

## Integrated Science - Freshman Level

CONCEPT	SKILLS	LEVEL	CHAPTER	TEACHING NOTES	STATE GOALS
<b>I. Humans and Heredity</b>					
	1. Introduction to Science	P,M	1	Labs on Scientific Method,	11A4a,4b,4c,4f
	2. Scientific Method	P,M	1	measurement, genetics and	12A4a,4b,4c
	3. Science and Technology	I,P	1	inheritance. Also activities	13A4b,4c
	4. Traits and the Environment	I,P	2	that include relationship with	
	5. Genetics and the mechanism of inheritance	I,P	2	the environment, and human	
	6. Impact of environment on living things	I,P	2	anatomy.	
	7. Understand the human organism	I,P	3		
	8. Understand how the body works	I,P	3		
<b>II. Ecology</b>					
	1. Learn how life interacts with the planet Earth	I,P	4	Labs and activities will include	11B4a,
	2. Study populations of living things	I,P	4	a study on populations, analyze	12B4a,4b
	3. Learn how the populations adjust within an ecosystem	I,P	4	the non-living factors, and	12A4c
	4. Study the non-living factors in an environment	I,P	5	activities on energy and	
	5. Learn about the many cycles that exist in nature	I,P	5	the creation of biomes by	
	6. Understand how energy moves through an ecosystem	I,P	5	the students	
	7. Study how ecosystems change	I,P	6		
	8. Learn about the many biomes that exist on Earth	P,M	6		
	9. Study the man aquatic ecosystems	P,M	6		
<b>III. Earth's Changes over Time</b>					
	1. Learn about Continental Drift and Sea-Floor spreading and how those theories were expanded upon	P,M	7	Labs will be conducted to help students understand the	11A4c,4e,4f 11B4a,4b,4c
	2. Study the Theory of Plate Tectonics	P,M	7	relationship between plate	12E4a,4b
	3. Earthquakes and Volcanoes, and their relationship with plate tectonics	P,M	8	tectonic and the changes that have occurred over time. They	13B4a,4b,4c,4d,4e
	4. Fossils, and how we date rocks through relative and absolute dating	P,M	9	also complete an activity to help them understand the	
	5. Learn about the history of the Earth, and the concept of geologic time	P,M	10	concept of geologic time. We are going to move towards a	
	6. Will learn about the forces that caused the Earth to change, and caused mass extinctions	P,M	10	mastery of these topics.	
<b>IV. Earth's Place in the Universe</b>					
	1. Learn about Earth as a planet	P,M	11	The labs and activities in this	11A4a,4b,4c,4e
	2.. Understand the relationship between the Earth and our Moon.	P,M	11	unit will focus on the use of models in science to study	11B4b,4c, 12F4a,4b,5a,5b
	3. Will understand how the phases of the moon occur	P,M	11	things that are too large, too	12D4a,4b,12C4a,4b

and how an eclipse happens		far away, and too dangerous to	13A4a,4c,4d
4. Will learn about the Solar System that the Earth is a part of	P,M	12 study up close. We are going to move towards a mastery	13B4b,4d,4e
5. Understand the different classifications of planets	P,M	12 of these topics.	
6. Will study the many objects that orbit the sun but are not a planet or a moon	P,M	12	
7. Will learn the processes that allow the formation of a new star and star system	I,P	13	
8. Students will study galaxies, and the universe	I,P	13	
9. Understand the life cycle and death of a star	I,P	13	
10. Will study the composition of our sun.	I,P	13	

## V. Chemistry of Matter

1. Explain discoveries of sub-atomic particles	I, P	14 Labs & activities will be	11.A.4b, 4c, 4d
2. Explain development of modern atomic model.	I, P	14 conducted to introduce students	12.C.4a, 4b
3. Describe structure of nuclear atom	I, P	14 to the world of chemistry and	13.A.4a, 4c,4d
4. Explain all matter is made up of atoms	I, P	14 its part in the world around	13.B.4d,13.B4e
5. Describe process of radioactive decay.	I	14 them.	
6. Describe how radioactive isotopes are used.	I, P	14	
7. Describe history of Periodic Table.	I, P	15	
8. Interpret an element box on Periodic Table.	I, P, M	15	
9. Explain & describe organization of Periodic Table	I, P	15	
10. Describe properties & identify uses of representative elements.	I, P	15	
11. Classify elements into families based on properties.	I, P	15	
12. Describe properties & uses of transition metals.	I, P	15	
13. Identify arrangement of electrons in atoms.	I, P	16	
14. Compare arrangement of electrons to position of elements in the Periodic Table.	I, P	16	
15. Compare & contrast ionic bonds.	I, P	16	
16. Distinguish between molecules & compounds.	I, P	16	
17. Interpret chemical shorthand.	I, P	16	

## VI. Metric System

1. Explain concept of metric system & use in science.	I, P, M	Students will become proficient in the use of the metric system and converting from one unit to another.
2. Practice the metric number line and relationships between different units of metric measurement.	I, P, M	
3. Drill students on metric conversions.	I, P, M	

## VI. Motion, Forces, and Energy

1. Define distance, speed, & velocity. Work problems.	I, P	18 Students will be doing activities	12.5D.4a,4b
2. Graph motion.	I, P	18 & labs to help them understand	13.A.4a,4d
3. Define acceleration & work problems.	I, P	18 the listed concepts. There will	

4. Predict the effect acceleration will have on motion.	I, P	18 a lot of math in this unit.
5. Define momentum & work problems.	I, P	18 Non-graphing, scientific
6. Predict motion using the law of conservation of momentum.	I, P	18 calculators are needed for this unit.
7. Distinguish between balanced & net forces.	I, P	19
8. Describe Newton's 1st law of motion.	I, P	19
9. Explain how friction affects motion.	I, P	19
10.Explain Newton's 2nd law of motion & work problems.	I, P	19
11.Explain why direction of force is important.	I, P	19
12.Identify the relationship between forces objects exert on each other.	I, P	19
13.Recognize when work is done.	I, P	20
14.Calculate the amount of work that is done.	I, P	20
15.Explain relationship between work & power.	I, P	20
16.Do calculations for work & power.	I, P	20
17.Explain how machines make work easier.	I, P	20
18.Calculate mechanical advantages & machine efficiency	I, P	20
19.Explain how friction affects efficiency	I, P	20
20.Distinguish the 6 types of simple machines.	I, P	20
21.Calculate mechanical advantage of simple machines.	I, P	20

## VII. Physical Interactions

We will introduce the concepts of electricity, magnetism, waves, sound & light if time permits at the end of the school year.	I	22,23,25
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Current Textbook  
 Glencoe Science, Level Blue  
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