

Jasper City Schools Curriculum Map

EARTH & SPACE SCIENCE

Course Name: Earth & Space Science	
Unit Name: The Nature of Science	
Time Frame:	7 days
Unit Standards	Alabama Course of Study: Scientific Process and Application Skills (p. 10)
Unit Essential Questions	Why is lab safety important? In what ways do scientists use the scientific method as an organized system to solve a problem?
Unit Essential Vocabulary	<div> 1. observation 2. conclusion 3. classify 4. measure 5. predict 6. infer 7. variable </div> <div> 9. hypothesis 10. experiment 11. data 12. control 13. independent variable 14. dependent variable 15. peer review </div> <div> 16. scientific theory 17. scientific law 18. model 19. inductive reasoning 20. deductive reasoning </div>
Resources	<u>Earth Science</u> (2010). Holt McDougal and supplemental materials iPad Internet access Other supplemental materials
Assessment(s)	Unit Test Quizzes Lab Activities Projects Daily Assignments Classroom Discussions
Assessment Data:	

EARTH & SPACE SCIENCE

Course Name: Earth & Space Science

Unit Name: Earth Basics

Time Frame: 9 days

Unit Standards

Alabama Course of Study:

1. Describe sources of energy, including solar, gravitational, geothermal, and nuclear.
2. Describe effects on weather of energy transfer within and among the atmosphere, hydrosphere, biosphere, and lithosphere.
 - Describing the energy transfer related to condensation in clouds, precipitation, winds, and ocean currents
 - Describing characteristics of the El Niño and La Niña phenomenon
 - Using data to analyze global weather patterns
Examples: temperature, barometric pressure, wind speed, and direction
4. Describe the production and transfer of stellar energies.
 - Describing the relationship between life cycles and nuclear reactions of stars
 - Describing how the reception of solar radiation is affected by atmospheric and lithospheric conditions
Example: volcanic eruptions and greenhouse gases affecting reflection and absorption of solar radiation

Unit Essential Questions

What is Earth Science?

How do the layers of Earth interact?

What are the energy sources of Earth and how does energy cycle on Earth?

Unit Essential Vocabulary

- | | | |
|-------------------|-------------------|--------------------------|
| 1. magnetosphere | 9. asthenosphere | 17. evaporation |
| 2. atmosphere | 10. mesosphere | 18. transpiration |
| 3. hydrosphere | 11. inner core | 19. solar energy |
| 4. cryosphere | 12. outer core | 20. gravitational energy |
| 5. geosphere | 13. mantle | 21. geothermal energy |
| 6. biosphere | 14. crust | 22. nuclear energy |
| 7. thermodynamics | 15. condensation | 23. open system |
| 8. lithosphere | 16. precipitation | 24. closed system |

Resources

Earth Science (2010). Holt McDougal and supplemental materials
 iPad
 Internet access
 Other supplemental materials

Assessment(s)

Unit Test
 Quizzes
 Lab Activities
 Projects
 Daily Assignments
 Classroom Discussions

EARTH & SPACE SCIENCE

Course Name: Earth & Space Science

Unit Name: Earth Chemistry, Resources, & Energy

Time Frame: 14 days

Unit Standards

Alabama Course of Study

1. Describe sources of energy, including solar, gravitational, geothermal, and nuclear.
4. Describe the production and transfer of stellar energies.
 - a. Describing the relationship between life cycles and nuclear reactions of stars
 - b. Describing how the reception of solar radiation is affected by atmospheric and lithospheric conditions

Example: volcanic eruptions and greenhouse gases affecting reflection and absorption of solar radiation

Unit Essential Questions

In what ways are Earth's natural resources and energy related?

What do fission and fusion offer Earth?

Unit Essential Vocabulary

- | | | | |
|-------------------|---------------------------|-------------------------------|----------------|
| 1. proton | 11. valence electron | 21. greenhouse gases | 31. absorption |
| 2. neutron | 12. ionic bond | 22. geothermal energy | |
| 3. electron | 13. covalent bond | 23. solar energy | |
| 4. nucleus | 14. recycling | 24. biomass | |
| 5. periodic table | 15. conservation | 25. solar radiation | |
| 6. plasma | 16. nuclear fission | 26. nuclear reaction in stars | |
| 7. ion | 17. nuclear fusion | 27. life cycle of stars | |
| 8. isotope | 18. nonrenewable resource | 28. atmosphere | |
| 9. atomic number | 19. fossil fuel | 29. lithosphere | |
| 10. mass number | 20. renewable resource | 30. reflection | |

Resources

Earth Science (2010). Holt McDougal and supplemental materials
 iPad
 Internet access
 Other supplemental materials

Assessment(s)

Unit Test
 Quizzes
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EARTH & SPACE SCIENCE

Course Name: Earth & Space Science																																																
Unit Name: History of Earth																																																
Time Frame:	10 days																																															
Unit Standards	Alabama Course of Study: 5. Discuss various theories for the origin, formation, and changing nature of the universe and our solar system. <ul style="list-style-type: none">Explaining the nebular hypothesis for formation of planets, the big bang theory, and the steady state theoryRelating Hubble’s law to the concept of an ever-expanding universeDescribing the impact of meteor, asteroid, and comet bombardment on planetary and lunar development 7. Explain techniques for determining the age and composition of Earth and the universe. <ul style="list-style-type: none">Using radiometric age methods to compute the age of EarthUsing expanding universe measurements to determine the age of the universeIdentifying techniques for evaluating the composition of objects in space 10. Identify scientists and their findings relative to Earth and space, including Copernicus, Galileo, Kepler, Newton, and Einstein. <ul style="list-style-type: none">Identifying classical instruments used to extend the senses and increase knowledge of the universe, including optical telescopes, radio telescopes, spectroscopes, and cameras																																															
Unit Essential Questions	How do various theories, such as the nebular hypothesis, the big bang theory, and the steady state theory, explain the origin, formation, and changing nature of the universe and our solar system?																																															
Unit Essential Vocabulary	<table><tr><td>1. nuclear fusion</td><td>16. apparent magnitude</td><td>31. Newton</td></tr><tr><td>2. radiative zone</td><td>17. star cycle</td><td>32. Einstein</td></tr><tr><td>3. convective zone</td><td>18. Hubble telescope</td><td>33. optical telescopes</td></tr><tr><td>4. photosphere</td><td>19. expanding universe</td><td>34. radio telescopes</td></tr><tr><td>5. chromosphere</td><td>20. Milky Way</td><td>35. spectroscopes</td></tr><tr><td>6. corona</td><td>21. age of stars</td><td>36. carbon dating</td></tr><tr><td>7. spectrograph</td><td>22. asteroids</td><td>37. radiometric dating</td></tr><tr><td>8. core</td><td>23. comets</td><td>38. alpha</td></tr><tr><td>9. sunspot</td><td>24. nebula</td><td>39. beta</td></tr><tr><td>10. prominence</td><td>25. Big Bang Theory</td><td>40. gamma</td></tr><tr><td>11. solar flare</td><td>26. Steady State Theory</td><td>41. half-life</td></tr><tr><td>12. coronal mass ejection</td><td>27. meteor</td><td>42. radioactive parent</td></tr><tr><td>13. aurora</td><td>28. Copernicus</td><td>43. stable daughter</td></tr><tr><td>14. granules</td><td>29. Galileo</td><td></td></tr><tr><td>15. sunspot cycle</td><td>30. Kepler</td><td></td></tr></table>			1. nuclear fusion	16. apparent magnitude	31. Newton	2. radiative zone	17. star cycle	32. Einstein	3. convective zone	18. Hubble telescope	33. optical telescopes	4. photosphere	19. expanding universe	34. radio telescopes	5. chromosphere	20. Milky Way	35. spectroscopes	6. corona	21. age of stars	36. carbon dating	7. spectrograph	22. asteroids	37. radiometric dating	8. core	23. comets	38. alpha	9. sunspot	24. nebula	39. beta	10. prominence	25. Big Bang Theory	40. gamma	11. solar flare	26. Steady State Theory	41. half-life	12. coronal mass ejection	27. meteor	42. radioactive parent	13. aurora	28. Copernicus	43. stable daughter	14. granules	29. Galileo		15. sunspot cycle	30. Kepler	
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Jasper City Schools Curriculum Map

2014-2015
Walker High School

EARTH & SPACE SCIENCE

Course Name: Earth & Space Science			
Unit Name: Oceans			
Time Frame:	12 days		
Unit Standards	Alabama Course of Study: <div><div>1. Describe effects on weather of energy transfer within and among the atmosphere, hydrosphere, biosphere, and lithosphere.<ul style="list-style-type: none">Describing the energy transfer related to condensation in clouds, precipitation, winds, and ocean currentsDescribing characteristics of the El Niño and La Niña phenomena</div><div>2. Explain how weather patterns affect climate.<ul style="list-style-type: none">Explaining characteristics of various weather systems, including high and low pressure areas or frontsInterpreting weather maps and symbols to predict changing weather conditionsIdentifying technologies used to obtain meteorological data</div></div>		
Unit Essential Questions	In what ways do the various movements of water in the ocean impact the transfer of energy within and among the atmosphere, hydrosphere, biosphere, and lithosphere? What are the measurable properties of waves and how do the relationships between these properties change when waves move from one medium to another?		
Unit Essential Vocabulary	<div><div><div>1. oceanography</div><div>2. sonar</div><div>3. continental margin</div><div>4. deep-ocean basin</div><div>5. trench</div><div>6. density</div><div>7. current</div><div>8. surface current</div><div>9. wave l</div><div>10. wave period</div><div>11. refraction</div><div>12. tide</div><div>13. tidal current</div><div>14. abyssal plain</div></div><div><div>15. tidal range</div><div>16. tidal oscillation</div><div>17. Gulf of Mexico</div><div>18. air pressure</div><div>19. wind speed</div><div>20. wind direction</div><div>21. precipitation</div><div>22. latitude</div><div>23. longitude</div><div>24. global wind patterns</div><div>25. heat absorption</div><div>26. global ocean</div><div>27. sea</div><div>28. core sample</div></div><div><div>29. salinity</div><div>30. thermocline</div><div>31. density</div><div>32. upwelling</div><div>33. gyre</div><div>34. deep current</div><div>35. Coriolis effect</div><div>36. Gulf Stream</div><div>37. El Niño</div><div>38. La Niña</div></div></div>		
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Assessment(s)	Unit Test Quizzes Lab Activities Projects Daily Assignments Classroom Discussions		

Jasper City Schools Curriculum Map

EARTH & SPACE SCIENCE

Course Name: Earth & Space Science																																																																					
Unit Name:	Weather & Climate																																																																				
Time Frame:	12 days																																																																				
Unit Standards	Alabama Course of Study: 2.) Describe effects on weather of energy transfer within and among the atmosphere, hydrosphere, biosphere, and lithosphere. <ul style="list-style-type: none">Describing the energy transfer related to condensation in clouds, precipitation, winds, and ocean currentsDescribing characteristics of the El Niño and La Niña phenomenaUsing data to analyze global weather patterns Examples: temperature, barometric pressure, wind speed and direction 3.) Explain how weather patterns affect climate. <ul style="list-style-type: none">Explaining characteristics of various weather systems, including high and low pressure areas or frontsInterpreting weather maps and symbols to predict changing weather conditionsIdentifying technologies used to obtain meteorological data																																																																				
Unit Essential Questions	How are global weather patterns analyzed? What effect does energy transfer within and among the atmosphere, biosphere, hydrosphere, and lithosphere have on weather? How do weather patterns affect climate?																																																																				
Unit Essential Vocabulary	<table><tr><td>1. continental</td><td>24. warm air mass</td><td>46. monsoon</td></tr><tr><td>2. continental plain</td><td>25. wave cyclone</td><td>47. yearly temperature range</td></tr><tr><td>3. continental tropical</td><td>26. lightning</td><td>48. latitude</td></tr><tr><td>4. maritime polar fog</td><td>27. Saffir-Simpson Scale</td><td>49. global wind patterns</td></tr><tr><td>5. tropical air mass</td><td>28. thermometer</td><td>50. heat absorption</td></tr><tr><td>6. Gulf of Mexico</td><td>29. barometer</td><td>51. ocean currents</td></tr><tr><td>7. maritime polar Pacific</td><td>30. tornado alley</td><td>52. seasonal winds</td></tr><tr><td>8. maritime polar Atlantic</td><td>31. anemometer</td><td>53. topography</td></tr><tr><td>9. continental polar Canadian</td><td>32. wind vane</td><td>54. rain shadow</td></tr><tr><td>10. maritime tropical Pacific</td><td>33. radiosonde</td><td>55. tropical climate</td></tr><tr><td>11. sea level change</td><td>34. radar</td><td>56. mid-air latitude climate</td></tr><tr><td>12. maritime tropical Atlantic</td><td>35. tornado</td><td>57. polar climate</td></tr><tr><td>13. cold front</td><td>36. air pressure</td><td>58. microclimate</td></tr><tr><td>14. warm front</td><td>37. wind speed</td><td>59. subarctic</td></tr><tr><td>15. stationary front</td><td>38. wind direction</td><td>60. tundra</td></tr><tr><td>16. occluded front</td><td>39. station model</td><td>61. polar ice cap</td></tr><tr><td>17. midlatitude cyclone</td><td>40. weather symbols</td><td>62. climatologist</td></tr><tr><td>18. thunderstorm</td><td>41. precipitation</td><td>63. global warming</td></tr><tr><td>19. hurricane</td><td>42. climate</td><td>64. orbital changes</td></tr><tr><td>20. tornado</td><td>43. specific heat</td><td>65. global weather</td></tr><tr><td>21. squall line</td><td>44. El Nino</td><td>66. volcanic activity</td></tr><tr><td>22. cold air mass</td><td>45. La Nina</td><td>67. World Meteorological Organization</td></tr></table>			1. continental	24. warm air mass	46. monsoon	2. continental plain	25. wave cyclone	47. yearly temperature range	3. continental tropical	26. lightning	48. latitude	4. maritime polar fog	27. Saffir-Simpson Scale	49. global wind patterns	5. tropical air mass	28. thermometer	50. heat absorption	6. Gulf of Mexico	29. barometer	51. ocean currents	7. maritime polar Pacific	30. tornado alley	52. seasonal winds	8. maritime polar Atlantic	31. anemometer	53. topography	9. continental polar Canadian	32. wind vane	54. rain shadow	10. maritime tropical Pacific	33. radiosonde	55. tropical climate	11. sea level change	34. radar	56. mid-air latitude climate	12. maritime tropical Atlantic	35. tornado	57. polar climate	13. cold front	36. air pressure	58. microclimate	14. warm front	37. wind speed	59. subarctic	15. stationary front	38. wind direction	60. tundra	16. occluded front	39. station model	61. polar ice cap	17. midlatitude cyclone	40. weather symbols	62. climatologist	18. thunderstorm	41. precipitation	63. global warming	19. hurricane	42. climate	64. orbital changes	20. tornado	43. specific heat	65. global weather	21. squall line	44. El Nino	66. volcanic activity	22. cold air mass	45. La Nina	67. World Meteorological Organization
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Jasper City Schools Curriculum Map

EARTH & SPACE SCIENCE

Course Name: Earth & Space Science

Unit Name: Space & Solar System

Time Frame: 9 days

Unit Standards

Alabama Course of Study:

4.) Describe the production and transfer of stellar energies.

- Describing the relationship between life cycles and nuclear reactions of stars
- Describing how the reception of solar radiation is affected by atmospheric and lithospheric conditions

Example: volcanic eruptions and greenhouse gases affecting reflection and absorption of solar radiation

8.) Explain the terms astronomical unit and light year.

9.) Relate the life cycle of stars to the H-R diagram.

- Explaining indicators of motion by the stars and sun in terms of the Doppler effect and red and blue shifts
- Describing the relationship of star color, brightness, and evolution to the balance between gravitational collapse and nuclear fusion

12.) Describe challenges and required technologies for space exploration.

- Identifying long-term human space travel needs, including life support
- Identifying applications of propulsion technologies for space travel
- Identifying new instrumentation and communication technologies needed for space information gathering
- Examples: Mars Exploration Rover, Cassini spacecraft and Huygens probe, Gravity Probe B
- Identifying benefits to the quality of life that have been achieved through space advances
- Examples: cellular telephone, GPS
- Identifying new technology used to gather information, including spacecraft, observatories, space-based telescopes, and probes

Unit Essential Questions

How was the solar system formed?

What has made space exploration possible?

In what ways has space exploration influenced every-day human activities?

Unit Essential Vocabulary

1. solar system	13. Ptolemy model	26. Mars
2. planet	14. Copernicus model	27. Jupiter
3. solar nebula	15. ellipse	28. Saturn
4. planetesimal	16. eccentricity	29. Neptune
5. nebula model	17. sows	30. Uranus
6. inner planets	18. laws of periods	31. meteor
7. outer planets	19. orbital period	32. meteorite
8. Pluto	20. terrestrial	33. perigee
9. outgassing	21. Magellan satellite	34. eclipse
10. argon	23. Venus express	35. oort cloud
11. nitrogen	24. Mercury	
12. carbon dioxide	25. Venus	

Resources

Earth Science (2010). Holt McDougal and supplemental materials

iPad

Internet access

Other supplemental materials

Assessment(s)

Unit Test Daily Assignments

Quizzes Classroom Discussions

Lab Activities

Projects

Jasper City Schools Curriculum Map

EARTH & SPACE SCIENCE

Course Name: Earth & Space Science

Unit Name: Sun, Stars, & Universe

Time Frame: 7 days

Unit Standards

Alabama Course of Study:

- 6.) Explain the length of a day and of a year in terms of the motion of Earth.
 - Explaining the relationship of the seasons to the tilt of Earth's axis and its revolution about the sun
- 7.) Explain techniques for determining the age and composition of Earth and the universe.
 - Using radiometric age methods to compute the age of Earth
 - Using expanding universe measurements to determine the age of the universe
 - Identifying techniques for evaluating the composition of objects in space
- 11.) Describe pulsars, quasars, black holes, and galaxies.

Unit Essential Questions

In what ways does the sun influence Earth?
 How might the Universe have formed?
 How might the findings of astronomers be confirmed?

Unit Essential Vocabulary

- | | | | |
|-----------------------------|--------------------|---------------------------|-----------------|
| 1. astronomy | 9. rotation | 16. radiative zone | 23. solar flare |
| 2. galaxy | 10. revolution | 17. convective zone | 24. prominence |
| 3. astronomical unit | 11. perihelion | 18. photosphere | 25. aurora |
| 4. electromagnetic spectrum | 12. aphelion | 19. chromosphere | |
| 5. telescope | 13. equinox | 20. corona | |
| 6. refracting telescope | 14. solstice | 21. sunspot | |
| 7. reflecting telescope | 15. nuclear fusion | 22. coronal mass ejection | |

Resources

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