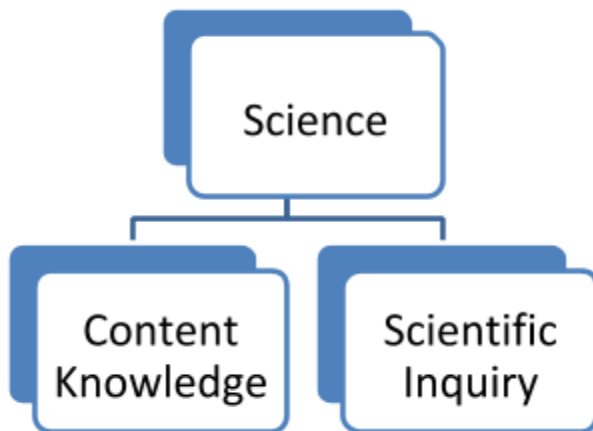




# Welcome to Earth and Space Science!

## Earth Science—What this course is about?

This course is about the scientific study of planet Earth: the rocks that make it up, the oceans on its surface, the atmosphere of gases that surround it, and the cosmos of which the Earth is only a very small part. In this course, you'll learn answer to such questions as: "What goes in stars?" "Why do the continents move?" "How and why is the Earth changing?" and "How are we, humans, changing the earth?" You may have already learned something about these topics in middle school.



As with any good science class, what you'll learn breaks down into two basic parts—content knowledge and scientific inquiry.

**Content knowledge** is the part where we learn about the cool things that great scientists of yore have discovered.

**Scientific inquiry** is the set of things that scientists do to figure all that cool stuff out in the first place.

It's about things like designing good experiments and

making models and treating new ideas with an open mind (but not so open that your brain falls out).

## But that's not all this course is about.

So I hope you can see by now that it is well worth your while to leave this course with a deep and detailed understanding. But if you left this course with nothing more than a bunch of scientific knowledge, I wouldn't be doing my job. That's because in addition to learning science, this class is an opportunity for you to get better at **learning how to learn**. At some point, your taxpayer funded education will come to an end, and you will find that you are stuck in the position of either 1. having to pay someone lots and lots of money so that they will teach you something new (i.e. college) or 2. trying to learn new stuff with nothing but your own brain and whatever someone has posted on YouTube. And while that may not seem so bad, think about this.

What if I came in next Monday and just handed you a list of everything you needed to learn by the end of the week? I'd give you a regular test (with challenging multiple choice and essay questions) and I'd score it just like always, but I would leave all the learning up to you—no lecture, no lab reports, no activities. You could use the class time however you liked. But you'd get no help from me. Would you be ready? Would you have the skills to learn what you needed to know on your own? Would you have the organization and self-discipline?

Don't worry. I'm not going to do this. (I'm not a big risk taker.) But as your education progresses you will find yourself in situations that are more and more self-directed. If you leave this class able to take a text or a lab or a lecture or a writing assignment and *claim your own learning from it*, then you've gotten something even more valuable than the science knowledge itself.

This is what our core value of responsibility is all about, and it will be a major focus of this course.

## **Relevance OR “Mr. Lord, when am I ever going to use this?”**

Earth science *is* relevant to your life. But that doesn't mean that I'll be able to give you a pat answer for how you might use each and every tidbit of information in your future career. We live in a changing world. The future is uncertain. Nobody knows what knowledge you're going to need in your future. But I am confident that there is tremendous value in your learning Earth science for at least three good reasons:

1. **Opportunity:** It is getting harder and harder to make a comfortable living without having a set of useful skills. And skills in science, technology, and math are about as in-demand as you can get. If you want an interesting job that pays well, this is the place to be. (And even if you know that you want to pursue a career in something that seems totally unrelated to science, chances are that science will pop up there in ways you might not expect.) But in order to access those opportunities, you've got to have the science under your belt.
2. **The Greater Good:** Your science education isn't just about you. Our planet is facing unprecedented challenges. Many of the biggest problems in the world (hunger, epidemic diseases, global warming, extinction) are scientific problems. We need smart, hard-working, innovative people to care about solving them—people who understand science really, really well. We need you.
3. **Sheer Awesomeness:** If you are open to it, the things that we learn in this class can make you see yourself and the world around you in whole new ways. If our studies don't make you sit back and go, “Whoa!” at some point then I'd be surprised. Sure, some people prefer not to be overwhelmed by feelings of awe and wonder. Some people don't like thinking about where they have come from. Some people want to work for 80 hours a week and devote all of their free time to playing Minecraft. For the rest of us, there's science.

## **Respect and Community**

I have this crazy dream. In it, I am not able to get to class until almost 20 minutes after the bell. I am anxious about all the time we've lost, but as I come around the corner I see that the class had just gotten started on their first assignment, finished it, and is now working its way down the agenda. I love this dream. I love the idea that a class would have internalized our core values of respect, responsibility, relevance, and community so deeply that they are really taking their education into their own hands. We all know that showing up prepared and on time, staying focused, and avoiding hurting others are the responsible things to do. I'll make my expectations around these very clear. But these are only the starting place. Our goal is to become a community where respect, responsibility, and relevance are taken to the next level—like in my dream. I'll give more guidance on this in the *Room 233 Survival Guide*, but here are a few of the basics.

- **Attendance**--Success in this course requires consistent attendance. Classroom instruction, lab activities, and guided practice provide the foundation for learning during subsequent days, weeks and months. Numerous absences from class (even school sanctioned ones) will affect your ability to understand concepts and stay current on course work. While ACE period can be used for some assignments, you will need to devote time after school to make up labs or other more complex assignments. We follow the BUHS attendance policy. You can find it in your Student Handbook

(pages 6-9), along with the disciplinary actions taken if not followed (pages 24–26). Keep in mind:

- Being late leads to detentions and a lower habits of mind grade (see above).
- A class cut leads to a zero for the day (even if it's a test!) and a detention.
- Beyond 10 absences you can't get higher than a grade of 60 for the course.
- **Timeliness**—Class begins at the bell. By the time the bell rings you must already be at your seat, on your mark, and working silently on your Do Now assignment. Class ends at my signal. Occasionally this may be a few seconds after the bell rings. Please do not pack us early.
- **Electronics**—Cell phones and other electronics (including ear buds) must be turned off and completely out of sight for the duration of class. Devices that are NOT out of sight will be confiscated. No warnings will be given.
- **Leaving Class**—You need to **sign out and take a pass** if you're going to leave the classroom for any reason.
- Every human being deserves respect – even if they are very different from you. I expect you to **speak kindly, work together, and keep other's interests in mind.**

### **Lab Work and Safety**

- Prior to each lab we'll review all specific safety issues.
- **Any horseplay, misuse of equipment, or unauthorized lab activity will be severely dealt with.** Penalties range from a loss of lab privilege for the day (meaning a 'zero' for that lab) to possible removal from the course.
- **You may be charged replacement cost for any broken or damaged equipment or property** if caused by a lack of responsibility on your behalf.
- **Each student group is responsible for working together to clean up their lab station.** Neglect in this area leads to lower grades, detentions, and/or loss of lab privilege.
- While you will be working with partners in the lab, **each student is responsible for recording their own copy of the team's lab data, answering all questions in their own words, and for completing their own lab reports.** This is essential to make sure that you 'get' the lab!

### **Academic honesty**

- ..is huge with me. Anything you give me with the expectation of receiving credit must be in your own words and reflect your own thinking. Whether it's homework, labwork, a quiz, a project, or a test, **any plagiarized or duplicated work will be marked 'zero' with no opportunity to resubmit. If ever in doubt, please ask me ahead of time. Thank you.**

### **What we actually do.**

- ***Reading***—You will use your textbook a lot both in school and at home. Why? “Reading is *the* skill. If you can read well, you can essentially do anything.<sup>1</sup>” Making sense of what you read will involve taking good notes, asking good questions, and collaboration with your classmates.
- ***Writing***—Why? Because writing = thinking.
- ***Labs***—Labs are what science is all about. While you will be working in teams in the lab, students are responsible for recording their own copy of the team's lab data and for completing their own **individual** lab reports. You are always welcome to revise lab reports after you've

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<sup>1</sup> Lemov, Doug. *Teach Like a Champion*. San Francisco: Jossey-Bass, 2010.

received my feedback. I'll use the science department's lab rubric to score these. (More on that later.)

- ***Homework***—Plan for about 30 minutes of homework from this class every night (including weekends). I promise that it will not be busy work. It will be worthwhile.
- ***Quizzes***—Quizzes are short, low-stakes assignments. Their purpose is to give both you and me a sense of what you know, what you don't, and how to proceed. Quizzes will be unannounced, but you can count on having at least one quiz at the end of each class (called a ticket-to-leave or TTL). Many quizzes will be delivered electronically.
- ***Correction Credit***—These assignments give you a chance to retry things you've missed on quizzes and make use of the feedback that you've gotten. Through correction credit, you will have unlimited chances to regain any credit lost on any quiz.
- ***Tests***—Tests are higher-stakes assignments. Test dates are your deadline for mastering the concepts and skill of this course. There will be no surprises on tests. By the time you get to them, you will have a clear idea of what concepts and skills you need, you'll have practiced those concepts and skills a lot, and you'll have gotten feedback from me. **Some tests will be cumulative.** This means that each test will contain questions about topics from the whole semester up to that point and not just questions from the most recent unit. Most tests will be given electronically and will include both multiple choice and essay questions. Sometimes labs or projects might count as a test.
- ***The Sustainability Project***—In the final project of this course you will research an large-scale problem facing the Earth and the role that humans play in it. Then you will design and evaluate a potential solution to one of those global challenges. This project will involve knowledge from throughout the course. This makes it worthwhile for you to save all your labs.
- ***Practice***—Loads of practice. We'll practice old stuff and new stuff. We'll have practice games and problem sets. The point is not only that you remember the wonders Earth science for the final exam. The point is that you remember what you learn in this course throughout what I hope is a long and eventful life.

This is a fast-paced course. It is brimming with hands-on labs. It is my hope that you work hard in here. But I also hope that you find this class full of “energy, enthusiasm, fun, and humor—not as the antidote to hard work but because those are some of the ways that hard work gets done.”<sup>2</sup>

### **Course Materials: What you need to succeed each day...**

- **Your completed homework**
- **Your textbook.** Keep it well covered at all times. Please note that you are assuming responsibility for this textbook; if it's lost or damaged you'll be billed \$110.
- **A binder** (with tabbed sections for handouts, notes, labs, tests and quizzes, other assignments, and capstone) Organization is key!
- **Pen and/or pencil** I suggest you have at least a dozen so that you are never without one.
- **A charged Chromebook**

### **What you don't need . . .**

- **Cell phones and music players are to be turned off and kept out of sight** unless I give you specific permission to use them. Otherwise I **will** take them if I see or hear them.
- **For safety, no food or drink are allowed in room 233 ever.**

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<sup>2</sup> Ibid.

## Grades

**Standards**--There are nineteen standards that will be assessed in Earth science this year. Each standard has a rubric that scores one a 1-4 scale. Scores of 1 or 2 are not proficient. Scores of 3 are proficient. Scores of 4 demonstrate exceptional mastery beyond the typical scope of a high school course. These nineteen standards can be found at the end of this document.

**Assignments**—The score for every assignment will be logged under one (or more) of these standards. Most assignments will be scored on the 1-4 scale. Multiple assignments can count toward any one standard. All assignments will be recorded in the PowerSchool gradebook, but not all will count toward your final grade. These assignments are still important. You will not be eligible for retakes unless ALL assignments are complete.

**Grades**--Your overall grade in this course is an average of the scores for each standard. To determine a percentage grade, rubric scores will be scaled as follows.

Rubric Score	Percentage Grade
4	100
3	85
2	75
1	65

**Habits of Work**—Please note that habits of work (participation, effort, preparedness, etc.) will be scored separately and will not be included in your final academic grade. Habits of work are reported on the report card as a separate grade.

**Retakes**—At least one retake is available on all assignments that will count toward the final grade.(and on many assignments that aren't). To be eligible for this retake, all assignments associated with the standard must be complete and turned in. Student must also complete correction credit on all missed test question in writing using the correction credit form provided in class. Students will schedule retakes during ACE or teachers' office hours within 2 weeks (or before the end of a grading period). The score for the retake will be entered as the final test grade.

**Powerschool**--You and your parents should check the online PowerSchool gradebook weekly! (Mondays are best.) **It's worth emphasizing that passing Earth science is a requirement to graduate from BUHS. If you come prepared, do your work each day (including homework), and seek help when you need it, you will succeed.**

## Makeup Policy and Late Work

- If you are absent, **making up what you missed is your responsibility!**
- Check Google Classroom and the calendar on my website for missed assignments, check “the crate” for any missed handouts, and check with me. Then schedule a time with me to make up any missed lab work, tests, or quizzes.
- **Assignments due on a day you are absent are due as soon as you return** (example: if you're absent Monday and something was due, put it in the inbox as soon as you return on Tuesday).

- **You have until the second school day following your return to make up any new assignments** (for example: if you're absent Monday and return on Tuesday, get the assignment from Monday and hand it in by Thursday).
- **Make-up times:** before/after school (see below), study halls, or sometimes ACE.
- If you have an extended absence, see me and we'll come up with a plan to get you caught up.

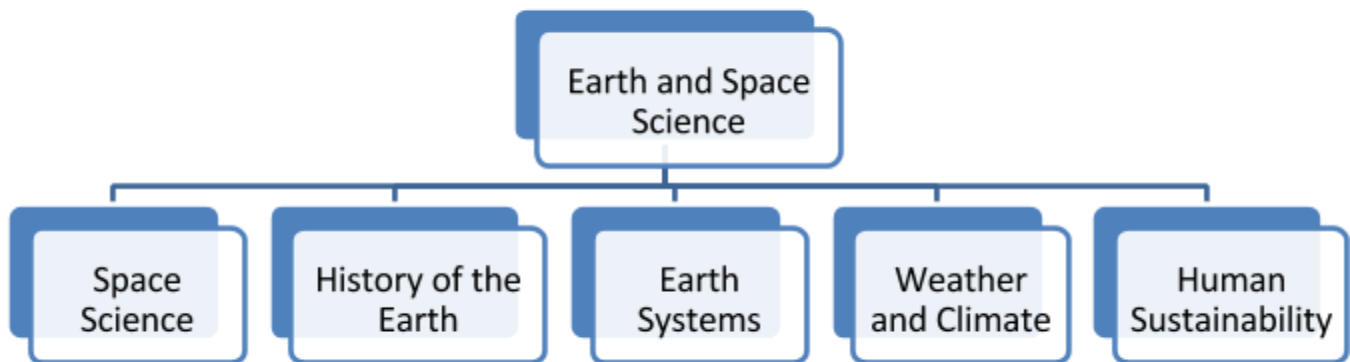
### **Questions? Concerns? Need extra help? Talk to me!**

- **Don't ever hesitate to come see me. That's why I'm here. Talk to me early and often.**
- My office hours are Monday and Wednesday after school from 3:30 – 4:05pm.
- **If you or your parents/guardians ever need to reach me for any reason, my school phone number is (802) 451-3753 and my email address is [blord@wsesu.org](mailto:blord@wsesu.org)**
- My website has useful links at [lordscience.weebly.com](http://lordscience.weebly.com)

### **Success in Earth Science**

You will do well, and you will have a good time in Earth science if you put your heart and mind into it. Be in class. Be involved. Ask questions. Listen. Cooperate. Review your notes. Do your homework. Identify your strengths, and use them wisely. Improve on your weaknesses. See me for help. Take the initiative. And you will be successful.

**I'm looking forward to a great semester with you!**



# Earth and Space Science Graduation Standards by Unit

Unit	Graduation Standards
History of Earth	6e (HS-ESS1-5): Age of Crustal Rocks as Evidence of Plate Tectonics 6f (HS-ESS1-6): Formation and Early History of Earth <b>7a (HS-ESS2-1): Landform Development</b> 7c (HS-ESS2-3): Interior of the Earth
Earth Systems	7b (HS-ESS2-2): Feedback Effects 7e (HS-ESS2-5): Properties of Water 7f (HS-ESS2-6): Carbon Cycling 7g (HS-ESS2-7): Biogeochemical Coevolution
Weather and Climate	7j (HS-ESS3-5): Forecasting Impacts of Climate Change 7d (HS-ESS2-4): Energy Flow and Climate
Space Systems	6a (HS-ESS1-1): Life Cycle of Stars <b>6b (HS-ESS1-2): The Big Bang Theory</b> <b>6c (HS-ESS1-3): How Stars Produce Elements</b> 6d (HS-ESS1-4): Predicting Orbital Motion
Human Sustainability	7h (HS-ESS3-1): Effects on Humanity 7i (HS-ESS3-3): Natural Resource Management and Sustainability <b>HS-ESS3-2 Evaluating Designs for Resource management</b> <b>7k (HS-ESS3-6): Impacts of Humanity on Earth Systems</b>

**Earth Science – Mr. Lord**  
**Syllabus signature and parental contact info sheet**  
**\*\*\*\*please cut off bottom, sign, and return\*\*\*\***

Hello parents and guardians!

Your child is in my Earth science class this semester. You're helping them get off to a good start by completing their first homework assignment right now! (Thanks!) I wanted to make sure that you got a chance to read the course policies, and in particular saw my contact information:

**802-451-3753**  
**BUHS room 233**  
e-mail: [blord@wsesu.org](mailto:blord@wsesu.org)  
Webpage: [lordscience.weebly.com](http://lordscience.weebly.com)

**\*\*\*\*Check out the Earth Science class calendar on my website. \*\*\*\***

- It says what we're doing in class each day, and the homework assignments.
- If you email me ([blord@wsesu.org](mailto:blord@wsesu.org)) please include "earth sci parent" in the subject line.

Please don't hesitate to contact me at any time. This is a fast-moving course that students need to pass in order to stay on pace to graduate. We all want that to happen!

Please don't feel you have to wait – feel free to call, email, or come by at any time!

-----Cut (or tear) here please!-----

**\*\*Please sign below to indicate that you have seen the syllabus and this form. Thank you!\*\***

Parent/ guardian preferred contact: phone email \_\_\_\_\_

Parent/guardian signature \_\_\_\_\_ Date \_\_\_\_\_

Student signature \_\_\_\_\_ Date \_\_\_\_\_

Student name (please print) \_\_\_\_\_