# 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
<table>
<thead>
<tr>
<th>1. observation</th>
<th>9. hypothesis</th>
<th>16. scientific theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. conclusion</td>
<td>10. experiment</td>
<td>17. scientific law</td>
</tr>
<tr>
<td>3. classify</td>
<td>11. data</td>
<td>18. model</td>
</tr>
<tr>
<td>4. measure</td>
<td>12. control</td>
<td>19. inductive reasoning</td>
</tr>
<tr>
<td>5. predict</td>
<td>13. independent variable</td>
<td>20. deductive reasoning</td>
</tr>
<tr>
<td>6. infer</td>
<td>14. dependent variable</td>
<td></td>
</tr>
<tr>
<td>7. variable</td>
<td>15. peer review</td>
<td></td>
</tr>
</tbody>
</table>

### 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

### Assessment Data:
**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  
3. **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**

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

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

#### Resources
- Earth Science (2010). Holt McDougal and supplemental materials
- iPad
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- 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: History of Earth

### Time Frame: 10 days

### Alabama Course of Study:

1. Discuss various theories for the origin, formation, and changing nature of the universe and our solar system.
   - Explaining the nebular hypothesis for formation of planets, the big bang theory, and the steady state theory
   - Relating Hubble’s law to the concept of an ever-expanding universe
   - Describing the impact of meteor, asteroid, and comet bombardment on planetary and lunar development
2. 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
3. Identify scientists and their findings relative to Earth and space, including Copernicus, Galileo, Kepler, Newton, and Einstein.
   - Identifying classical instruments used to extend the senses and increase knowledge of the universe, including optical telescopes, radio telescopes, spectrosopes, and cameras

### Unit 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?

<table>
<thead>
<tr>
<th>Unit Essential Vocabulary</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. nuclear fusion</td>
<td>16. apparent magnitude</td>
</tr>
<tr>
<td>2. radiative zone</td>
<td>17. star cycle</td>
</tr>
<tr>
<td>3. convective zone</td>
<td>18. Hubble telescope</td>
</tr>
<tr>
<td>4. photosphere</td>
<td>19. expanding universe</td>
</tr>
<tr>
<td>5. chromosphere</td>
<td>20. Milky Way</td>
</tr>
<tr>
<td>6. corona</td>
<td>21. age of stars</td>
</tr>
<tr>
<td>7. spectrograph</td>
<td>22. asteroids</td>
</tr>
<tr>
<td>8. core</td>
<td>23. comets</td>
</tr>
<tr>
<td>9. sunspot</td>
<td>24. nebula</td>
</tr>
<tr>
<td>10. prominence</td>
<td>25. Big Bang Theory</td>
</tr>
<tr>
<td>11. solar flare</td>
<td>26. Steady State Theory</td>
</tr>
<tr>
<td>12. coronal mass ejection</td>
<td>27. meteor</td>
</tr>
<tr>
<td>13. aurora</td>
<td>28. Copernicus</td>
</tr>
<tr>
<td>14. granules</td>
<td>29. Galileo</td>
</tr>
<tr>
<td>15. sunspot cycle</td>
<td>30. Kepler</td>
</tr>
<tr>
<td>31. Newton</td>
<td>32. Einstein</td>
</tr>
<tr>
<td>33. optical telescopes</td>
<td>34. radio telescopes</td>
</tr>
<tr>
<td>35. spectrosopes</td>
<td>36. carbon dating</td>
</tr>
<tr>
<td>37. radiometric dating</td>
<td>38. alpha</td>
</tr>
<tr>
<td>39. beta</td>
<td>40. gamma</td>
</tr>
<tr>
<td>41. half-life</td>
<td>42. radioactive parent</td>
</tr>
<tr>
<td>43. stable daughter</td>
<td></td>
</tr>
</tbody>
</table>

### Resources

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### Assessment(s)

- Unit Test
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- Daily Assignments
- Classroom Discussions
## Course Name: Earth & Space Science

### Unit Name: Oceans

#### Time Frame:
12 days

### Unit Standards

**Alabama Course of Study:**

1. 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 phenomena
2. Explain how weather patterns affect climate.
   - Explaining characteristics of various weather systems, including high and low pressure areas or fronts
   - Interpreting weather maps and symbols to predict changing weather conditions
   - Identifying technologies used to obtain meteorological data

### 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

1. oceanography  
2. sonar  
3. continental margin  
4. deep-ocean basin  
5. trench  
6. density  
7. current  
8. surface current  
9. wave  
10. wave period  
11. refraction  
12. tide  
13. tidal current  
14. abyssal plain  
15. tidal range  
16. tidal oscillation  
17. Gulf of Mexico  
18. air pressure  
19. wind speed  
20. wind direction  
21. precipitation  
22. latitude  
23. longitude  
24. global wind patterns  
25. heat absorption  
26. global ocean  
27. sea  
28. core sample  
29. salinity  
30. thermocline  
31. density  
32. upwelling  
33. gyre  
34. deep current  
35. Coriolis effect  
36. Gulf Stream  
37. El Niño  
38. La Niña

### 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
**Course Name:** Earth & Space Science  
**Unit Name:** Weather & Climate  
**Time Frame:** 12 days

**Unit Standards**  
Alaska Course of Study:  
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 phenomena  
- Using data to analyze global weather patterns  
Examples: temperature, barometric pressure, wind speed and direction  
3.) Explain how weather patterns affect climate.  
- Explaining characteristics of various weather systems, including high and low pressure areas or fronts  
- Interpreting weather maps and symbols to predict changing weather conditions  
- Identifying 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**  
- continental  
- continental plain  
- continental tropical  
- maritime polar fog  
- tropical air mass  
- Gulf of Mexico  
- maritime polar Pacific  
- maritime polar Atlantic  
- continental polar Canadian  
- maritime tropical Pacific  
- sea level change  
- maritime tropical Atlantic  
- cold front  
- warm front  
- stationary front  
- occluded front  
- midlatitude cyclone  
- thunderstorm  
- hurricane  
- tornado  
- squall line  
- cold air mass  
- warm air mass  
- wave cyclone  
- lightning  
- Saffir-Simpson Scale  
- thermometer  
- barometer  
- tornado alley  
- anemometer  
- wind vane  
- radiosonde  
- radar  
- tornado  
- air pressure  
- wind speed  
- wind direction  
- station model  
- weather symbols  
- precipitation  
- climate  
- specific heat  
- El Nino  
- La Nina  
- monsoon  
- yearly temperature range  
- latitude  
- global wind patterns  
- heat absorption  
- ocean currents  
- seasonal winds  
- topography  
- rain shadow  
- tropical climate  
- mid-air latitude climate  
- polar climate  
- microclimate  
- subarctic  
- tundra  
- polar ice cap  
- climatologist  
- global warming  
- orbital changes  
- global weather  
- volcanic activity  
- World Meteorological Organization

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

**Assessment(s)**  
Unit Test  
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Daily Assignments  
Classroom Discussions
# 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 |
| 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 | 22. Venus express | 35. oort cloud |
| 11. nitrogen | 23. Mercury | |
| 12. carbon dioxide | 24. Venus | |

### Resources

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### Assessment(s)

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## Earth & Space Science

### Unit Name: Sun, Stars, & Universe

**Time Frame:** 7 days

### Unit Standards

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

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

### Unit Essential Vocabulary

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

### Resources

- iPad
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### Assessment(s)

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