(NGSS in Parentheses)

Grade	Big Idea	Essential Questions	Concepts	Competencies	Vocabulary	2002	SAS	Assessment
						Standards	Standards	Anchor Eligible
6-8	The universe is	What is the universe, and what	The phases of the Moon are	Identify and explain monthly patterns	Orbit	3.4.4.D	3.3.4.B2	S8.A.1.1
	composed of a variety	is Earth's place in it?	caused by the orbit of the	in the phases of the Moon.	Pattern	3.1.7.A		S8.A.1.2
	of different objects,		moon around the Earth.		Phase	3.1.7.B		S8.A.1.3
	which are organized		(ESS1.A)		Waning	3.1.7.C		S8.A.2.1
	into systems, each of				Waxing	3.1.7.D		S8.A.2.2
	which develops					3.2.7.A		S8.A.3.1
	according to accepted					3.2.7.B		S8.A.3.2
	physical processes and					3.2.7.C		S8.A.3.3
	laws.					3.2.7.D		S8.D.3.1.1
6-8	The universe is	What is the universe, and what	The phases of the Moon are	Use a model of the relative positions of	Orbit	3.4.4.D	3.3.6.B2	S8.A.1.1
	composed of a variety	is Earth's place in it?	caused by the orbit of the	the sun, earth and moon to explain the	Pattern	3.1.7.A		S8.A.1.2
	of different objects,		moon around the Earth.	phases of the moon.	Phase	3.1.7.B		S8.A.1.3
	which are organized		(ESS1.A)		Waning	3.1.7.C		S8.A.2.1
	into systems, each of				Waxing	3.1.7.D		S8.A.2.2
	which develops					3.2.7.A		S8.A.3.1
	according to accepted					3.2.7.B		S8.A.3.2
	physical processes and					3.2.7.C		S8.A.3.3
	laws.					3.2.7.D		S8.D.3.1.1
6-8	The universe is	What is the universe, and what	Observable patterns and	Use models of the Earth-Sun-Moon	Gravity	3.4.4.D	3.3.7.A4	S8.A.1.1
	composed of a variety	is Earth's place in it?	changes in tides are caused	system to support explanations and	Neap tide	3.1.7.A	3.3.6.B1	S8.A.1.2
	of different objects,		by the Earth-Moon-Sun	predict the cyclic patterns of tides.	Spring tide	3.1.7.B		S8.A.1.3
	which are organized		system. (ESS1.B)		System	3.1.7.C		S8.A.2.1
	into systems, each of				Tide	3.1.7.D		S8.A.2.2
	which develops					3.2.7.A		S8.A.3.1
	according to accepted					3.2.7.B		S8.A.3.2
	physical processes and					3.2.7.C		S8.A.3.3
	laws.					3.2.7.D		S8.D.3.1.1
<u> </u>	The success is	W/h at is the universe and what	Ohaan sahla aalin aan ana	Liss mandals of the Forth Own Mann	Lunar Falless	0.4.4.D	0.07.00	S8.D.3.1.2
6-8	I ne universe is	what is the universe, and what	Observable eclipses are	Use models of the Earth-Sun-Moon	Lunar Eclipse	3.4.4.D	3.3.7.B2	S8.A.1.1
	composed of a variety	is Earth's place in it?	caused by motions in the	system to support explanations and	Penumbra	3.1.7.A		S8.A.1.2
	of different objects,		Earth-Moon-Sun system.	predict the cyclic patterns of eclipses.	Solar Eclipse	3.1.7.B		S8.A.1.3
	which are organized		(ESST.A)		Umbra	3.1.7.0		58.A.2.1
	Into systems, each of					3.1.7.D		58.A.2.2
						3.2.1.A		50.A.3.1
	according to accepted					3.2.1.B		50.A.3.2
	physical processes and					3.2.7.0		50.A.3.3
	laws.					3.Z.1.D		30.0.3.1.1

## Middle School - Earth and Space Science

6-8	The universe is	What is the universe, and what	Earth's spin axis is fixed in	Use models of Earth's orientation and	Axis	3.4.4.D	3.3.4.B2	S8.A.1.1
	composed of a variety	is Earth's place in it?	direction and tilted relative to	motion to explain how changes in	Cyclical pattern		3.3.6.B2	S8.A.1.2
	of different objects		its orbit around the sun. The	intensity and duration of daily sunlight	Earth	3.1.7.A	3.3.7.B2	S8.A.1.3
	which are organized		seasons are a result of the	lead to seasons.	Orbit	3.1.7.B		S8.A.2.1
	into systems, each of		Earth's tilt on its axis and are		Orientation	3.1.7.C		S8.A.2.2
	which develops		caused by the differential		Position	3.1.7.D		S8.A.3.1
	according to accepted		intensity of sunlight on		Revolution	3.2.7.A		S8.A.3.2
	physical processes and		different areas of Earth		Rotation	3.2.7.B		S8.A.3.3
	laws.		throughout the year. (ESS1.B)		Season	3.2.7.C		S8.D.3.1.1
			<b>č ř</b> ( , ,		Tilt	3.2.7.D		
6-8	The universe is	What is the universe, and what	Earth's spin axis is fixed in	Identify and explain the position and	Axis	3.4.4.D	3.3.4.B2	S8.A.1.1
	composed of a variety	is Earth's place in it?	direction and tilted relative to	orientation of the Earth as it orbits the	Cyclical pattern	3.4.7.D	3.3.6.B2	S8.A.1.2
	of different objects		its orbit around the sun. The	Sun.	Earth	3.1.7.A	3.3.7.B2	S8.A.1.3
	which are organized		seasons are a result of the		Orbit	3.1.7.B		S8.A.2.1
	into systems, each of		Earth's tilt on its axis and are		Orientation	3.1.7.C		S8.A.2.2
	which develops		caused by the differential		Position	3.1.7.D		S8.A.3.1
	according to accepted		intensity of sunlight on		Revolution	3.2.7.A		S8.A.3.2
	physical processes and		different areas of Earth across		Rotation	3.2.7.B		S8.A.3.3
	laws.		the year. (ESS1.B)		Season	3.2.7.C		S8.D.3.1.1
					Tilt	3.2.7.D		S8.D.3.1.2
6-8	The universe is	What is the universe, and what	Earth and its solar system are	Construct and use scale models to	Galaxy	3.4.7.D	3.3.6.B1	S8.A.1.1
	composed of a variety	is Earth's place in it?	part of the Milky Way Galaxy,	describe the relationship of Earth to	Moon	3.1.7.A	3.3.5.B1	S8.A.1.2
	of different objects,		which is one of many galaxies	the rest of the solar system, the Milky	Satellite Solar	3.1.7.B	3.3.7.B1	S8.A.1.3
	which are organized		in the universe. (ESS1.A)	Way Galaxy, and the universe.	system	3.1.7.C	3.3.7.B2	S8.A.2.1
	into systems, each of				Universe	3.1.7.D	3.3.8.B1	S8.A.2.2
	which develops					3.2.7.A		S8.A.3.1
	according to accepted					3.2.7.B		S8.A.3.2
	physical processes and					3.2.7.C		S8.A.3.3
	laws.					3.2.7.D		S8.D.3.1.1
								S8.D.3.1.2
					A / 11	0.475	0.05.54	S8.D.3.1.3
6-8	The universe is	What is the universe, and what	Our solar system is a	Construct and use scale models of the	Asteroids	3.4.7.D	3.3.5.B1	S8.A.1.1
	composed of a variety	is Earth's place in it?	collection of objects, including	solar system to support the	Gravity	3.1.7.A	3.3.6.B1	S8.A.1.2
	of different objects,		planets, their moons, and	explanation of the role of gravity in the	Moon	3.1.7.B	3.3.7.A4	S8.A.1.3
	which are organized		asteroids that are held in orbit	motions of the planets of the observed	Satellite	3.1.7.0	3.3.7.B1	S8.A.2.1
	Into systems, each of		around the Sun by its	system.	Solar system	3.1.7.D	3.3.6.B2	S8.A.2.2
	which develops		(ree p)			3.2.7.A	3.3.7.BZ	58.A.3.1
	according to accepted		(ESS.B)			3.2.7.D	3.3.0.DI	50.A.3.2
						3.2.7.0		50.A.3.3
	10003.					3.Z.I.D		S0.D.3.1.1 S8 D 3 1 2
								00.0.3.1.2
							1	

## Middle School - Earth and Space Science

6-8	The universe is composed of a variety of different objects, which are organized into systems, each of which develops according to accepted physical processes and laws.	What is the universe, and what is Earth's place in it?	Our solar system is a collection of objects, including planets, their moons, and asteroids that are held in orbit around the Sun by its gravitational pull on them. (ESS1.B)	Analyze and interpret data to determine scale properties (i.e. distance from sun, diameter, etc.) of objects in the solar system.	Asteroids Gravity Moon Satellite Solar system	3.4.7.D 3.1.7.A 3.1.7.B 3.1.7.C 3.1.7.D 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.5.B1 3.3.6.B1 3.3.7.A4 3.3.7.B1 3.3.6.B2 3.3.7.B2 3.3.8.B1	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.3.1.1 S8.D.3.1.3
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. The energy is derived from the sun and the earth's interior. These flows and cycles produce chemical and physical changes in Earth's materials and living organisms.(ESS2.A)	Construct and analyze models to describe systems interactions among the geosphere, hydrosphere, atmosphere, and biosphere.	Atmosphere Biosphere Geosphere Hydrosphere	3.5.7.A 3.5.7.C 3.5.7.D 3.1.7.A 3.1.7.B 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.4.A4 3.3.4.A5 3.3.8.A1	S8.A.1.1   S8.A.1.2   S8.A.1.3   S8.A.2.1   S8.A.2.2   S8.A.3.1   S8.A.3.2   S8.A.3.3   S8.D.1.1.2   S8.D.1.1.3   S8.D.2.1.2
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. The energy is derived from the sun and the earth's interior. These flows and cycles produce chemical and physical changes in Earth's materials and living organisms.(ESS2.A)	Classify rocks as one of three different types and explain the interrelationship of the rock types as part of the rock cycle. (e.g., igneous: granite, basalt, obsidian, pumice; sedimentary: limestone, sandstone, shale, coal; and metamorphic: slate, quartzite, marble, gneiss).	Erosion Geosphere Igneous rock Metamorphic rock Rock cycle Sedimentary rock Weathering	3.5.7.A 3.1.7.A 3.1.7.B 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.4.A4 3.3.4.A5 3.3.7.A1	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.1.1.1
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. The energy is derived from the sun and the earth's interior. These flows and cycles produce chemical and physical changes in Earth's materials and living organisms.(ESS2.A)	Plan and carry out investigations that investigate models of the chemical and physical processes that cycle earth materials and form rocks.	Geosphere Energy flow Erosion Igneous Metamorphic Rock cycle Sedimentary Weathering	3.5.7.A 3.1.7.A 3.1.7.B 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.4.A4 3.3.4.A5 3.3.7.A1 3.3.8.A1	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.1.1.1 S8.D.1.1.2

6-8	The Earth is a complex	How and why is Earth	All Earth processes are the	Compare and contrast various soil	Biome	357A	334A4	S8 A 1 1
•••	and dynamic set of	constantly changing?	result of energy flowing and	types and their characteristics found in	Geosphere	317A	3 3 4 A5	S8 A 1 2
	interconnected systems	constantly shanging.	matter cycling within and	different biomes (e.g. regionally	Energy flow	317B	3 3 6 A2	S8 A 1 3
	(e.g. geosphere		among the planet's systems	nationally globally) and explain how	Erosion	317E	337A2	S8 A 2 1
	hydrosphere		The energy is derived from the	they were formed	Rock cycle	3274	0.0.7 .7 .2	S8 A 2 2
	atmosphere		sun and the earth's interior		Soil horizons	327B		S8 A 3 1
	biosphere) that interact		These flows and cycles		Weathering	3270		S8 A 3 2
	over a wide range of		produce chemical and physical		weathening	327D		S8 A 3 3
	temporal and spatial		changes in Earth's materials			J.2.7.D		S8 D 1 1 3
			and living organisms (ESS2 A)					50.D.1.1.5
6.9	The Earth is a complex	How and why is Earth	Water continually cyclos	Dovelop models for the movement of	Atmosphoro	257D	225 14	S9 A 1 1
0-0	and dynamic set of	constantly shanging?	among goosphore	water within the Earth's spheres (i.e.	Condensation	3.3.7.D 2.1.7 A	2.2.6 M	S0.A.1.1
	and dynamic set of	constantly changing?	among geosphere,	water within the Earth's spheres (i.e.,	Condensation	3.1.7.A	3.3.0.A4	S0.A.1.2
			nydrosphere, biosphere, and	geosphere, hydrosphere, biosphere,	Evaporation	3.1.7.D	3.3.6.A4	So.A.1.3
	(e.g. geosphere,		atmosphere via transpiration,	atmosphere).	Hydrosphere	3.1.7.E		58.A.2.1
	nydrosphere,		evaporation, condensation,		Inilitration	3.2.7.A		58.A.Z.Z
	atmosphere,		and precipitation. (ESS2.C)		Precipitation	3.2.7.B		S8.A.3.1
	biosphere) that interact				RUNOII	3.2.7.0		58.A.3.2
	over a wide range of				I ranspiration	3.2.7.D		58.A.3.3
	temporal and spatial				water Cycle			58.D.1.3.1
	scales.			<b>A</b>	water System			<b>0</b> 0 0 0 0 0
6-8	The Earth is a complex	How and why is Earth	Water continually cycles	Compare and contrast characteristics	Density	3.5.7.D	3.3.5.A4	S8.A.1.1
	and dynamic set of	constantly changing?	among geosphere,	of freshwater and saltwater systems	Freshwater	3.1.7.A	3.3.6.A4	S8.A.1.2
	Interconnected systems		hydrosphere, biosphere, and	on the basis of their physical	Hydrosphere	3.1.7.B	3.3.8.A4	S8.A.1.3
	(e.g. geosphere,		atmosphere via transpiration,	characteristics.	Salinity	3.1.7.E		S8.A.2.1
	hydrosphere,		evaporation, condensation,		Saltwater	3.2.7.A		S8.A.2.2
	atmosphere,		and precipitation. (ESS2.C)			3.2.7.B		S8.A.3.1
	biosphere) that interact					3.2.7.C		S8.A.3.2
	over a wide range of					3.2.7.D		S8.A.3.3
	temporal and spatial							S8.D.1.3.2
	scales.					0.5.7.5	00514	00.4.4.4
6-8	I ne Earth is a complex	How and why is Earth	vvater continually cycles	investigate water systems to identify	Flow rate	3.5.7.D	3.3.5.A4	S8.A.1.1
	and dynamic set of	constantly changing?	among geosphere,	seasonal and annual variations in	Hydrosphere	3.1.7.A	3.3.6.A4	58.A.1.2
	Interconnected systems		nyarosphere, biosphere, and	precipitation and streamtiow and the	Ocean systems	3.1.7.B	3.3.8.A4	58.A.1.3
	(e.g. geosphere,		atmosphere via transpiration,	causes of those variations.	KIVer systems	3.1.7.E		58.A.2.1
	nyarospnere,		evaporation, condensation,		vvatersned	3.2.7.A		58.A.2.2
	atmosphere,		and precipitation. (ESS2.C)		vvetland	3.2.7.B		S8.A.3.1
	biosphere) that interact					3.2.7.C		S8.A.3.2
	over a wide range of					3.2.7.D		S8.A.3.3
	temporal and spatial							S8.D.1.3.2
	scales.							S8.D.1.3.3
								S8.D.1.3.4

6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Water continually cycles among geosphere, hydrosphere, biosphere, and atmosphere via transpiration, evaporation, condensation, and precipitation as well as downhill flows on land. (ESS2.C)	Assess the physical characteristics of a stream to determine the types of organisms found within the stream environment.	Biological diversity Flow rate River systems Stream Tributary Watershed	3.5.7.C 3.5.7.D 3.1.7.A 3.1.7.B 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.5.A4 3.3.6.A4 3.3.8.A4	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.1.3.2 S8.D.1.3.3
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude and local and regional geography resulting in complex patterns that are difficult to predict. (ESS2.D)	Collect data and generate evidence to show how changes in weather conditions result from the movement, interactions, and area of origin of air masses (e.g., cold, dry Canadian air mass vs. warm, moist southern air mass).	Air pressure Atmosphere Altitude Barometer Climate Density Geography Latitude Weather Weather Front	3.5.7.C 3.1.7.A 3.1.7.B 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.7.A6 3.3.6.A6 3.3.6.A5 3.3.8.A4	S8.D.1.3.4   S8.A.1.1   S8.A.1.2   S8.A.1.3   S8.A.2.1   S8.A.2.2   S8.A.3.1   S8.A.3.2   S8.A.3.3   S8.D.2.1.2
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude and local and regional geography resulting in complex patterns that are difficult to predict. (ESS2.D)	Construct and use models to support the explanation of how the uneven distribution of solar energy affects global patterns in atmospheric and oceanic circulation.	Air pressure Altitude Atmosphere Barometer Circulation Climate Downwelling Geography Hydrosphere Latitude Oceanic Upwelling Weather	3.5.7.C 3.1.7.A 3.1.7.B 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.7.A6 3.3.6.A6 3.3.6.A5 3.3.8.A4	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.2.1.1 S8.D.2.1.2
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of	How and why is Earth constantly changing?	Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude and local and regional geography resulting in	Analyze weather patterns using cloud types, wind directions, and barometric pressure.	Air pressure Atmosphere Barometer Cirrus Cumulus Stratus Weather	3.5.7.C 3.1.7.A 3.1.7.B 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.7.A6 3.3.6.A6 3.3.6.A5 3.3.8.A4	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3

	temporal and spatial		complex patterns that are					S8.D.2.1.3
	scales.		predicted with varying degrees					
			of reliability. (ESS2.D)					
6-8	The Earth is a complex	How and why is Earth	The ocean and other large	Construct explanations from models of	Atmosphere	3.5.7.C	33.7.A6	S8.A.1.1
	and dynamic set of	constantly changing?	bodies of water exert a major	oceanic and atmospheric circulation.	Atmospheric	3.5.7.D	3.3.6.A6	S8.A.1.2
	interconnected systems	serveran y erren gin gi	influence on weather and	and for the development of local and	circulation	317A	3 3 6 A5	S8 A 1 3
	(e.g. geosphere		climate by absorbing energy	regional climates	Climate	317B	338 44	S8 A 2 1
	hydrosphere		from the sun releasing it over		Density	317E	0.0.0./ (+	S8 A 2 2
	atmosphere		time and globally		Hydrosphere	3 2 7 1		S8 A 3 1
	biocoboro) that interact		redistributing it through ecoop		Occorio	3.2.7.A		SO.A.3.1
	over a wide range of		eurrents that are driven by		circulation	3.2.7.D		S0.A.S.Z
	towneral and anotial		differences in density relative		Solipity	3.2.7.C		SO.A.S.S
			to tomporeture and colimity		Samily	3.2.7.D		30.D.2.1.1
	scales.		to temperature and salinity.		0	0 5 7 4	0 0 7 4 0	58.D.2.1.2
6-8	I ne Earth is a complex	How and why is Earth	Major events in Earth's history	Use geologic evidence to construct	Geosphere	3.5.7.A	3.3.7.A3	S8.A.1.1
	and dynamic set of	constantly changing?	leave evidence in the geologic	patterns and determine the relative	Geologic time	3.5.7.B		S8.A.1.2
	interconnected systems		record that allow the	ages and sequence of geologic events	Index tossils	3.1.7.D		S8.A.1.3
	(e.g. geosphere,		construction of a geologic time	in Earth's 4.6 billion year history.	Law of	3.2.7.A		S8.A.2.1
	hydrosphere,		scale based on relative ages.		superposition	3.2.7.B		S8.A.2.2
	atmosphere,		(ESS1.C)		Relative age	3.2.7.C		S8.A.3.1
	biosphere) that interact				Scale	3.2.7.D		S8.A.3.2
	over a wide range of							S8.A.3.3
	temporal and spatial							S8.D.1.1.2
	scales.							S8.D.1.1.4
6-8	The Earth is a complex	How and why is Earth	The Earth's systems interact	Construct an explanation based on	Erosion	3.5.7.A	3.3.6.A1	S8.A.1.1
	and dynamic set of	constantly changing?	on various time and size	evidence for how various processes	Geosphere	3.5.7.B	3.3.7.A1	S8.A.1.2
	interconnected systems		scales. These interactions	have changed Earth's surface at	Plate tectonics	3.1.7.A	3.3.8.A1	S8.A.1.3
	(e.g. geosphere,		have shaped Earth's history	varying time and spatial scales (e.g.,	Sea floor	3.1.7.D	3.3.10.A1	S8.A.2.1
	hydrosphere,		and will determine its future.	short-term deposition vs. mountain	spreading	3.1.7.E		S8.A.2.2
	atmosphere,		(ESS2.A)	building; short-term weathering and	Subduction	3.2.7.A		S8.A.3.1
	biosphere) that interact			erosion vs. canyon or valley	Weathering	3.2.7.B		S8.A.3.2
	over a wide range of			formation).	-	3.2.7.C		S8.A.3.3
	temporal and spatial					3.2.7.D		S8.D.1.1.2
	scales.							S8.D.1.1.4
6-8	The Earth is a complex	How and why is Earth	Plate tectonics is the unifying	Develop and use models of past plate	Asthenosphere	3.5.7.A	3.3.6.A1	S8.A.1.1
	and dynamic set of	constantly changing?	theory that explains the past,	motions to support explanations of	Continent	3.1.7.A	3.3.7.A6	S8.A.1.2
	interconnected systems	, , ,	and current, and future	existing patterns in the fossil record,	Continental	3.1.7.D	3.3.8.A6	S8.A.1.3
	(e.g. geosphere,		movements of the rocks at	rock record, continental shapes and	drift	3.1.7.E		S8.A.2.1
	hydrosphere.		Earth's surface and provides a	sea floor structures.	Convection	3.2.7.A		S8.A.2.2
	atmosphere.		framework for understanding		Fossil record	3.2.7.B		S8.A.3.1
	biosphere) that interact		its geological history. Tectonic		Geosphere	3.2.7.C		S8.A.3.2
	over a wide range of		processes continually		Lithosphere	3.2.7.D		S8.A.3.3
	temporal and spatial		generate new ocean seafloor		Mantle			S8.D.1.1.2
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	scales.		at ridges and destroy old seafloor at trenches. (ESS2.B)		Rock record Plate motion Plate tectonics Seafloor Spreading			S8.D.1.1.4
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Plate tectonics is the unifying theory that explains the past, and current, and future movements of the rocks at Earth's surface and provides a framework for understanding its geological history. Tectonic processes continually generate new ocean seafloor at ridges and destroy old seafloor at trenches. (ESS2.B)	Incorporate a variety of data including geological evidence from maps and representations of current plate motions to predict future plate motions.	Asthenosphere Continental drift Convection Geosphere Fossil record Lithosphere Mantle Plate motion Plate tectonics Rock record Seafloor Spreading	3.5.7.A 3.1.7.A 3.1.7.D 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.6.A1 3.3.7.A6 3.3.8.A6	S8.A.1.1 S8.A.1.2 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.1.1.2
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Plate tectonics is the unifying theory that explains the past, and current, and future movements of the rocks at Earth's surface and provides a framework for understanding its geological history. Tectonic processes continually generate new ocean seafloor at ridges and destroy old seafloor at trenches. (ESS2.B)	Use models to explain how the flow of energy (convection of heat) drives the cycling of matter between Earth's surface and deep interior.	Convection Convergence Crust Divergence Geosphere Inner core Mantle Outer core Plate tectonics	3.4.7.B 3.5.7.A 3.1.7.D 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.6.A1 3.3.7.A6 3.3.8.A6	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.1.1.2
6-8	The Earth is a complex and dynamic set of interconnected systems (e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of temporal and spatial scales.	How and why is Earth constantly changing?	Some natural hazards such as volcanic eruptions and severe weather may be preceded by phenomena that allow for reliable prediction. Others such as earthquakes occur suddenly with no notice and are not yet predictable. (ESS3.B)	Investigate or develop a map of the past and present natural hazards in a region to demonstrate an understanding of forecasting the likelihood of future events and to inform designs for development of technologies to mitigate their effects.	Earthquake Floods Geosphere Hurricane Natural hazard Tornado Tsunami Volcanoes	3.5.7.A 3.1.7.A 3.1.7.D 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.8.A6 3.3.10.A1 3.3.10.A6	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.1.1.2
6-8	The Earth is a complex and dynamic set of interconnected systems	How and why is Earth constantly changing?	Evolution is shaped by Earth's varying geological and environmental conditions.	Use evidence from the rock and fossil records to construct arguments that explain how past changes in earth's	Eruption Extinction Fossil record	3.4.7.D 3.5.7.A 3.1.7.A	3.3.7.A3	S8.A.1.1 S8.A.1.2 S8.A.1.3

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	(e.g. geosphere, hydrosphere, atmosphere, biosphere) that interact over a wide range of		Sudden changes in conditions (e.g., meteor impacts, major volcanic eruptions) have caused mass extinctions, but these changes, as well as	conditions have caused major extinctions of some life forms and allowed others to flourish.	Geosphere Mass Meteor impact Volcanic	3.1.7.D 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C		S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3
	temporal and spatial scales.		more gradual ones, have ultimately allowed other life forms to flourish. (ESS3.C)			3.2.7.D		S8.D.1.1.4
					L	•		
6-8	The Earth's processes	How do Earth's processes and	Humans depend on Earth's	Describe a product's transformation	Atmosphere	3.5.7.B	3.3.8.A2	S8.A.1.1
	affect and are affected	human activities affect each	land, ocean, atmosphere, and	process from production to	Consumption	3.1.7.A	3.3.8.A3	S8.A.1.2
	by human activities.	other?	living things for many different	consumption.	Geosphere	3.1.7.D		S8.A.1.3
	-		resources. (ESS3.A)		Hydrosphere	3.1.7.E		S8.A.2.1
					Natural	3.2.7.A		S8.A.2.2
					resources	3.2.7.B		S8.A.3.1
					Nonrenewable	3.2.7.C		S8.A.3.2
					resources	3.2.7.D		S8.B.3.2
					Ore Production			S8.D.1.2.1
					Renewable			
					resources			
6-8	The Earth's processes	How do Earth's processes and	Minerals, fresh water, and	Use maps and other data to explain	Atmosphere	3.5.7.A	3.3.6.A1	S8.A.1.1
	affect and are affected	human activities affect each	living resources are limited,	how geologic processes have led to	Climate	3.5.7.B	3.3.8.A2	S8.A.1.2
	by human activities.	other?	and many are not renewable	the uneven distribution of Earth's	Fossil record	3.1.7.A	3.3.8.A3	S8.A.1.3
			or replaceable over human	natural resources.	Geosphere	3.1.7.D		S8.A.2.1
			lifetimes. (ESS3.A)		Hydrosphere	3.1.7.E		S8.A.2.2
					Mineral	3.2.7.A		S8.A.3.1
					Natural	3.2.7.B		S8.A.3.2
					Plate tectonics	3.2.7.C		S8.B.3.2
					Resources	3.2.7.D		S8.D.1.1.2
<u> </u>			Missister Constant of the second			0.57.0	0.0.0.40	S8.D.1.2.1
0-0	The Earth's processes	How do Earth's processes and	Winerals, fresh water, and	Construct an argument supported by	Atmosphere	3.5.7.B	3.3.8.AZ	S8.A.1.1
	by burgen estivities	other?	and many are not renewable	evidence for now increases in numarian	Consumption	3.1.7.A	3.3.0.A3	S0.A.1.2
	by numan activities.		or roplaceable over human	of patural resources impact Earth's	Uvdrosphere	3.1.7.D 2.1.7 E	3.3.10.AZ	S0.A.1.5 S0 A 2 1
			lifetimes (ESS3 A)	systems	Mineral	3.1.7.E		S0.A.2.1
				Systems.	Natural	3.2.7.A		S8 A 3 1
					Nonrenewahle	3270		S8 A 3 2
					resources	327D		S8 B 3 3
					Population	0.2.7.0		S8.D.1.2.2
					arowth			
					Renewable			
					resources			

					Resources			
6-8	The Earth's processes affect and are affected by human activities.	How do Earth's processes and human activities affect each other?	Human activities influence Earth's global temperature, and these effects can be mitigated through applying knowledge of climate science, engineering, etc. (ESS3.D)	Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.	Atmosphere Biosphere Carbon dioxide (CO <sub>2</sub> ) Climate Global warming	3.5.7.C 3.1.7.A 3.1.7.D 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D	3.3.7.A5 3.3.8.A5 3.3.10.A6	S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.2.1.1 S8.D.2.1.2 S8.D.2.1.3
6-8	The Earth's processes affect and are affected by human activities.	How do Earth's processes and human activities affect each other?	Human activities have significantly altered the biosphere and geosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. (ESS3.D)	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.	Biosphere	3.1.7.A 3.1.7.D 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C 3.2.7.D		S8.A.1.1 S8.A.1.2 S8.A.1.3 S8.A.2.1 S8.A.2.2 S8.A.3.1 S8.A.3.2 S8.A.3.3 S8.D.1.2.2