### **Impact Project**

### Chapter 1- "What"

When we think about farming, an increasingly vital topic is how farmers will feed our growing world. It is projected that farmers need to double their crops by 2050 to successfully feed the projected population. As we know, food is pertinent to life, so this not only becomes a question for farmers to face, but all those involved. This is where I find it a crucial topic to bring up to our younger generations. When looking for information on sustainable farming for the classroom, chances are you come away with few sources or even left empty handed. This is where my project came to light. I wanted to create a resource on farm sustainability that was interactive but also a product where agriculture, food, and natural resources (AFNR) teachers can find valuable resources on the topic.

While collecting information for my game, I found many great sites and resources that maybe went too broad or too specific for my game. The more I found I realized the opportunity I had to share not only my game with my colleagues, but a collection of information teachers can use to create their own full unit on sustainability. I found that too often when looking for fun and interactive activities for my classroom, people often only share the activity and none of the overall knowledge students should have. We know students need that first introduction to a topic before they can put their knowledge to the test in an activity. That is what lead me to share more than the resources used to create this boardgame.

### Chapter 2- "Why"

Dr. Aaron McKim and other authors wrote it perfectly by saying "The urgency required to address these challenges (e.g. socio-ecological problems like pollution, climate change, and environmental degradation) throughout Agriculture, Food, and Natural Resources (AFNR) Education while simultaneously enhancing the quality of educational experiences offered at the local level requires members of the AFNR Education community continuously identify, critique, implement, and evaluate potentially transformative pedagogical methods" (2019). There are not many other subject areas where these dire topics get introduced. This then falls on AFNR educators to present this to students. But how do we expect them to if there are no substantial resources on sustainability?

In my experience, searching for valuable curriculum is most of the battle when preparing for lessons. There are some great activities out there but no sources of information to compliment them. Currently there is a shortage of AFNR teachers and it seems more and more people are emergency certifying into this profession. I cannot speak for everyone, but I could not imagine what it would be like to have no curriculum writing experience and work as a new teacher. There are enough challenges in education, finding and adapting curriculum should not be one. This is where I found the inspiration of my project. I wanted to help my fellow colleagues cover sustainability in a fun, interactive way but also share places to go for further information. This allows teachers to create curriculum that best benefits their program.

### Chapter 3- "How?"

I first knew that I wanted to create an interactive game for students that allows them to make choices throughout. The Game of Life as always been a favorite of mine because though it is still a game, it brings up some very real points to living life. I think this goes hand in hand with farm living. Farmers get breaks where animals sell for more than expected or earning grants from the USDA. On the other hand, they can have a bad crop year or fuel costs can skyrocket.

Once I knew what I wanted to model my game after, I spent time playing different variations of the Game of Life, taking note on how I can modify it. I used Canva to design and create my entire game. The site offers different templates, images, and fonts to create any product. I first started with the two sets of career cards. When I cover careers in my class, I always use AgExplorer. I think the site is great because it breaks AFNR careers into easy to understand focus areas, allowing students that are not quite sure of what they want to go into a place to start their research. As for the individual pages, the site is designed to be easily read. I went through each pathway, picking a career that requires schooling past high school and one that does not. With space still available on each card I decided to add "typical employers" hoping this would give more understanding of what that career does and where students could reach out if they were interested.

Next, I started my introduction document and created money, bank loans, character pieces, and action cards. As you read though the action cards, you should notice some are quite specific. I thought this was a great opportunity to share history and real-life examples that have happened in the agriculture industry. Many of the action cards come from Michigan Farm News. I want this game to stay relevant, so I created a set of blank cards where teachers can add words over each card for new events that happen in the industry.

By this point I had to think about how students can win this game. Typically, the one with the most money at the end wins. As my committee members helped me see, that is not how it should be seen. A winner should be one that does what they can for farming to sustain year after year, which then introduced the sustainability cards. Again, I wanted these to be realistic, so I used Michigan Farm News as well as other sources for stories of farmers updating their farm to be more sustainable. I also created blank sustainable practices cards so teachers can update their stack as new advancements arise.

The last piece to create was the board itself. Once it was done, I could finally have students play the game to work out the kinks and finalize details. I would set up tables with varying startup money amounts to find a nice balance. Once students finished, we sat as a group reflecting on issues they had as well as positive moments. I would then modify the game and have students play again as well as my family members. I always liked to have players reflect on the game after it was played, not only to evolve the game but also make sure the importance of sustainability was brought up.

Sarah Davis

### Chapter 4- "Results"

Simply put my product is a board game called Farming for Tomorrow. Most of the board is made up of blue squares called "Action" spaces. These spaces represent life's typical wins and losses, where players either collect money or pay. As the object of the game, players want to collect as many "Sustainable Practices" for their farm as possible but making sure they are not collecting too much debt in the process. The final pages of my introduction booklet are a collection of sources I not only used for my project, but also places to help a teacher create their sustainability unit. The rest of the PDF are the items for the game; money, loan slips, game pieces, cards, the board, and a reflection worksheet. Everything is ready to print for the ease of the teacher. See Farming for Tomorrow attached below.

### **Chapter 5-** "So What"

Overall, I am increasingly impressed by this project. I could not have done it without my committee, students, or family members. These people continued to offer great critiques that built the game to what it is. I look forward to sharing this PDF with the rest of Michigan AFNR teachers to get their opinions and edits and hear how they plan to implement it into their curriculum.

I recommend educators having their students play the game the first time as it is described with the hope that teachers will take advantage of my blank cards to add scenarios relevant to their location. I really like this feature because it allows students to connect further with the game.

Farming for Tomorrow has the potential to continue to evolve. I am hoping that it is just the beginning for teachers in this subject area to share sources of full units and activities. At the very least I want teachers to evolve the game to best fit them, this is why I added blank cards. Also, from my experience creating the game, rules can be modified time after time. As I mentioned earlier, I had groups start the game with different amounts of money and used that as a reflection question at the end. Teachers can decide the winner is the one with the most money or the one with the highest sustainability score. This game has endless options.

There is not much I would change, solely for the fact that I have had so much time to reevaluate the project and modify where I needed. I originally wanted to make an actual board game with typical pieces and such but with the way the world is now, more people will benefit from a set of virtual documents. In the future I will definitely have this created into a cardboard board game with plastic game pieces, and printed money.

This project is one of the best I have been apart of. Not only was it perfect to add into my curriculum but I was already able to share it with so many. It is always nice to create something for yourself but it will always be my favorite to share my passion for making fun, interactive assignments.

### References

McKim, A. J., Raven, M. R., Palmer, A., & McFarland, A. (2019). Community as context and content: A land-based learning primer for agriculture, food, and natural resources education. Journal of Agricultural Education, 60(1), 172-185. https://doi.org/10.5032/jae.2019.01172



# FARMING FOR TOMORROW

A GAME OF LIFE ON A SUSTAINABLE FARM

Can your farm feed our growing population?

By: Sarah Davis



Hello! My name is Sarah Davis and I am the creator of this resource. It is projected that farmers need to double their crops by 2050 to feed our world's growing population. As you can imagine, this is a huge feat to accomplish and will require everyone involved. Though farm sustainability is a crucial topic for agricultural education, I have found a lack of general resources that kept my students engaged while fully exploring the topic. As an AFNR teacher, I am always looking for new curriculum not only with valuable information but also interactive activities. Through the holy grail of text, *How The Brain Learns* by David A. Sousa, we learn that students are most successful with new information in a three step process. First, new information is covered by the teacher at the beginning of class, then students should be given some sort of downtime to practice the new knowledge, and finally they are presented with a closure of the topic. Though there are some resources out there with interactive activities, it skips over that critical "prime-time-1" Sousa covers.

All of this resource searching has led me to create this document in front of you. I wanted to create an activity for my farm sustainability unit that was interactive and informative. This set of PDFs is mainly intended as a supplement to your unit but at the end I have also shared sources for more information to get a full coverage of the topic.

Everything is a PDF that can be easily shared to anyone, then printed for our students to enjoy. This game has real life events and numbers where applicable. At the end of this booklet will be the sources of my information. I highly suggest checking out those links at the end to better cover this important topic. Enjoy!

-Sarah Davis



# TABLE OF CONTENTS

1. Game Introduction

a. These two pages cover information on all the pieces of the game.

2. Game Set Up

a. This section tells you how to get started and what you will need.

3. Sources From this Game

a. On this page, you will find the sources I used to create this game.

4. Sources For Introducing Farm Sustainability

a. This page, has sources for you to get further information.

5. Student Reflection Worksheet

6. Game Pieces

7. Career Cards

a. Ready to print PDF

b. Blank cards

8. Advanced Education Cards

a. Ready to print PDF

b. Blank cards

9. Action Cards

a. Ready to print PDF

b. Blank cards

10. Sustainable Practices Cards

a. Ready to print PDF

b. Blank cards

11. Money and Loan Cards

a. Color printer money and loans

b. Color paper money and loans

12. Game Board

# 1. GAME INTRODUCTION



# GAME BOARD

To print the board, make sure to select single sided and "Poster" in "Page Sizing & Handling". For durability, I suggest printing on cardstock then laminating.





# **BOARD SPACES**

Make sure to deal with cards as you pass them on the board.



**Action Space**- When you land on this space, pick up the top "Action" card, and read it to the group. Complete the task then place in the discard pile. I suggest printing two copies of this for each game set up.



**Pay Day Space-** Land on or pass this space? Make sure to collect your salary before moving on.



Sustainable Practices Space—If you land on or pass this space, pick up the top "Sustainable Practices" card and read it through. If you would like to add this practice to your farm, pay the amount and hold on to the card. If you do not want to, simply discard at the bottom of the pile.



**Graduation-** If you go the advanced education route, stop when you get to this board space, regardless if you have more spaces to move. Grab the top two "Advanced Education Career" cards, choose one and place it in front of you. Discard the other to the bottom of the deck.



**Career Swap-** If you went the direct career route and want to change your career, pay the tuition fee of \$50,000 for advanced education classes. Grab the top "Advanced Education Career" card, this is your new career. Discard your previous career card to the bottom of the "Career" deck. Roll again to finish your turn.

Íf you want to keep your original career, simply roll again and continue on.

# 1. GAME INTRODUCTION CON'T



# **CARDS**

To print both sets of the career decks, make sure to select double sided so the backs and fronts line up. Then you will need to cut each out. Laminating the cards will add durability.

When setting up to play, place each of the four decks on a side of the board for all players to reach.

Blank cards at attached at the bottom if you would like to customize/update the game.



Career Card



Advanced Education Career Card



Action Card



Sustainable Practices Card



# MONEY AND THE MONEY MANAGER

If you have color paper, print the black and white set of money, loading in different color paper for each denomination. If you have a color printer, simply print out the colored set of money.

Select someone to be your money manager. This person will pull money from the bank to pay your earned salary when you come to "Pay Day" spaces. If anyone needs a loan, the money manager facilitates all loan transactions.













## LOANS



BANK LOAN If you need to pay a debt or can't afford something, you can take out a loan. The money manager will give you money from the bank with a loan certificate for every \$50,000 you borrow.

You can pay the loan back at any time by returning your loan certificates to the bank with \$60,000.

Any loans you still owe by the end of the game must be collected from your final money count, otherwise you will be considered bankrupt and lose the game.

# 2. GAME SET UP



# START UP

You'll need dice to determine the number of spaces to take. Each player will receive one game piece (see page titled "Game Pieces") and \$200,000. I suggest each player getting one \$100k bill and two \$50k, for an easy transaction if they choose the advanced education route.













# CAREER PATH

Each player must choose a career path. There are two options, either go straight into a career, or attend classes to earn an advanced education career. Grab the top two "Career" or "Advanced Education Career" cards, choose one and place it in front of you. Discard the other to the bottom of the deck.





**Positive:** You are more likely to get a higher paying job but must pay \$50,000 for tuition immediately.

**Positive:** You earn income sooner and do not have to pay a tuition fee.



### RETIREMENT

When you reach the "Retirement" board space, collect your placing bonus.

### **Retirement Bonuses:**

- First to retire? Collect an extra salary amount.
- Second to retire? Collect an extra half salary amount.

### FINISHING UP THE GAME

Once all players have retired, it is time to pay off debts if you haven't already. Pay back the bank \$60,000 for each loan you still have.

### HOW TO WIN

Move your character piece from start to retirement. When everyone has reached retirement, whoever has the highest sustainability score wins. Because in life money weighs some importance, for every \$20k you have left, add 1 sustainability point to your score.



# 3. Sources Used in Farming for Tomorrow

Below you will find sources that helped me create this game, as well as places to go for further information.

### Information for the Career and Advanced Education Career cards:

<u>agexplorer.ffa.org/</u>

### Information for the Action and Sustainable Practices Cards were collected from the following sources:

- michiganfarmnews.com/avian-influenza-outbreak-claims-nearly-1-2m-birds-at-delaware-facility-
- michiganfarmnews.com/federal-gray-wolf-protections-restored-two-michigan-laws-suspended
- michiganfarmnews.com/-72-9m-available-in-usda-s-specialty-crop-block-grant-program
- <u>michiganfarmnews.com/dairy-death-devastation-the-butlers-mourn-the-loss-of-100-cows-due-to-windstorm</u>
- <u>michiganfarmnews.com/consumers-energy-helps-farm-stay-afloat-through-energy-savings-</u>
- michiganfarmnews.com/first-two-cwd-cases-in-michigan-elk-confirmed-at-kent-county-cervid-facility
- michiganfarmnews.com/african-swine-fever-vaccine-candidate-shows-success
- michiganfarmnews.com/michigan-awarded-4-5m-in-usda-specialty-block-grant-program
- grayreed.com/NewsResources/Press-Releases/124806/Jury-Awards-Nearly-218MM-to-Kansas-Corn-Producers-In-First-Syngenta-GMO-Corn-Class-Action-Lawsuit
- poconorecord.com/story/business/agricultural/2018/07/14/water-system-re-moo-ves/11524568007/
- <u>apnews.com/article/business-environment-and-nature-michigan-detroit-chemical-spills-821ad7a142e3f8a9b09fdeafde27fc54</u>
- $\bullet \ \underline{\text{michiganfarmnews.com/shady-side-farm-awarded-mdard-farmland-preservation-funds}}$
- michiganfarmnews.com/tackling-tar-spot-threat-to-corn-starts-with-hybrid-selection
- michiganfarmnews.com/mdard-usda-agreement-leverages-40-m-in-conservation-funding
- <u>michiganfarmnews.com/a-southwest-michigan-poultry-farm-converts-entire-operation-to-solar-energy</u>
- michiganfarmnews.com/african-swine-fever-vaccine-candidate-shows-success
- michiganfarmnews.com/federal-gray-wolf-protections-restored-two-michigan-laws-suspended
- <u>michiganfarmnews.com/hasenick-family-farm-embracing-precision-agriculture-to-improve-margins-environment</u>
- michiganfarmnews.com/syngenta-seeds-and-university-of-arkansas-research-identifies-sustainability-benefitsin-beef-production



# 4. Sources for Introducing Farm Sustainability

Below you will find sources that can be used to introduce the topic to your classroom.

- nationalgeographic.com/foodfeatures/feeding-9-billion/
- fb.org/land/fsf
- cargill.com/feedingintelligence/coldstream-water-sustainability
- Michigan Agriculture Environmental Assurance Program
  - o maeap.org
- Journey2050.com
  - This site is an online game that teaches students the importance of increasing productivity but also caring for our planet.
- Teacher Resources from Arizona State University
  - <u>sustainability-innovation.asu.edu/sustainabilitysolutions/programs/teachersacademy/teacher-resources</u>
- iCEV's Sustainability & the Agricultural Industry lesson
  - This source provides a slideshow, notes, and assessments.
- iCEV's Cows and Climate lessons
  - This source has nine different lessons regarding cattle and climate issues.
- iCEV's World Agriculture & Population: Seeking a Balance for Survival video lesson
- Biggest Little Farm documentary film
- Farmers for America documentary film

### **Species Specific**

- Swine
  - <u>porkcares.org/ethical-principles/environment</u>
  - porkcares.org/our-practices/environmental-stewardship
  - o <u>canr.msu.edu/news/live\_swine\_carbon\_footprint\_calculator\_is\_now\_available\_for\_pork\_producers</u>
- Poultry
  - <u>unitedegg.com/issues-advocacy/environment/</u>
  - eggindustrycenter.org/media/cms/EggIndustryCenterReportEnv50yrStudy\_815FD9CBDE1D6.pdf
- Beef
  - usrsb.org US Roundtable For Sustainable Beef
  - $\circ \ \underline{beefsustainability.us/high-priority-indicators}\\$

# Students from Mrs. Davis's classes trying out Farming for Tomorrow









Name:				
Farming for Tomorrow: Reflection Once you have played the game Farming for Tomorrow, answer the questions below in complete sentences.				
1. What was your sustainability score?				
2. How much money did you end the game with?				
3. What are your first thoughts about your experience in the game? Answer in at least three sentences.				
4. Did you pay for an advanced education or jump right into a career? Did you think it was worth paying for the tuition? Why or why not?				
5. What did you learn from this game? Answer in at least three sentences.				

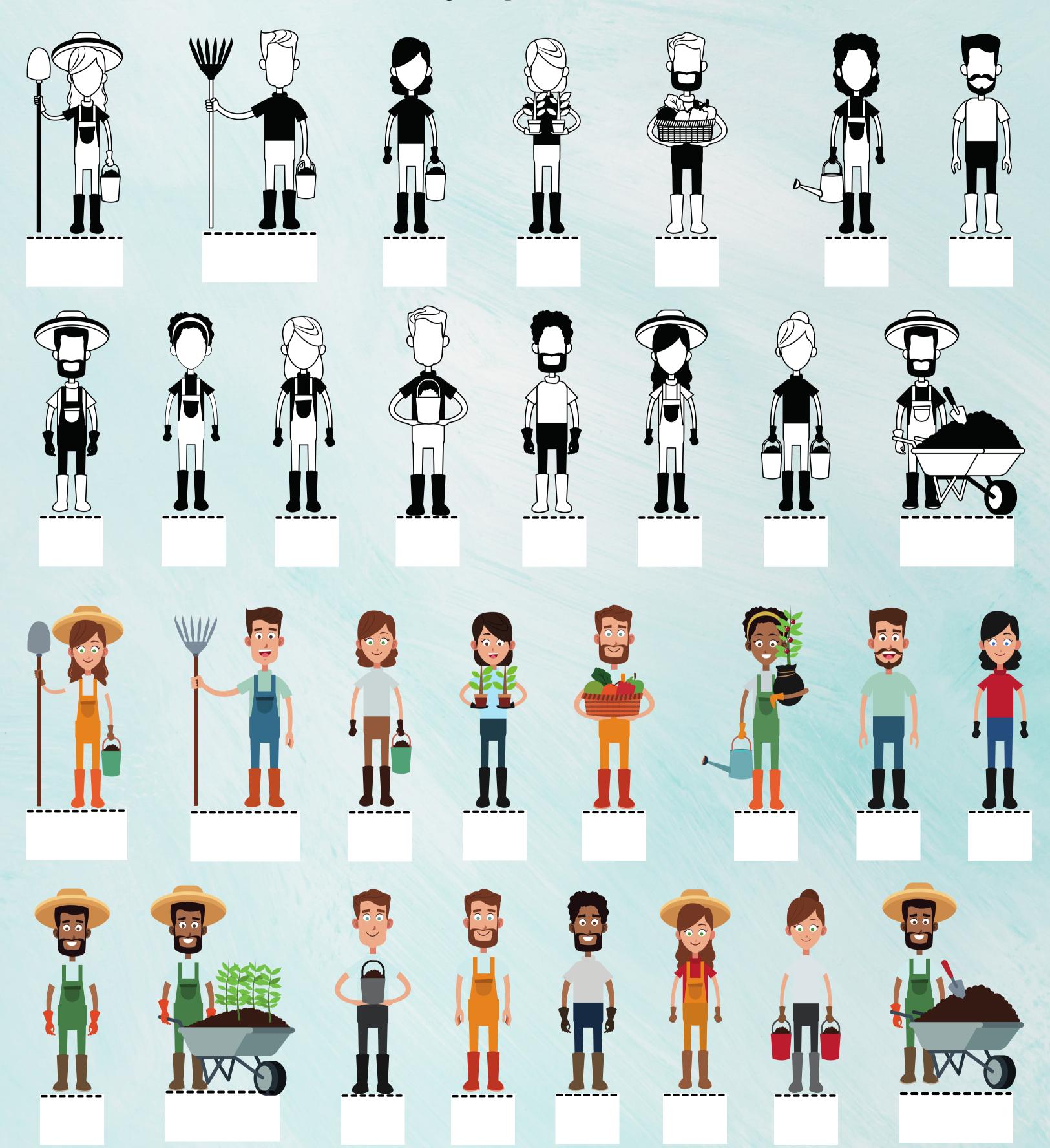
Farming for Tomorrow: A Game of Life on a sustainable Farm

Why should others tha	at aren't in farming care	ers care about farr	n sustainability
. What can you do to tea ix sentences.	ach others about farm s	ustainability? <b>Ans</b>	wer in at least
	4		

# **GAME PIECES:**

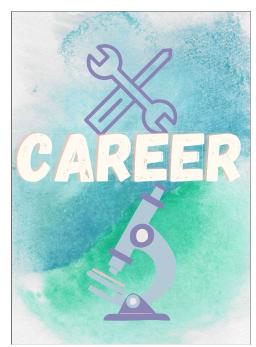
Below are character game pieces. If you have access to a color printer, I've added some colored images below for students to use. Otherwise, students could color the black and white characters, making them more personalized. I suggest printing either set on cardstock paper for added durability.

Make sure students cut out the character as well as the white box below. They will need to fold the box on the dashed line allowing the piece to stand on its own.









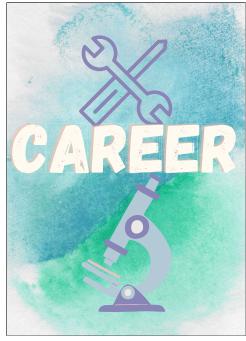












AGRIBUSINESS SYSTEMS

# LIVESTOCK **AUCTIONEER**

**SALARY** \$40,000

A LIVESTOCK AUCTIONEER SELLS ANIMALS AT PUBLIC AUCTIONS. THEY MUST BE ABLE TO POINT OUT DESIRABLE QUALITIES OF LIVESTOCK ON SALE INCLUDING AGE, BREED, WEIGHT, ETC.

TYPICAL EMPLOYERS:
MAY WORK FOR SALE BARNS
OR AUCTION COMPANIES, BUT
MOST ARE SELF-EMPLOYED

BIOTECHNOLOGY SYSTEMS

# **DISPATCHER**

**SALARY** \$30,000

DISPATCHERS PLAY AN IMPORTANT ROLE IN
COORDINATING PRODUCT
SHIPMENTS AND
TRANSFERS. THEIR DUTIES COMBINE SOME ASPECTS OF LOGISTICS AND CUSTOMER SERVICE.

### **TYPICAL EMPLOYERS:**

CAN WORK FOR AG. RETAILERS, CO-OPS, ANIMAL PRODUCTION COMPANIES, FEED MILLS, LOGISTICS COMPANIES AND OTHER TYPES OF BUSINESSES WHERE PRODUCTS ARE TRANSPORTED

NATURAL RESOURCES SYSTEMS

# SAWMILL **OPERATOR**

**SALARY** \$30,000

A SAWMILL OPERATOR IS RESPONSIBLE FOR DAILY PRODUCTION, QUALITY CONTROL, SAFETY, AND DAILY OPERATION OF A SAWMILL AND THE MANAGEMENT OF ITS EMPLOYEES.

**TYPICAL EMPLOYERS:** 

LUMBER/TIMBER COMPANIES, SUPPLIERS AS WELL AS LUMBER PRODUCT **MANUFACTURERS** 

AGRICULTURAL EDUCATION

# **AGRISCIENCE PARAPROFESSIONAL**

**SALARY** \$20,000

PARAPROFESSIONALS PROVIDE INSTRUCTIONAL, BEHAVIORAL, AND OTHER SUPPORT TO STUDENTS IN AND OUTSIDE OF THE CLASSROOM

TYPICAL EMPLOYER:
MIDDLE AND HIGH SCHOOLS,
AS WELL AS CAREER CENTERS
WITH AN AGRICULTURE
PROGRAM

**ENVIRONMENTAL SERVICE SYSTEMS** 

# **SANITATION** COORDINATOR

**SALARY** \$30,000

SANITATION COORDINATORS ARE RESPONSIBLE FOR ALL ACTIVITIES INVOLVED IN MAINTAINING THE CLEANLINESS OF THEIR ASSIGNED PRODUCTION AREA.

### **TYPICAL EMPLOYERS:**

FOOD PROCESSING FACILITIES INCLUDING GRAIN, VEGETABLES, MEAT, DAIRY AND DRY PACKAGED GOODS

PLANT SYSTEMS

# **CROP SCOUT**

**SALARY** \$50,000

CROP SCOUTS MUST WALK THE FIELDS OF CUSTOMERS TO LOOK FOR POTENTIAL PESTS AND SITUATIONS THAT IMPACT YIELDS AND THEN MAKE RECOMMENDATIONS TO THE PRODUCER BASED ON THOSE FINDINGS.

### TYPICAL EMPLOYERS:

CROP CONSULTANTS, AGRICULTURE RETAILERS AND SEED AND CHEMICAL COMPANIES HIRE CROP SCOUTS TO HELP THEIR CUSTOMERS MAXIMIZE YIELDS

ANIMAL SYSTEMS

# **SWINE NURSERY FARM WORKER**

**SALARY** \$30,000

A SWINE NURSERY FARM WORKER OVERSEES THE HEALTH OF NEWLY WEANED PIGLETS TO ENSURE OPTIMAL GROWTH AT AN EARLY AGE IN THE PIG'S LIFE.

TYPICAL EMPLOYERS:

SWINE PRODUCTION FARMS THAT HOUSE AND PRODUCE SWINE FOR PROCESSING

FOOD PRODUCTS & PROCESSING **SYSTEMS** 

# SLAUGHTER PROCESSOR -PACKING

**SALARY** \$60,000

PACKERS MANUALLY OR WITH MACHINERY PACKAGE, WEIGH AND SORT PROCESSED SLAUGHTERED LIVESTOCK AND/OR FISH TO MEET COMPLIANCE STANDARDS.

**TYPICAL EMPLOYERS:** 

LARGE FOOD PROCESSING COMPANIES OR AT SMALLER, INDEPENDENT ANIMAL PROCESSING FACILITIES

> POWER, STRUCTURAL & TECHNICAL SYSTEMS

# **HEAVY EQUIPMENT OPERATOR**

**SALARY** \$30,000

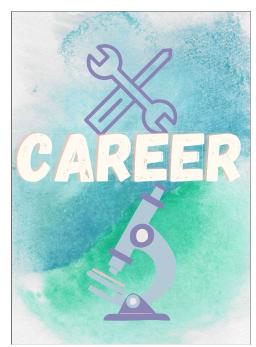
A HEAVY EQUIPMENT/ FORKLIFT OPERATOR IS RESPONSIBLE FOR THE LOADING AND UNLOADING OF GOODS. THEY PULL AND STAGE ORDERS FOR DELIVERY WITH EXTREME ACCURACY.

### TYPICAL EMPLOYERS:

MAY WORK FOR ANY AG. **BUSINESS OR ORGANIZATION** THAT REGULARLY TRANSPORTS AND RECEIVES GOODS







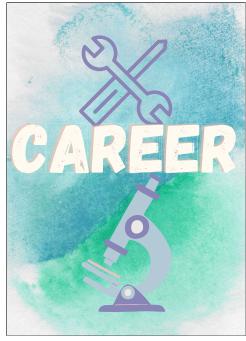




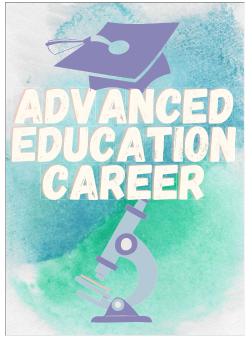


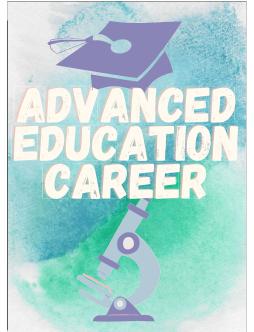


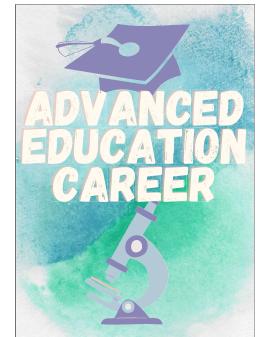


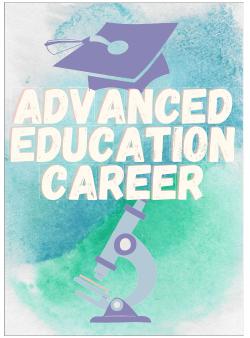


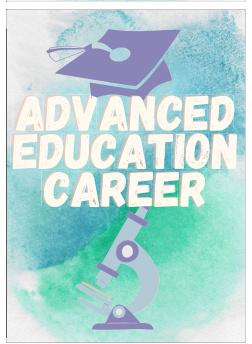
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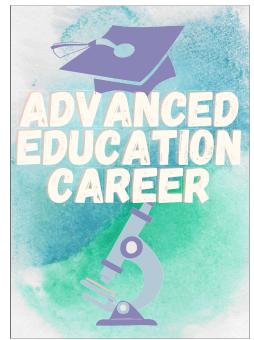


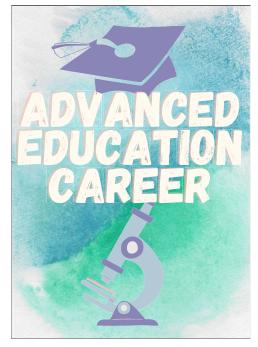


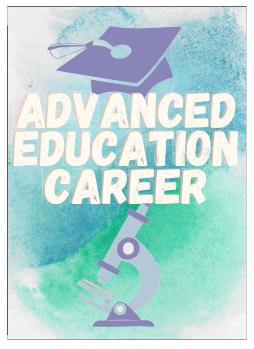


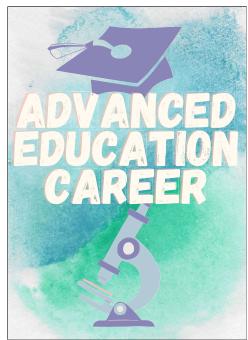












AGRIBUSINESS SYSTEMS

# **SALES** REPRESENTATIVE

**SALARY** \$60,000

A SALES REP. IS
RESPONSIBLE FOR AN
ASSIGNED TERRITORY AND
PRODUCT THEY MUST
MARKET TO
AGRICULTURAL SUPPLIERS,
DEALERS OR PRODUCERS.

TYPICAL EMPLOYERS: COMPANIES IN SUPPLY, SEED PRODUCTION, ANIMAL PROCESSING AND HEALTH, CHEMICAL DISTRIBUTORS, AND EQUIPMENT DEALERSHIPS

BIOTECHNOLOGY SYSTEMS

# **PLANT BIOLOGIST**

**SALARY** \$70,000

A PLANT BIOLOGIST
SPECIALIZES IN TOPICS
SUCH AS PLANT BREEDING
OR GENETICS; THEY
CONDUCT AND SUPPORT
RESEARCH OF PLANT PRODUCTION.

### **TYPICAL EMPLOYERS:**

SMALL AND LARGE BIOTECHNOLOGY COMPANIES AS WELL AS UNIVERSITIES AND STATE AND GOVERNMENT AGENCIES

NATURAL RESOURCES SYSTEMS

# **AQUACULTURIST**

**SALARY** \$60,000

AOUACULTURISTS WORK TO BRING A VARIETY OF HEALTHY FISH, LOBSTERS, CRABS AND MORE FROM AQUATIC ENVIRONMENTS TO OUR TABLE. THEY ALSO COLLECT AND RECORD GROWTH, PRODUCTION, AND ENVIRONMENTAL DATA AS WELL AS PERFORM ROUTINE MAINTENANCE OF EQUIPMENT.

TYPICAL EMPLOYERS: LARGE COMMERCIAL
FISHERIES, BIOLOGICAL
RESEARCH COMPANIES,
STATE AND GOVERNMENT
ENVIRONMENTAL AGENCIES
OR AT PARKS OR AQUARIUMS AGRICULTURAL EDUCATION

# **AGRICULTURE SCIENCE TEACHER**

**SALARY** \$40,000

AGRICULTURE SCIENCE TEACHERS EDUCATE STUDENTS ABOUT AGRICULTURE, FOOD AND NATURAL RESOURCES.IN ADDITION, MANY ADVISE AN FFA CHAPTER.

TYPICAL EMPLOYERS: MIDDLE AND HIGH SCHOOLS, AS WELL AS CAREER CENTERS WITH AN AGRICULTURE PROGRAM

> **ENVIRONMENTAL SERVICE SYSTEMS**

# **HYDROLOGIST**

**SALARY** \$60,000

A HYDROLOGIST EXAMINES THE PHYSICAL CHARACTERISTICS, DISTRIBUTION AND CIRCULATION OF WATER ABOVE AND BELOW THE EARTH'S SURFACE.

### TYPICAL EMPLOYERS:

RESEARCH FIRMS, ENVIRONMENTAL CONSULTING COMPANIES, CONSERVATION AUTHORITIES, STATE AND FEDERAL GOVERNMENT, COLLEGES/UNIVERSITIES AND ENV. ORGANIZATIONS

PLANT SYSTEMS

# **SOIL SCIENTIST**

**SALARY** \$70,000

SOIL SCIENTISTS STUDY SOIL CHARACTERISTICS, MAP TYPES, AND INVESTIGATE RESPONSES OF SOILS UNDER CERTAIN CONDITIONS. THEY ALSO RESEARCH THE CHEMICAL COMPOSITION, STRUCTURE, AND PROPERTIES OF SOIL.

TYPICAL EMPLOYERS:
COMPANIES, RESEARCH FIRMS,
GOVERNMENTAL,
EVIRONMENTAL, OR
CONSERVATION
ORGANIZATIONS, AND
COLLEGES OR UNIVERSITIES

ANIMAL SYSTEMS

# **SMALL ANIMAL VETERINARIAN**

**SALARY** \$80,000

A SMALL ANIMAL VETERINARIAN IS RESPONSIBLE FOR THE DIAGNOSIS AND TREATMENT OF SICKNESS, DISEASE AND INJURY IN COMPANION ANIMALS.

TYPICAL EMPLOYERS:

MAY BE SELF-EMPLOYED OR WORK FOR CLINICS, ANIMAL HOSPITALS, LABORATORIES OR ANIMAL HEALTH COMPANIES

FOOD PRODUCTS & PROCESSING **SYSTEMS** 

# PRODUCE BUYER

**SALARY** \$80,000

PRODUCE BUYERS PURCHASE PRODUCE TO BE MADE INTO OTHER PRODUCTS OR RESALE IN A RETAIL ENVIRONMENT. THEY ARE EXPECTED TO BE EXPERTS IN RAW PRODUCT QUALITY, MARKET TRENDS AND PERISHABLE INVENTORY MANAGEMENT.

TYPICAL EMPLOYERS:
RESTAURANT CHAINS,
GROCERY STORES, FOOD
SERVICE PROVIDERS OR FOOD
PRODUCTION COMPANIES

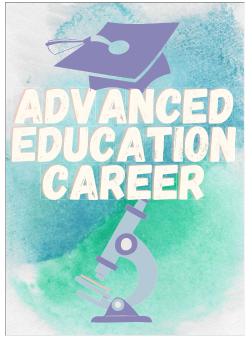
POWER, STRUCTURAL & TECHNICAL SYSTEMS

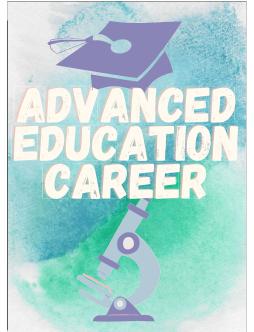
# I.T. SOFTWARE DEVELOPER

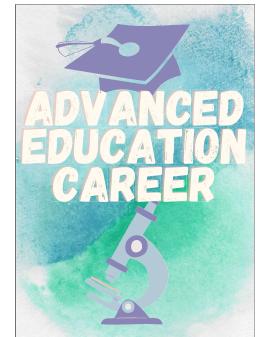
**SALARY** \$80,000

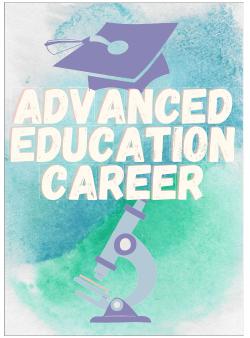
SOFTWARE DEVELOPERS CREATE PROGRAMS FOR COMPUTERS OR OTHER DEVICES THAT FILL A SPECIFIC NEED OR NICHE WITHIN AN AGRICULTURAL BUSINESS.

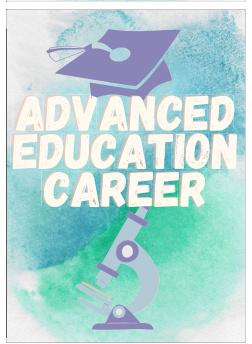
# TYPICAL EMPLOYERS: AGRICULTURAL COMPANIES THAT PROVIDE SOFTWARE SOLUTIONS TO PRODUCERS

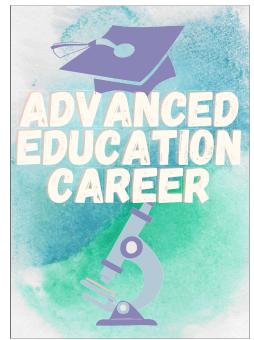


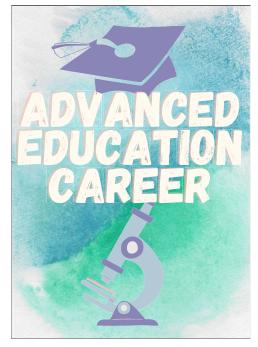


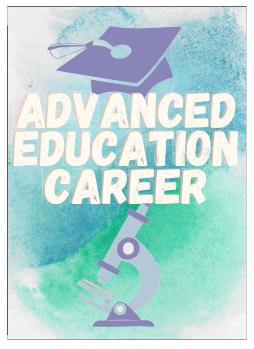


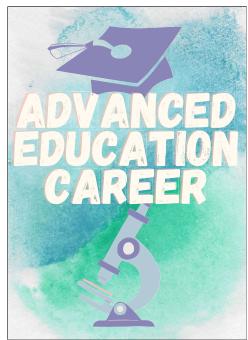










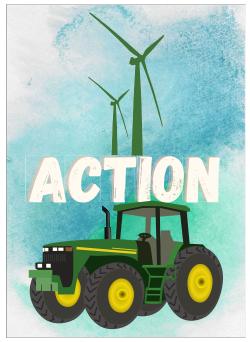


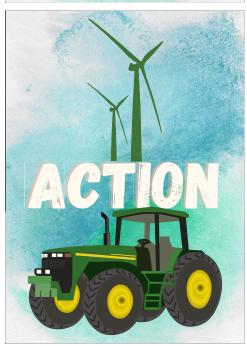
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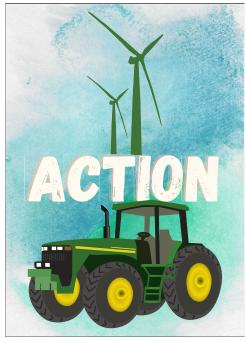




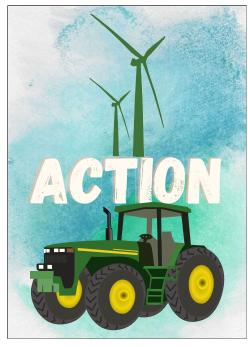














# LAWSUIT

Sue a local company for dumping PFOA, a toxic compound used to make Teflon, into the river that flows through your dairy farm, killing your herd.

Collect \$50,000 for compensation



# LAWSUIT

A company's actions with its genetically modified strains of corn led to the loss of an important market for U.S. corn and causing farmers economic harm.

> Collect \$50,000 for compensation



# OUTBREAK

Your egg production chickens are showing signs of nasal discharge, diarrhea, issues with combs and increased deaths. Your poultry farm has had an outbreak of Avian Influenza.

Pay \$20,000



# **PREDATORS**

Gray wolves are now federally protected, prohibiting you from killing those preying on your livestock. Last night you lost two calves.

Pay \$3,000



# **GRANTS**

USDA announced availability of \$72.9 million through the Specialty Crop Block Grant Program to fund projects that support the expanding specialty crop sector and explore new market opportunities for U.S. food and agricultural products. **Collect \$3,000** 



# **GRANTS**

The Michigan Vegetable Council has partnered with MSU researchers to develop recommendations for the state's root crops to limit soil-borne pathogens from cover crops that prevent plant establishment and productivity.

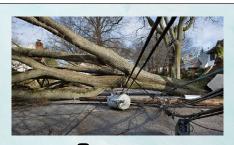
Collect \$50.000



# **GRANTS**

Washington State Conservation Commission awarded a \$930,305 grant to install and operate a clean water membrane technology system, an agricultural waste solutions company.

Collect \$100,000



# **STORM**

A windstorm pushed a power line on your main barn and milk house, killing 100 head of cattle. Even a month later your farm is out of commission.

Pay \$100,000



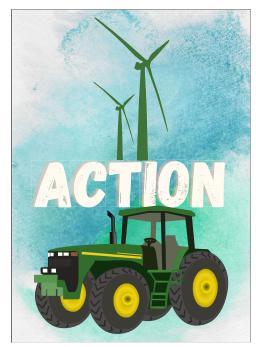
# **EFFICIENCY REBATES**

You work with Consumers Energy to earn rebates through four projects, including switching to LED lighting and most recently a new variable speed milk pump and a larger capacity, correctly sized milk plate cooler.

Collect \$30,000

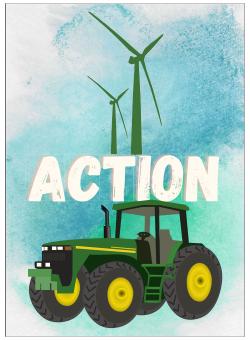






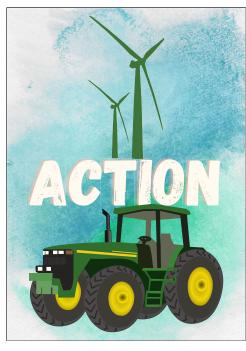














# **OUTBREAK**

There are two confirmed cases of chronic wasting disease in your farmed elk herd. The disease can be transmitted directly from one animal to another and indirectly through the environment.

Pay \$2,000



# **INCREASE**

Fertilizer has doubled in cost per acre since 2021. Pay extra to prepare your fields for the growing season.

Pay \$5,000



# **SAFETY TRAINING**

Send all of your employees to The Anderson's Bin Rescue Training Program.

Pay \$5,000



# **FUEL CRISIS**

Diesel fuel doubles due to the war in Ukraine. Pay extra to fuel your equipment.

Pay \$10,000



# **HIGH YIELDS**

End the year with higher than average yields.

Collect \$20,000



# **LOW YIELDS**

You ended the year with lower than average yields. Pay the bank to make up for money borrowed this growing season.

Pay \$20,000



# **FIRE**

Lose a barn in a fire full of hay due to wet storage.

Pay \$50,000



# **AUCTION LUCK**

Sell a herd of cattle above market value.

Collect \$10,000

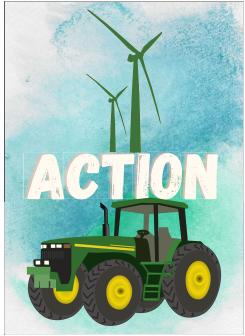


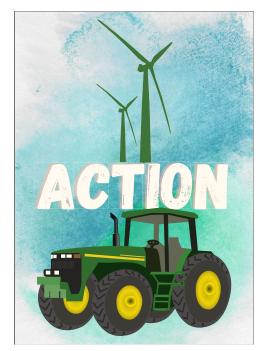
# **AUCTION LUCK**

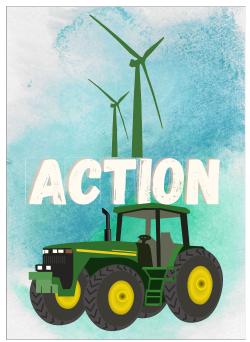
Sell your pigs above market value.

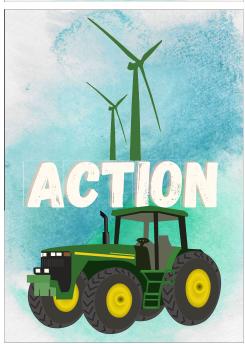
Collect \$10,000

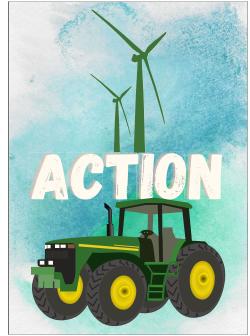






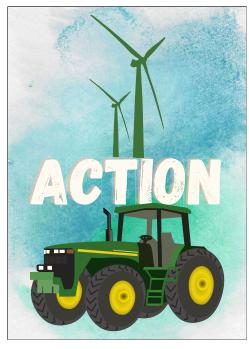


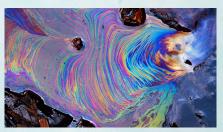












# **OIL SPILL**

You notice the river near your company is contaminated in oil. After an investigation, you find a 10,000 gallon tank buried on the property. You'll work with the EPA to clean the spill.

Pay \$40,000



# **AUCTION LUCK**

Your fair pigs sold for more than market price.

**Collect \$2,000** 



# **AUCTION LUCK**

Your fair steer sold for more than market price.

Collect \$3,000.



# **AUCTION LUCK**

Your fair sheep sold for more than market price.

**Collect \$1,000** 



# **OUTBREAK**

One of your corn fields break out with tar spot, black, roughly circular discolorations on the leaves, husks and stalks. A tan halo sometimes surrounds the spore-filled spots. This reduces your yield 60 bushels an acre.

Pay \$10,000



# **GRANT**

Earn a grant from the Michigan Department of Agriculture and Rural Development. These funds will help pay for an agricultural easement to permanently protect five parcels totaling 123 acres.

Collect \$170,000



# **GRANT**

With the help of Conservation Reserve Enhancement Program (CREP), enroll 20 acres of your fields to establish windbreaks.

Collect \$10,000



# **NO TIL**

This year you tried no-till practices in your crop fields. Earn money by saving on fuel costs.

Collect \$20,000

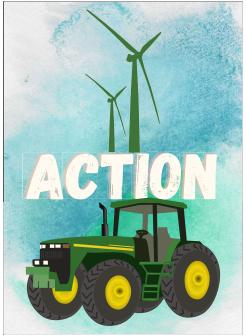


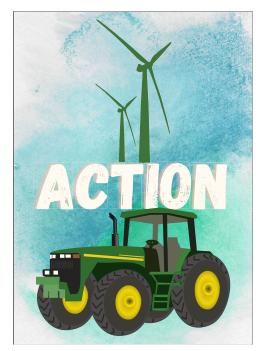
# **NO TIL**

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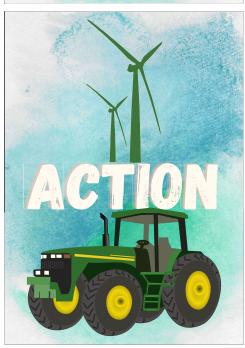
Collect \$25,000

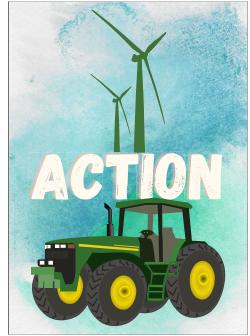






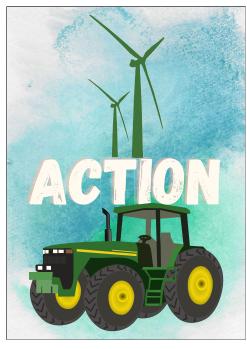


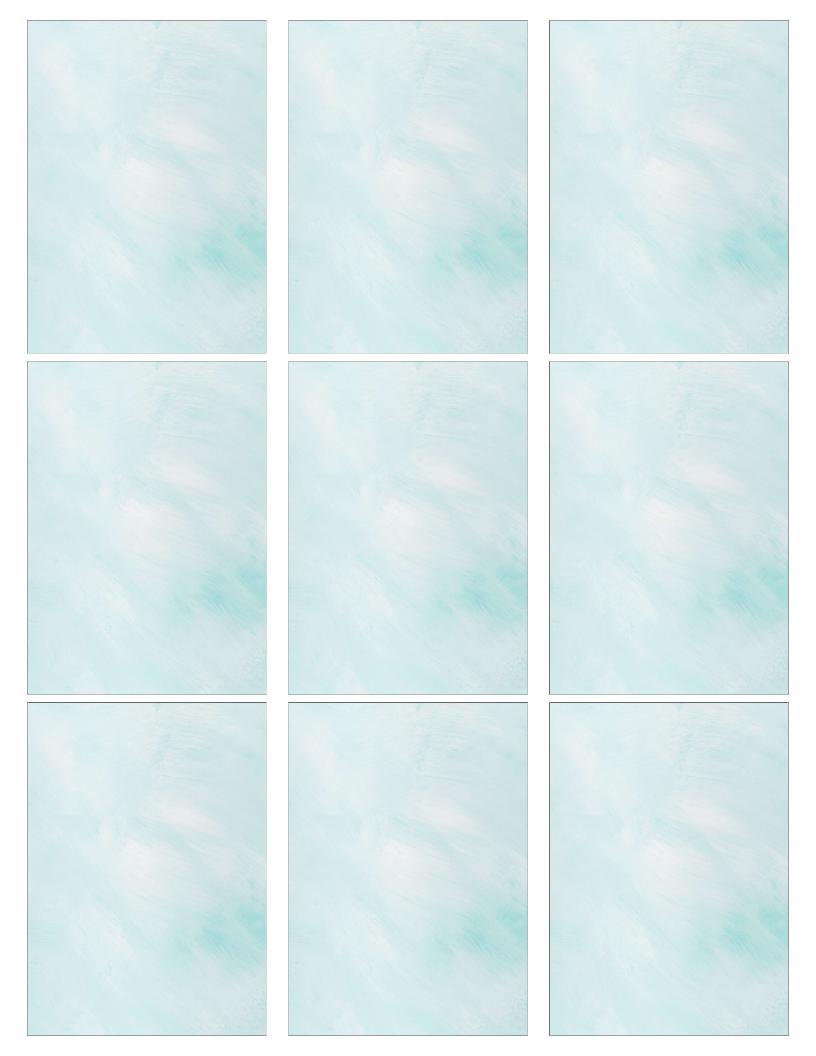


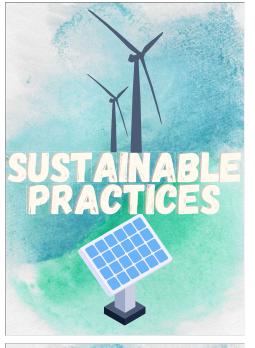


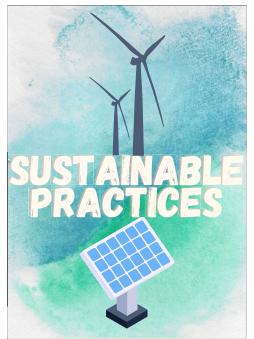


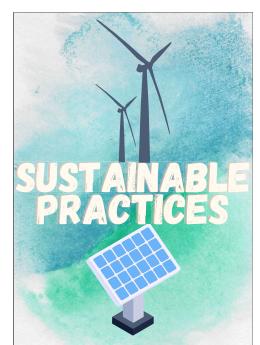


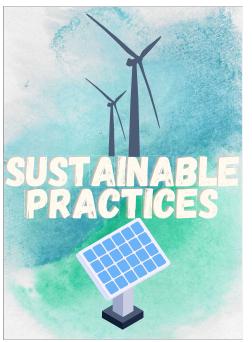




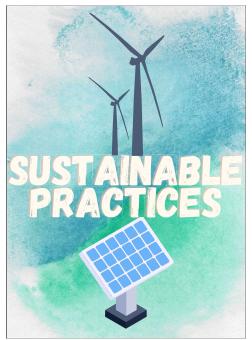






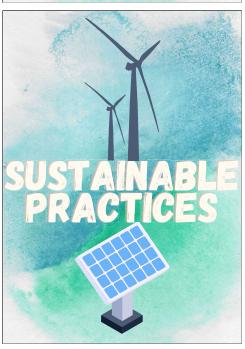
















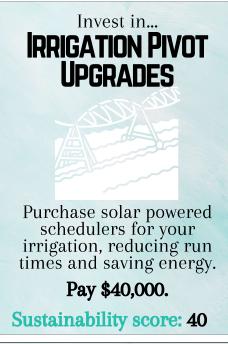


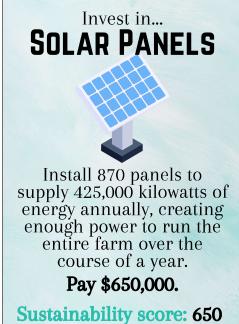


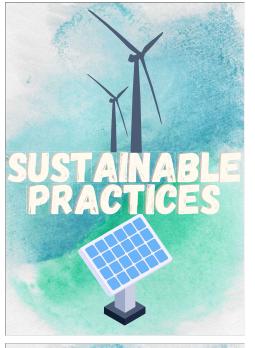


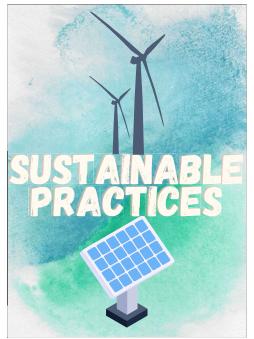


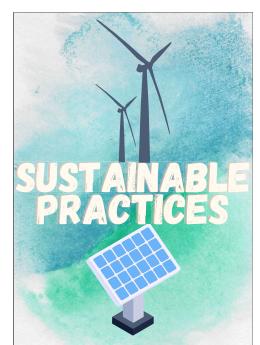


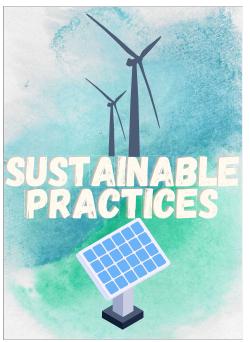


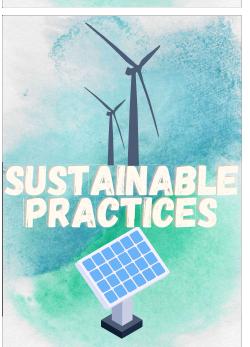


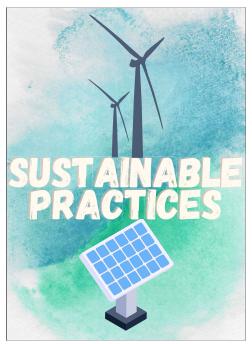


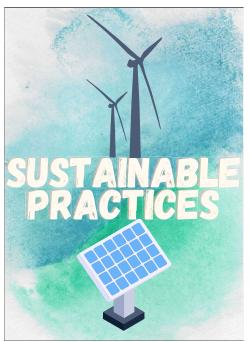


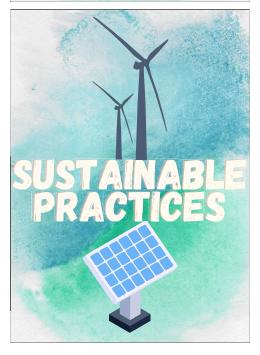


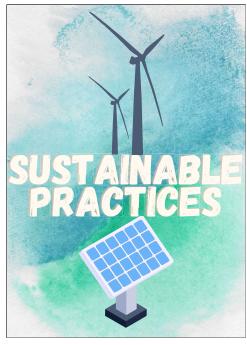




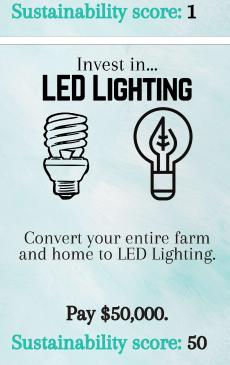














Innovative technology of Enogen corn for feed delivers potential 5% increase in feed efficiency and offers significant opportunity for farmers to reduce environmental footprint of livestock production through reduced emissions and natural resource use.

Pay \$200,000.

Sustainability score: 200

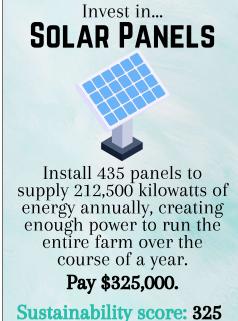




Sustainability score: 46



Sustainability score: 300

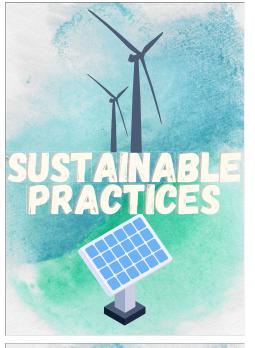


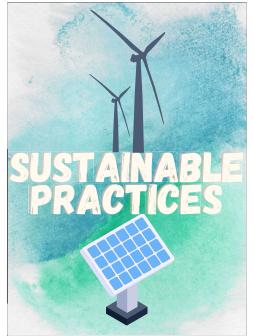


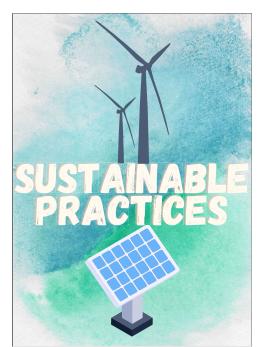
Pay \$65,000.

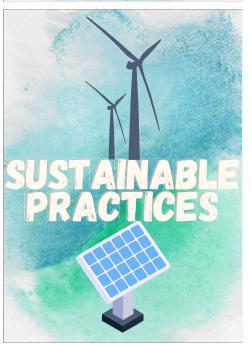


Pay \$75,000. Sustainability score: 75

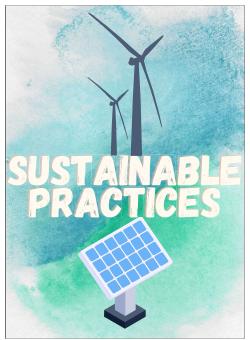


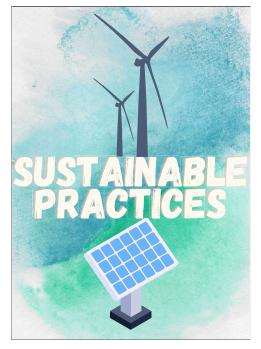


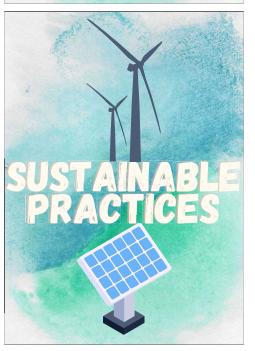


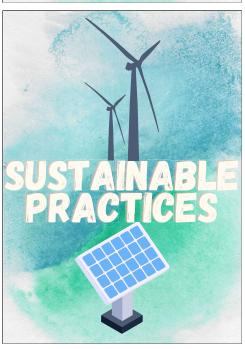










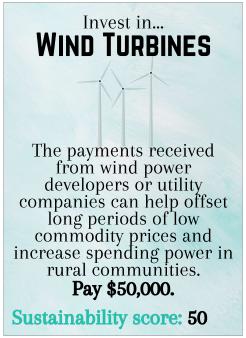


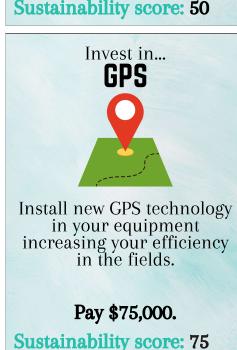




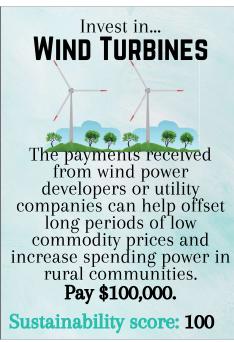




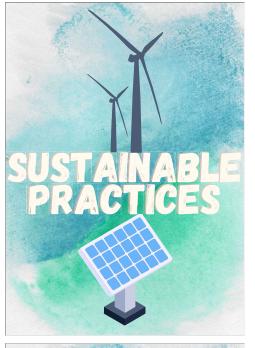


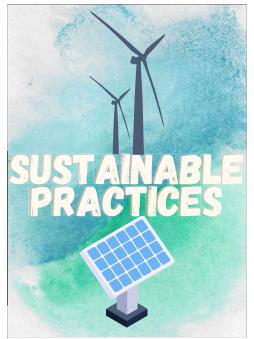


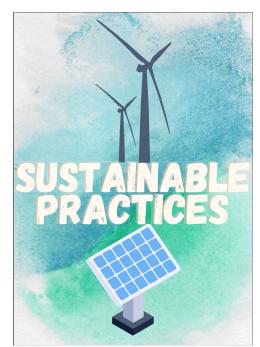


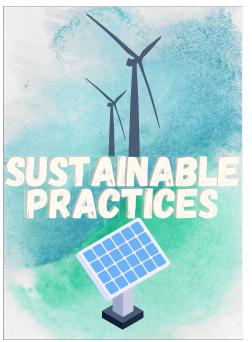




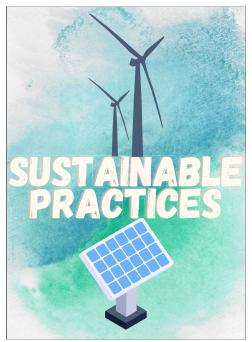


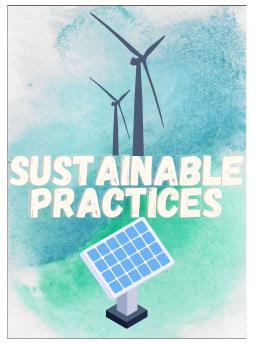


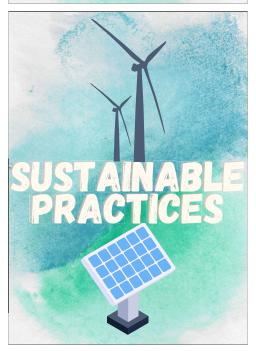


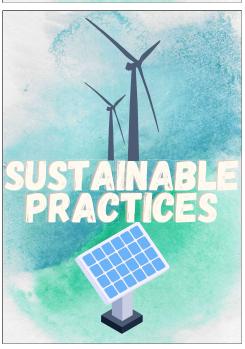












Invest in	Invest in	Invest in
Invest in	Invest in	Invest in
Invest in	Invest in	Invest in

