The Apoca- Project

Learning How to Thrive After an Apocalypse Using SCIENCE

If there ever was an "apocalypse" or, if Thanos ever succeeded in using the Infinity Stones to turn half of the universe to dust, what would happen? What would be the immediate effects of losing HALF of all living things be? What would happen to our economy? Our food supplies? Our planet's biodiversity? Our planet's atmospheric composition? Our understanding of what it means to be human?

Using SCIENCE, we will explore what the effects MAY be and how we could begin to thrive and succeed as a species after such an event.

The knowledge, skills and attitudes that we gain through an in-depth investigation of each unit in Science 20 will help us to think critically of the nature and history of science, as well as how technology has influenced and impacted our lives.

The major theme of this semester will center around the idea of an “apocalypse” in Southern Alberta. Students will imagine that they are the only survivors of the apocalypse and with each unit, they will have to find ways to survive, using the knowledge that they have gained from this unit.

Unit D, Survival- Food

What is the project?

For this portion of the Apoca-Project, you will research an animal or plant that you would introduce/reintroduce to our local environment that you believe would be best suited to help ensure survival without drastically impacting our local ecosystems. You will be working individually to complete this project. During our in-class research days, you are more than welcome to work in groups.

Why do I have to do this project?

This whole project is meant to be a way for you to review and apply the material before the unit exam.

What do I have to do?

- This project will be broken up into different components so that you will not have to do it all at once.
- The goal is to make a convincing proposal so that we choose to make your animal or plant our primary source of food after the apocalypse.
- For each component, you can present your research in whatever way you want!
    - Be creative! You could make a video, a PowerPoint, a skit, a poem or a paper
- Once you have completed all of the components, you will "upload" a synthesis of your proposal to a website that you will make.

How am I going to do it?

THE WEBSITE

- We will use www.wix.com
- Wix is free to use for a basic website, please don't purchase a domain!
- There are website templates that we will use so you will not have to make a website from scratch.
- We will make the websites together!
- Please use your school email to set up your account

THE COMPONENTS

- We will work on each component during class time
- There will be a couple of check-ins and self-reports over the next couple of weeks.

IMPORTANT DATES/DEADLINES

- **By Monday, September 16th** you should have an idea of what plant or animal you will be researching.
- **Friday, September 20th** we will make the websites during class
- **Tuesday, September 24th** we will have some in-class research time
- **Thursday, September 26th**, will be our final in-class research day. You should upload your research to the website during this time.
- **Monday, September 30th** is the deadline for sending me a link to your website with all of your information uploaded to it. Be prepared to briefly present your project in class this day.

What information should I include in my project?

(*Remember, how you present this information does not matter as long as you address all of these points!)*

1. What animal/plant is it?
    a. (if it is an animal, is it a **primary/secondary/tertiary consumer, carnivore, herbivore, scavenger**?)
    b. (if it is a plant, describe what **primary/secondary/tertiary consumer, carnivore, herbivore, or scavenger** might depend upon it)
2. Why did I choose this animal/plant?
3. If we were to reintroduce this animal/plant, what:
    a. **Biotic factors** do I need to consider?
        i. Hint, what does this animal/plant need to survive?
    b. **Abiotic factors** do I need to consider?
        i. Hint, what does this animal/plant need to be successful?
4. Describe the nature of the animal/plant to you?
    a. Is it **mutualism, commensalism, symbiotic?**
5. Describe the ideal **habitat** for this animal/plant
6. Where would this plant/animal be kept? Why did you choose that **ecosystem**?
    a. How might this impact that chosen area's **ecosystem**?
7. You will need to make a **food chain** for this animal/plant that reflects what role it may play in its new environment (the Lethbridge area).
8. Address (briefly) how this animal/plant affects effects either (pick one**): the carbon cycle, oxygen cycle or nitrogen cycle.**
9. Reflect on what effects you think nuclear radiation may play on this animal/plant over time. In particular, **genetic mutation**.
    a. *You must provide evidence for your reason.
10. What potential **ecological** factors might be negatively impacted if we reintroduced/introduced this animal/plant?
11. A self-reflection on this project.
    a. *I will provide more information closer to September 30th!

How will I be marked?

This unit's project is worth 10% of your unit grade.

- How thoroughly and critically you thought about and researched this project.
- Your ability to apply what we have learned in class to a theoretical situation.
- Your ability to take initiative and ownership of this project and your ability to complete it on time,
- The organization and presentation of your information. Which could be presented as a:
    - PowerPoint, skit, video, song, paper, or other (just confirm with me before you do this!)

The Apoca- Project Check-in

Name:_____

By the end of the class today (Thursday, September 26th), you NEED to have these portions completed.
(Check-mark them as you complete them!)

I have…

☐ Chosen a plant/animal to research as my primary food source in the event of an apocalypse (Remember, this was supposed to be chosen by Sept.16th!) My choice is_____

☐ made a Wix website and chosen a template

☐ made a homepage and 4 tabs (Unit D, Unit C, Unit A, Unit B) on my Wix website

I have answered these questions… (You can write these down on a separate sheet of paper or use the back of this page. You will take this information and write a short paper, OR make a PowerPoint, OR make a video (or something else) and upload this to the website next week)

☐ 1. What animal/plant is it?
   a. (if it is an animal, is it a **primary/secondary/tertiary consumer, carnivore, herbivore, scavenger**?)
   b. (if it is a plant, describe what **primary/secondary/tertiary consumer, carnivore, herbivore, or scavenger** might depend upon it)

☐ 2. Why did I choose this animal/plant?

☐ 3. If we were to reintroduce this animal/plant, what:
   a. **Biotic factors** do I need to consider?
      i. Hint, what does this animal/plant need to survive?
   b. **Abiotic factors** do I need to consider?
      i. Hint, what does this animal/plant need to be successful?

☐ 4. Describe the nature of the animal/plant to you?
   a. Is it **mutualism, commensalism, symbiotic?**

☐ 5. Describe the ideal **habitat** for this animal/plant

☐ 6. Where would this plant/animal be kept? Why did you choose that **ecosystem**?
   a. How might this impact that chosen area's **ecosystem**?

☐ 7. You will need to make a **food chain** for this animal/plant that reflects what role it may play in its new environment (the Lethbridge area). You can draw this or use a computer program.

☐ **8.** Address (briefly) how this animal/plant affects effects either (pick one**): the carbon cycle, oxygen cycle or nitrogen cycle.**

☐ *9. Reflect on what effects you think nuclear radiation may play on this animal/plant over time. In particular, **genetic mutation**.*
   *a. *<u>We will discuss this in class on Thursday, October 3rd.</u>.*

☐ 10. What potential **ecological** factors might be negatively impacted if we reintroduced/introduced this animal/plant?

☐ *11. A final self-reflection on this project.*

The Apoca- Project Self-Reflection, Unit D

Name:_____

Circle the statement that you MOST agree with when responding to these questions:

1. *I feel like I produced my very best work on this project.*

Strong Agree **Mostly Agree** **Somewhat Agree** **Mostly Disagree** **Strongly Disagree**

2. *I feel like I used this project as a review tool for the concepts learned in class.*

Strong Agree **Mostly Agree** **Somewhat Agree** **Mostly Disagree** **Strongly Disagree**

3. *I feel like I learned a lot from the research component of this project.*

Strong Agree **Mostly Agree** **Somewhat Agree** **Mostly Disagree** **Strongly Disagree**

4. How do I feel about this project (in general)?

5. For the next part of this Apoca Project, I will <u>need these things from my teacher</u> to help me succeed:

6. For the next part of this Apoca Project, I will do these things to <u>help myself succeed</u>:

7. The <u>most</u> valuable thing that I learned from this project was:

Unit D: Apoca Project Rubric

Student Name _____ **Date**_____

Level / Criteria	Exceeding (4)	Grade Level (3)	Approaching (2)	Needs Improvement (1)	Insufficient/ Blank*
Knowledge outcomes Student has demonstrated an understanding of the topics discussed in class through their application of their knowledge to their research. GLO 1, SLO 5, GLO 2, SLO 1, GLO 2, SLO 2, GLO 3, SLO 1:	Produces a **substantial** study into **all** of the required concepts, and presents a **comprehensive** summary of their findings.	Produces an **in-depth** study into **all** of the required concepts, and presents a **thorough** summary of their findings.	Produces a **partial** study into **some** of the required concepts and presents a simple summary of their findings.	Produces **underdeveloped** study into a **few** of the required concepts and presents a **superficial** summary of their findings.	No score is awarded because there is insufficient evidence of student performance based on the requirements of the assessment task.
STS outcomes Student has explored how society and technology have both intended and unintended consequences for humans and the environment by considering the effects of integrating and establishing a plant or animal as a primary source of food. GLO 1, SLO 2, GLO 2, SLO 1	Performs an **extensive** and critical inquiry into potential consequences by making a **well-considered** identification of relationships and interactions.	Performs a **sufficient** and critical inquiry into potential consequences by making a **sufficient** identification of relationships and interactions.	Produces a **general** inquiry into potential consequences by making a **cursory** identification of relationships and interactions.	Produces a **limited** inquiry into potential consequences by examining very few factors or relationships and interactions.	
Skills outcomes Student has formulated questions about observed relationships and explored their questions, ideas, problems and issues in a creative way. GLO 1, SLO 1, GLO 3, SLO 1 **Initiating and planning** Student has begun to formulate questions about observed relationships and plan investigations of questions, ideas, problems, and issues. GLO 2, SLO 1	Student has demonstrated **punctuality and initiative** by formulating questions and investigations in a timely manner. Student has provided a **well-thought out** rationale for their decisions.	Student has **somewhat demonstrated punctuality and initiative** by formulating questions and investigations in a timely manner**.** Student has provided a **well-thought out** rationale for their decisions.	Student has **not demonstrated initiative** by not formulating questions and investigations in a timely manner. Student has provided a **cursory rationale** for their decisions.	Student has **not demonstrated initiative** or **punctuality** by not completing the assignment on time. Student **has not provided a rationale** for their decisions.	

Student has made a website that has a home page, and 4 separate tabs for each unit of the project. /1
Student has presented their information clearly on the website in a creative way. /2
Student has clearly researched and summarized their information, and provided appropriate credit /1