

**United States Botanic Garden's Fairchild Challenge Options
Aligned with the DCPS Standards**

Challenge	7 th Grade	8 th Grade	9 th Grade
<p>OPTION ONE: Sci-fi Comic Book: A World Without Plants</p> <p>Create a comic-strip book describing a world without plants.</p> <p>Comic book cannot exceed front and back of an 8 ½ X 11 sized paper. You may choose to fold the paper or not. Frames must be at least two inches in depth.</p> <p>Research the importance of plants and imagine what our world would be like without plant life. What would be different? Would anything be the same?</p> <p>Describe the situation in your writing. Be sure to paint a vivid picture with your words. Write from a personal perspective giving your own observations. Leave the reader with the impression that he or she really knows what an Earth without plants would be like based on your description.</p> <p>Books will be judged on creativity, relevance to theme, accuracy, writing skills, research, and personal observations.</p>	<p>Grade 7: Science:</p> <p>7.7.8. Recognize that the environment may contain dangerous levels of substances that are harmful to human beings. Therefore, the good health of individuals requires monitoring the soil, air, and water as well as taking steps to keep them safe.</p> <p>7.8.2. Describe how two types of organisms may interact in a competitive or cooperative relationship, such as producer/consumer, predator/prey, parasite/hosts, or as symbionts.</p> <p>7.6.5. Using specific examples, explain that the extinction of a species is a result of mismatch of adaptation and the environment.</p> <p>7.8 Broad Concept Organisms in ecosystems exchange energy and nutrients among themselves and with the physical environment: (5) Describe how organisms that eat plants break down the plant structure to produce the materials and energy that they need to survive, and in turn, other organisms consume them, (7) Describe how , as any population of organisms grows, it is held in check by one or more environmental constraints</p> <p>7.8.3. Illustrate and explain how plants use the energy from light to make simple sugars, and more complex molecules, from carbon dioxide and water through a process called photosynthesis. Understand this produces food that can be used immediately or stored for later use.</p> <p>7.8.4. Create a food web to explain how energy and matter are transferred between producers and primary consumers and secondary consumers.</p> <p>Grade 7: Language Arts:</p>	<p>Grade 8: Language Arts</p> <p>8. W-I.1. Write stories or scripts that include, • well-developed characters and setting, • dialogue, • clear conflict and resolution, and sufficient descriptive detail.</p> <p>8. IT-E.2. Explain how an author uses word choice and organization of text to achieve his purposes.</p> <p>8. W-R.6. Revise writing for word choice using a variety of references, appropriate organization, consistent point of view, and transitions among paragraphs, passages, and ideas.</p> <p>8. IT-DP.4. Evaluate the adequacy of details and facts to achieve a specific purpose.</p> <p>8.IT-A.6. Distinguish facts from opinions in selections such as editorials, newspaper articles, essays, reviews, and critiques, providing supporting evidence from the text.</p> <p>8. LT-F.4. Determine how central character's qualities influence the resolution of the conflict.</p> <p>8. LT-F.6. Analyze the influence of setting on the problem and resolution.</p> <p>8. R.1. Apply steps for obtaining information from a variety of sources, organizing information, documenting sources and presenting research in individual and group projects.</p> <p>8. W-I.1. Write stories or scripts that include well-developed characters and setting, dialogue, clear conflict and resolution and sufficient descriptive detail.</p> <p>8. W-E.3. Write content-based research reports that pose relevant questions and have a clear controlling idea; support main idea(s) with details, facts and explanations from multiple authoritative sources and organize them effectively; organize and record information on charts, maps and graphs as appropriate; use quotations, footnotes</p>	<p>High School Biology</p> <p>B.5. Broad Concept (1-7) Evolution and biodiversity are the result of genetic changes that occur in constantly changing environments: (2) Explain how a large diversity of species increases the chance that at least some living things will survive in the face of large or even catastrophic changes in the environment.</p> <p>B.6. Plants are essential to animal life on Earth.</p> <ul style="list-style-type: none"> Recognize that plants have a greater problem with “unpredictable environments” because they cannot seek shelter as many animals can. Explain the photosynthesis process: Plants make food in their leaves and chlorophyll found in the leaves can make food the plant can use from carbon dioxide, water, nutrients, and energy from sunlight. Explain that during the process of photosynthesis, plants release oxygen into the air. <p>B.8. Stability in an ecosystem is a balance between competing effects.</p> <p>Environmental Science</p> <p>E.2. The environment is a system of interdependent components affected by natural phenomena and human activity.</p> <p>E.3. Stability in an ecosystem is a balance between competing effects.</p> <p>E.4. The amount of life any environment can support is limited by the available energy, water, oxygen, and minerals, and by the ability of ecosystems to recycle organic materials from the remains of dead organisms.</p> <p>E.7. Energy and matter have multiple forms and can be changed from one</p>

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	<p>Language Arts Cont'd: presentations using word-processing skills and principles of design (e.g. margins, tabs, spacing, columns, page orientation, graphics). Visual Arts-Grades 7 ,8 and 9-12 Structures and Functions Content Standard 2 Reflecting and Assessing Content Standard 5 Making Connections Content Standard 6</p>		<p>information and presenting research. 9. W-I.1. Write well-organized stories that include an explicit theme and sensory details and concrete language to develop plot characters. Visual Arts-Grades 7 ,8 and 9-12 Structures and Functions Content Standard 2 Reflecting and Assessing Content Standard 5 Making Connections Content Standard 6</p>
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<p>OPTION TWO: GREEN TREASURES:</p> <p>TRADITIONAL USES OF PLANTS</p> <p>Inter-generational interviews provide a wealth of information about little-known uses of plants. Interview an older relative or neighbor about interesting ways that people use or have used plants.</p> <p>Conduct further research on an interesting, useful plant identified by your interviewee. Include the name that your senior used for the plant, the English common name, and the scientific name.</p> <p>Each student summary must include:</p> <p>A 1- to 2-page summary. From ½ to 1 page must be dedicated to the interview in general, and from ½ to 1 page to the specific research information on the useful plant selected from the interview. Identify your interviewee and quote him/her. A picture or drawing of the interviewee and plant must be included on a separate page. Any other photos, illustrations, bibliography, etc. should also be included on a separate, single page.</p> <p>Entries will be judged on the details of the interview, information obtained on the specific plant, how information was derived, relevance to theme, and presence of a photo or illustration of the interviewee, writing, and grasp of ethnobotany.</p>	<p>Grade 7: Science</p> <p>7.3. Broad Concept: Similarities are used to classify organisms since they may be used to infer the degree of relatedness among organisms.</p> <p>7.3 At 2. Recognize and describe that biological classifications are based on how organisms are related; Organisms are classified into a hierarchy of groups and subgroups, with species as the most fundamental unit.</p> <p>Grade 7: Language Arts</p> <p>7. EL.2. Identify all parts of speech and types and structures of sentences.</p> <p>7. LD-0.2. Ask probing questions to elicit information, including questions about the evidence that supports the speaker’s claims and conclusions.</p> <p>7. LD-0.5. Determine the speaker’s attitude of point of view toward the subject.</p> <p>7. IT-DP.4. Respond appropriately to a set of instructions and complete a task.</p> <p>7.R.1 Apply steps for obtaining information from a variety of sources, organizing information, documenting sources, and presenting research in individual and group projects</p> <p>7. W-E.2. Write summaries of passages that group related ideas and place them in logical order, contain main ideas and significant details of the passage and reflect the underlying meaning of the source.</p> <p>7. W.-R.5. Revise writing to improve organization and word choice after checking the logic of the ideas and the precision of the vocabulary.</p> <p>7. M.2 Create multimedia presentations using word-</p>	<p>Grade 8: Language Arts</p> <p>8. R.1. Apply steps for obtaining information from a variety of sources, organizing information, documenting sources and presenting research in individual and group projects</p> <p>8. W-E.3. Write content-based research reports that pose relevant questions and have a clear controlling idea; support main idea(s) with details, facts and explanations from multiple authoritative sources and organize them effectively; organize and record information on charts, maps and graphs as appropriate; use quotations, footnotes or endnotes and a standard format for works cited.</p> <p>8. W-R.6. Revise writing for word choice using a variety of references, appropriate organization, consistent point of view, and transitions among paragraphs ,</p> <p>8. LD-0.3. Paraphrase the speaker’s purpose and point of view and ask relevant questions concerning a speaker’s content, delivery and purpose.</p> <p>passages and ideas.</p> <p>8.EL.1 English Language Conventions</p>	<p>High School Biology</p> <p>B.6. Broad Concept: Plants are essential to animal life on Earth.</p> <ul style="list-style-type: none"> Describe the structure and function of roots, leaves, flowers, and stems of plants. Identify the roles of plants in the ecosystem: Plants make food and oxygen, provide habitats for animals, make and preserve soil, and provide thousands of useful products for people (e.g., energy, medicines, paper, and resins). <p>Grade 9: Language Arts</p> <p>9. LD-V.8. Determine the meanings of multiple-meaning words by using context.</p> <p>9. LD-V.9. Determine meanings, pronunciations, contextually appropriate synonyms, antonyms, replacement words or phrases, etymologies, and correct spellings of words using dictionaries, thesauri, and histories of language and books of quotations.</p> <p>9.R.1 Formulate open-ended research questions and apply steps for obtaining and evaluating information from a variety of sources, organizing information and presenting research</p> <p>9. W-R.6. Revise writing to improve the topic/idea development , organization, language/style, word choice, and tone in light of the audience, purpose and formality of the context</p>
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	Language arts cont'd processing skills and principles of design (e.g., margins, tabs, spacing, columns, page orientation, graphics). 7. EL.1-7. English Language Conventions		
Challenge	7th Grade	8th Grade	9th Grade
<p>OPTION THREE: ORIGINAL POEM/RAP INSPIRED BY THE ENVIRONMENT</p> <p>Create opportunities to sensitize your community to environmental issues by writing an original poem/rap.</p> <p>Performer(s) need not be the composer(s), but the composer(s) must be present.</p> <p>Time limit: 2 minutes.</p> <p>Language deemed inappropriate for a family audience will be disqualified.</p> <p>Pieces will be judged on relevance to theme, accuracy of information, impact, creativity, and quality of performance.</p> <p>School submits: Option Three entry form; 2 pieces with the name(s) of performer(s) and composer(s). On the entry form please specify any musical instruments or audio equipment you plan to use, for approval by USBG staff.</p>	<p>Grade 7: Science</p> <p>7.7.8. Recognize that the environment may contain dangerous levels of substances that are harmful to human beings. Therefore, the good health of individuals requires monitoring the soil, air, and water as well as taking steps to keep them safe.</p> <p>7.8 Broad Concept Organisms in ecosystems exchange energy and nutrients among themselves and with the physical environment: (5) Describe how organisms that eat plants break down the plant structure to produce the materials and energy that they need to survive, and in turn, other organisms consume them, (7) Describe how , as any population of organisms grows, it is held in check by one or more environmental constraints</p> <p>7.8.2. Describe how two types of organisms may interact in a competitive or cooperative relationship, such as producer/consumer, predator/prey, parasite/hosts, or as symbionts</p> <p>Grade 7: Language Arts</p> <p>7. IT-A.6. Describe the facts and evidence used to support an argument.</p> <p>7.IT-E.3. Apply knowledge of organizational structures of text to aid comprehension, including chronological order, comparison and contrast, cause</p>	<p>Grade 8: Language Arts</p> <p>8.LD-O.6. Present persuasive speeches that use appropriate techniques such as descriptions, anecdotes, case studies, analogies, and illustrations to advocate a position.</p> <p>8.W-E.5. Write persuasive (pro/con) essays that include a well-defined thesis that sets forth a clear and knowledgeable position, theory, or generalization;</p> <ul style="list-style-type: none"> • support arguments with well-articulated evidence, examples, and reasoning, differentiating between evidence and opinion; and arrange details, reasons, and examples effectively, anticipating and answering reader concerns and counterarguments. <p>8.LT-P.8. Analyze the effects of sound (alliteration, internal rhyme, rhyme scheme), figurative language (personification, metaphor, simile, hyperbole), and graphics (capital letters, line length, word position) on the meaning of a poem.</p> <p>Visual Arts-Grades 7 ,8 and 9-12</p> <p>Structures and Functions Content Standard 2</p> <p>Reflecting and Assessing Content Standard 5</p> <p>Making Connections Content Standard 6</p> <p>Music 8</p> <p>Performance Content Standard 1: students will perform alone and with others, a varied repertoire of music, vocally and instrumentally.</p> <p>Improvising/Composing/Arranging Content Standard 2: Students will improvise, compose and arrange music using specific guidelines.</p> <p>Connections Content Standard 5: Students will make connections between music, the other disciplines and daily life.</p>	<p>High School Biology</p> <p>B.6. Plants are essential to animal life on Earth.</p> <ul style="list-style-type: none"> • Identify the roles of plants in the ecosystem: Plants make food and oxygen, provide habitats for animals, make and preserve soil, and provide thousands of useful products for people (e.g., energy, medicines, paper, and resins). • Explain the photosynthesis process: Plants make food in their leaves and chlorophyll found in the leaves can make food the plant can use from carbon dioxide, water, nutrients, and energy from sunlight. <p>B.8. Stability in an ecosystem is a balance between competing effects.</p> <ul style="list-style-type: none"> • Describe how factors in an ecosystem, such as the availability of energy, water, oxygen, and minerals and the ability to recycle the residue of dead organic materials, cause fluctuations in population sizes. • Explore and explain how changes in population size have an impact on the ecological balance of a community and how to analyze the effects.

<p style="text-align: center;">OPTION THREE: ORIGINAL POEM/RAP INSPIRED BY THE ENVIRONMENT</p> <p>Create opportunities to sensitize your community to environmental issues by writing an original poem/rap.</p> <p>Performer(s) need not be the composer(s), but the composer(s) must be present.</p> <p>Time limit: 2 minutes.</p> <p>Language deemed inappropriate for a family audience will be disqualified.</p> <p>Pieces will be judged on relevance to theme, accuracy of information, impact, creativity, and quality of performance.</p> <p>School submits: Option Three entry form; 2 pieces with the name(s) of performer(s) and composer(s). On the entry form please specify any musical instruments or audio equipment you plan to use, for approval by USBG staff.</p>	<p>Language arts cont'd</p> <p>and effect, logical order, and classification schemes.</p> <p>7. LT-S.11. Identify and analyze how an author's use of words creates tone and mood.</p> <p>7.LT-P.9. Analyze the characteristics and structural elements of a variety of poetic forms (e.g., epic, sonnet, ode, ballad, lyric, narrative poem, free verse, haiku).</p> <p>7. EL.2. Identify all parts of speech and types and structures of sentences.</p> <p>7.W-E.4. Write persuasive essays that state a clear position or perspective in support of a proposition or proposal Grade 7: Language Arts cont'd and provide evidence in support of the proposition.</p> <p>Visual Arts-Grades 7 ,8 and 9-12 Structures and Functions Content Standard 2 Reflecting and Assessing Content Standard 5 Making Connections Content Standard 6</p> <p>Music 7 Performance Content Standard 1 (participates in musical activities at school, citywide showcases and in the community; uses microphones and amplification when appropriate)</p> <p>Improvising/Composing/Arranging Content Standard 2: Students will improvise, compose and arrange music using specific guidelines. Connections Content Standard 5:</p>		<ul style="list-style-type: none"> Describe how the physical or chemical environment may influence the rate, extent, and nature of the way organisms develop within ecosystems. <p>Environmental Science E.2. The environment is a system of interdependent components affected by natural phenomena and human activity. E.2 at 3 Describe how the global environment is affected by national policies and practices relating to the Environmental Science cont'd energy use, waste disposal, ecological management, manufacturing and population growth. E.3. Stability in an ecosystem is a balance between competing effects. E.4. The amount of life any environment can support is limited by the available energy, water, oxygen, and minerals, and by the ability of ecosystems to recycle organic materials from the remains of dead organisms</p> <p>Grade 9: Language Arts 9. LD-O.6. Deliver focused oral presentations that use details, examples, or anecdotes to explain or clarify information or a point of view, employing proper eye contact, speaking rate, volume, enunciation, inflection, and gestures to communicate ideas effectively. 9. W-E.5. Write persuasive (problem/solution) essays</p> <p>Visual Arts-Grades 7 ,8 and 9-12 Structures and Functions Content Standard 2 Reflecting and Assessing Content Standard 5 Making Connections Content</p>
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	<p>Music 7 Cont'd</p> <p>Students will make connections between music, the other disciplines and daily life.</p>		<p>Standard 6</p> <p>Music Bach to Rap: Performance Content Standard 1 Improvising/Composing/Arranging Content Standard 2 Connections Content Standard 2</p> <p>General Music: Performance Content Standard Improvising/Composing/Arranging Content Standard 2 Connections Content Standard 2</p>
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