

SHSU Common Reader Program

2016-2017

Curriculum Guide

Chris Hadfield has spent decades training as an astronaut and has logged nearly 4000 hours in space. During this time he has broken into a Space Station with a Swiss army knife, disposed of a live snake while piloting a plane, and been temporarily blinded while clinging to the exterior of an orbiting spacecraft.

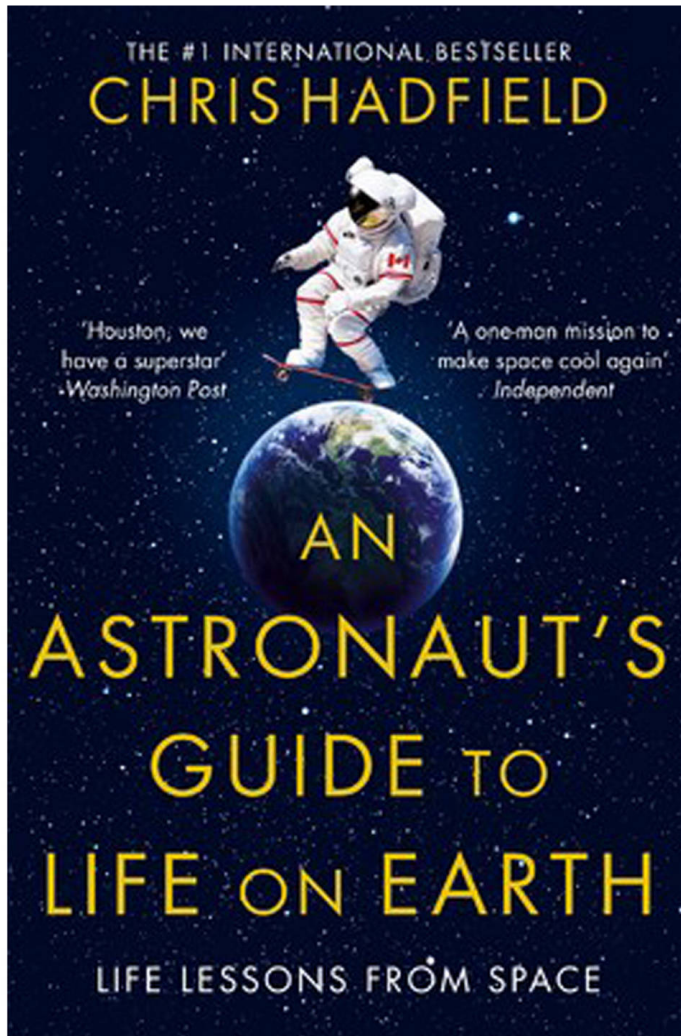
In his bestselling *An Astronaut's Guide to Life on Earth*, Hadfield takes readers deep into his years of training and space exploration to show how to make the impossible possible. Through eye-opening, entertaining stories, his vivid and refreshing insights will teach you how to think like an astronaut, and will change, completely, the way you view life on Earth—especially your own.

Curriculum Infusion Committee

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SHSU Common Reader

<http://www.shsu.edu/commonreader>



The Curriculum Guide is written as an aid to course instructors across the university to make integration of educational activities related to the common reader as straightforward as possible. Feel free to use and modify these suggestions as needed for your students. We hope the reader serves as a common educational experience illustrating to students the importance of lifelong learning and that true understanding is often interdisciplinary.

-Best regards, *the Curriculum Infusion Committee and Student Success Initiatives*

College Success		
<p>Critical Thinking Inquiry and Analysis Reflection Teamwork & Problem Solving</p>	<p>Academic Skills Health Sciences</p>	<p>Anatomical Changes Pre-reading: page 207 (“The first explorers...”) to page 209 (“...which are trickier to do.”).</p> <ol style="list-style-type: none"> 1. Create a chart with three columns: “Cause: Differences between Earth and Space,” “Effect: Anatomical Changes,” and “Solutions.” Using the information from the reading, fill in the first two columns with as many rows as possible. Since some of the effects will be negative, discuss if there are any solutions to them. If working in groups, have each group summarize and share their findings. 2. As we found in the previous exercise, changes in one’s physical environment can cause one’s body to change. This relationship is true for college students just as it is for astronauts, hence the “freshman 15.” Create a new chart with the same columns, except this time the cause will be “Differences between College and Home” and the effect will be “Mental and Physical Health Changes.” Fill in the columns with as many rows as possible based on your experiences and those of your peers. Look up a few articles on health changes in college freshmen to complete your chart. 3. For the solutions column, come up with an on-campus solution for negative effect. Your solutions can be good health strategies, workshops or wellness classes that are offered on-campus, health-related events, or services from relevant offices on campus. You’ll need to do research on the University website. 4. Choose a cause-effect row that speaks to you most and take part in the solution you’ve identified (i.e. attend a class or event or see a professional from an on-campus office). Now write a reflection that answers this prompt: <ul style="list-style-type: none"> • Give a description of the solution in which you participated. What office hosted or sponsored this solution? What is that office’s purpose? • What did you learn from the solution that you chose? • How can the solution help you to enhance your college experience and mitigate the negative effects of the transition from living at home to being a college student? • Have you been able to identify any positive mental and/or physical health effects of the cause you chose?

<p>Critical Thinking Reflection Teamwork & Problem Solving</p>	<p>Academic Skills Social Sciences</p>	<p>Death Sims Pre-reading: p. 58-65. In your own words, explain the definition and purpose of a contingency sim.</p> <p>1. In this activity, groups of students will go through a contingency sim, or “death sim.” After the initial problem is presented and students have begun to solve it, they will be presented with additional “green cards” which will complicate the problem.</p> <p>Sim 1 You are taking a math course that is a graduation and major requirement. If you do not pass this math class, you will not be able to move on to the next sequence of courses in your major. On the first day of class, you have not purchased the required text book. You order it online, but it won’t be delivered until the 2nd or 3rd week of class. Work through 1) your role in and 2) response to this problem.</p> <p>Green Card 1: Starting the 2nd day of class, you are assigned online homework modules which must be completed before the final exam. Because your textbook, which is still on its way, has the code to sign into the online modules, you are not able to start the homework.</p> <p>Green Card 2: You take your first test during the 4th week of classes. You make a 52.</p> <p>Green Card 3: While you understood the material at the beginning of the semester, you are beginning to have trouble mastering what you are taught and you are feeling overwhelmed because getting your textbook so late put you behind on your online homework modules. You dread going to class and spend much of your time worrying about this class.</p> <p>Sim 2 You registered late in the summer, so you were stuck with a few 8AM classes. It’s the 3rd week of classes and you still haven’t gotten the hang of waking up so early. You’ve missed one class period for each of your 8AM classes. Work through 1) your role in and 2) response to this problem</p> <p>Green Card 1: You are not feeling well and have decided not to go to class. However, after counting your allowed absences, you realize that you have none left.</p> <p>Green Card 2: You have serious and contagious infection and will be out of school for at least 2 weeks.</p>
<p>Critical Thinking Reflection</p>	<p>Academic Skills</p>	<p>Have an Attitude Pre-reading: page 40 (“Getting to space...”) to page 42 (... not achieve my goal”).</p> <p>For many college students, getting a good job in a specific field is their end goal. Consider for a moment, that while you will get a job when you graduate, you may not get the job that you have in mind now, the salary and quality of life that you expect, or the opportunity to live out your passion in your first, post-undergraduate position. What</p>

		attitude to you have to develop to make sure that going to college is “an end in itself” like training was for Col. Hadfield? What will this attitude look like in action? How will you approach necessary parts of the college experience that you might not be looking forward to like certain classes, group work, or professors whose teaching style you do not like?
Communication Critical Thinking Reflection Teamwork & Problem Solving	Academic Skills Business Science	<p>Is Space Exploration Worth the Cost? Pre-reading: page 204 (“I have found it frustrating...”) to page 205 (“...protects Earth from radiation”).</p> <p>1. In two pages, double-spaced, answer the following questions: Is space exploration worth the cost? Provide background information on NASA’s annual budget for the past 10 years and how this money is used. Besides direct monetary costs, are there any other costs of space exploration?</p> <p>2. Two groups will debate the question: Is space exploration worth the cost? Two more groups will each be assigned a debate group and will evaluate that group’s arguments by asking the following questions:</p> <ul style="list-style-type: none"> • “What general idea [are we] being asked to accept? • Are good and sufficient reasons given to support the overall claim? • Are those reasons backed up with evidence in the form of facts, statistics, and quotations? • Does the evidence support the conclusion? • Is the argument based on logical reasoning or does it appeal mainly to the emotions? • Do I recognize any questionable assumptions? • Can I think of any counter arguments? What facts can I muster as proof? • What do I know about the person or organization making the argument?” <p>(Gardner, J. N., & Barefoot, B. O. (2014). <i>Your college experience: Strategies for success</i> (11th ed.). Boston, MA: Bedford/St. Martin's. p. 107)</p> <p>3. Post-debate discussion:</p> <ul style="list-style-type: none"> • What were the best arguments? What made them good? • How did each group practice critical thinking? • What skills did you need to participate in this activity? • How can you use these skills in other classes and in your everyday interactions with information and with others?
Critical Thinking Reflection	Academic Skills Health Sciences	<p>Quarantine Pre-reading: pages 139-146 (“...rather than in retrospect”)</p> <p>1. In your own words, define quarantine. List the emotional, intellectual, and physical effects of the quarantine that Hadfield describes.</p> <p>2. Think about how you have felt in college before a big event like a test, presentation, or due date for an important paper. What is your emotional, intellectual, and physical state? Be as reflective and detailed in your response as you can be. Come up with a few key adjectives to describe your state.</p>

		<p>3. Compare and contrast Hadfield’s emotional, intellectual and physical state before liftoff with your state before an important academic event. If you could assign yourself a certain state of mind, which would it be?</p> <p>4. Create a quarantine for yourself like Hadfield’s. Start with the end in mind: how would you like to feel emotionally, intellectually, and physically as you sit down to take a test, turn in a completed essay, or give a class presentation? What type of environment is necessary to make this feeling or attitude possible? Be detailed in your response. You’ll need to specify the length of your quarantine and how it will ensure emotional, intellectual, and physical preparation.</p>
Reflection Inquiry & Analysis	Academic Skills	<p>Prepared, Effective Immediately Pre-reading: pages 73 – 77 (“...a dead astronaut).</p> <p>To be successful, Col. Hadfield spent time independently preparing to be a military pilot. List the things that he did to prepare for each flight. Based on the reading, estimate the percentage of his learning and preparation that happened in the classroom and the percentage that happened outside of the classroom.</p> <p>Think about your own learning and preparation as a college student. List the things that you do in any given week to learn material. Estimate the percentage of your learning and preparation that happens in the classroom and the percentage that happens outside of the classroom.</p> <p>There is research that says that 85% of college learning happens outside of the classroom (Flippo, 2009). Look at your percentages. Have you met the 85% mark? If not, develop a two week plan to move your “learning outside of the classroom” percentage closer to 85%. <i>Flippo, R. & Caverly, D.C. (2009). Handbook of college reading and study strategy research (2nd ed.). New York, NY: Routledge.</i></p>
Business		
Academic Skills	Curriculum Areas	Activity Description
Critical Thinking Reflection Diversity & Intercultural	Business Social Science	Egocentrism is defined as regarding the self as the center of all things. Using this definition, discuss whether or not you perceive the author to be egocentric. Justify your position by citing specific examples from the text. Discuss also: (a) how behaviors that might be construed as egocentric have contributed to the author’s success; (b) how egocentric behavior can exert both a negative and positive impact on the work place; and (c) as a manager, how you would deal with employees that exhibit overly egocentric behavior.
Communication Reflection Creativity Diversity & Intercultural	Business Social Science	Several times throughout the text, the author discusses the challenges associated with forming teams comprised of highly competitive individuals. Find an article in a journal for business practitioners that discusses the pros and cons of competition in the workplace. Summarize the article, specifically detailing the positive and negative impacts of workplace competition. Identify key industries, positions, or personality types that benefit from an environment with either a high or low level of competition.

Communication Critical Thinking Reflection Creativity	Business	In the business arena, mission statements are used to communicate the purpose of an organization. A mission statements provides an organization guidance in making decisions regarding its priorities, actions, and responsibilities (TopNonprofits.com). Using the article “How to Write a Mission Statement in 5 Easy Steps” (http://articles.bplans.com/writing-a-mission-statement/), develop a mission statement for the author. The mission statement should address the questions: What do you do? What do you stand for? And why do you do it?
Communication Literacy Reflection Creativity	Business Humanities Social Science	The article “ <i>Space Privatization, Tourism, and Morals</i> ” describes how space exploration is impacted by the interplay between the ethics, interests, and activities of governments, private enterprise, and the scientific community (https://www.insidescience.org/content/space-privatization-tourism-and-morals/2701). After reading this article, respond to the following question. (a) Describe how the new frontier in space is both similar to and differs from the historic spread of a business enterprise you select. (b) The author states, “NASA has very little slack in its budget for new, clever initiatives.” Identify a business area that began as a government-sponsored activity but has been privatized due to a lack of government funding or advancement. Describe how privatization has benefited and detracted from this business area. (c) What impact do you envision privatizing having on space exploration? What benefits and concerns does this opportunity offer businesses? (d) What ethical concerns do you have regarding the privatization of space?
Critical Thinking Quantitative Teamwork & Problem Solving Creativity	Business	Assume that unmanned space travel is possible and economically feasible. The company you work for is considering an investment project that will provide commercial payloads to space. Develop a cost – benefit analysis for this venture. The analysis should establish and describe (a) the cost of raising capital, (b) the initial up-front costs necessary to launch the program; (c) operating costs – both fixed and variable; (d) positive and negative externalities associated with taking on the project; and (e) cash flows generated by operations. Use the project metric techniques Net Present Value (NPV), Internal Rate of Return (IRR), Modified Internal Rate of Return (MIRR), Profitability Index (PI), payback period, and discounted payback period to determine if your company should expand into this area. Create a short report detailing your project analysis and accept/reject decision. [GROUP OR INDIVIDUAL ASSIGNMENT]
Communication Critical Thinking Quantitative Reflection Teamwork & Problem Solving Creativity	Business Education Social Science	Businesses invest substantial resources into employee training programs. A 2014 Forbes article ‘ Spending on Corporate Training Soars: Employee Capabilities Now A Priority ’ reports that in the United States alone, spending on corporate training increased fifteen percent in 2014 to over 70 billion dollars. Astronaut Hatfield’s account of his experiences corroborates the importance of skill attainment through training. Select either a task from the text or a business-related task and create a detailed training program. Your program should describe not only how you would train (step-by-step), but also the manner in which you would assess the level of skill attainment. Produce a one-page pamphlet that you could use to “sell” your training program to an employer. [GROUP OR INDIVIDUAL ASSIGNMENT]
Communication Critical Thinking Quantitative Reflection Teamwork & Creativity	Business	Create a research poster that describes the economic impact of the space industry on the U.S. economy (generally) and the Houston area economy (specifically). In your research, include information on specific sub-industries associated with and funding sources for (http://er.jsc.nasa.gov/seh/economics.html) space exploration and development. [GROUP OR INDIVIDUAL ASSIGNMENT]

Communication Critical Thinking Quantitative Reflection Teamwork & Creativity	Business Fine Arts	TED is a nonprofit organization that is devoted to spreading ideas, usually in the form of short, powerful talks (http://www.ted.com/). Create a TED talk (maximum length 18 minutes) in which you detail some aspect of business expansion into space. Upload the video to a YouTube channel created specifically for this course. Students may elect to use any available video capture software – one option is ScreencastOmatic (https://screencast-o-matic.com/home). [GROUP OR INDIVIDUAL ASSIGNMENT]
Creativity Critical Thinking Reflection	Business Social Science	A SWOT Analysis is a tool used by an organization to better understand its strengths and weaknesses, and to identify the opportunities and the threats associated with a particular venture (https://www.mindtools.com/pages/article/newTMC_05.htm). Using information detailed in the text, create a personal SWOT for astronaut Hatfield regarding his space flight.
Communication Reflection Teamwork & Problem Solving Creativity	Business Fine Arts	Leonid Krasnozhan’s 2013 article in the Journal of Private Enterprise describes how to use music to teach principles of economics (<i>Using Popular Music to Teach Principles of Economics: Beyonce’s Take on Demand and Quantity Demanded</i>). Select a song and replace the lyrics with business-related terms associated with the space industry. Record a music video of your group performing this song. [GROUP PROJECT]
Communication Critical Thinking Quantitative Teamwork & Problem Solving Creativity	Business Social Science	Shark Tank is a T.V. show that allows entrepreneurs to showcase innovative ideas and products and to elicit funding from venture capitalist for further product development (http://abc.go.com/shows/shark-tank/). Imagine a product that could be used in space exploration. Create and deliver a ‘Shark Tank’ presentation in which you have ten minutes to discuss the product, its potential use, and a detailed cost benefit analysis. Your intent is to convince investors to provide funding for your product. [GROUP OR INDIVIDUAL ASSIGNMENT] [COULD BE USED AS A CLASS COMPETITION]
Criminal Justice		
Communication Teamwork & Problem Solving	Criminal Justice Social Science	Compare and contrast the time and energy required to train both astronauts and those in law enforcement for “what if” scenarios that may never be used, i.e. very rare but mission critical. How can the training need be balanced with daily needs and tasks?
Critical Thinking Diversity & Intercultural Reflection	Criminal Justice Social Science	Both space travel and certain positions in law enforcement can be literally life or death. How does being in such high stress positions affect characteristics and strategies of leadership and management? How does having diverse teams with different backgrounds affect strategies of dealing with stress?
Community Engagement Critical Thinking Diversity & Intercultural	Criminal Justice Humanities Social Science	The issue of homelessness is serious in all urban areas, but has risen to very high levels in Hawaii. http://www.latimes.com/nation/la-adna-hawaii-homeless-20151115-story.html http://www.hawaiibusiness.com/homelessness-in-waikiki/ How feasible would it be to build a station or colony in space for the homeless? What are advantages/disadvantages of relocating the homeless to an isolated place such as Hawaii? What social justice steps can be taken to lower rates of homelessness?
Communication Inquiry &	Criminal Justice	The NASA Office of Inspector General employs criminal investigators to audit, review, and investigate internal programs to detect fraud, waste, abuse and mismanagement for NASA operations. Students should investigate career

Analysis Reflection		opportunities that Criminal Justice graduates might find interesting at NASA or at other government agencies not in law enforcement. Check out jobs and possible internships available. https://www.cms.gov/Medicare-Medicaid-Coordination/Fraud-Prevention/Medicaid-Integrity-Education/fwa.html Where are the jobs physically located? What is the starting pay and what types of crime might you be investigating? What interesting current or past crimes have been investigated? What additional skills would be helpful to qualify you for the jobs? What are the current job postings and what is the application process? Review NASA's Resume Guide for resume requirements. http://nasapeople.nasa.gov/home.htm Complete a report on your findings.
Communication Creativity Inquiry & Analysis Reflection	Criminal Justice Fine Arts Humanities Social Science	Whose law in space? Decades ago the United Nations Committee on the Peaceful Uses of Outer Space crafted treaties designed to govern jurisdiction in outer space. Since then the plausibility of private sector space travel has improved dramatically. New laws must be developed in order to precede the growing private sector in space travel. Investigate 3-5 peer-reviewed journal articles written since 2000 that address Outer Space jurisdiction. What are the findings and the proposed suggestions for addressing these concerns for the private sector? Report your findings in one of three creative ways: (a) create a poem, rap, or song lyric, (b) create a video depicting a TV reporter presenting the story, or (c) create a PPT presentation.
Inquiry & Analysis Reflection	Criminal Justice	In the 1700-1800's over 100,000 prisoners were transported via ship by England to their Australian colony. A number of science fiction stories have considered space prisons or penal colonies, such as Lockout (2012). What are advantages of a prison in space? Is it financially practical? What are limitations of orbiting or lunar jails? In general, are highly remote confinement operations beneficial or not?
Education		
Academic Skills	Curriculum Areas	Activity Description
Communication Creativity Critical Thinking Reflection Teamwork & Problem Solving	Education Humanities Science Social Science	Survival: Using the link provided, students work through Survival: Exploration Then and Now. After discussing NASA's priority list, students build a First Year of Teaching Survival Kit, justifying each 'item' in their kit. http://www.nasa.gov/pdf/166504main_Survival.pdf
Communication Creativity Critical Thinking Diversity & Intercultural Reflection Teamwork & Problem Solving	Education	Multiple Intelligences Inventory: Students analyze themselves using the linked MI Inventory. After reviewing and discussing their personal results, students analyze Col. Chris Hadfield based on his behaviors shown in the text. What learning activities could you as his classroom teacher use to engage Col. Hadfield in learning your content? http://www.literacynet.org/mi/assessment/findyourstrengths.html
Communication Creativity Critical Thinking	Business Criminal Justice Education	Multiple Intelligences Inventory: Students analyze themselves using the linked MI Inventory. After reviewing and discussing their personal results, students analyze Col. Chris Hadfield based on his behaviors shown in the text. What strategies would you need to use to work with Col. Hadfield in a team?

Reflection Teamwork & Problem Solving	Fine Arts Health Sciences Humanities Science Social Science	http://www.literacynet.org/mi/assessment/findyourstrengths.html
Communication Critical Thinking Quantitative Literacy Reflection Teamwork & Problem Solving	Education Social Science	Emotional Intelligence: Col. Hadfield lived in a variety of contexts. In doing so he was required to integrate with cultural norms. In class discuss some of the cultural norms/experiences in which Col. Hadfield embraced or acculturated. Identify a school district at which you would like to teach. Using Texas Academic Performance Report (TAPR), the city's website, and other appropriate sources, analyze the community culture and identify norms and activities you may be expected to adopt. Report your findings in a written account to your instructor.
Communication Critical Thinking Inquiry & Analysis Reflection Teamwork & Problem Solving	Education	Courage in the Face of Danger: Col. Hadfield faced many life and death situations throughout his career. Interview a veteran teacher about the first day they ever taught. What unexpected events were they not prepared for and how did they address the events? How can you be better prepared for what will happen on your first day and year of teaching? Make a preparedness list.
Communication Critical Thinking Reflection Inquiry & Analysis	Business Criminal Justice Education Fine Arts Health Sciences Humanities Science Social Science	Making Choices: Read pages 2-7 (hard copy) of the book. Col Hadfield made becoming an astronaut a life goal for himself at a very early age. On page 4 he says, "I recognized even as a 9-year-old that I had a lot of choices and my decisions mattered. What I did each day would determine the kind of person I'd become." Considering your chosen profession, reflect on when and how you made your career choice, what behaviors have you engaged in to prepare for this career, what 'Plan B' do you have in case your career of choice doesn't happen, and what changes should you make in your current life style to better prepare for the career that you want.
Communication Critical Thinking Reflection Inquiry & Analysis Teamwork & Problem Solving	Business Criminal Justice Education Fine Arts Health Sciences Humanities Science Social Science	Persistence: Making a career choice at such a young age made all the difference in Col. Hadfield's life. Interview someone in your chosen career who has had a long tenure (10 + years) and someone who left the profession in 5 years or less. Using a Venn Diagram, compare and contrast your interview data.
Communication Critical Thinking Reflection Inquiry &	Business Criminal Justice Education Fine Arts	Working with Colleagues: Read pages 112-116 (hard copy) about working with others. Col. Hadfield had to work closely and cooperatively with other NASA personnel to insure the success of every mission in which he was involved. Analyze your chosen career. In what ways will you need to be able to work independently? Justify your choices. In what ways will you be expected to work collaboratively with others in your field? On whom will you rely

Analysis Teamwork & Problem Solving	Health Sciences Humanities Science Social Science	in your career to have a successful and rewarding career in your chosen profession? What actions can you take and what qualities do you need to be able to create or contribute to an amicable and collaborative working environment?
Communication Critical Thinking Inquiry & Analysis Reflection Teamwork & Problem Solving	Education	Critical Decision Making: Read pages 117-120 (hard copy) about making critical decisions. In the classroom, teachers are often expected to make critical decisions each day regarding student discipline, grading, delivering lessons, etc. Using the Teacher Work Sample's Instructional Decision Making prompt as a guide, interview a veteran teacher regarding a critical decision that s/he made. Analyze the decision and consequences according to the TWS prompt.
Communication Critical Thinking Reflection Inquiry & Analysis Teamwork & Problem Solving	Business Criminal Justice Education Fine Arts Health Sciences Humanities Science Social Science	Life-Long Learning: Throughout the book Col. Hadfield talks about being a life-long learner. Research the requirements in your chosen career for continuing education after you graduate and get a job. What professional organizations exist that you can join to help address your requirements? How can you be proactive in continuing to learn and grow? Share your findings in a classroom discussion.
Communication Critical Thinking Diversity & Intercultural Inquiry & Analysis Reflection Teamwork & Problem Solving	Education	Bilingual Education: Col. Hadfield had to learn the Russian language to facilitate working with Russian cosmonauts. In your classroom you will encounter students for whom English is not their first language and who may not have strong academic language skills. Identify Best Practice research for teaching bilingual students. Identify academic language students' needs in your content to be successful. Finally, identify language acquisition barriers to success all students have in your content.
Fine Arts		
Creativity Inquiry & Analysis Reflection Teamwork & Problem Solving Communication	Fine Arts	Creativity: Choreograph and perform an original ensemble dance piece inspired by Col. Hadfield's discussion of a spacewalk. Be able to discuss the following artistic elements in it: the gestures and bodily movements of the dancers; the costumes of the dancers; the accompanying music; the stage and lighting backdrop; and the overall narrative of the dance piece.
Creativity Critical Thinking	Education Fine Arts Humanities	Social Media as Educational Tool: In the book, Col. Hadfield's son uses social media to broadcast his dad's space exploration to help promote space education to the masses. Explore the role of social media as an educational tool to help bring awareness to a topic you find important by creating and maintaining a virtual presence (e.g., Facebook).

Creativity Inquiry & Analysis Communication Reflection	Fine Arts	Being Inspired: Explore the notion of the <i>sublime</i> in creating original art inspired by Col. Hadfield seeing Earth from outer space. View actual footage on YouTube of Col. Hadfield in space and create an artistic piece (e.g., drawing, painting, photograph, sculpture, etc.) inspired from your viewings and reading of the book. Exhibit your art in class and share with your peers your unique artistic point of view.
Inquiry & Analysis Communication	Fine Arts Humanities	Adapting Popular Music: Compare and contrast David Bowie’s original ‘Space Oddity’ with Col. Hadfield’s adaptation of it. Discuss how popular music is used in the book to help personalize and promote Col. Hadfield’s life journey as an astronaut.
Creativity Reflection Teamwork & Problem Solving Inquiry & Analysis	Fine Arts	Creativity: Compose and perform an original ensemble musical composition inspired from any aspect of the book that pertains to Col. Hadfield’s experiences as an astronaut. What types of sounds/sonorities, rhythms, textures, instrumentation, and formal elements do you find musically and extra-musically engaging for your composition? Be sure to give your composition a descriptive title appropriate for your intended soundscape.
Reflection Communication Critical Thinking Teamwork & Problem Solving	Fine Arts	Emotional Intelligence: In the book, part of Col. Hadfield’s training at NASA was <i>play acting</i> various scenarios for training purposes. In small groups with your peers, devise and act out various scenarios and situations that you may be placed in as both a current student at SHSU as well as a future employee in your chosen field. Upon completion, critically reflect on the play acting for <i>pros</i> and <i>cons</i> , comparable to the simulation procedures outlined in the book.
Health Sciences		
Critical Thinking Inquiry & Analysis Reflection	Health Sciences Science	Breaking bad bone: Astronauts on the International Space Station (ISS) spend extended periods of time in zero gravity. Col Hadfield describes being too weak to stand after returning to Earth. What physiological processes must be considered when thinking of an astronaut’s skeletal system after a long time in space? Which mechanisms would be affected by such conditions? How could we keep astronauts healthy during long periods at zero gravity?
Communication Creativity Critical Thinking Reflection Inquiry & Analysis	Health Sciences Science	Space First Aid: Walking in space is the ultimate experience for an astronaut! The intricacies involved in the maintenance of the astronaut’s life while they are walking and/or floating are of utmost importance due to the physical nature of space. Colonel Hadfield discusses in length the physical process that can occur to the human body when an accident occurs in space. Using the physiological and first aid knowledge you have learned in your coursework, prepare a timeline of the systematic closure of the body systems when they are depleted from oxygen in regard to biological and clinical death.
Communication Creativity Critical Thinking Diversity & Intercultural Reflection Inquiry & Analysis	Health Sciences Humanities	Dimensions of Wellness and Health: The domain of wellness includes the important interactive dimensions of physical, social, mental, spiritual, intellectual, and vocational health. The reader provides examples of the Colonel and his colleague’s personal and professional experiences that relate to these dimensions. Create a wellness ladder that focuses on each dimension of health that includes the following items: 1) a description of the specific dimension and its relevance to overall health and quality of life; 2) a discussion of the specific dimension highlighted in the reader that includes the page number in the reader; and 3) an analysis of the specific dimension as it relates to the individual, how they reacted in the particular situation, and the effect the experience had on their overall quality of health and wellness.

Communication Creativity Critical Thinking Diversity & Intercultural Quantitative Literacy Reflection Inquiry & Analysis Teamwork/ Problem Solving	Health Sciences Science Education Humanities Business	Sportsmanship in Space: Teamwork is a fundamental element in space preparation and travel. Throughout the reader, Colonel Hadfield describes the components of teamwork and the detailed steps that are involved in developing the space team. He describes the profession as a <i>sport</i> that relies on the principles of positive sportsmanship for a successful and safe journey both in space and in the command center. Develop a reflection paper that describes an incidence where sportsmanlike behavior was practiced and it positively impacted your life. Also include examples of times when unsportsmanlike behavior was followed and the impact it had on your self-esteem. Include in your reflection the elements of good sportsmanship and how it carries over into the social, physical, mental, and intellectual dimensions of health and wellness.
Communication Critical Thinking Quantitative Literacy Reflection Inquiry & Analysis	Health Sciences Science	Astronaut Nutrition Plan: Dietary selections and healthy nutrition are critical in space travel. Develop a profile of the “Astronaut Nutritional Plan” that describes the typical meal plans that astronauts follow while traveling in space. Discuss the nutritional elements that may be void in their diets because of the limitations of the space capsule and how these deficiencies can create physical health problems in the astronauts. What suggestions do you have to help overcome these nutritional challenges? What are your suggestions for food items that could be eaten while an astronaut is walking/floating in space so they will not become weak and their body systems begin to shut down?
Communication Creativity Critical Thinking Reflection Inquiry & Analysis	Health Sciences Science Education Humanities Business Fine Arts Criminal Justice	Motivational Quotes: Colonel Hadfield has provided a reader that is full of life lessons that include quotes, examples of experiences, and suggestions for dealing with crisis in life. Select a phrase from the book that has special meaning in your life and develop a summary as to how the phrase/quote relates to the many aspects of your life. Please include the page number of the phrase/quote in your summary and provide specific examples of the application of the quote in your school, social, and work life in your summary.
Critical Thinking Inquiry & Analysis Creativity Reflection	Health Sciences	The Dream: When, at 9 years of age, Col. Hadfield decided to be an astronaut, he decided to do what a 9-year-old would need to do, at that time, to be an astronaut one day (eat healthily, get plenty of sleep, read books, etc.). When contemplating a healthy lifestyle change how could one employ Col. Hadfield’s strategy of imagining the future and then doing what is needed, at the present time, to get there? Using the examples of improved cardiovascular fitness and decreased risk of cardiovascular disease list the things a person would need to begin doing at the present time.
Communication Critical Thinking Inquiry & Analysis Reflection	Health Sciences	Healthy Lifestyle Journal: Another important aspect of preparation for successful space travel is the anticipation and contingencies of problems and obstacles that the flight might encounter. List the benefits of keeping a journal that reflects on successes and failures throughout the journey to achieving a healthy lifestyle goal. An interview or video analysis of someone who has improved his/her physical health and/or fitness in spite of some failures along the way can be included.
Critical Thinking Inquiry & Analysis	Health Sciences	Fitness for Life: In order to help achieve his goal of becoming an astronaut, Col. Hadfield threw himself into his studies with a strong sense of purpose. List and discuss the steps one would take to learn about how to acquire and achieve elements of improved physical fitness; for example, improved cardiovascular endurance, muscular strength,

Reflection		body composition.
Critical Thinking Creativity Inquiry & Analysis Reflection	Health Sciences	Training Camp: The physical training to be able to handle the rigors of space was a large part of Col. Hadfield's preparation for his shuttle journey. To learn how to walk in space took hours of practice and training. Develop a specific plan for improving muscle strength and endurance. Include determining risk vs. benefit, muscle groups to be worked, mode, correct form, resistance, frequency and duration. Develop a specific plan for improving cardiovascular endurance including the same elements.
Humanities		
Communication Critical Thinking Reflection Diversity & Intercultural	Humanities Social Sciences	On page 10, Col. Hadfield writes about an event that was heartbreaking but turned out for the best later. Reflect on your own life. Think about a time when you were devastated by a turn of events that later provided an opportunity. Bring into your processing the Chinese symbol for both crisis and opportunity. Process your thinking about the crisis in your life that made way for an opportunity. Share your insight in a brief essay. End your essay by sharing how you would encourage others to see a crisis as an opportunity. As your thinking progresses, how does your cultural heritage encourage dealing with crises?
Communication Critical Thinking Reflection Teamwork & Problem Solving	Humanities Social Sciences	On page 99, first full paragraph, Col. Hadfield described his first year in Houston. He shares how lonely it was for him and his family. Problem-solve, with just the information you have of the family from reading the book, how they could be less lonely as individuals and as a family. Make your suggestions specific. Then write the family a letter delineating your suggestions. Team with a peer to collaborate on the letter if you desire.
Science		
Critical Thinking Inquiry & Analysis Teamwork & Problem Solving	Fine Arts Humanities Science	Spaced out videos: Chris Hadfield played David Bowie's "Space Oddity" while on board the International Space Station. https://www.youtube.com/watch?v=KaOC9danxNo He pushed the edge of the human experience and earned a spot as a Guinness World Record holder for first music video in space. Would it be possible to push this boundary by recording a music video out in space (outside of the ISS)? Why or why not? What factors must be taken into consideration and how would you overcome them to produce such a video?
Community Engagement Creativity Critical Thinking Inquiry & Analysis Teamwork & Problem Solving	Science Social Sciences	An astronaut's eye view: Chris Hadfield saw the Earth from the International Space Station (ISS). The experience made a great impression on him. He states that seeing the Earth in such a way makes most astronauts more aware of the environment and environmental issues. What are human driven, environmental impacts he could have seen <u>from the ISS</u> ? Of those, which should we tackle first for greatest impact? Why? Discuss your ideas in a group.
Communication Creativity Critical Thinking Inquiry & Analysis Teamwork &	Science	Micro-manipulations: There is a very limited amount of space on the International Space Station (ISS). Because of this, many of the experiments are smaller in scale - but not in creativity or importance. What are some problems you and your team could investigate on the ISS? It could range in scale from microbiota to flora or fauna. The world ISS is your oyster. Write up a proposal for such an experiment. Include the problem, hypothesis, experimental design, expected results, and justification for including it on the ISS. http://www.nasa.gov/mission_pages/station/research/rsch_proposal.html#lifec

Problem Solving		
Critical Thinking Inquiry & Analysis Teamwork & Problem Solving	Science	A tectonic tableau: Chris Hadfield saw the Earth from a vantage point Sir Alfred Wegener would be jealous of. What are some of the geological features he would have seen from space and how were these features created? Hadfield learned what he could about geology to be a better astronaut. Why might an astronaut need training in geology? What other areas/disciplines are affected by geology?
Critical Thinking Inquiry & Analysis Reflection	Health Sciences Science	Telomeres and time-dilation: Astronauts experience time differently than we do on Earth. They also age at different rates. Why might this be? What factors do astronauts need to consider when thinking about time and “age”? Aging can be thought of in two different senses, both physical and physiological. What is the difference?
Creativity Critical Thinking Inquiry & Analysis Reflection	Health Sciences Science	Parasitic passengers: A crew of astronauts are voyaging to a distant planet. They will be confined to a space craft for several years. You and your team have been hired to work with NASA to identify potential parasites that could be inadvertently brought on board. http://www.cdc.gov/parasites/ How will you identify and treat the passengers’ potential parasite load? <i>Extension:</i> If the voyage were to take generations, should all parasites be eliminated from a population? Why or why not?
Creativity Critical Thinking Inquiry & Analysis Reflection	Health Sciences Science	Bacterial boon or barrier?: It has been estimated that the number of microbe cells is five times greater than that of their human host cells on any given human. If several astronauts were to launch into space, should they fully eliminate their bacterial load? Why or why not? How does the duration of the trip affect your answer? What effects do the microbes on humans have on their health? http://hmpdacc.org/overview/about.php http://www.ubiomeblog.com/
Critical Thinking Inquiry & Analysis Quantitative Literacy	Science	The power of negatives-force, work, and power: Chris Hadfield describes the harrowing landing of the Soyuz . Why do space agencies need to prepare capsules for extreme temperatures? What would a force diagram look like for when the capsule enters the Earth’s atmosphere? What would the force diagram look like at the time of impact? <i>Extension:</i> How do the landing devices used to decelerate the Soyuz (and its passengers) compare to those in a modern vehicle?
Critical Thinking Inquiry & Analysis Quantitative Literacy Teamwork & Problem Solving	Science	Free falling physics: Chris Hadfield posted many videos while aboard the International Space Station (ISS). Why does he always appear to be floating? Shouldn’t the Earth’s gravity affect him? Calculate the gravitational force exerted on him and elaborate why/how he is, or appears to be, floating. <i>Extension:</i> Will the ISS ever hit the ground? Why or why not? What other factors might affect this?
Critical Thinking Quantitative Literacy Teamwork & Problem Solving	Science	The ISS orbits once every 90 minutes, give or take. Use Kepler’s Third Law to determine the altitude of its orbit relative to 1) a geostationary satellite with an orbital period of 24 hours; 2) the Moon, with an orbital period of 27.3 days. Given your results, how practical would it be for astronauts in the ISS to repair a geostationary satellite or take a side trip to the Moon?
Critical Thinking Quantitative	Science	In the book, Hadfield repeatedly refers to microgravity, zero-g, and freefall. Using Newton’s Law of Universal Gravitation, determine the force of gravity on Chris Hadfield’s 4-kg guitar while 1) on the launching pad; and 2) in

Literacy Teamwork & Problem Solving		the ISS (altitude 400 km). By what percentage has the force of gravity changed when the guitar is in orbit?
Critical Thinking Quantitative Literacy Teamwork & Problem Solving	Science	Hadfield has uploaded a host of videos to YouTube about his adventures on the ISS: https://www.youtube.com/watch?v=o8TssbmY-GM&list=PLPfak9ofGSn9vOEKlz328i4xQQq7e0kjc Why does he appear to float? Why do the objects around him appear to float? (“Mixed Nuts In Space” is a good short video to demonstrate this behavior; “Chris Hadfield’s Space Kitchen” is another good one) Looking back at your computations for the force of gravity on the guitar, is it because there is, in fact, zero (or a very small) force of gravity?
Critical Thinking Teamwork & Problem Solving	Science	If gravity is an attractive force, why is the ISS not pulled to the ground like any other falling object? This “Newton’s Cannon” demo should help with that question. Adjust the muzzle speeds until you have the cannon ball land ¼ of the way around Earth; ½ way around Earth; just orbiting Earth; shot out of Earth’s gravitational grasp: http://galileoandstein.physics.virginia.edu/more_stuff/flashlets/NewtMtn/NewtMtn.html
Critical Thinking	Science	On Earth, massive objects like the Hubble Space Telescope are hard to move around. How do the astronauts in the ISS seem to move massive objects with such ease?
Critical Thinking Inquiry & Analysis	Science	Micrometeorites: Col. Hadfield describes on page 199 the sounds of micrometeorites hitting the International Space Station. He mentions that the ISS has shielding to protect it from the small ones, including metal over the windows while they are sleeping, but that none of it would be much use for a big meteorite. Research how big a meteorite the ISS is estimated to withstand and how would you improve upon this shielding. https://www.nasa.gov/mission_pages/station/main/index.html
Critical Thinking Inquiry & Analysis Teamwork & Problem solving	Science	Telescopic: The original U.S. space station, Skylab, had a telescope on it that was used to study the Sun. The International Space Station did get a telescope as well during Col. Hadfield’s stay there, but it is impractical to use for any astronomical observing. Compare and contrast these two telescopes and present your findings. How would the current telescope on the ISS need to be modified to facilitate observations other than the ground? http://solarscience.msfc.nasa.gov/Skylab.shtml http://www.nasa.gov/mission_pages/station/research/experiments/867.html#description
Critical Thinking Inquiry & Analysis	Science	Astronaut Scott Kelly recently (spring 2016) returned to Earth after a full year on the ISS, and he found that he was considerably taller than his twin, who had stayed on Earth. Why? What other sorts of physiological changes occur in space? (https://www.youtube.com/watch?v=o8TssbmY-GM&list=PLPfak9ofGSn9vOEKlz328i4xQQq7e0kjc has a set of videos about the changes to the senses) How do astronauts try to prevent or at least alleviate these problems? What are some of the serious issues that will have to be addressed if humans are ever to go to Mars?
Critical Thinking inquiry & Analysis Teamwork & Problem Solving	Science	If you go to this website http://spaceweather.com/flybys/ , you can find out when various manmade satellites will be visible from your zip code. One frequent object in our night sky is the ISS, which is very bright. Find out when the ISS will next be visible from where you are. How long does it stay “up” in the sky? Which direction does it come from? If the ISS orbits every 90 minutes, why don’t we see it several times each night? [Hint: look at this website to see how it ‘tracks’: http://www.isstracker.com/] The maps we see on computer screens are always 2D. Try to create a physical/kinesthetic model that shows how the ISS is moving and how Earth is moving simultaneously.

Social Science

Communication Creativity Critical Thinking Reflection	Art Humanities Social Sciences	On page one of the book, Col. Hadfield describes a sunrise. His metaphor is a layer cake. Choose a image from a Goggle image search for “sunrise” and create a metaphor for your image. Describe it in detail; let your imagination run wild.
Communication Creativity Critical Thinking Reflection	Art Humanities Social Sciences	Take a photo of a sunrise. See how Col. Hadfield described a sunrise on page 1. Give exotic names to your sunrise colors. There is a website devoted to exotic color names https://www.wordnik.com/lists/exotic-color-names When you have chosen your names, explain why these particular names appealed to you. Be as creative as your mind will let you.
Communication Creativity Critical Thinking Reflection	Art Humanities Social Sciences	Col. Hadfield describes a view of continents from space this way: <i>Continents splay themselves out whole, surrounded by islands sprinkled across the sea like delicate shards of shattered eggshells.</i> Choose an image from a Google image search for “continents from space” and write a creative description using similes as he did.
Communication Creativity Critical Thinking Reflection	Art Humanities Social Sciences	Research the science of color. You can use this link or research other websites. http://designshack.net/articles/graphics/the-science-behind-color-and-emotion/ Write an essay about how color influences/impacts different phases of our lives. For you, particularly, how do colors influence you? What is your favorite color and why?
Communication Creativity Critical Thinking Reflection	Art Education Humanities Social Sciences	Because of his experience with the Moon, on page three he writes about when he was a younger adult: <i>I looked up at the Moon. It was no longer a distant, unknowable orb but a place where people walked, talked, worked and even slept.</i> At the age you are today, how would you describe the Moon? Write a brief essay about it. Then, ask different aged children about the moon. Compare your response to theirs. What do you deduce from this comparison?
Communication Creativity Critical Thinking Reflection	Humanities Social Sciences	Review pages three through seven. How would you describe the calculated way Col. Hadfield revealed his desire/career goal to this family? Write about a personal experience in which you were calculated or wish you had been more calculated in telling someone about a surprising goal of yours. Write about your power of persuasion, what you have learned about persuasion through your years of living, and what you would tell a friend who had a big secret to tell.
Communication Critical Thinking Reflection	Humanities Social Sciences	On page 7 of the book, Col. Hadfield writes of an event that influenced his life more than anything else at the time. Reflect on your own life. What influenced your decision(s) to become who you are today? Write a brief essay about one or more events that turned out to be defining moments in your life.
Communication Creativity Critical Thinking Reflection	Humanities Social Sciences	On page 9, Col. Hadfield writes about a time when his wife convinced him not to do something she thought would make him unhappy in the long run and collaterally make her unhappy as well. Reflect on your own life. How do decisions you make about your life affect those in your proximity, whether they be family, friends, or colleagues. Draw a diagram or diagrams showing how others have been affected by your decision(s). Then write a brief essay describing your diagrams and decisions and their effects.
Communication	Humanities	Anytime one applies for a slot where there are many applicants, as did Col. Hadfield in his quest to be an astronaut,

Critical Thinking Reflection Diversity &	Social Sciences	someone is going to face disappointment. Reflect on your own life. How do you manage disappointment in your life? Write an essay answering this question and give examples to support your contention.
Communication Critical Thinking Reflection	Social Sciences	On page 17, Col. Hadfield writes about his emotional response to making the final cut to be an astronaut. He writes, "...my main emotion was not joy or surprise or even huge enthusiasm. It was an enormous rush of relief..." Reflect on your own life. Discuss a time when your emotional response was not what you expected. Share your thoughts with your peers and respond to what they have to share in this respect.
Communication Critical Thinking Reflection	Social Sciences	On page 19, Col. Hadfield declared he had to learn to think like an astronaut. At least one of your roles at this time is one of student. How does one think like a student? Write a persuasive essay informing a student how to think like a student.
Communication Critical Thinking Reflection Diversity & Intercultural	Social Sciences	Reread chapter 3. Col. Hadfield was a Canadian by birth, was chosen by NASA to be an American astronaut, and went to Russia to fly a shuttle with Russian cosmonauts to the International Space Station (ISS). Write a descriptive of essay regarding how he trained for the astronaut program and what he did to prepare to succeed in Russian's space program and live for a time with cosmonauts. Add to your essay how you have trained to be multiculturally competent.
Communication Critical Thinking Reflection Diversity & Intercultural	Humanities Social Sciences	In chapter 3, Col. Hadfield describes a fire at the ISS. He talks about how there was a Russian side and the American side for sleeping. Ponder the reason for this arrangement. How did these two cultures react to the fire? Compare and contrast how each team "worked the problem." What do you think the Americans learned from the cosmonaut approach? What do you think the Russians learned from the astronaut approach? How might this experience of living and working together change the thinking/feeling of one culture toward the other?
Communication Critical Thinking Reflection Teamwork & Problem Solving	Humanities Social Sciences	In chapter 3, Col. Hadfield shares how he learned of the Columbia tragedy and the grief that followed. Relate it to Kubler-Ross's Stages of Grief. Think about a time when you lost somebody unexpectedly. How did you experience the stages? Share your ideas with your peers. Refer here if unfamiliar with Kubler-Ross's work: http://psychcentral.com/lib/the-5-stages-of-loss-and-grief/
Communication Critical Thinking Reflection	Humanities Social Sciences	Reread chapter 4. Col. Hadfield relates an experience when he was being evaluated in a simulation flight. He made several mistakes and was sure he would obtain a re-ride. Although the evaluator did not actually assign a re-ride, Col. Hadfield used this incident to avoid a re-ride again. Describe what he did. What kind of determination did this require? When have you showed such determination? Describe it, what you did, and the outcome.

Additional Resources

NASA page for higher education: <https://www.nasa.gov/audience/foreducators/postsecondary/index.html>
The Texas Space Grant Consortium: <http://www.tsgc.utexas.edu/index.html>
Hadfield's Youtube channel: <https://www.youtube.com/user/ColChrisHadfield>
Hadfield's Twitter account: @Cmdr_Hadfield
Hadfield on Facebook: AstronautChrisHadfield
Official Hadfield website: <http://chrishadfield.ca/> with links to Pinterest, Tumblr, Soundcloud, and Instagram
SHSU First Year Experience: <http://www.shsu.edu/dept/fye/>

Association of American Colleges and Universities commentary on common reading programs: <https://www.aacu.org/publications-research/periodicals/creating-common-ground-common-reading-and-first-year-college> While not mentioned, our program has the best elements.