and on the non-living components of the environment, and apply this information to become aware of how man fits into this complex relationship. Key concepts include: a) Food webs b) Energy flow in ecosystems	82-89	Unit 1 4-20	Les. 5 Les. 7	46-49	28 (q 12) 33	21 27	25-36	206-208	58-59	3.4 3.5
6. The learner will comprehend the complex relationship between humans and the world they live in, and assess the impact that humans have on the ecosystem. Key concepts include: a) Overpopulation b) Environmental quality c) Human impact & interdependence on other organisms	89-90 95-96 98	Unit 1 4-20	Les. 7 Les. 8	50-53 106-109	30 (q 20-22) 35 (q 38) 5 (q 3) 33	28	13 16-17 9 33-35 41	120-138	54-55 56-57 60-61 66-67 68-69	3.4
7. The learner will examine how organisms pass their traits on to new generations, and identify the connection between genes and the traits expressed by those genes. Key concepts include: a) Mendelian laws of inheritance b) The role of DNA & RNA in the makeup of genes & chromosomes c) The role of dominant & recessive genes in the expression of physical traits	36-37 40-41 50-57	Unit 1 4-20	Les. 9			11 16 18		171-174	44-45 150-151	3.2

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8. The learner will examine & evaluate the various factors that cause organisms to change over time. Key concepts include: a) Mutation b) Adaptation c) Natural selection d) Extinction	74-81	Unit 1 4-20	Les. 10	42-45	29 (q 15)		15	209-212 364-365	52-53 152-153	3.3
9. The learner will understand basic human anatomy & identify the connection between healthy habits and physical & mental well-being. Key concepts include: a) Basic human biology b) Wellness/ fitness c) Nutrition d) Disease e) Safety f) Affect of choices on human health	58-73	Unit 1 4-20	Les. 11 Les. 12 Les. 13	22-41	11 (q 3) 13 (q 1) 27 (q 6, 8) 34 (q 35) 20 22 27 (q 1, 2) 38	21 26 44	4 6-7 13 15 18 20-21 23 25 28-29 36-37 44	115-119 221-253	62-63 64-65 70-71	5.1

Content Area: Physical Science

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1. The learner will explore the composition & interactions of the modern model of atomic & molecular structure , and apply that knowledge in understanding how molecular structure affects every aspect of our lives. Key concepts include: a) The Periodic Table b) Protons, neutrons, & electrons c) The Law of Conservation of Matter d) Basic chemical bonds & formulas	166-181	Unit 3 32-49	Les. 7 Les. 8 Les. 9 Les. 10 Les. 15	90-93 100-103	9 (q 1) 11 (q 1) 13 (q 3, 4) 38 (q 42) 24	3 6 7 45		258-274	140-143	2.1 2.2

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2. The learner will utilize the concept of the modern model of atomic & molecular structure to demonstrate comprehension of the basic nature of matter, reactions, & energy . Key concepts include: a) States of matter b) Types of reactions, reactants, & products Law of Conservation of Energy	156-165	Unit 3 32-49	Les. 7 Les. 9 Les. 10	94-97 106-109 132-135	17 (q 3, 4) 36 (q 45) 15 (q 1,2,3) 16 24	21-23 31 36-37		276-286 305-307	178 98-99	2.3 2.5
3. The learner will define the Laws of Motion & apply these laws in everyday life situations. Key concepts include: a) Newton's 1st, 2nd, and 3rd Laws of Motion b) How these laws relate to mass, work, & force	182-197	Unit 3 32-49	Les. 11 Les. 12	122-125	26 (q 4) 34 (q 37) 37 (q 49) 8		61-72	292-304	94	2.4
4. The learner will compare & contrast the basic types of waves , their characteristics, and functions. Key concepts include: a) Amplitude b) Wavelength c) Crest d) Longitudinal, transverse, & electromagnetic waves	206-217	Unit 3 32-49	Les. 13	116-119 126-129	5 (q 3, 4) 26 (q 1) 37 (q 50)	45	61-72	308-314		2.6
5. The learner will understand the basic principles of electricity and magnetism, and apply this knowledge to daily life situations. Key concepts include: a) Static electricity b) Current electricity c) Circuits d) Voltage e) Magnetic fields f) Conductors	198-205	Unit 3 32-49	Les. 14		10 29 (q 1)	28	61-72	315-325	97	2.6