

**Introduction:** One goal for you in biology is to help each of you gain an appreciation of the beauty and complexity of the biology that surrounds us! To fulfill part of this goal, you need to be outside – you must interact with the beautiful natural world that is our home. This plot study is designed to give you a practical, in-the-field experience to help you partially realize this goal.

**Getting Started:** Each student must select a plot of land, with dimensions of approximately 50 x 50 meters, on which you will concentrate your work. It will be helpful if this plot is near your home (but not your back yard!). The plot should have fairly well defined boundaries so that you can tell where it begins and ends. Plot selection is important to the success of your study because the more varied and interesting it is, the more interesting and rewarding your study will be. An ideal plot will have some woods, some field, and some water on it or bordering it. Your plot cannot be a residential backyard and should have minimal human disturbance.

**Visiting Your Plot:** As a part of the Plot Study Project, you will be asked to create a website where you will post journal entries, reflections, pictures, videos, and other items you may create as a part of the Plot Study Project. Information about creating the Blog will be given in class. These journals and activities will correspond to the topics we are discussing in class. You must work with a partner, but EACH OF YOU NEED TO CREATE YOUR OWN WEBSITE!

**Deadlines:** You are asked to post the activities by the due dates listed. All plot blogs posts MUST be made on or before the due date. All due dates are on a Sunday, so all posts must be made by 11:59 p.m. on Sunday night. When making your weekly updates to your website, be sure to include the date and the time of when you posted. Careful planning and time management is essential for this project. This is an impressive project, so strive to do your very best. A good grade on this project will be helpful!

**The Plot:** Your project will be done on the internet by creating a **free** website through Weebly. All posts, journal entries, reflections, pictures, videos, and other items need to be posted to the website. Your grade will be done on a weekly basis to make sure that you are staying on track. The due dates for each of the assignments are listed and there is also a calendar to help you stay organized. BE AWARE THAT ANYTHING YOU POST TO THE WEBSITE WILL BE PUBLIC INFORMATION. DO NOT POST ANYTHING THAT YOU DO NOT WANT OTHER PEOPLE TO SEE.

To create your website domain name, use the following procedure.

1. Go to [www.weebly.com](http://www.weebly.com) and fill out your full first and last name, your Buchanan High School email address, and your password.
2. The next screen will ask if you want to sell stuff. CLICK THE BOX THAT SAYS 'NO'
3. Choose a theme from the PERSONAL tab.
4. Click 'Start Editing'
5. The next window that appears asks you to choose your website domain name. To do this you will click in the box and type the following: use the first two letters of each of your first name, followed by the first two letters of your last name, followed by your hour, followed by the word **BioPlot2k18**. Write down your website domain here \_\_\_\_\_ . Then, you must click the subdomain button that is free!
6. If you did this right, the next window will indicate your setup is complete! Click done (it is in blue letters).
7. Click the blue box in the upper right hand corner that says 'Publish'. This saves all your work and makes your website live on the world wide web!
8. Begin to build your site! You have made a website! Now, you have the opportunity to become familiar with the basic methods of website design, how to insert text, multimedia, new pages, videos, and more!
9. Create a total of 6 pages. Title each Week 1, Week 2, Week 3, ... Week 6. SHOW MR. CRIBLEY BEFORE THE BELL

**One More Thing:** It is recommended that you type and save all blog entries and other assignments in MS Word before copying and entering them into your blog. This will hopefully prevent any accidental deletions and other frustrations that arise when doing online projects. It will also ensure that you have a copy of all of your work on the off chance that your website explodes or the Internet merely disappears off the face of the Earth!

# Week 1 Blueprint

Due 4/15/18

## 1) Create a website!

- Congrats on making a website! Remember to publish it by clicking on the blue rectangle in the corner! (You need to publish it every time you make a change in order for it to save.)

## 2) Meet My Plot!

- Use Google Maps to make 2 maps of your plot.
  - The first map should be a Google road map (zoomed out a bit) relating your plot to streets, highways, natural features (streams, lakes, rivers), public buildings, your home, etc... This map should give a good idea where your plot is located – NOT what your plot looks like. Use MS Paint or Camtasia Studio to highlight the zone of your plot.
  - The second map should be a Google Earth map and give you a good idea of the landscaping of the plot. Be careful not to zoom in too close. Be far enough back so I can see all the features your plot has to offer!!
- Write a paragraph that answers the following questions and helps describe your plot. What type of plot did you select (woodland, swamp, field, etc...). Describe where it is and what it looks like. Why did you choose your particular plot? What interesting things can you see, hear, smell, feel, taste, etc... while you are at your plot? Do you have any thoughts about the plot study in general or projects that you are going to complete as a part of the bio plot study?

## 3) Taking Action!

- Take action and help to improve your plot by picking up the trash that is found there. You may do this with your partner. Required with this is proof that you completed the trash pickup (picture of the trash you accumulated). You must also have a picture showing your now trash-free plot.

## 4) Seasonal Change

- You are asked to visit your plot on a weekly basis. Each time you visit your plot, you need to take at least 1 picture. The picture from each visit should be taken from the same location. Try to visit your plot around the same time so that the daylight is consistent in each photo. For each picture, state the date it was taken and add at least 3 sentences describing any changes from your previous visit. Doing this for at least 6 weeks will allow you to capture the changes that take place during the changing season. Remember, you (and/or your group members) need to be in the photo!

# Week 2 Blueprint

Due 4/22/18

## 1) My Plot is an Ecosystem

- There are 5 of different levels of organization (species, population, community, ecosystem, and biome) that we will go over in class. List each level. Take a photo of at least 1 example of a species, a population, a community, an ecosystem, and a biome on your plot. The pictures should be clear and you need to be seen in the photo. In addition, provide 1 sentence for each picture describing how it is an example of that level of organization. Overall, you will have 5 pictures and 5 sentences for this activity.

## 2) Biotic or Not?

- Develop a list of biotic and abiotic factors from your plot. You will need to have at least 20 different factors on your list and at least 5 of these must be abiotic factors. Categorize them on your website so that it is clear which ones are biotic and abiotic. For each item, you need to have a photo which documents the item and 1 sentence which describes what it is. The pictures should be clear and you need to be seen in the photo. Overall, you will have 20 pictures and 20 sentences for this activity.

## 3) Seasonal Change

- You are asked to visit your plot on a weekly basis. Each time you visit your plot, you need to take at least 1 picture. The picture from each visit should be taken from the same location. Try to visit your plot around the same time so that the daylight is consistent in each photo. For each picture, state the date it was taken and add at least 3 sentences describing any changes from your previous visit. Doing this for at least 6 weeks will allow you to capture the changes that take place during the changing season. Remember, you (and/or your group members) need to be in the photo!

# Week 3 Blueprint

Due 4/29/18

## 1) Plot Community

- Various community interactions occur on your plot. For each of the five interactions listed below, you need a photo of evidence of displaying them. Each photo also needs a 1 sentence description explaining how your photo is an example of the community interaction. Include at least 1 example of each of the five interactions:
  - Competition
  - Predation
  - Symbiosis – mutualism
  - Symbiosis – commensalism
  - Symbiosis – parasitism.
- Overall, you will have 5 pictures and 5 sentences for this activity.

## 2) Producers and Consumers

- Create a list (you need to include photos with the list (use your iPad or phone to create a photo collage)) of 10 different producers and 5 different consumers that you can find (or find evidence of) on your plot. Now, categorize the consumers as herbivores, carnivores, omnivores, or detritivores. You should have at total of at least 15 different organisms.

## 3) Seasonal Change

- You are asked to visit your plot on a weekly basis. Each time you visit your plot, you need to take at least 1 picture. The picture from each visit should be taken from the same location. Try to visit your plot around the same time so that the daylight is consistent in each photo. For each picture, state the date it was taken and add at least 3 sentences describing any changes from your previous visit. Doing this for at least 6 weeks will allow you to capture the changes that take place during the changing season. Remember, you (and/or your group members) need to be in the photo!

# Week 4 Blueprint

Due 5/6/18

## 1) Expression (PICK TWO)

- **Art:** Create a piece of artwork that incorporates the colors, forms, and textures found in your plot. It can be a painting, drawing, collage, or other medium that you prefer. You can also incorporate computer technology (easymoza.com is a great site) or other mediums to display your art!
- **Poetry:** Write 2 inspirational poems that was inspired by your plot. Indicate what type of poem you have chosen. Each poem must be a minimum of 20 lines long. Pick from the following types of poetry.
  - Sonnets, Cinquains, Limericks, Fibonaccis, Spenserian, Shakesperian, Pantoun
- **Graphic cartoon:** Create a graphic cartoon illustrating a theme from your plot! Minimum of 12 panels!
- **Children's / Short story:** Create and illustrate a 12 page children's story that tells a story about the interactions that you are observing on your plot.
- **Any other ideas???** It is probably a good one! Tell your idea to Mr. Cribley or Mrs. Frost before doing it.

YOU ARE ONLY LIMITED BY YOUR IMAGINATION!!

## 2) Biodiversity (PICK TWO)

- **Flowers:** Create a photo collection (with you in the pictures) of 5 different flower species on your plot. You should have at least five species, and you need to identify them correctly. You should take your photos during the day light to avoid the flowers from closing up. Make sure you are in the photo!
- **Insects:** Create a photo collection (with you in the pictures) of 5 different insect species found at your plot. The photos need to be clear, and the insects need to be large enough to see. You must identify the species that you photograph. Five or more photos where the insect is clearly identifiable are required for full credit. Start soon, as insects disappear quickly as the temperature continues to change. Make sure you are in the photo!
- **Weeds:** Create a photo collection (with you in the pictures) of 5 different species of weeds on your plot. You should have at least five species, and you need to identify them correctly. The photos need to be clear, and the weeds need to be large enough to see. Make sure you are in the photo!
- **Fungi:** Create a photo collection (with you in the pictures) of 5 different fungi species found at your plot. You should have at least five different species, and you need to attempt to identify them correctly. The photos need to be clear, and the fungi need to be large enough to see. Make sure you are in the photo!
- **Trees/Leaves:** Create a photo collection (with you in the pictures) of 5 different trees on your plot. The photos should include both a larger photo of the tree and a close-up of an individual leaf. You should have at least five species, and you need to identify them correctly. The photos need to be clear, and the leaves need to be large enough to see. Make sure you are in the photo!
- **Other organisms:** Many other organisms live on your plot. Create a photo collection (with you in the pictures) of 5 different other organisms you found at your plot. You should have at least five different species, and you need to attempt to identify them correctly. The photos need to be clear, and the organisms need to be large enough to see. Make sure you are in the photo!

## 3) Seasonal Change

- You are asked to visit your plot on a weekly basis. Each time you visit your plot, you need to take at least 1 picture. The picture from each visit should be taken from the same location. Try to visit your plot around the same time so that the daylight is consistent in each photo. For each picture, state the date it was taken and add at least 3 sentences describing any changes from your previous visit. Doing this for at least 6 weeks will allow you to capture the changes that take place during the changing season. Remember, you (and/or your group members) need to be in the photo!

# Week 5 Blueprint

Due 5/13/18

## 1) Food Web

- Create a chart that shows a food web of at least 20 organisms (producers, herbivores, carnivores, omnivores, and decomposers) located in and around your plot. Be sure that you label each organism that you include in the food web and include the category of each organism by indicating if it is a producer, herbivore, carnivore, omnivore, or decomposer (if you need help with this, take a look back at week 3!). Color coding your food web may be helpful here! Remember to be creative with your design – you can print pics off the internet, use photos you've taken, cut out magazine photos etc... Use string or yarn to show the interactions! Take a photo of your completed food web and import your food web onto your website!

## 2) Limiting Factors

- Now that you know a few things about populations and ecology, remember that there are factors in the environment that limit the growth of a species. There are 2 categories to this. The first is density-dependent limiting factors. The second is density-independent limiting factors.
- For EACH of the two categories, you are asked to complete the following on your website
  - Define each.
  - List 4 examples for each one
  - Take a picture of 2 of the examples found on your plot for each.

## 3) Survival Skills

- Survival skills are techniques a person may use in a dangerous situation to help save themselves or others. These techniques are meant to survive with basic necessities – such as food, water, or shelter. When hiking, camping, exploring, or enjoying nature, one must be prepared to handle any situation which arises.
- Your goal is to research a minimum of 5 different survival skills OTHER THAN THE ONES LISTED ABOVE (food, water, shelter). For each skill, describe it in a minimum of 3 sentences. Describe what the skill is, how it is a survival technique, and how this skill is accomplished.
- Each survival skill needs to include a picture or video of you demonstrating the survival skill.

## 4) Seasonal Change

- You are asked to visit your plot on a weekly basis. Each time you visit your plot, you need to take at least 1 picture. The picture from each visit should be taken from the same location. Try to visit your plot around the same time so that the daylight is consistent in each photo. For each picture, state the date it was taken and add at least 3 sentences describing any changes from your previous visit. Doing this for at least 6 weeks will allow you to capture the changes that take place during the changing season. Remember, you (and/or your group members) need to be in the photo!

# Week 6 Blueprint

Due 5/20/18

## 1) Human Impact Assessment

- In midst of our discussion on human impact, the negatives tend to overshadow the positive impacts that humans are making in an effort to make the world a better place. Let's focus on the positives things that humans are doing to help protect our planet!!

### Directions:

1. Go to the website <https://student.societyforscience.org/sciencenews-students> .
2. Under the 'TOPICS' tab, select an area of interest from the categories listed.
3. Choose an article to complete the review on.
4. As you read the article, consider how the author uses
  - Evidence, such as facts or examples, to support claims.
  - Reasoning to develop ideas and to connect claims and evidence.
  - Cross-cutting scientific concepts to relate to the evidence and claims of the article.
5. Type your response using the checklist below. Post your article review summary to your website!

### Introduction

- Introduce the author and article
- State the claim (overall big picture) that the author is making
- Describe if the author makes an effective or ineffective argument to support his/her claim
- Thesis statement

### Evidence paragraph

- Example 1 of evidence (such as facts or examples) that the author uses to support his/her claim
  - Cite the evidence from the text
  - Describe how this evidence relates to the claim
  - Discuss how this is an effective or ineffective piece of evidence
- Example 2 of evidence (such as facts or examples) that the author uses to support his/her claim
  - Cite the evidence from the text
  - Describe how this evidence relates to the claim
  - Discuss how this is an effective or ineffective piece of evidence

### Reasoning paragraph

- Logos (consistency/logic)
  - Cite 1 example of logos writing in the text
  - Discuss how this is an effective or ineffective piece of logos
- Ethos (credibility/trust)
  - Cite 1 example of ethos writing in the text
  - Discuss how this is an effective or ineffective piece of ethos

- Pathos (emotions/imagination)
  - Cite 1 example of pathos writing in the text
  - Discuss how this is an effective or ineffective piece of pathos

### **Cross-cutting scientific concepts paragraph**

Pick 3 of the following 7 properties of science that are found in the article. For each property, complete the following...

- State the property of science
- Explain the property as it relates to evidence from the article
- Discuss how that property of science relates to the claim of the article

1. Patterns. Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.

2. Cause and effect: Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.

3. Scale, proportion, and quantity. In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.

4. Systems and system models. Defining the system under study—specifying its boundaries and making explicit a model of that system—provides tools for understanding and testing ideas that are applicable throughout science and engineering.

5. Energy and matter: Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.

6. Structure and function. The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.

7. Stability and change. For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study.

### **Conclusion**

- Revisit the thesis
- Restate the claim of the article
- Answer in a definitive way – did the author do a good job of supporting his/her claim through evidence, reasoning, and cross cutting scientific concepts

### **2) Your response**

- How did you feel about the plot study project? What did you learn? (Include at least 5 different things). What do you think that you will do with all the knowledge that you have gained about your plot and ecology in general? What else do you think would have been cool to do in this assignment?

### **3) Seasonal Change**

- You are asked to visit your plot on a weekly basis. Each time you visit your plot, you need to take at least 1 picture. The picture from each visit should be taken from the same location. Try to visit your plot around the same time so that the daylight is consistent in each photo. For each picture, state the date it was taken and add at least 3 sentences describing any changes from your previous visit. Doing this for at least 6 weeks will allow you to capture the changes that take place during the changing season. Remember, you (and/or your group members) need to be in the photo!

# Calendar of Due Dates

Month	Sun	Mon	Tue	Wed	Thu	Fri	Sat
April 2017	9	10 • Library Day	11 • SAT DAY	12 • Library Day	13	14	15
	16 • Create a website • Meet my Plot • Taking Action • Seasonal Change	17	18	19	20	21	22
	23 • My plot is an ecosystem • Biotic or Not • Seasonal Change	24	25	26	27	28	29
	30 • Plot Community • Producers/Consumers • Seasonal Change	1	2	3	4	5	6
May 2017	7 • Expression • Biodiversity • Seasonal Change	8	9	10	11	12	13
	14 • Food Web • Limiting Factors • Survival Skills • Seasonal Change	15	16	17	18	19	20
	21 • Human Activity Assessment • Your Response • Seasonal Change	22	23	24	25	26	27