Space and Earth Science, 3rd Edition
Lesson Plan Overview

Day(s)	Topic	Pages	Support Materials	Bible Integration**
Unit 1: Foundations				
Chapter 1: Natural Sciences and the Christian				
1	1A Science and Faith	3–6		Develop the idea that all knowledge (and thus, all science) is based on faith. Emphasize the importance of placing faith in God as the Creator and in the infallibility of His Word. Contrast science with scientism.
2	1B The Christian Worldview and Science	7–14	Applications 1A: The First Law of Thermodynamics	Discuss how crucial it is that Christians have a truly biblical worldview. Develop the three central ideas of the Christian worldview: Creation, the Fall, and Redemption.
3	Investigation 1C Clear Thinking*			
4–5	1C Right and Wrong Science	15-25	Applications 1B: Philosophy of Science	Discuss the process of scientific methodology, emphasizing that theories and models are not categorically true but are only working representations that account for the facts observed. Review the limitations of science.
6	Investigation 1D: Finding Fallacies in an Evolutionary Essay*			
7	Chapter 1 Review			
8	Chapter 1 Test			
Chapter 2: The Earth's Motions				
9–10	2A Does the Earth Move?	29-37	Applications 2A: Geocentric and Heliocentric Theories Applications 2B: The Earth's Rotation Investigation 2E: The Foucault Pendulum* Start Investigation 2H: The Solar Day vs. the Sidereal Day*	Highlight Johann Kepler's work in astronomy and his Christian testimony. Help students know how to resolve what appears to be a contradiction between scientific theories and the Bible.
11–12	2B Evidence That the Earth Moves	38–47	Applications 2C: Scientists Who Helped Discover the Earth's Motions Applications 2D: The Seasons	Help students refute the claim that the book of Genesis and science cannot be reconciled.
13	Investigation 2F: Measuring the Earth*			
14	Investigation 2G: Time of Day: Ancient and Modern*			
15	Chapter 2 Review			

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16	Chapter 2 Test			
Unit 2: The Celestial Sphere				
Chapter 3: The Glory of the Stars				
17–18	3A Tools for Studying the Stars	53–63	Applications 3A: Early Astronomical Devices Applications 3B: Telescopes	Inspire students to consider their worth to God in light of Genesis 1, even when considering the vastness of space, which sometimes makes us feel insignificant.
19	Investigation 3G: Curved Lenses and Mirrors*			
20	Investigation 3H: Constructing a Paper-Towel-Tube Telescope*			
21–22	3B Mapping the Stars	64–67	Applications 3C: Areas in the Sky Applications 3D: Astronomical Geography	
23	Investigation 3I: Constructing and Using a Constellation Finder*			
24–25	3C Describing the Stars	68–79	Applications 3E: Star Characteristics Applications 3F: Types of Galaxies and Nebulae	Discuss 1Cor. 15:41, which talks about the different kinds of stars which can be classified. Evaluate assumptions that scientists make when using the speed of light in determining the size and age of the universe. Expose students to the relationships between quasars and galaxies that could easily fit into Creationary theories.
26	Investigation 3J: Measuring Distances to Faraway Objects*			
27	Investigation 3K: Calculating the Distance of Proxima Centauri*			
28	Chapter 3 Review			
29	Chapter 3 Test			
Chapter 4: The Sun				
30	4A General Description of the Sun	83–87	Applications 4A: General Description of the Sun Applications 4B: Electromagnetic Spectrum	Emphasize to your students that the sun is special because God designed it to make life on Earth possible.
31–32	4B The Sun's Structure	88–94	Applications 4C: Structure of the Sun	Teach students how to interpret data and make models. Expose them to the benefits and dangers of extrapolation when creating models. Train students to identify the assumptions and poor logic of scientists asserting their evolutionary worldviews about the origin of stars and specifically the sun.

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33	Investigation 4E: Distance to the Sun* or Investigation 4G: Observing the Sun*			
34	4C Harnessing Solar Energy	95–97	Applications 4D: Characteristics of the Sun	Discuss how discovering alternate energy sources like solar energy is an example of fulfilling the Creation Mandate.
35	Investigation 4F: Measuring Solar Heat*			
36	Chapter 4 Review			
37	Chapter 4 Test			
Chapter 5: The Planets				
38	5A Characteristics of the Planets	101–103	Applications 5B: Characteristics of Planets Applications 5C: Features of Planets	
39	Investigation 5E: Kepler's First Law* and Investigation 5F: Kepler's Second Law*			
40	Investigation 5G: Kepler's Third Law*			
41–42	5B Classifying the Planets	104–106	Applications 5A: Classification of the planets	
43	Investigation 5D: Retrograde Motion*			
44	5C Close-up of the Planets	106–118		Engage your students as you discuss the planets and their various characteristics to direct worship to the Creator for the works of His hands. Direct students to evaluate anomalies in the solar system which pose real problems to an evolutionary origin of the solar system.
45	Investigation 5I: Planetary Distance*			
46	Investigation 5H: Planetary Sizes*			
47	5D Origin of the Planets	119–121		Discuss SETI and the possibility of alien life forms and what the Bible has to say about it.
48	Chapter 5 Review			
49	Chapter 5 Test			
Chapter 6: Asteroids, Comets, and Meteors				

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50	6A Minor Planets	125–130	Applications 6A: Minor Planets	Evaluate current theories of the origin of the minor planets in the light of Scripture. Discuss the work of naming and classifying astronomical bodies as the work of the Creation Mandate. Engage your students in a discussion of a future asteroid impact in light of Revelation 8.
51	6B Comets	131–136	Applications 6B: Structure of a Comet Applications 6C: Famous Comets	Evaluate the Oort cloud hypothesis of the origin of comets.
52	6C Meteors and Meteorites	137–141	Applications 6D: Meteors Applications 6E: Review: Minor Planets, Comets, Meteors	
53	Investigation 6F: Halley's Comet* and Investigation 6G: Finding the Radiant of the Leonids*			
54	Chapter 6 Review			
55	Chapter 6 Test			
Chapter 7: The Moon				
56–57	7A Description of the Moon	145–150	Applications 7A: Conditions on the Moon Applications 7B: Description of the Moon Investigation 7H: Mapping the Moon*	Put the information in this chapter in context by discussing how the moon is unique and specially created for Earth's needs.
58	Investigation 7F: Determining the Moon's Distance*			
59–60	7B The Moon's Motion	151–158	Applications 7C: The Moon's Motions Investigation 7G: The Moon's Orbital Speed* Applications 7D: Features of the Moon Applications 7E: Eclipses	Get students to see how man exercises dominion through his use of the moon for timekeeping.
61	Investigation 7I: The Moon's Phases*			
62	7C The Moon's Origin	159–161		Evaluate evolutionary theories of the moon's origin.
63	Chapter 7 Review			
64	Chapter 7 Test			

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Chapter 8: Space Exploration				
65	8A Rocketry	165–167	Applications 8A: Rocket History	
66	Investigation 8F: Forces and Balloon Rockets*			
67	8B Unmanned Space Programs	168–176	Applications 8B: Satellite Orbits	Discuss how worldview affects space exploration, both in what we choose to investigate and how we interpret what we find. Prompt students to analyze the risks we take in exploring space and how that relates to worldview. Engage the class in a discussion of the question, "Is there a biblical justification for space exploration?"
68	8C Manned Space Programs	177–187	Applications 8C: Space Programs Applications 8D: Man in Space Applications 8E: The Lunar Landing	
69	Investigation 8G: Model Rocket Project* and Investigation 8H: The Altitude and Speed of a Model Rocket*			
70	Chapter 8 Review			
71	Chapter 8 Test			
Unit 3: The Atmosphere				
Chapter 9: Introduction to Meteorology				
72–73	9A Structure of the Atmosphere	193–202	Applications 9A: Composition of the Atmosphere Applications 9B: Structure of the Atmosphere	Get students to describe where the atmosphere came from and how it changed from the book of Genesis.
74	9B Energy in the Atmosphere	203–204	Applications 9C: The Atmosphere and Energy from the Sun	Put this chapter in context by discussing how Earth's atmosphere is designed to support life.
75	9C Weather and Its Description	205–209	Applications 9D: The Conditions of the Atmosphere	
76	Investigation 9E: The Effect of Temperature on the Volume of Air in a Balloon*			
77	Investigation 9F: The Effect of Air Pressure on Boiling Point*			
78	Chapter 9 Review			
79	Chapter 9 Test			
Chapter 10: Atmospheric Water				
80	10A Water Entering the Atmosphere	213–214	Applications 10A: Changes In State	Begin this chapter by focusing on how God provides for His creation through atmospheric water.
81	Investigation 10D: Evaporation and Condensation*			
82	10B Water in the Atmosphere	215–221	Applications 10C: Types of Clouds	

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83	10C Water Leaving the Atmosphere	222–227	Applications 10B: Precipitation	Discuss Gideon's test in Judges 6 and why this was miraculous. Help your students understand how God is sovereign over the weather.
84	Investigation 10E: Measuring Dew Point* and Investigation 10F: Cloud Formation*			
85	Chapter 10 Review			
86	Chapter 10 Test			
Chapter 11: Movement in the Atmosphere				
87	11A Air Masses	231–234	Applications 11A: Air Masses and Fronts Applications 11B: Air Masses	
88	Investigation 11G: Solar Heating of the Earth*			
89	Investigation 11I: Understanding Fronts and Air Masses*			
90	11B Winds	234–240	Applications 11C: Global Wind Patterns	Emphasize to your students that air movement is an example of how God bestows His goodness on the earth through rain and moderated temperatures. See if you can get students to give you some examples of how we can have dominion over the winds by using them.
91–92	11C Storms	241–253	Applications 11D: High- and Low-Pressure Zones Applications 11E: Lightning	
93	Investigation 11H: Hurricane Tracking*			
94	Chapter 11 Review			
95	Chapter 11 Test			
Chapter 12: Weather Prediction				
96–97	12A Gathering Weather Information	257–269	Applications 12A: Thermometers Applications 12B: Barometers	Make the comparison with your students between fiducial points on a thermometer and uncompromising standards in their spiritual lives.
98	12B Reporting Weather Information	269–271	Applications 12C: Weather Measurement	
99	12C Analyzing Weather Information	272–274	Applications 12D: Station Model	

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100	12D Forecasting the Weather	275–277	Applications 12E: Weather Maps Applications 12F: Isobars Do the investigations for this chapter along with instruction. Investigation 12G: A Simple Thermometer* Investigation12H: Making a Simple Barometer* Investigation 12I: Measuring Relative Humidity* Investigation 12J: Measuring Precipitation* Investigation 12K: Weather Prediction Project*	Read Matthew 16:1–4 with your students and examine Christ's analogy of discerning the skies and discerning spiritual truths.
101	Chapter 12 Review			
102	Chapter 12 Test			
Unit 4: The Lithosphere				
Chapter 13: Introduction to Geology				
103	13A The Earth's Design	337–339	Applications 13A: What is Geology?	Use the evidences of Earth's design to draw your students to worship the Creator. Engage your class in an in-depth discussion about the strengths and weaknesses of the Intelligent Design movement. Spend some time analyzing the Canopy theory.
104	13B The Earth's Structure	340–343	Applications 13B: The Earth's Interior Applications 13C: The Structure of the Earth	Guide your students in a discussion of the interior of the earth and the nature of hell.

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105–106	13C The Earth's History	344–357	Applications 13D: The Earth's History according to Creationists Applications 13E: Uniformitarianism Applications 13F: Dating the Earth Applications 13G: Three Methods of Dating the Earth	This whole section is a wonderful opportunity for worldview shaping. Lead students to evaluate both the evolutionary and the creationary stories of Earth's history. Note the similarities and the differences in these stories. Use the images and resources on page 348 to get students to think deeply about the Flood and what it was like. Help students analyze the assumptions scientists make when using radioactive dating and dendochronology.
107	Investigation13H: The Radiocarbon Method*			
108	Chapter 13 Review			
109	Chapter 13 Test			
Chapter 14: Minerals and Ores				
110	14A Components of Minerals	361–363	Applications 14A: Types of Matter	Get students to evaluate mining as part of the Creation Mandate. Have students give some examples of minerals in Scripture.
111–112	14B Identifying Minerals	364–369	Applications 14B: Mineral Tests Investigation 14D: Accretion of Crystals* Investigation 14E: Accretion of Crystals—Going a Step Further*	
113	Investigation 14F: Properties of Minerals*			
114–115	14C Minerals in Nature	370–381	Applications 14C: Elements and Compounds	
116	Chapter 14 Review			
117	Chapter 14 Test			
Chapter 15: Rocks and Fossils				
118	15A Introduction to Rocks	385–387	Applications 15A: Classification of Rocks	Analyze the Evolutionary Rock Cycle with your students.
119–120	15B Sedimentary Rocks	388–402	Applications 15B: Fossils	Help your students make connections between sedimentary rocks, fossils, and the Flood. Challenge students to expose the lack of fossil evidence for biological evolution.
121	Investigation 15E: Fallacies of the Geologic Time Scale* Investigation 15F: "Trilobite-ology"*			

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122	15C Igneous Rocks	402–405		
123	15D Metamorphic Rocks	406–409	Applications 15C: Characteristics of Rocks	Draw parallels between the properties of rock and the characteristics of a person who builds his life on Christ (Matt. 7:24–25).
124	Investigation 15D: Properties of Rocks*			
125	Chapter 15 Review			
126	Chapter 15 Test			
Chapter 16: Mountains and High Hills				
127	16A Describing Mountains	413–416	Applications 16A: Elevation, Actual Height, and Relief	
128	Investigation 16E: Making a Model and Relief Map of a Mountain* Investigation 16F: Making a Vertical Map of a Mountain*			
129	16B Types of Mountains	417–426	Applications 16B: Types of Mountains Applications 16C: Describing Mountains	Have students give examples of mountains in the Bible. Inspire your students by showing how mountains are testimonies to God's judgment on sin, but also to His divine redemption.
130	Investigation 16G: Topographic Maps* Investigation 16H: Mountains*			
131	16C Plate Tectonics Models	426–435	Applications 16D: Formation of Mountains (Orogeny)	Help students expose the assumptions of uniformitarian plate tectonics and evaluate the theories they support. Have students analyze catastrophic plate tectonics.
132	Chapter 16 Review			
133	Chapter 16 Test			
Chapter 17: Earthquakes and Volcanoes				
134–135	17A Earthquakes	439–448	Applications17A: Earthquake Effects Applications 17B: Earth Waves	Link efforts to mitigate earthquake hazards with Christ's second great commandment to love our neighbors as ourselves.
136	Investigation 17G: Seismoscope* Investigation 17H: Finding the Epicenter of an Earthquake*			
137–138	17B Volcanoes	449–458	Applications 17C: Volcano Structure Applications 17D: Volcano Activity Applications 17E: Famous Volcanoes	Help students visualize how earthquakes and volcanoes shook the earth during the beginning stages of the Flood. Help students make connections between extinct volcanoes and the Flood.
139	Investigation 17I: Types of Volcanoes*			

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140	17C Heated Groundwater	459–461	Applications 17F: Heated Ground Water	
141	Chapter 17 Review			
142	Chapter 17 Test			
Chapter 18: Weathering, Mass Wasting, and Erosion				
143–144	18A Weathering	465–470	Applications 18A: A Degenerating Earth Applications18B: Chemical and Mechanical Weathering Applications 18C: Soil Science	Mention Hebrews 1:11 in connection with weathering, mass wasting, and erosion. Link Levitical laws which regulated farming with erosion prevention methods (Lev. 25–26).
145	Investigation 18F: Soil Composition*			
146	18B Mass Wasting	470–472	Applications 18D: Mass Wasting	
147	Investigation 18G: Erosion*			
148	18C Stream Erosion	472–479	Applications 18E: Stream Erosion	Inspire your students to be conservationists by featuring scientific careers like erosion prevention as part of fulfilling the Creation Mandate.
149	Chapter 18 Review			
150	Chapter 18 Test			
Unit 5: The Hydrosphere				
Chapter 19: The Oceans and Seas				
151	19A Description of the Oceans	485–490	Applications 19F: Ocean Basins Applications 19B: Wave Motions Applications 19E: Ocean Topography Applications 19G: Coral Reefs	Lead students to analyze theories of the formation of ocean floor features in light of a Christian worldview.
152	19B Composition of Seawater	490–493	Applications 19A: Wave Structure Applications 19C: Wave Erosion and Deposition Applications 19D: Ocean Currents	Lead students to analyze theories of the origin of seawater in light of a Christian worldview. Inspire students to think of the science and technology of hydrology as a means of serving others, specifically by providing good drinking water for people in needy places.
153	Investigation 19I: Desalting Seawater*			
154–155	19C Ocean Motions	494–506		

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156	Investigation 19J: Examining Density Currents*			
157	19D Ocean Exploration	507–513	Applications 19H: Oceans Review	Stimulate student discussion on the benefits and risks of ocean exploration in light of the value of human life.
158	Chapter 19 Review			
159	Chapter 19 Test			
Chapter 20: Glaciers				
160	20A What Is a Glacier?	517–522	Applications 20A: Glacier Structure Applications 20B: Types of Glaciers	Use statements about ice from the book of Job to set the stage for this chapter.
161	20B Glacial Movement and Erosion	523–528	Applications 20C: Effects of Glaciers Applications 20D: Glacial Deposits	Help students reconcile how features of the earth (like glaciers) linked to God's judgment by the Flood also remind us that He can have mercy on His children.
162	Investigation 20F: Glacial Erosion* Investigation 20G: Representative Glaciers*			
163	20C The Ice Age	529–533	Applications 20E: Glacier Review	Stimulate students to reconcile evidence for an ice age with the Bible narrative.
164	Chapter 20 Review			
165	Chapter 20 Test			
Chapter 21: The Groundwater System				
166	21A Underground Reservoir	537–541	Applications 21A: The Hydrologic Cycle Applications 21B: Groundwater Applications 21C: Hard and Soft Water	Help students work through the quandary that God has provided an earth where so little of its water is drinkable.
167	Investigation 21E: Permeability*			
168	Investigation 21F: Mineral Water*			
169	21B Groundwater's Dissolving Power	542–543		
170–171	21C Groundwater Erosion	544–551	Applications 21D: Karst Topography Investigation 21G: Stalactites and Stalagmites* Investigation 21H: Solution of Limestone*	Inspire students to see and value beauty in Earth's formations, even in caves which are probably the result of God's judgment in the Flood.
172	Chapter 21 Review			
173	Chapter 21 Test			

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