Thornton High School
9351 North Washington & Thornton, CO 80229
Office: (720) 972-4800 & Fax: (720) 972-4999
http://www.thorntonh.adams12.org

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School Year	2017-2018	**Teacher**	Laura L. Robertson
Office	Room 412 Open periods: 4,8	Website	https://sites.google.com/a/adams12.org/ths-science-robertson/
Phone	(720) 972-4843		
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Course Name	**ENVIRONMENTAL SCIENCE I & II – 5201 & 5202 (sem 1 & 2)**
Course Description	*Environmental Science courses examine the mutual relationships between organisms and their environment. In studying the interrelationships among plants, animals, and humans, these courses cover the following subjects: photosynthesis, recycling and regeneration, ecosystems, population and growth studies, pollution, and conservation of natural resources.* Environmental science at THS is interdisciplinary, embracing a wide variety of topics from different areas of study. The goal is to provide students with principles, concepts and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human made, and to examine alternative solutions for resolving and preventing them. Strategies for learning will include individual reading, lecture, group and partner discussion, labs, graphic organizers, documentaries, computer simulations, and individual and group research projects. This class will use the textbook Environmental Science, Withgott (2011). Additionally, other reference materials, simulations, labs, videos, and monographs will be provided and used as resources when appropriate to the classroom topics.

Unit of Study	Grade Level Expectations/Content Standards (Next Generation Science Standards) NOTE: Indented subtopics are possible actions and assessment statements addressing the Standard Indicated, and may be in multiple topics throughout the class	Approx-imate Time	Targeted Date of Assess-ment
Energy Resources *Renewable* *Non-renewable* *Alternative sources* **Chap 17,18**	**Physical Science 3: Energy** **PS 3–3:** Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. **Life Science 2: Ecosystems: Interactions, Energy, and Dynamics** **LS 2-4:** Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem **Engineering Designs** **ETS1-1**. Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. **ETS1-2.** Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. **ETS1-3**. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. **ETS1-4**. Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with	7 weeks	Oct 5, 2017
Natural Resources *Resources* *Climate* *Needs/Wants* **Chap 11,12,13,15**	**Earth & Space Systems 3: Earth and Human Activity** **ESS 3-1:** Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity. **ESS 3-2**: Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. **ESS 3-3:** Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	6 weeks	Nov 16, 2017
	Earth & Space Systems 3: Earth and Human Activity		Dec 14,

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Water **Chap 14**	**ESS 3-4:** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.	3 weeks	2017
Cycling of Matter *Biogeochemical Cycles* **Chap 3**	**Life Science 1: From Molecules to Organisms: Structure and Processes** **LS 1-5:** Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. **Life Science 2: Ecosystems: Interactions, Energy, and Dynamics** **LS 2-4:** Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. **Earth & Space Systems 2: Earth's Systems** **ESS 2-6:** Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	2 weeks - mixed into other units	Will be assessed as parts of several units
Human Impact and Sustainability *Population growth* *Interrelationships* *Land Use* *Societal Impact* **Chapters: 7,8,9**	**Life Science 2: Ecosystems: Interactions, Energy, and Dynamics** **LS 2-7:** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. **Life Science 4: Biological Evolution: Unity and Diversity** **LS 4-6:** Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. **Earth & Space Systems 3: Earth and Human Activity** **ESS 3-4:** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. **ESS 3-6:** Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. **Engineering Designs** **ETS1-1.** Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. **ETS1-2**. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. **ETS1-3**. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. **ETS1-4**. Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with	6 weeks	Feb 22, 2018
Ecosystems *Biodiversity* *Carrying Capacity* *Populations* *Trophic Levels* **Chap 4,5,6,16**	**Life Science 2: Ecosystems: Interactions, Energy, and Dynamics** **LS 2-1:** Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales. **LS 2-2:** Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. **LS 2-6:** Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem. **Life Science 4: Biological Evolution: Unity and Diversity** **LS 4-5:** Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. **LS 4-6:** Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.	7 weeks	Apr 19, 2018
Endangered and Extinct *Endangered and Extinct organisms/ Historical and current issues* **Chapter: 7**	**Life Science 2: Ecosystems: Interactions, Energy, and Dynamics** **LS 2-7:** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. **Life Science 4: Biological Evolution: Unity and Diversity** **LS 4-6:** Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. **LS 4-5:** Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.	3 weeks	May 15, 2018

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Grading Scale		Grade Percentages/Weights	
A	90-100	**Summative Assessments & Projects – at end of each unit of study**	**80%**
B	80-89	**Formative Assessments & Projects – weekly (or more frequently) on current or recent work**	**20%**
C	70-79		
D	60-69	***Weekly progress grades are posted at https://ic.adams12.org/campus/portal/adams12.isp**	
F	59 or below		

General Expectations

- Grades are based on demonstration of proficiency shown on the Standards identified for each unit, and assessed using formative and summative assessment. Formative grades and summative unit assessments will be combined to determine the overall grade (see above).
- **Summative: 80%** Summative measures of achievement are taken when unit mastery is expected. (i.e., unit tests, culmination of a project, embedded assessments, etc.) **Retakes:** Retakes will be available for 10 school days after the assessment is returned to students, to be completed in a single sitting during the student's open period or lunch. Students will need to meet with the teacher to discuss review efforts and arrange a specific time for the retake. The retake grade will replace the original grade.
- **Formative: 20%** Formative assessments measure the supported skills and/or content embedded in the progress through a unit. Formative assessments are given frequently, after a student has practiced a skill or become familiar with content. Examples of formative assessments include but are not limited to exit tickets, paragraphs, oral checks for understanding, reading comprehension questions, warm-ups, stages in a large project, etc. These assessments provide feedback for the students and the teacher on the progress students have made understanding the current material. There are no retakes for formative assessments.
- Assessments will be graded based on teacher/district/state rubrics.
- On group projects, students will receive both a grade for individual work and a group grade.
- Grades are based on achievement of Content Standards and Grade Level Expectations.
- **Missing or incomplete assignments/assessments:** Superintendent Policies 6280 Homework and 6281 Make-Up Work, will be followed for this course.

Final Exam: There is a final exam each semester for this class. The final is comprehensive over the content of the entire semester of work, and counts as a summative assessment for the semester. There is no retake available for the final exams.

Grades in Infinite Campus: Grades will be put in as quickly as possible each week. Students should check IC frequently to make sure grades are accurate and there is no missing work. Special scores will include **ne** (no evidence, 49%), and **bf** (below fifty, scored at 50% but actual score was less than 50%).

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Student Expectations:

Take Responsibility

- Students are prompt (on time) for their classes and appointments. After the fifth tardy in each quarter you will have lunch detention with Mrs. Robertson or another designated teacher. Further tardies will result in additional consequences.
- Students arrive prepared for class with notebook, paper, current unit work and handouts, and a pencil or black or dark blue pen. There is a file in the classroom where you may keep all current classwork.
- No electronic devices (music, phones etc.). I will follow the District discipline rules in your handbook. There will be "music opportunities" when we are doing individual work – but otherwise, keep these materials put away!
- If you miss a day, you must get and do all missed work on your own time. If you need help, I have periods 5 (lunch), 4, and 8 open and am generally available before school or with appointment. I most often will be in the science office (room 412). Labs and videos, in particular, are difficult to make up and generally must be made up within two days of the original date. Missed handouts will have your name on them and may be picked up from the files in the room. Notes should be gotten from friends. Remember – the schedule is posted each week on the website! Check to see what you missed!
- Check your grade and progress in IC regularly – you are responsible for noticing missing or incomplete work, and arranging to get it completed promptly.
- Once a unit is completed (Unit test is given) no further late work from that unit may be turned in.

Honor Each Other

- Students are polite to each other and to adults. Language is kept appropriate for a classroom.
- Students comply with reasonable requests from adults. Failure to comply may result in a warning, parental contact, lunch detention or a referral.

Strive for Success

- Students produce work that demonstrates their skills and abilities.
- Individual work must be your own. If work is copied, both the person copying and the person being copied from will receive a failing grade for that work.
- Students are expected to actively participate in all classroom activities.
- Students should come to class with a positive mental attitude. I encourage you to be engaged and motivated during class time, and to complete **all** assignments

Please come and see me if you need extra help, or just want to talk. I am usually available in the science office, room 412. I want each of you to have a successful year!☺

Sincerely,
Mrs. Laura Robertson