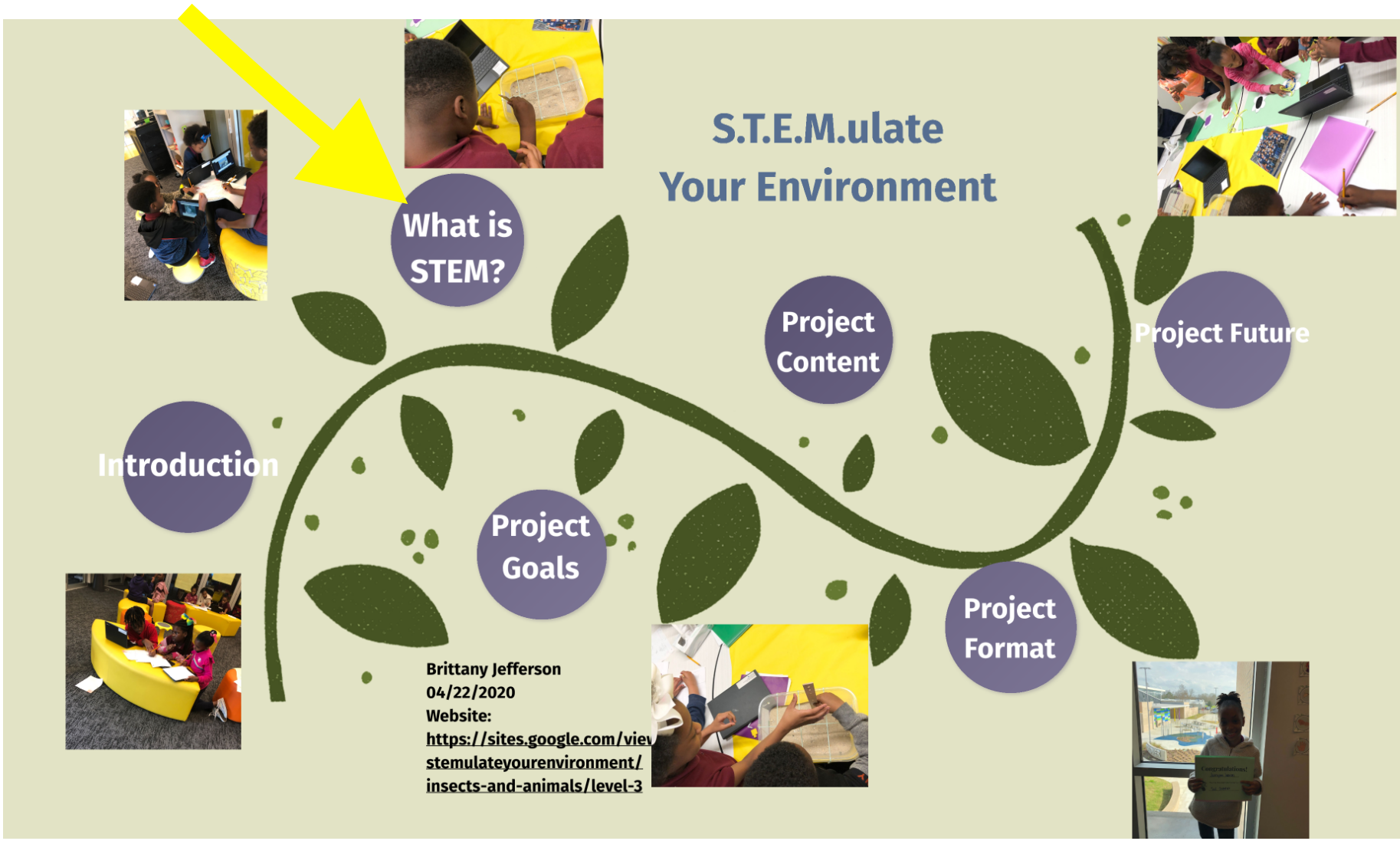

S.T.E.M.ulate
Your Environment
What is STEM?
Project Content
Project Future
Introduction
Project Goals
Project Format
Brittany Jefferson
04/22/2020
Website:
https://sites.google.com/view/stemulateyourenvironment/insects-and-animals/level-3

S.T.E.Mulate Your Environment

Brittany Jefferson
Park Elementary School
3rd Grade Math and Science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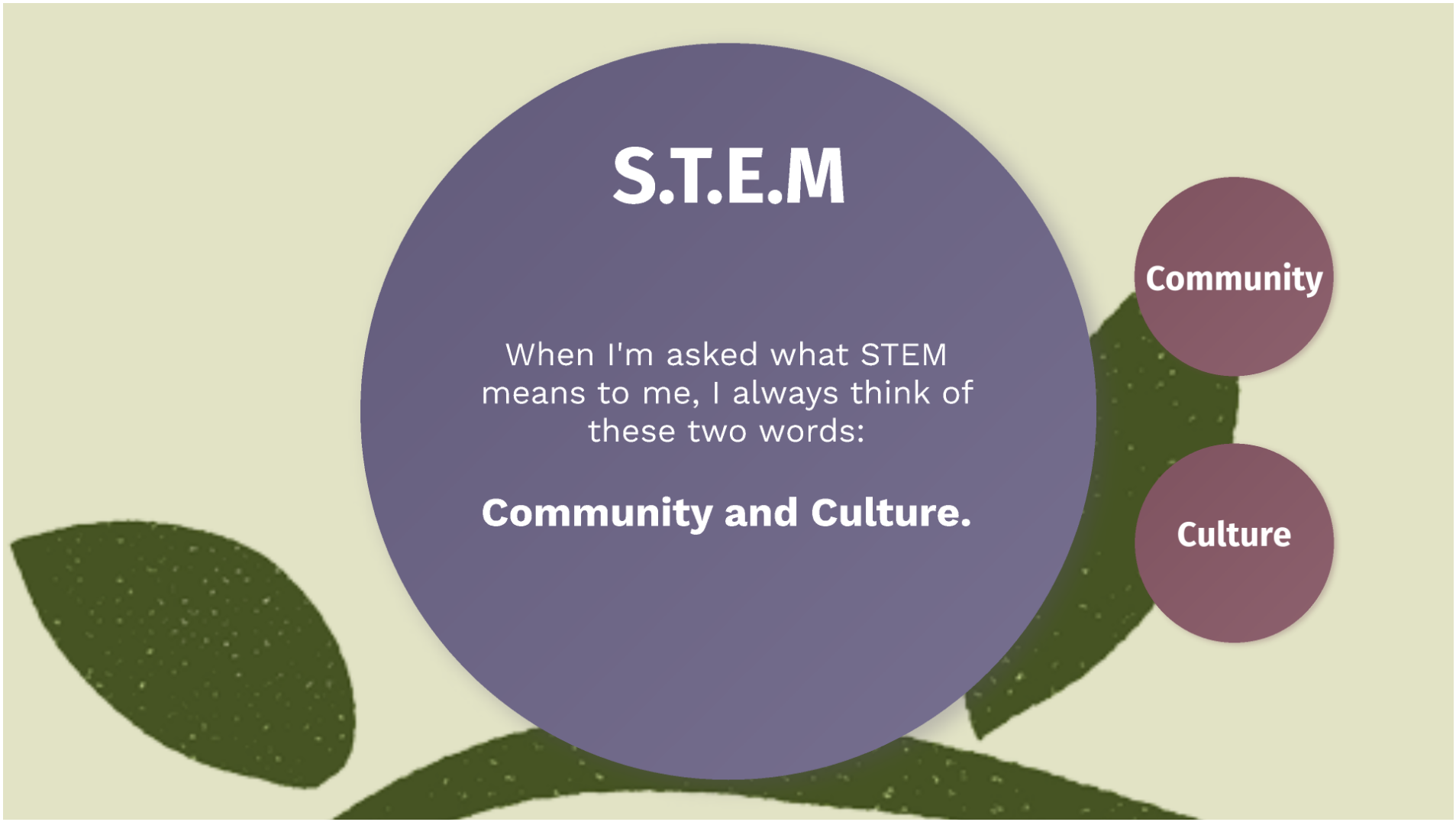
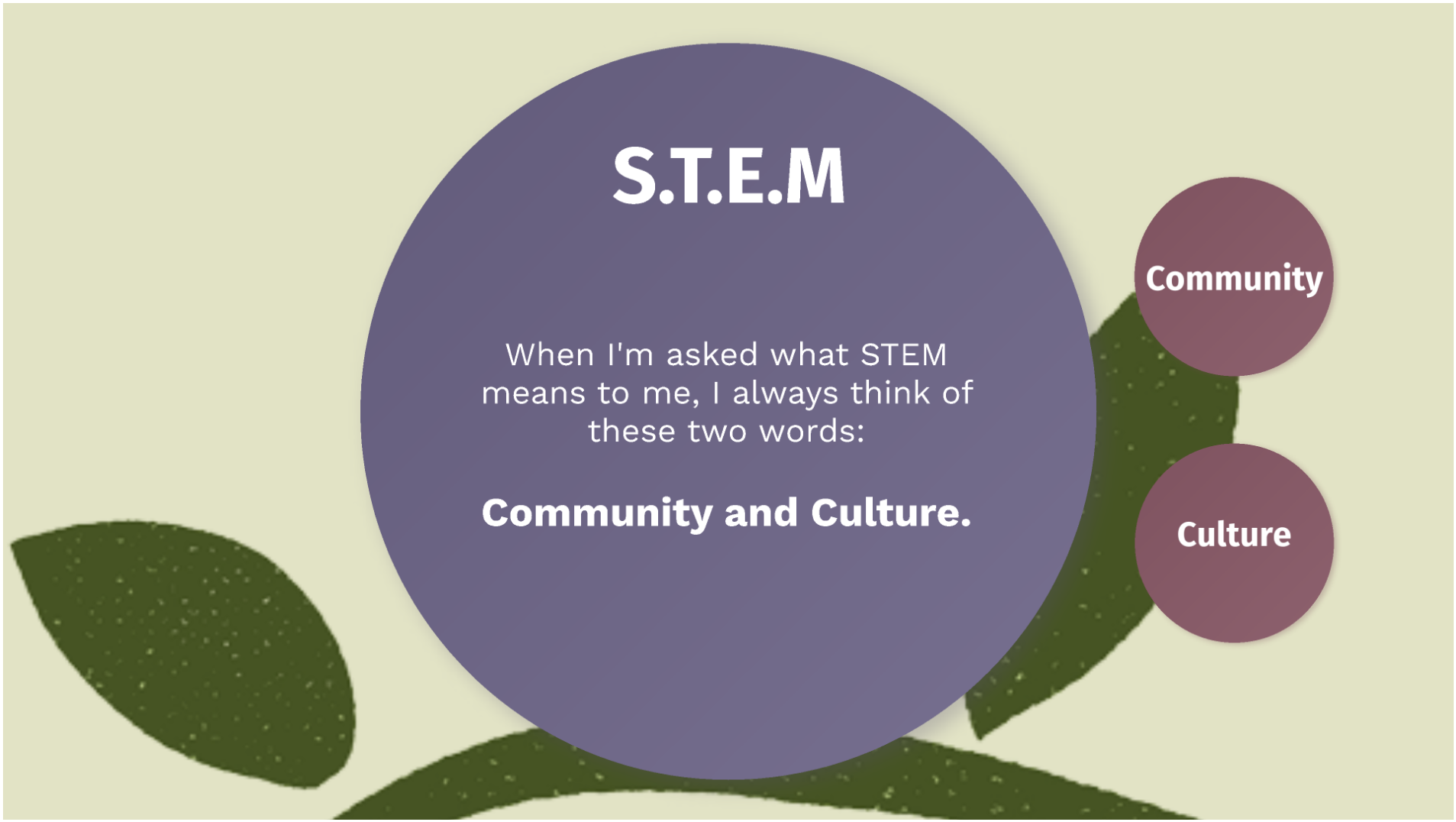

S.T.E.M
When I'm asked what STEM means to me, I always think of these two words:
Community and Culture.
Community
Culture

Community

The opportunity to forge friendships and relationships through learning collaboration and team building skills. It provides the opportunity to learn from people of all backgrounds and cultures deepening our understanding of most content.

Culture

STEM IS a culture because of its ability not to fit inside traditional boxes. It allows students to imagine futures beyond what the world has to offer right now. It teaches vision, focus, growth mindset, and collaboration skills. All the skills any one person needs to be successful in all aspects of life. Most importantly, it creates a future for my students to be who they want to be.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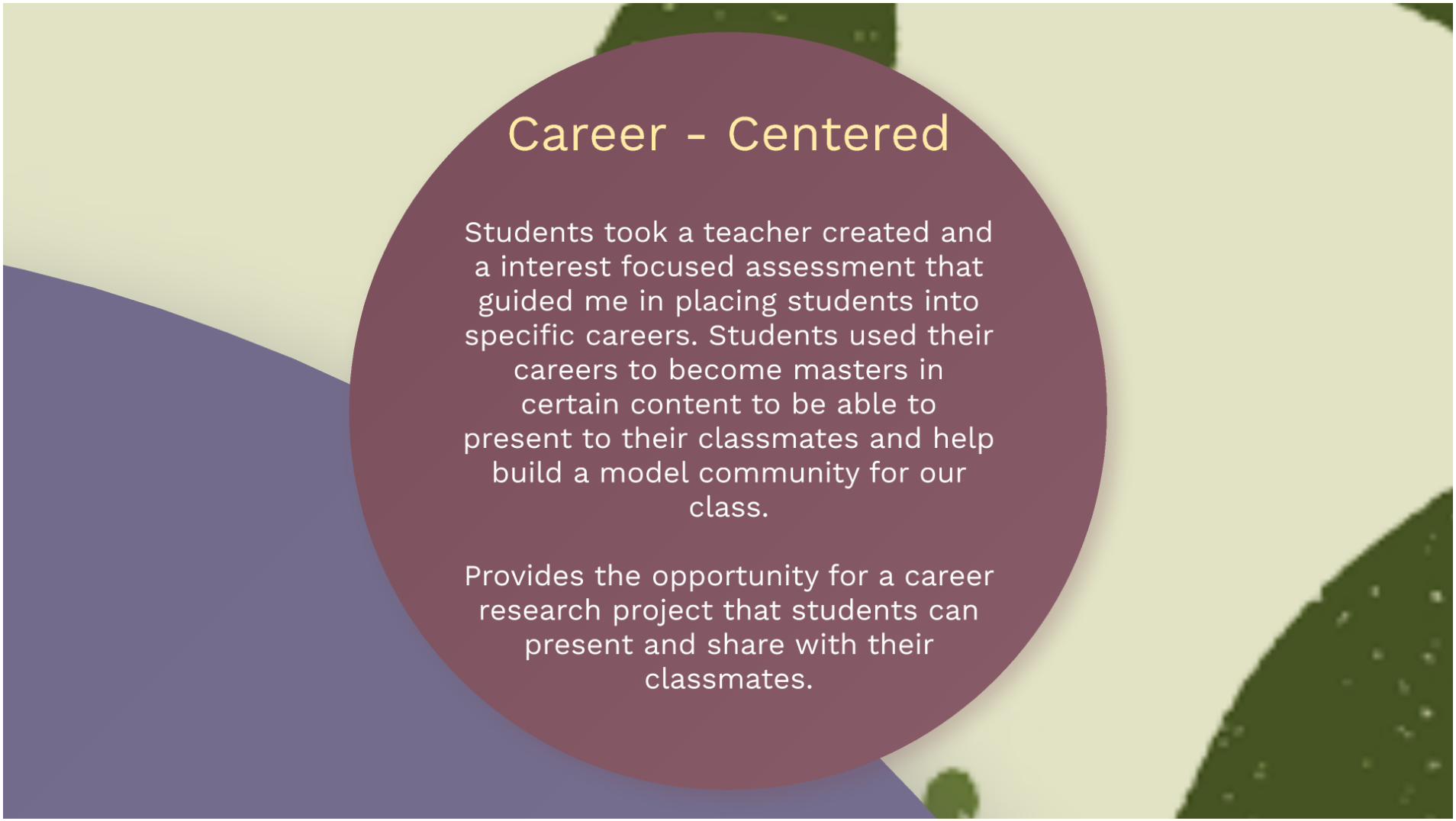
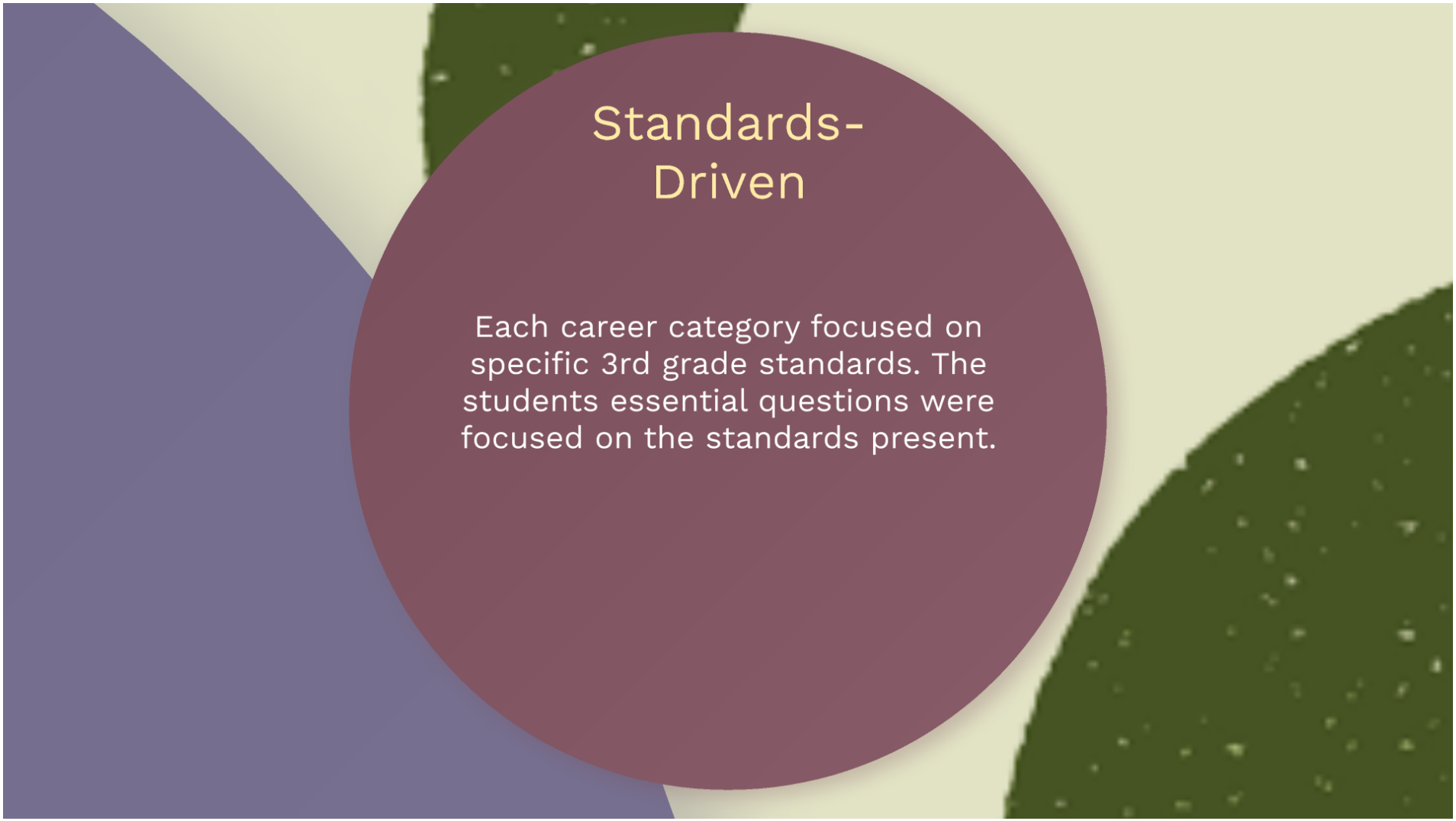
Project Goals
When creating my project, I had several goals in mind:
• Career-Centered
• Standards-Driven Instruction
• Real-World Experience
• Community Involvement
• Creativity and Engineering opportunities
I wanted my students to feel as if they were getting the true experience in relation to becoming a master at any career. Like most, there is the content you learn that provides the foundation. Then there are the experiences and research you gain along the way before finally you become fluent enough to put that knowledge to work in solving real-world problems.
Career-Centered
Standards-Driven
Real-World Experience
Community Involvement
Creativity


Career - Centered
Students took a teacher created and a interest focused assessment that guided me in placing students into specific careers. Students used their careers to become masters in certain content to be able to present to their classmates and help build a model community for our class.
Provides the opportunity for a career research project that students can present and share with their classmates.


Standards-
Driven
Each career category focused on specific 3rd grade standards. The students essential questions were focused on the standards present.

Real - World Experience

It is important in all aspects that content relates directly to the students. The community that my school is built in, is the same community that most of my children have lived in their entire lives. Recently, Habitat for Humanity was building 3 new homes across the street from our building and one of the students commented on it. We talked about, as a class, what the other homes in the neighborhood looked like and whether or not it had all the characteristics of a good habitat.


Community Involvement
Opportunity to invite people in the community, of those same careers, to come and speak to students for further insight. Helps each student feel like the careers are attainable and possible for their futures.

Creativity

We used The Engineer Design Process to allow students time to brainstorm ideas and create. Students would have the opportunity of using a Cricut Maker and Design space to design and engineer structures for their products. From that point, students have full creativity over the development of their project and the tools and materials they decided to use.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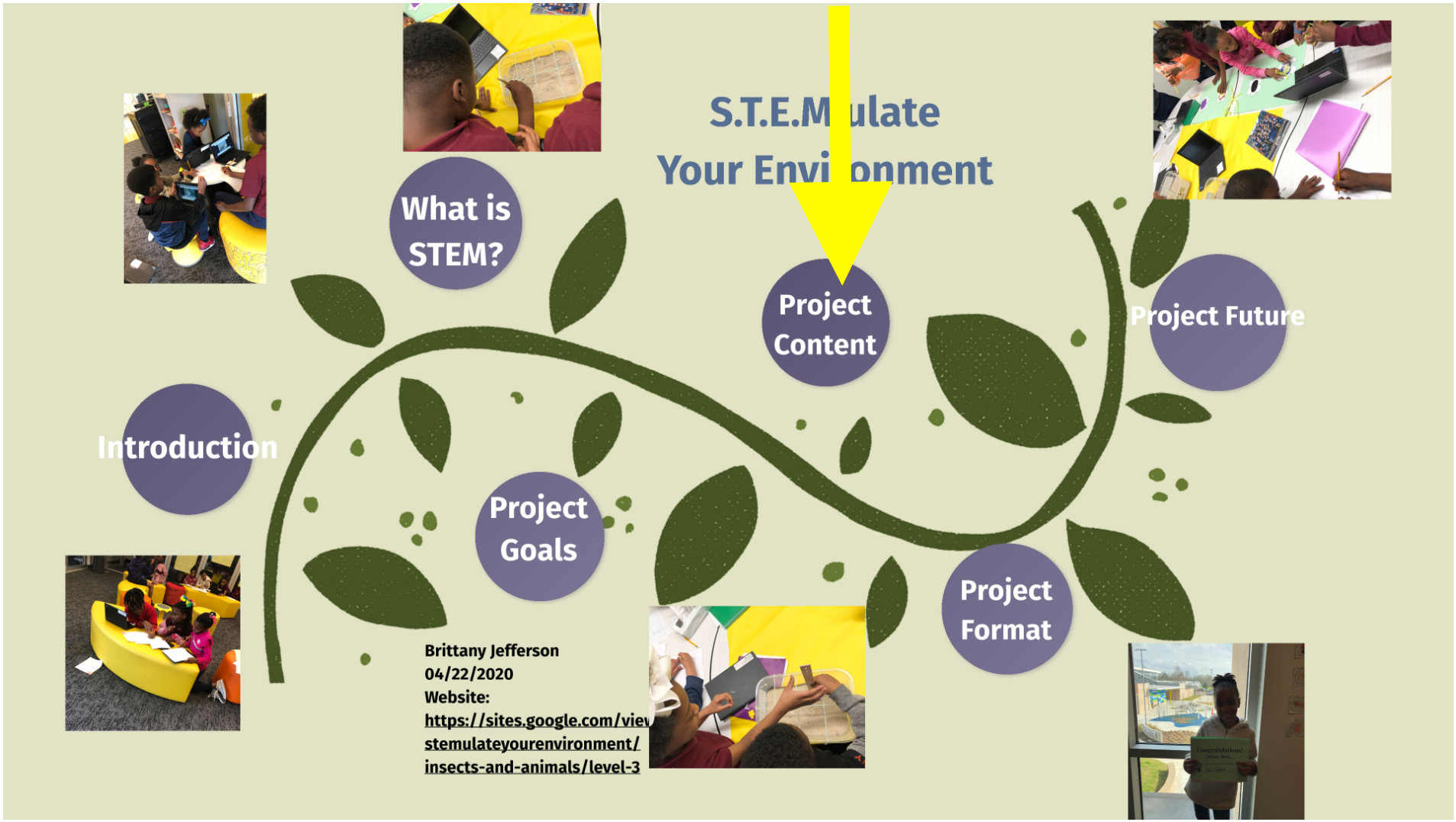
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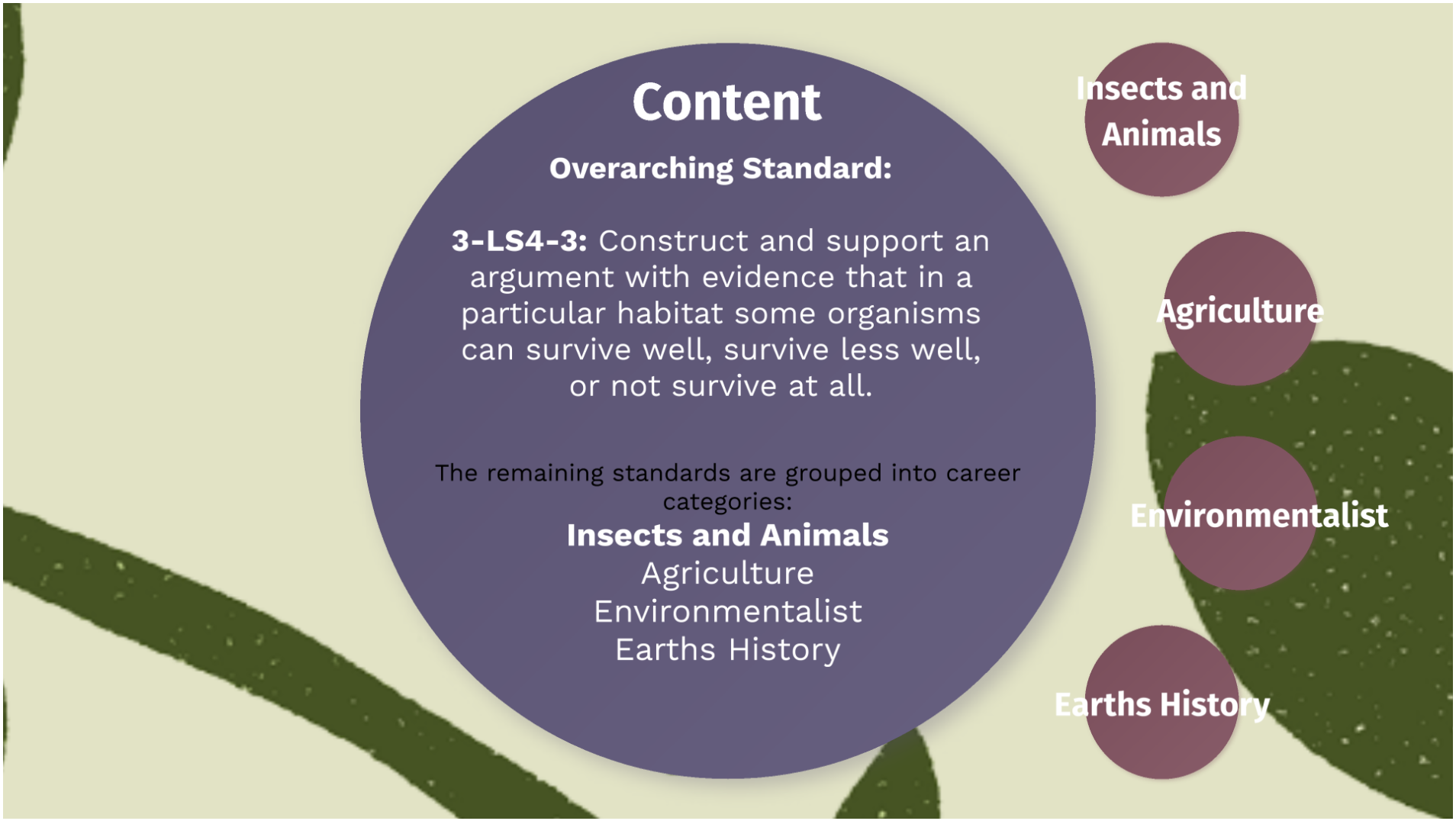

Content
Overarching Standard:
3-LS4-3: Construct and support an argument with evidence that in a particular habitat some organisms can survive well, survive less well, or not survive at all.
The remaining standards are grouped into career categories:
Insects and Animals
Agriculture
Environmentalist
Earths History
Insects and Animals
Agriculture
Environmentalist
Earths History

Insects and Animals

Careers

- Entomologist
- Bee Keeper
- Zoologist
- Wildlife Biologist

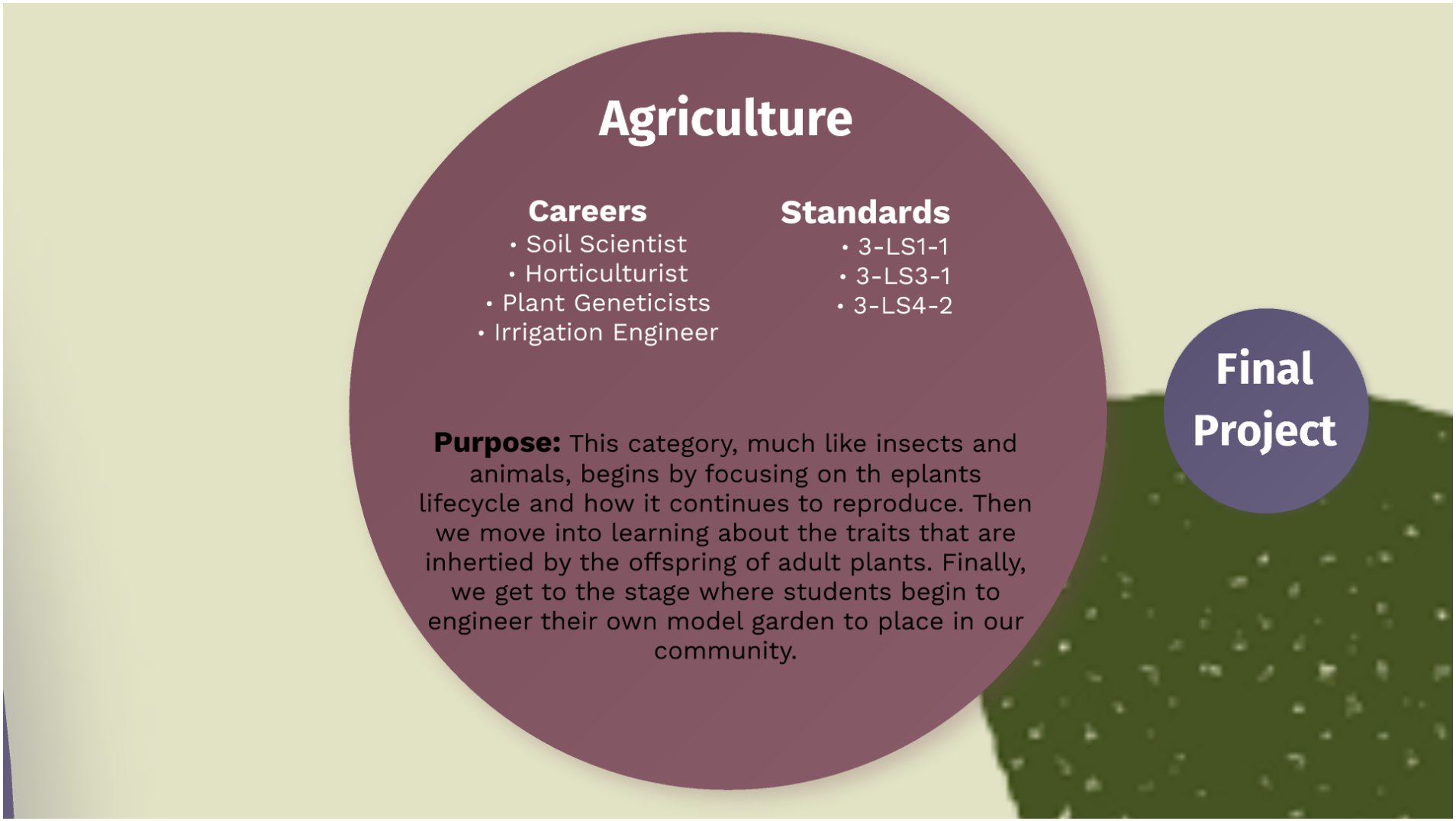
Standards

- 3-LS2-1
- 3-LS1-1
- 3-LS4-2
- 3-LS3-2

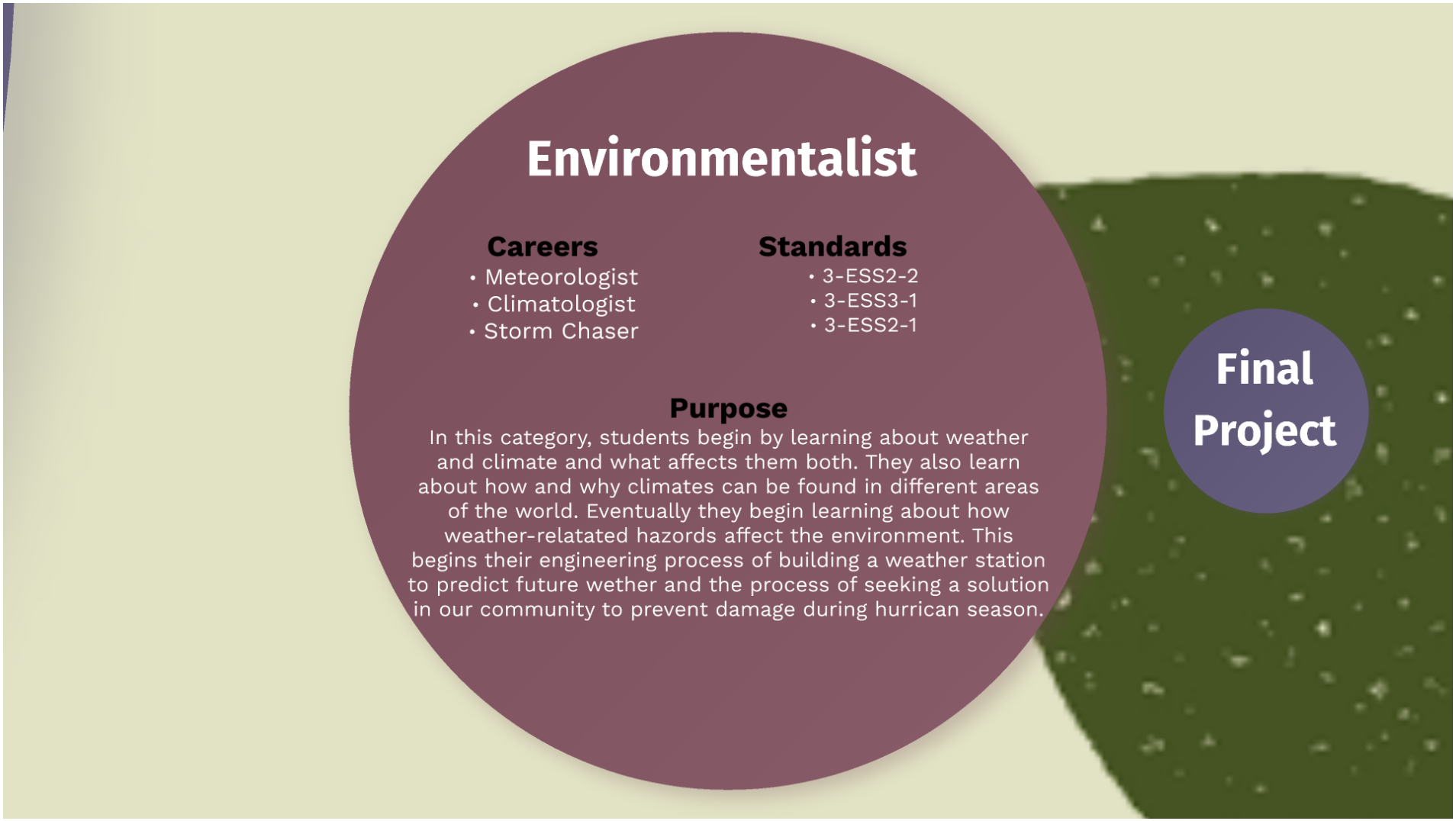
Purpose: to study lifecycles of different organisms and find their common interest. While also learning about how different characteristics are passed down to organisms, such inherited traits and adapted traits. They eventually begin the steps towards engineering a model of what their habitats would look like in our community.

Final Project

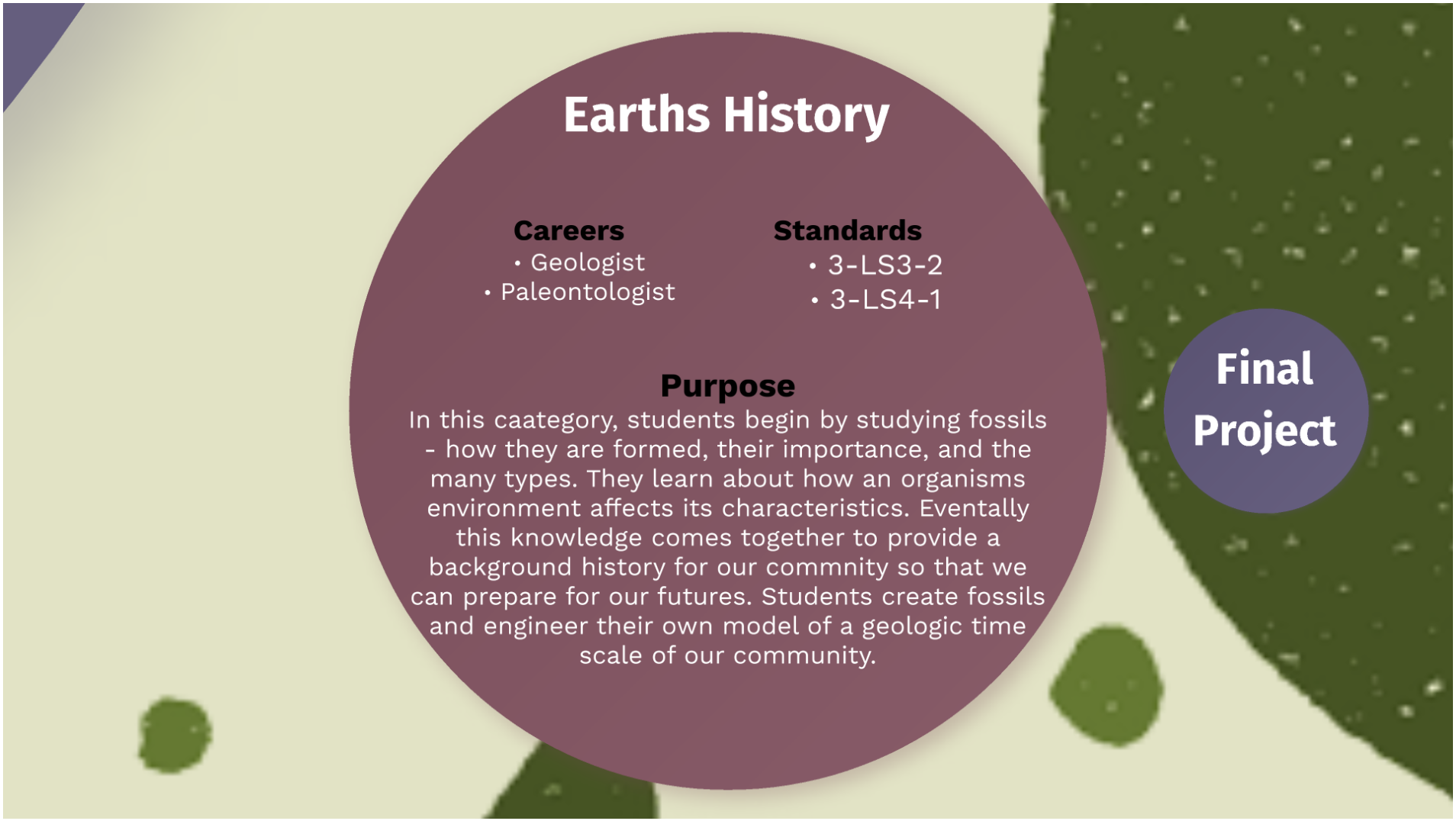
Students use the information they learned during their career experience to build a model habitat for the organisms that will live in our community.


Agriculture
Careers
• Soil Scientist
• Horticulturist
• Plant Geneticists
• Irrigation Engineer
Standards
• 3-LS1-1
• 3-LS3-1
• 3-LS4-2
Purpose: This category, much like insects and animals, begins by focusing on th eplants lifecycle and how it continues to reproduce. Then we move into learning about the traits that are inhertied by the offspring of adult plants. Finally, we get to the stage where students begin to engineer their own model garden to place in our community.
Final Project

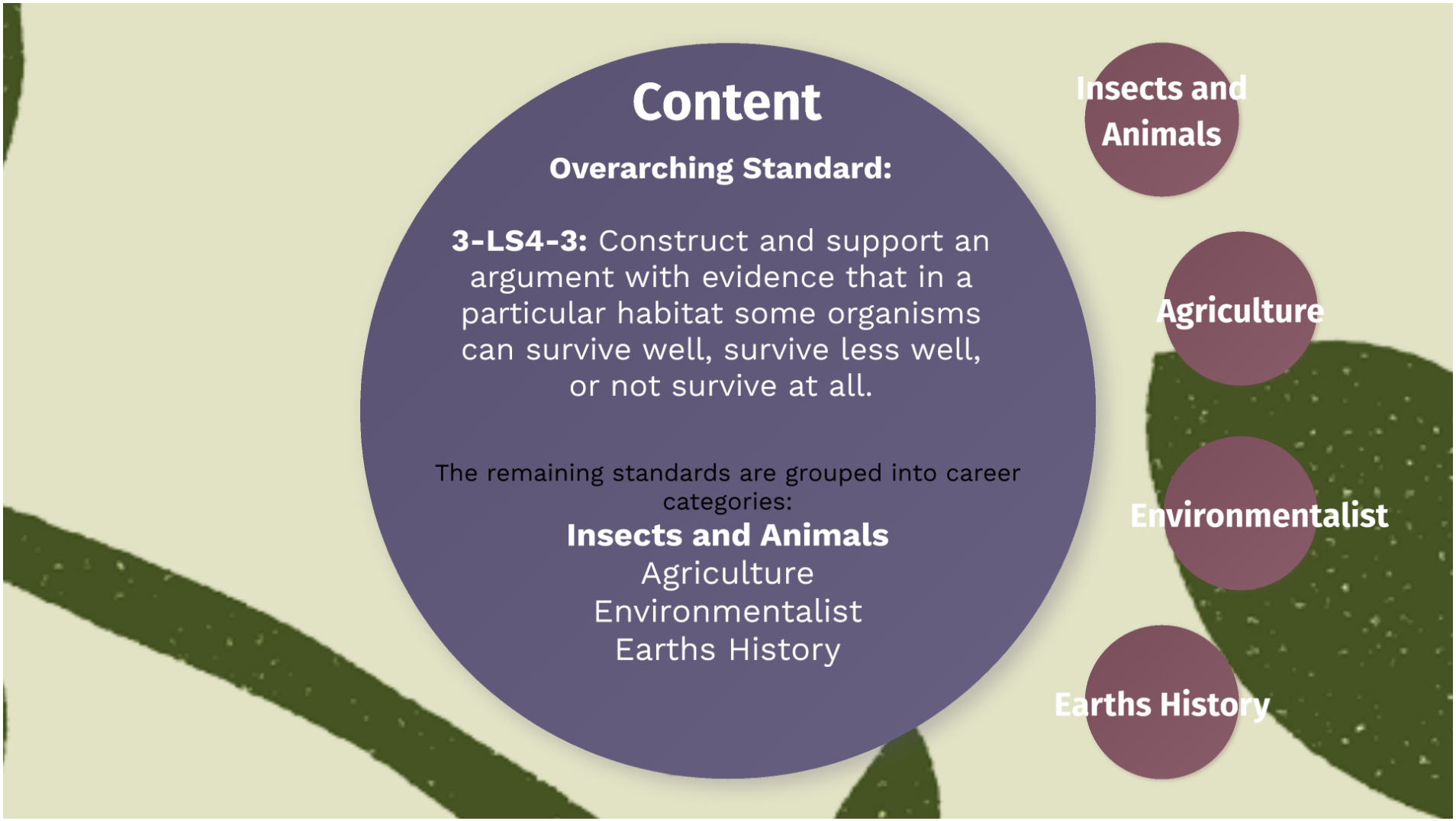
During their investigation and projects each student is given the opportunity to plant actual plants against various variables: variation in a plants or inheritance, environment,


Environmentalist
Careers
• Meteorologist
• Climatologist
• Storm Chaser
Standards
• 3-ESS2-2
• 3-ESS3-1
• 3-ESS2-1
Purpose
In this category, students begin by learning about weather and climate and what affects them both. They also learn about how and why climates can be found in different areas of the world. Eventually they begin learning about how weather-relatated hazords affect the environment. This begins their engineering process of building a weather station to predict future wether and the process of seeking a solution in our community to prevent damage during hurrican season.
Final Project

During their investigations and projects, students create their own weather instruments students will put theses tools together to create a weather station. When done, they will begin engineering a solution to flooding during hurrican season.


Earths History
Careers
• Geologist
• Paleontologist
Standards
• 3-LS3-2
• 3-LS4-1
Purpose
In this caategory, students begin by studying fossils - how they are formed, their importance, and the many types. They learn about how an organisms environment affects its characteristics. Eventally this knowledge comes together to provide a background history for our commnity so that we can prepare for our futures. Students create fossils and engineer their own model of a geologic time scale of our community.
Final Project

During their projects and investigations, students recreate fossils of past organisms in our community and learn about their habitats to engineer a 3D model of the evolution of our community.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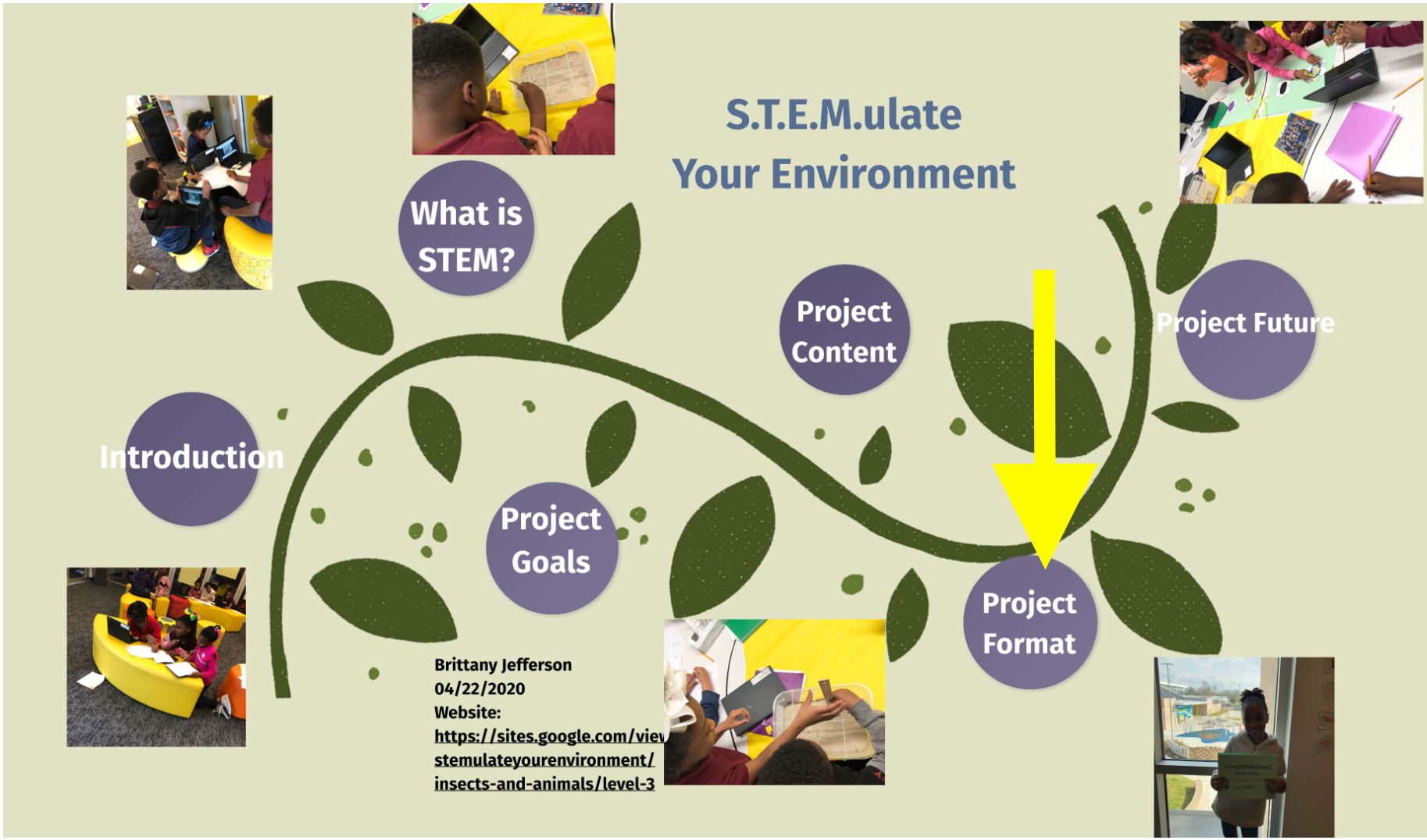
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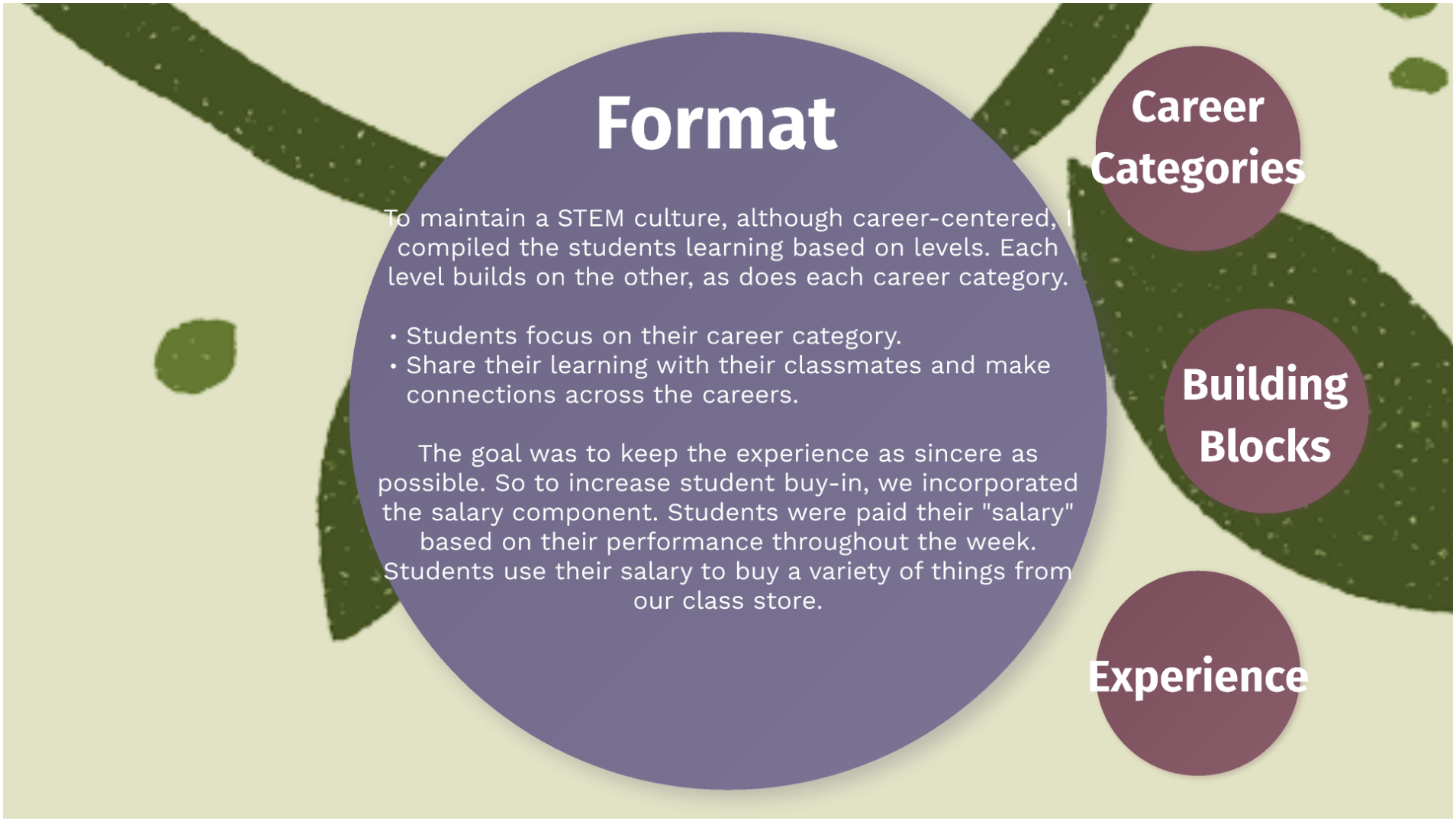
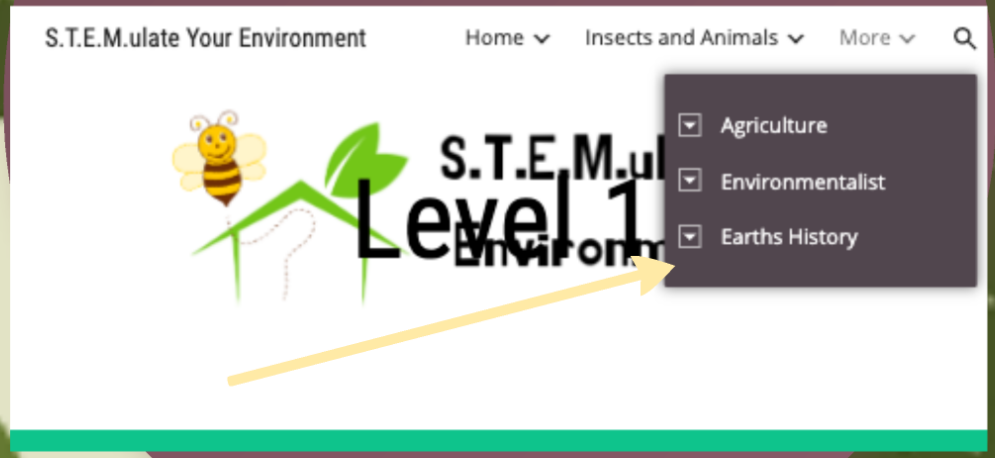
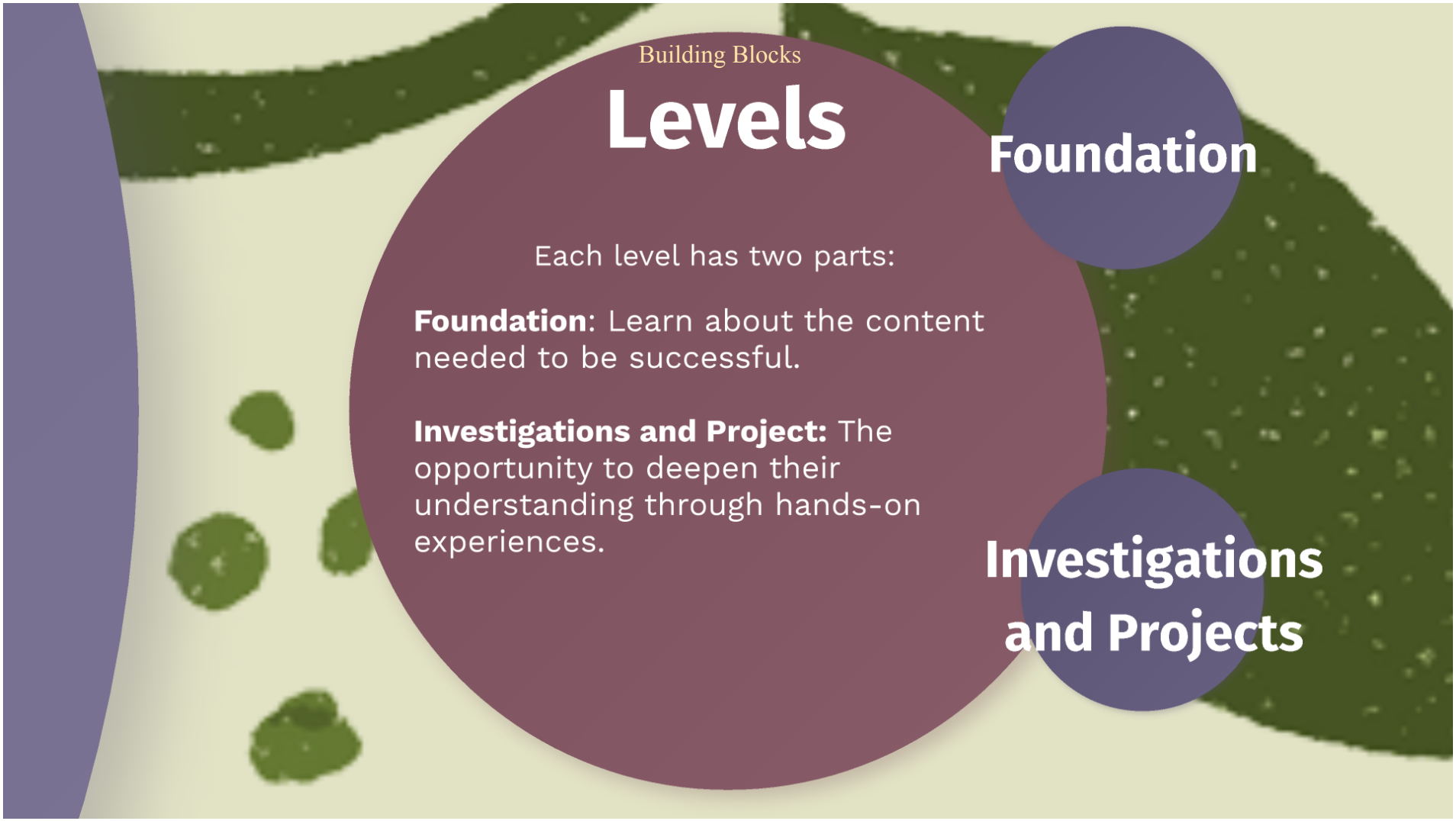
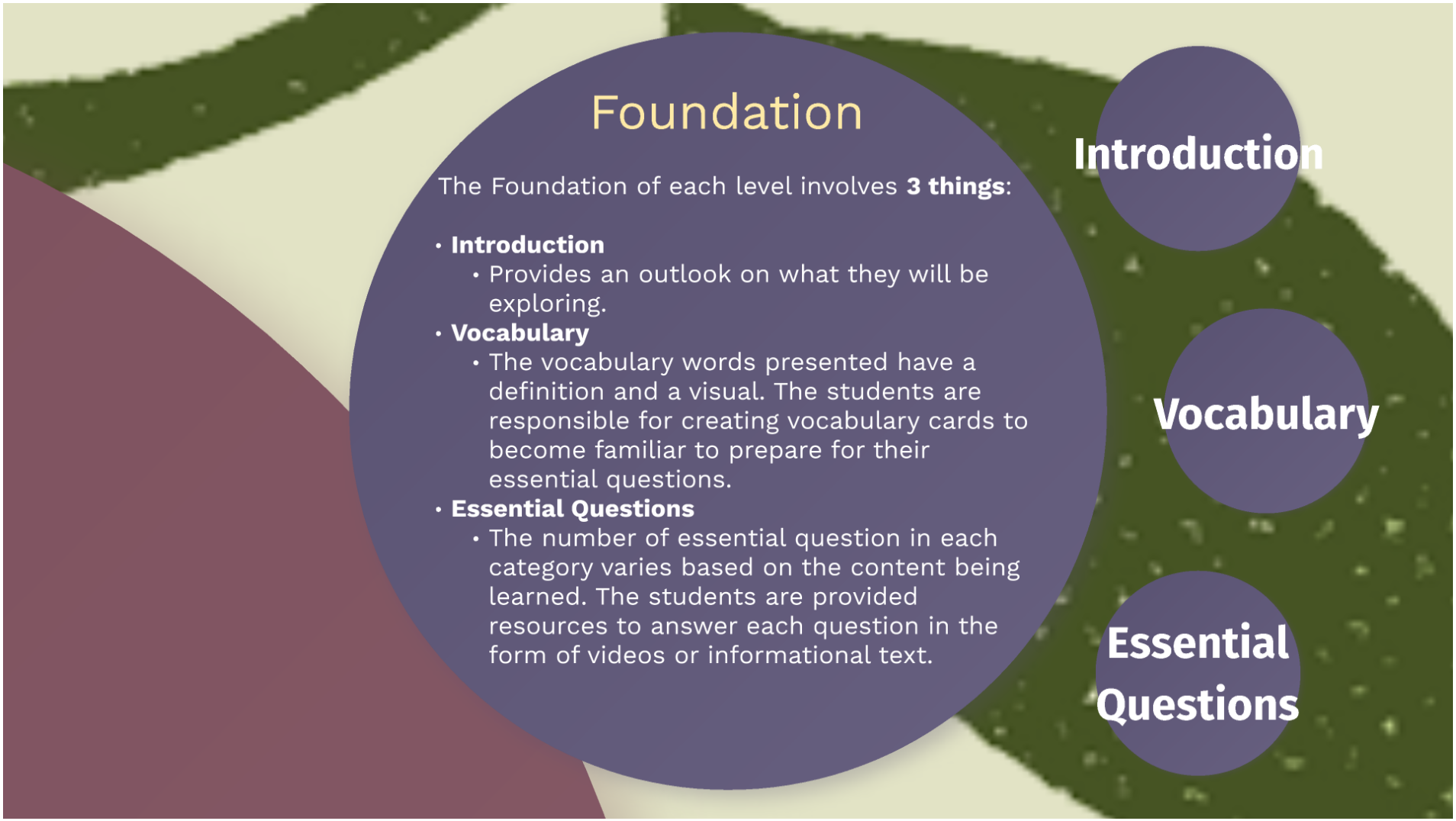

Format
To maintain a STEM culture, although career-centered, I compiled the students learning based on levels. Each level builds on the other, as does each career category.
• Students focus on their career category.
• Share their learning with their classmates and make connections across the careers.
The goal was to keep the experience as sincere as possible. So to increase student buy-in, we incorporated the salary component. Students were paid their "salary" based on their performance throughout the week. Students use their salary to buy a variety of things from our class store.
Career Categories
Building Blocks
Experience

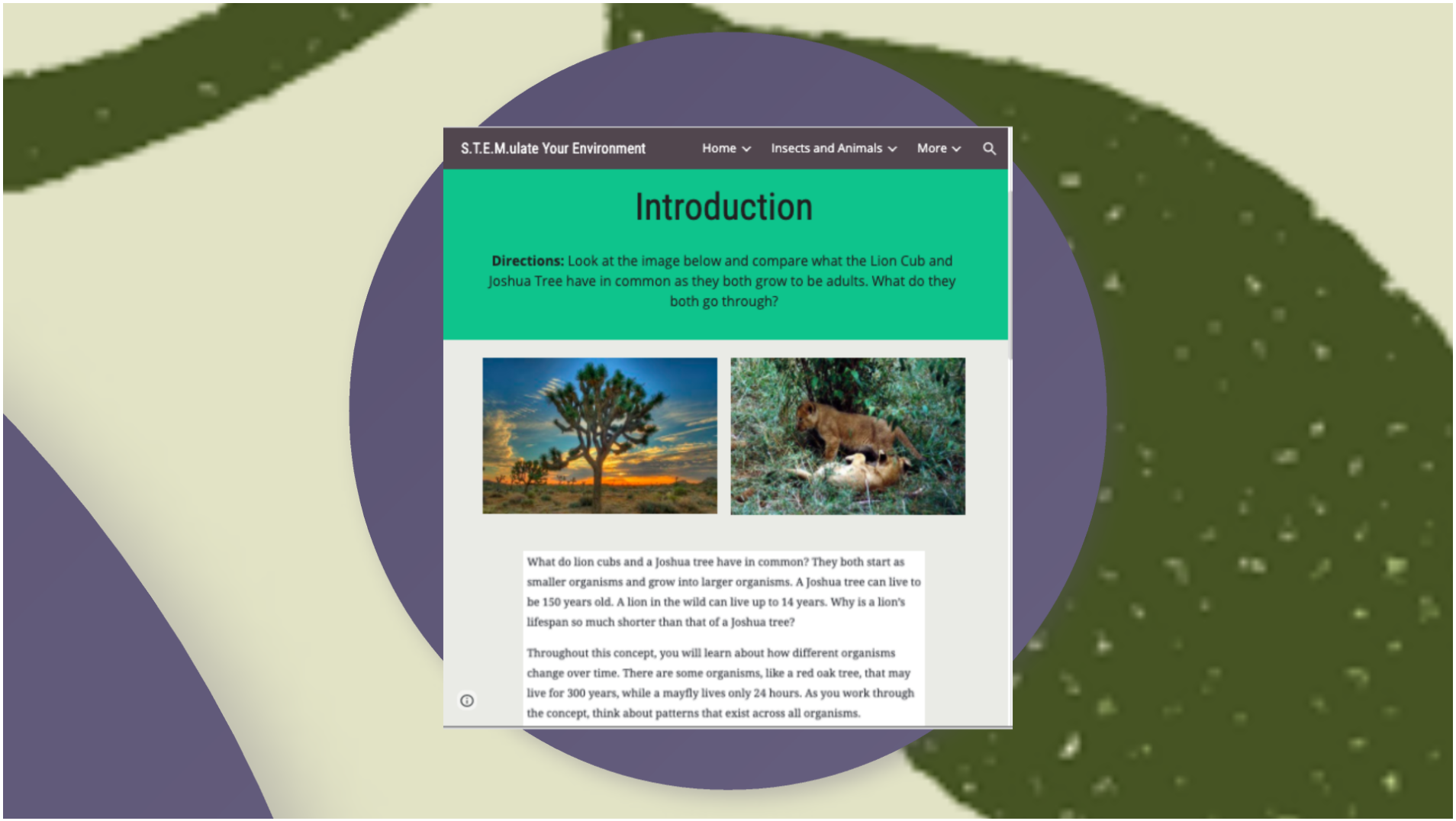
Categories

Each category is split into 3 separate levels.




Building Blocks
Levels
Each level has two parts:
Foundation: Learn about the content needed to be successful.
Investigations and Project: The opportunity to deepen their understanding through hands-on experiences.
Foundation
Investigations and Projects


Foundation
The Foundation of each level involves 3 things:
• Introduction
• Provides an outlook on what they will be exploring.
• Vocabulary
• The vocabulary words presented have a definition and a visual. The students are responsible for creating vocabulary cards to become familiar to prepare for their essential questions.
• Essential Questions
• The number of essential question in each category varies based on the content being learned. The students are provided resources to answer each question in the form of videos or informational text.
Introduction
Vocabulary
Essential Questions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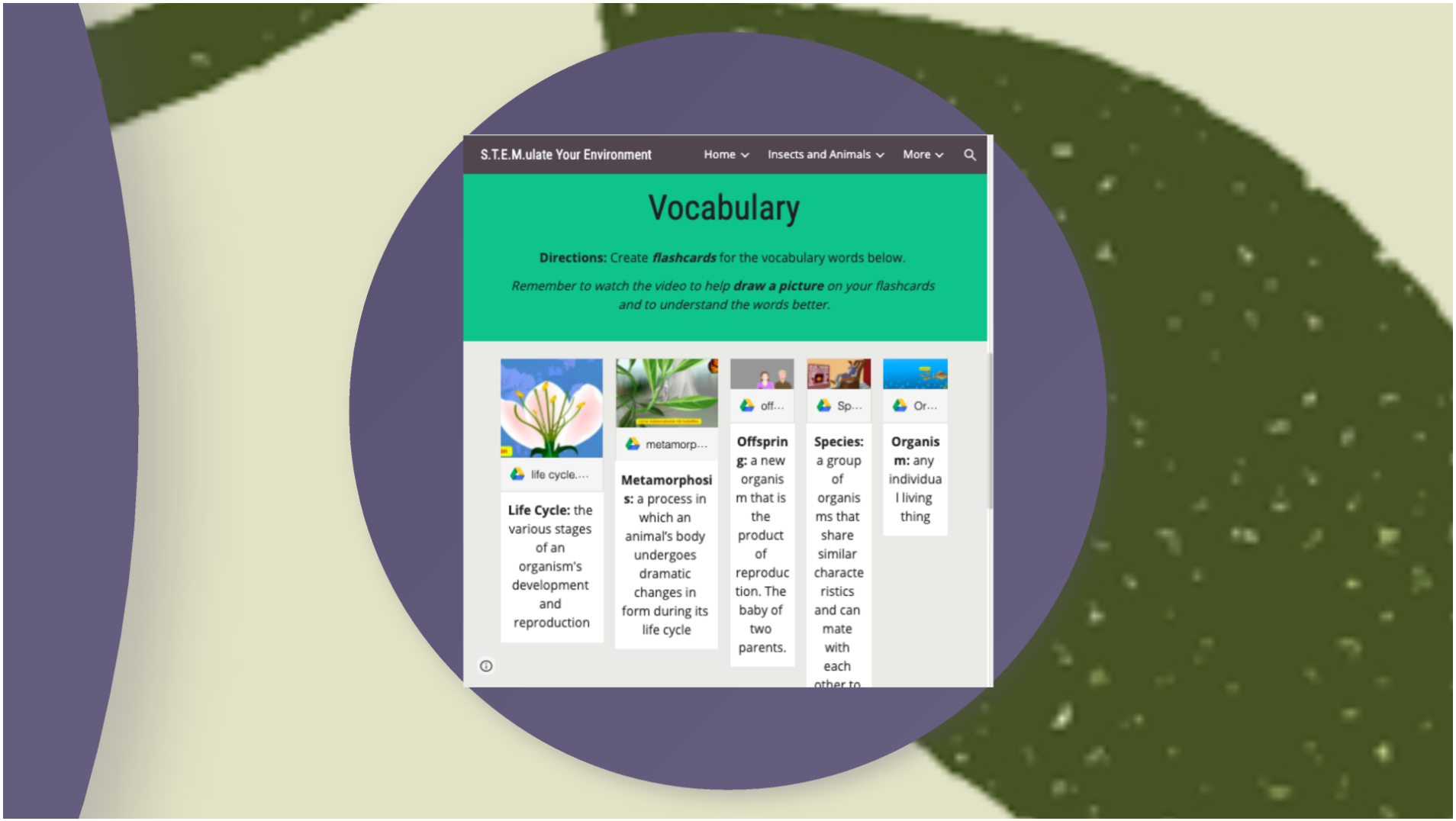
Insects and Animals
More
Introduction
Directions: Look at the image below and compare what the Lion Cub and Joshua Tree have in common as they both grow to be adults. What do they both go through?
What do lion cubs and a Joshua tree have in common? They both start as smaller organisms and grow into larger organisms. A Joshua tree can live to be 150 years old. A lion in the wild can live up to 14 years. Why is a lion's lifespan so much shorter than that of a Joshua tree?
Throughout this concept, you will learn about how different organisms change over time. There are some organisms, like a red oak tree, that may live for 300 years, while a mayfly lives only 24 hours. As you work through the concept, think about patterns that exist across all organisms.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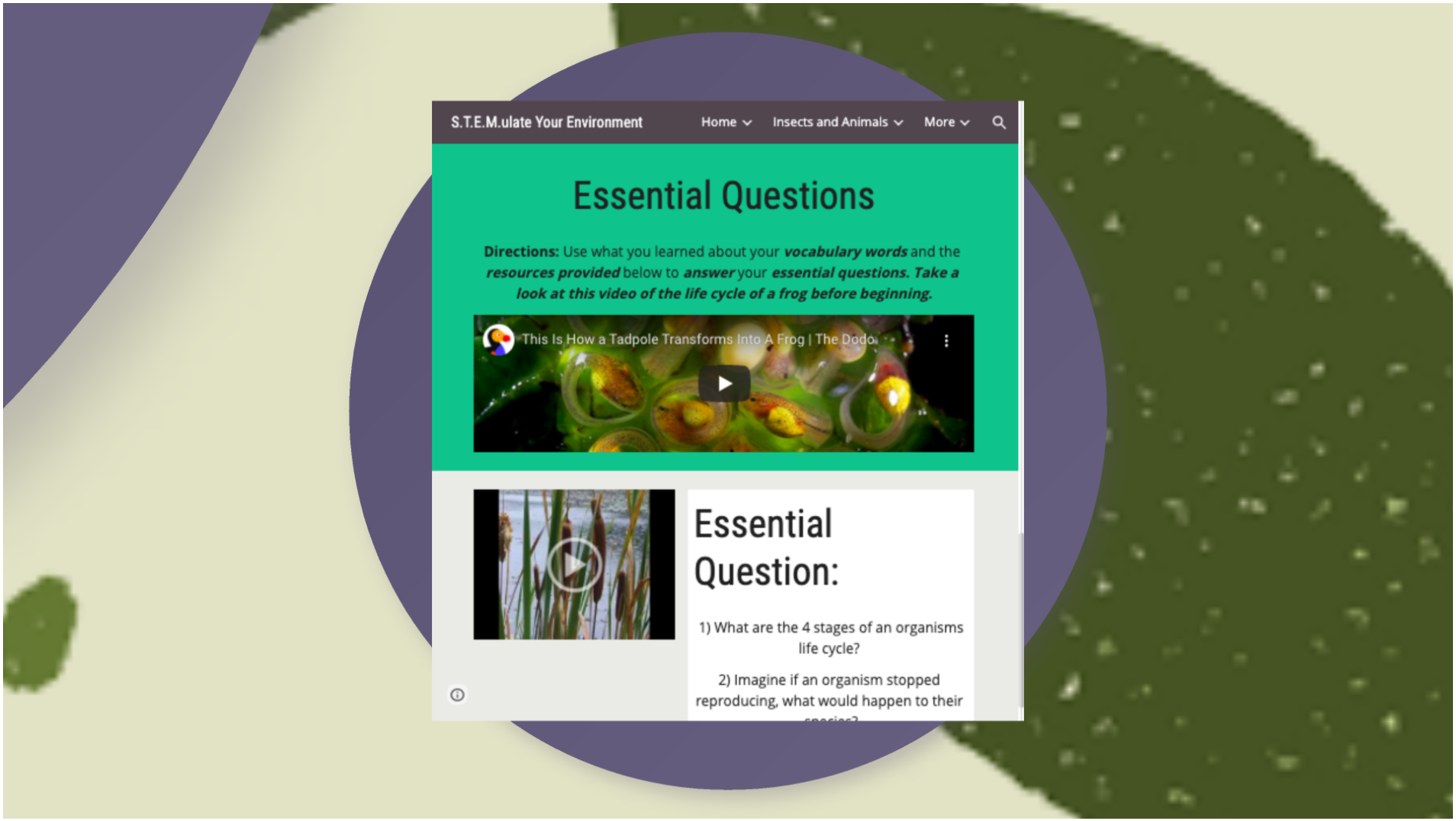
Vocabulary
Directions: Create flashcards for the vocabulary words below.
Remember to watch the video to help draw a picture on your flashcards and to understand the words better.
life cycle....
Life Cycle: the various stages of an organism's development and reproduction
metamorp...
Metamorphosis: a process in which an animal's body undergoes dramatic changes in form during its life cycle
off...
Offspring: a new organism that is the product of reproduction. The baby of two parents.
Sp...
Species: a group of organisms that share similar characteristics and can mate with each
Or...
Organism: any individual living thing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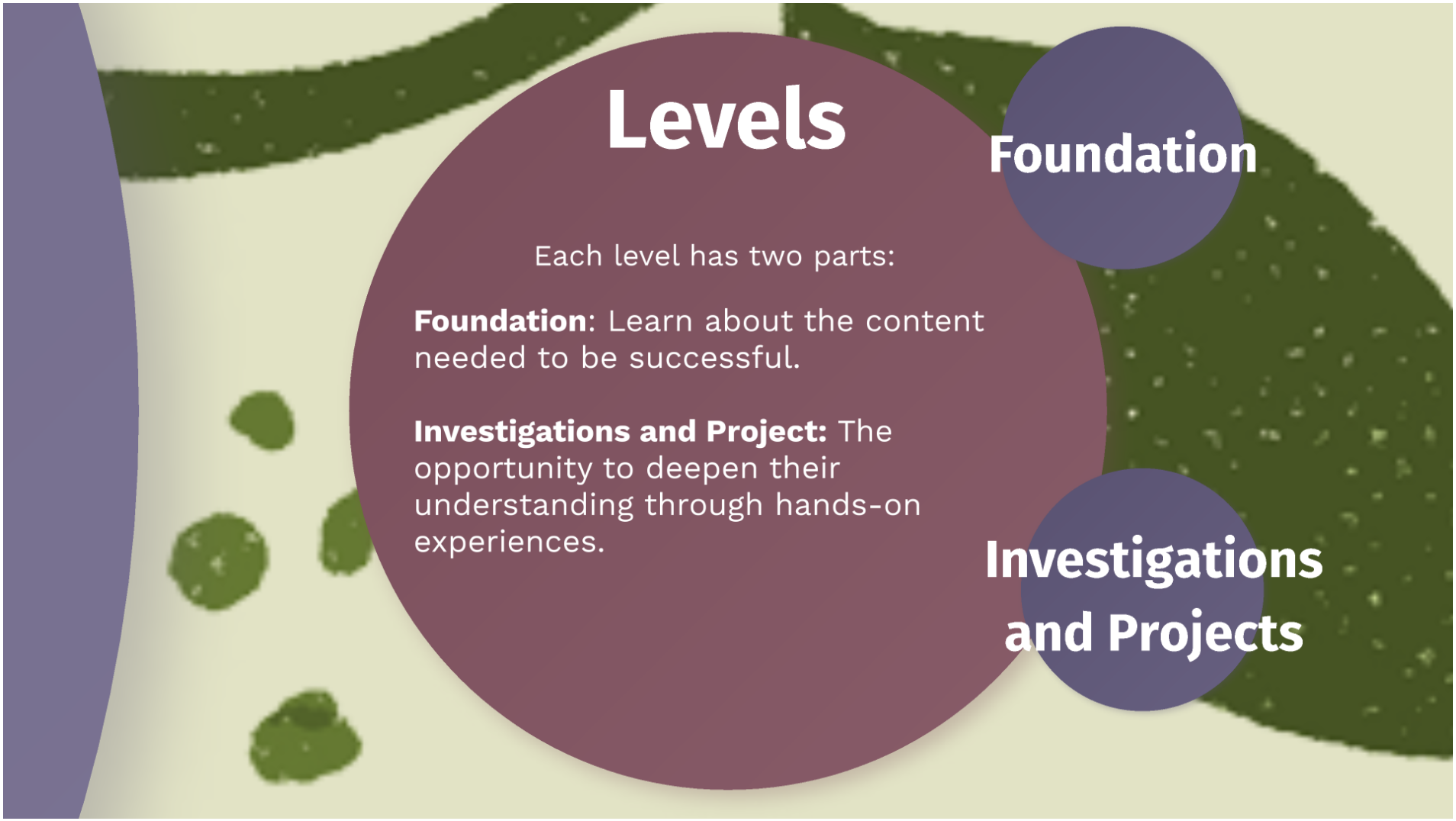
Essential Questions
Directions: Use what you learned about your vocabulary words and the resources provided below to answer your essential questions. Take a look at this video of the life cycle of a frog before beginning.
This Is How a Tadpole Transforms Into A Frog | The Dodo
Essential Question:
1) What are the 4 stages of an organisms life cycle?
2) Imagine if an organism stopped reproducing, what would happen to their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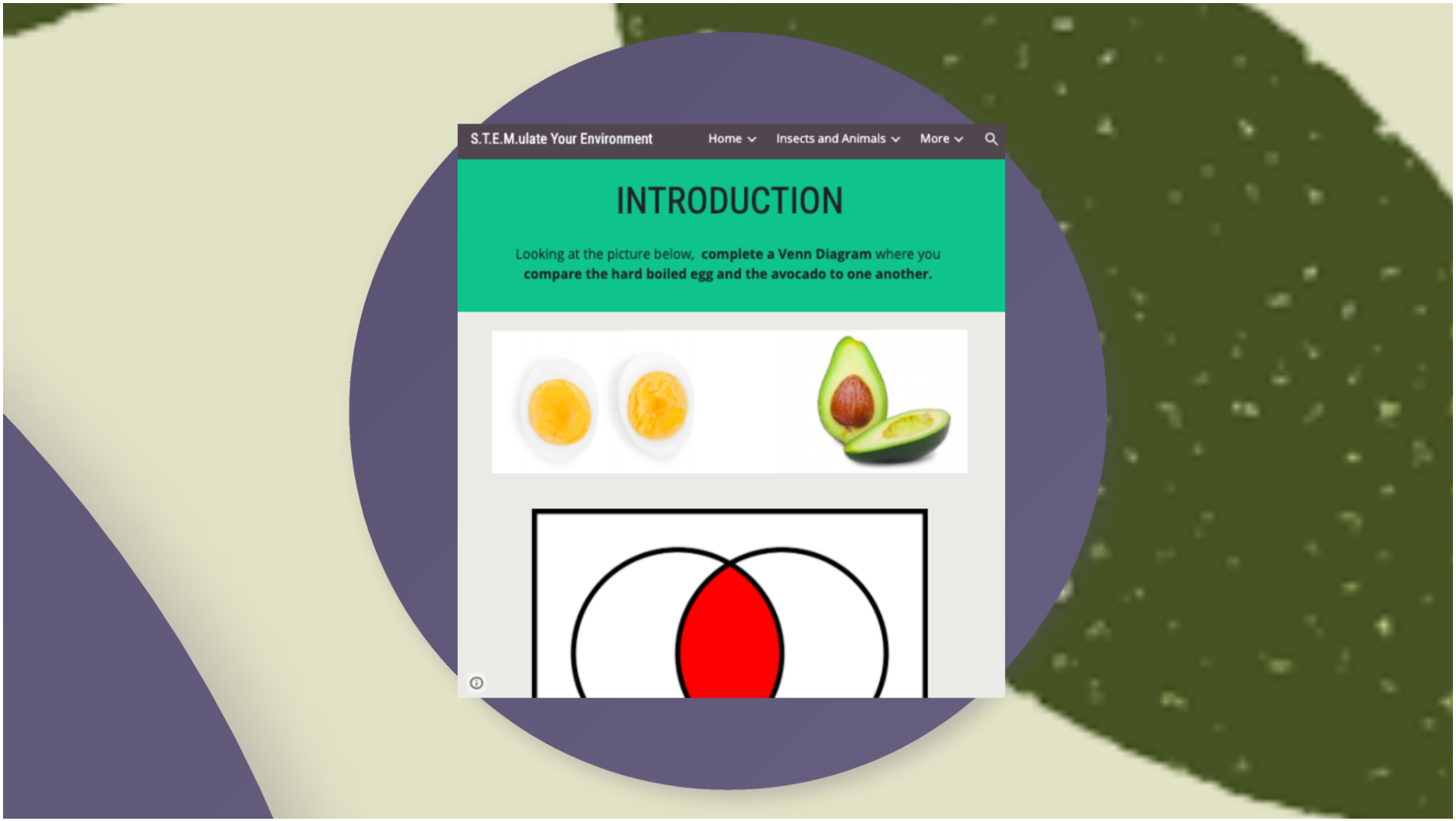
Foundation
Investigations and Projects


Investigations and Projects
The **research** stage involves three parts as well:
• **Introduction**
• **Investigation**
• Hands-on learning experience that may involve research
• **Project**
• used as an assessment to culminate their learning from the level.
Introduction
Investigation
Project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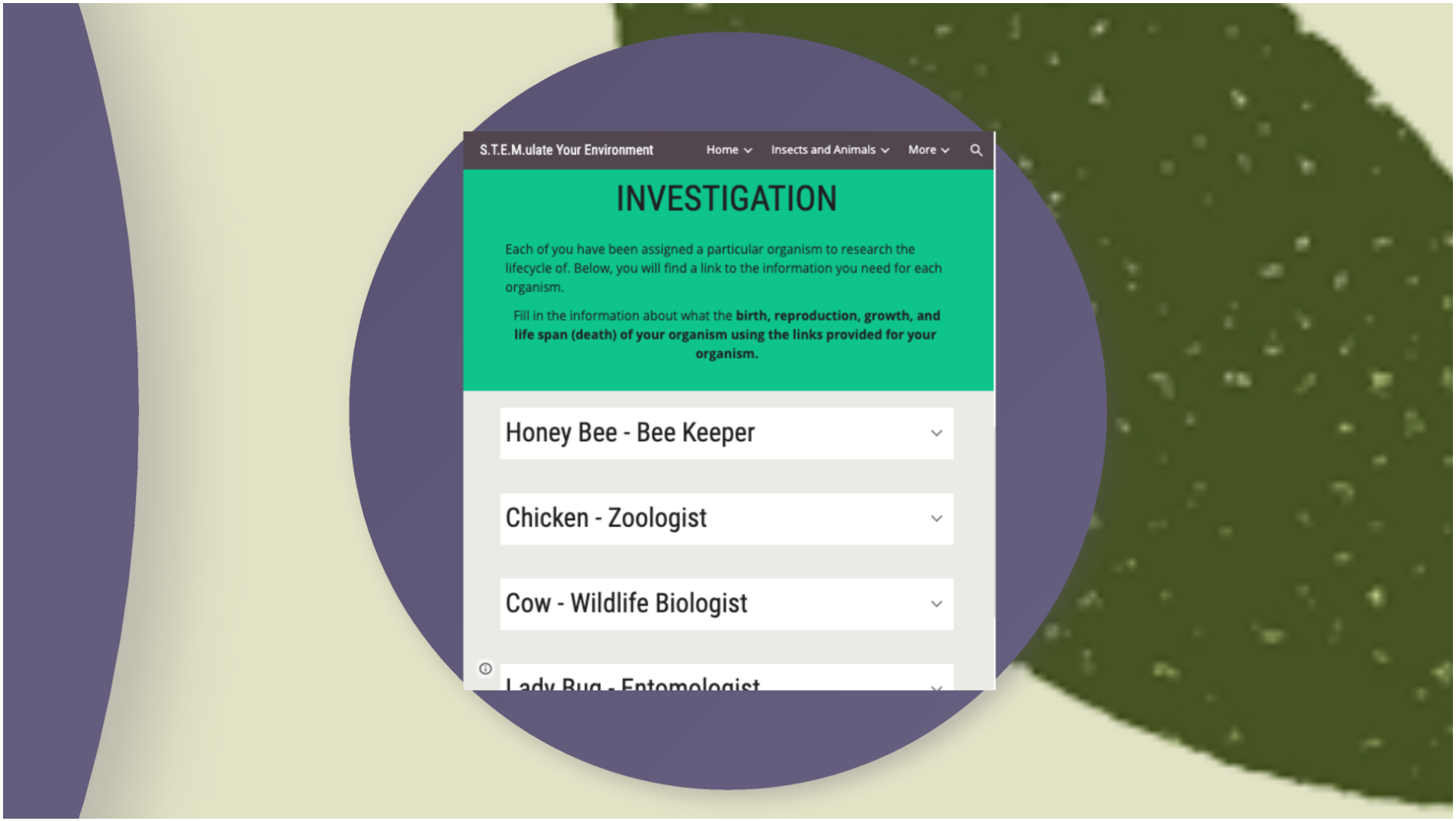
INTRODUCTION
Looking at the picture below, complete a Venn Diagram where you compare the hard boiled egg and the avocado to one another.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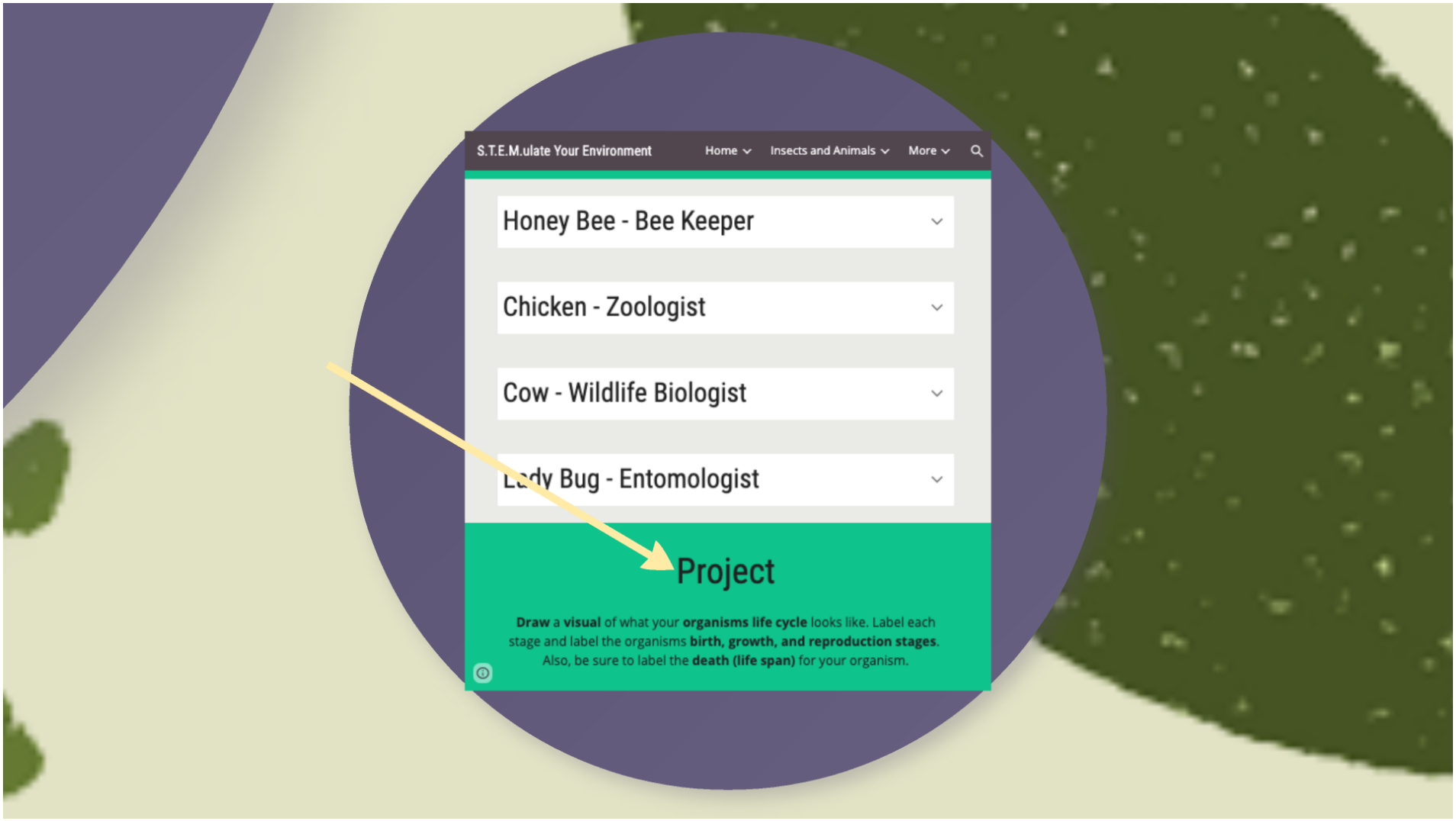
INVESTIGATION
Each of you have been assigned a particular organism to research the lifecycle of. Below, you will find a link to the information you need for each organism.
Fill in the information about what the birth, reproduction, growth, and life span (death) of your organism using the links provided for your organism.
Honey Bee - Bee Keeper
Chicken - Zoologist
Cow - Wildlife Biologist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Honey Bee - Bee Keeper
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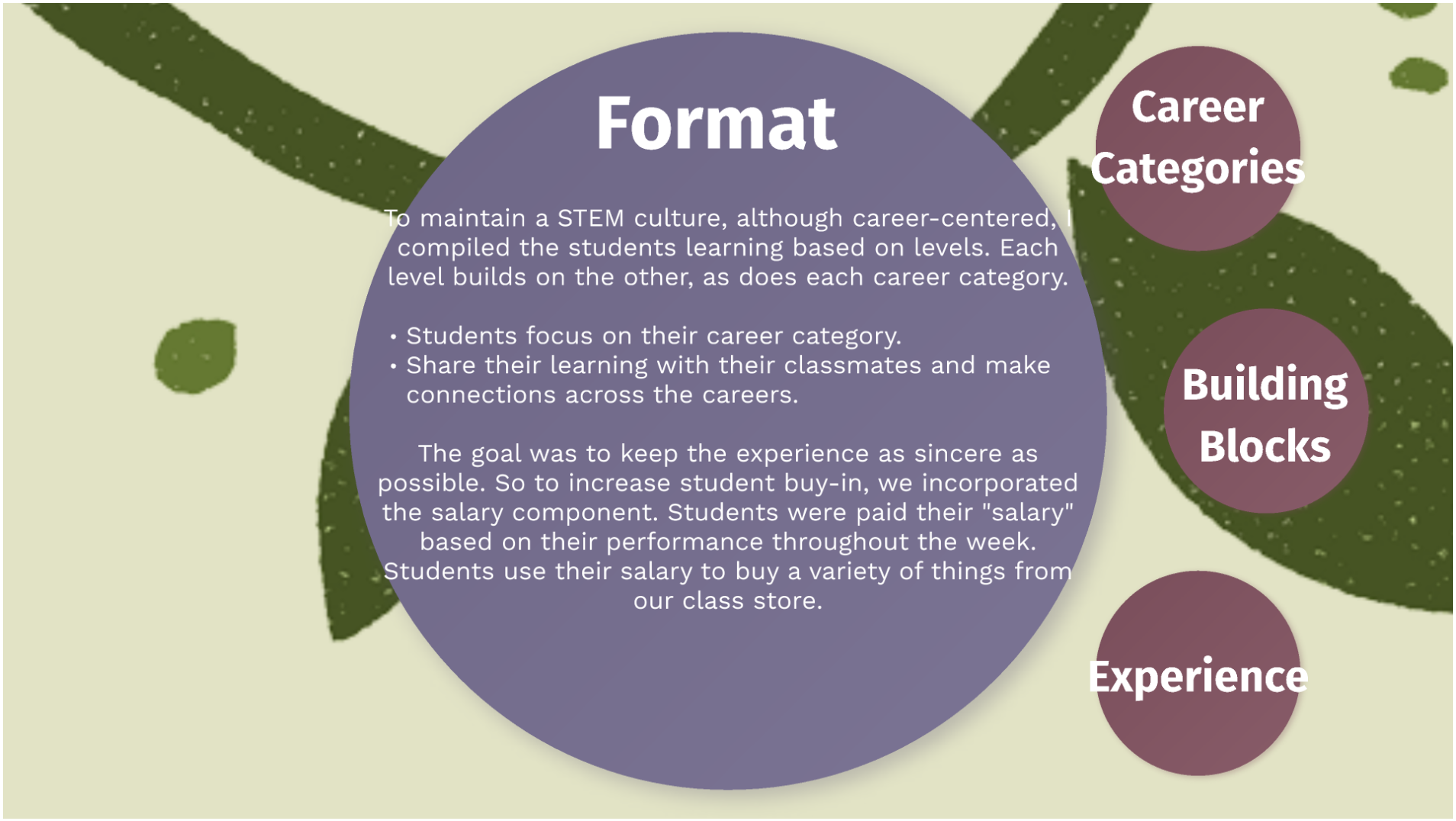
Project
Draw a visual of what your organisms life cycle looks like. Label each stage and label the organisms birth, growth, and reproduction stages. Also, be sure to label the death (life span) for your organism.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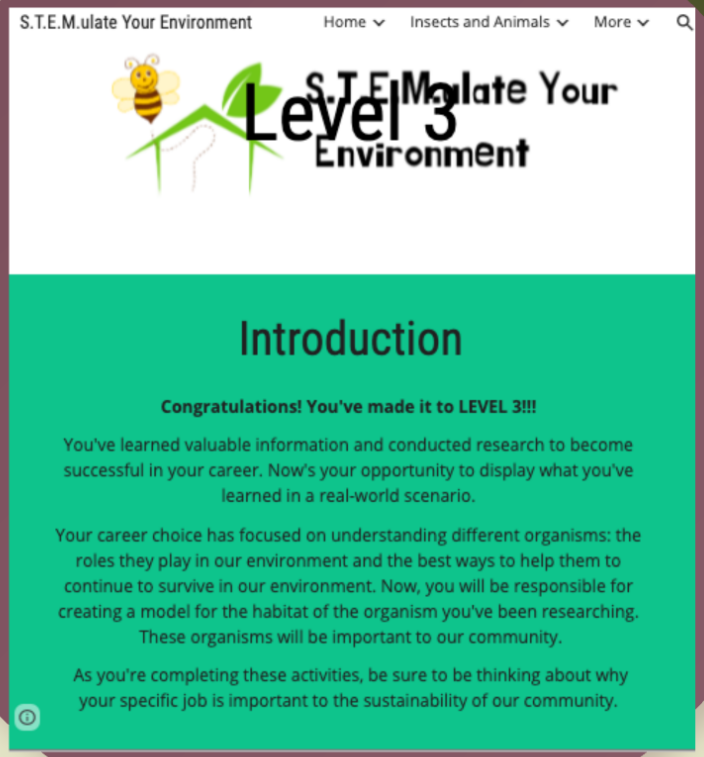
Career Categories
Building Blocks
Experience

Experience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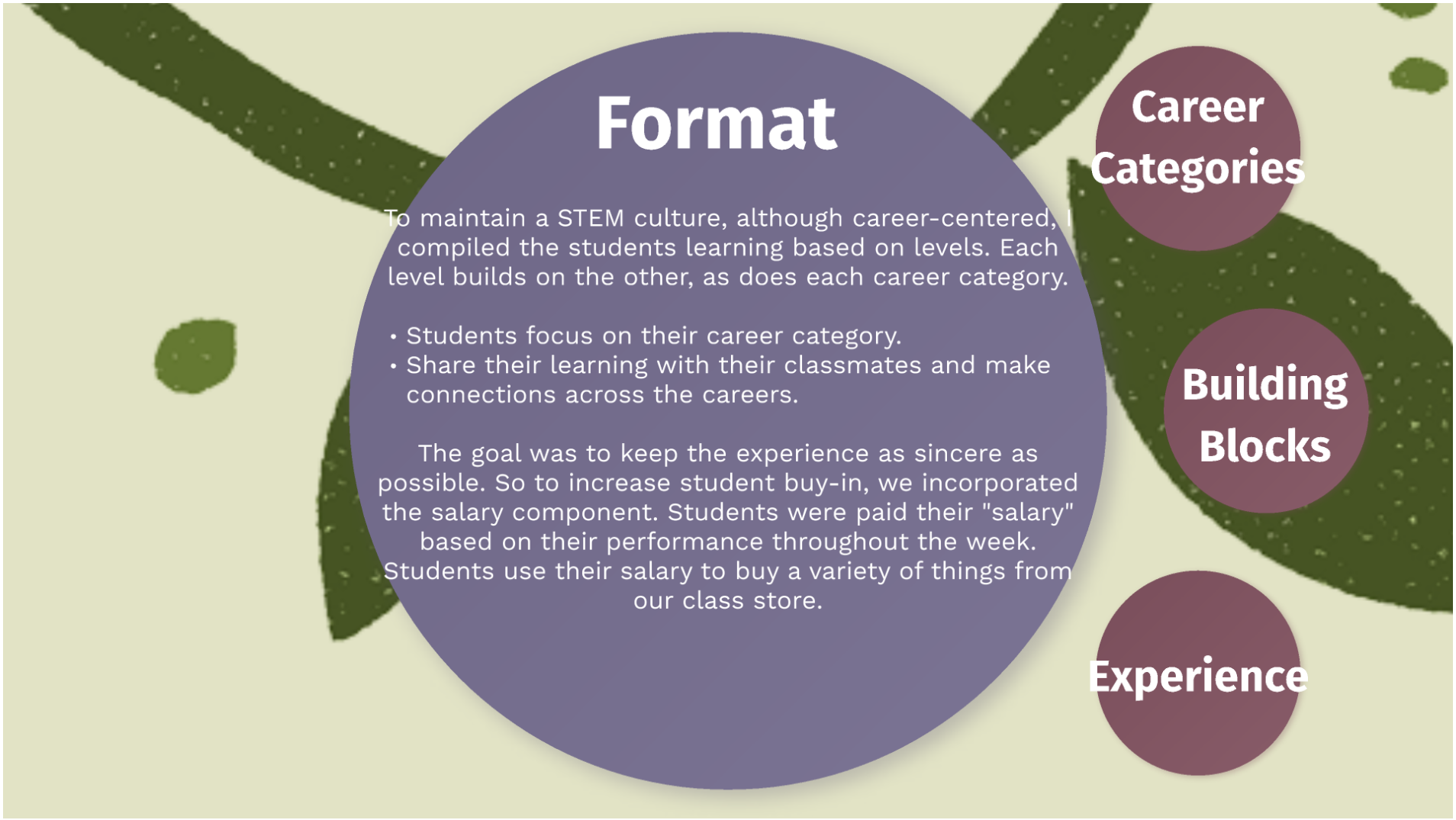
S.T.E.M.ulate Your Environment
Level 3
Introduction
Congratulations! You've made it to LEVEL 3!!!
You've learned valuable information and conducted research to become successful in your career. Now's your opportunity to display what you've learned in a real-world scenario.
Your career choice has focused on understanding different organisms: the roles they play in our environment and the best ways to help them to continue to survive in our environment. Now, you will be responsible for creating a model for the habitat of the organism you've been researching. These organisms will be important to our community.
As you're completing these activities, be sure to be thinking about why your specific job is important to the sustainability of our community.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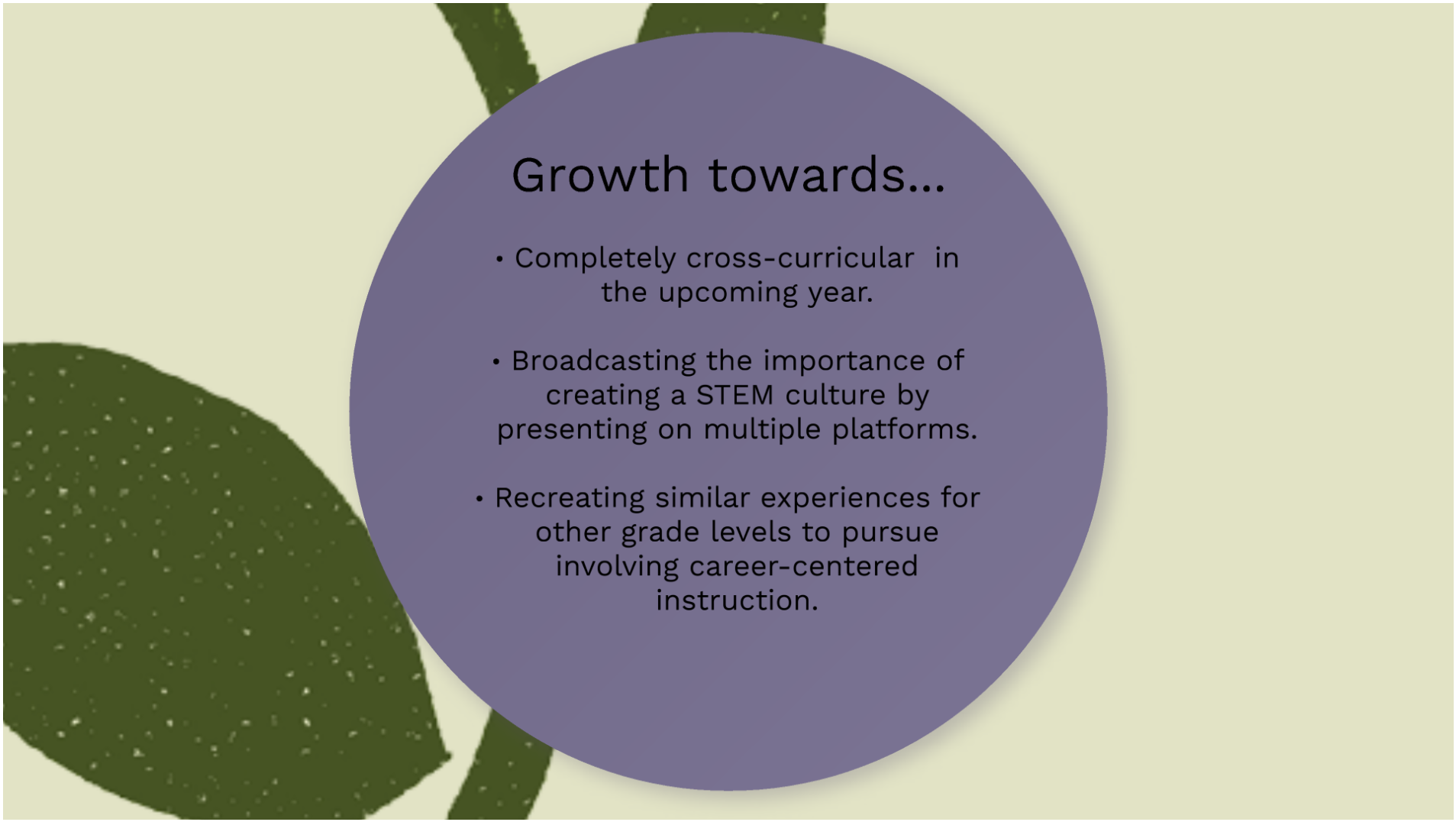
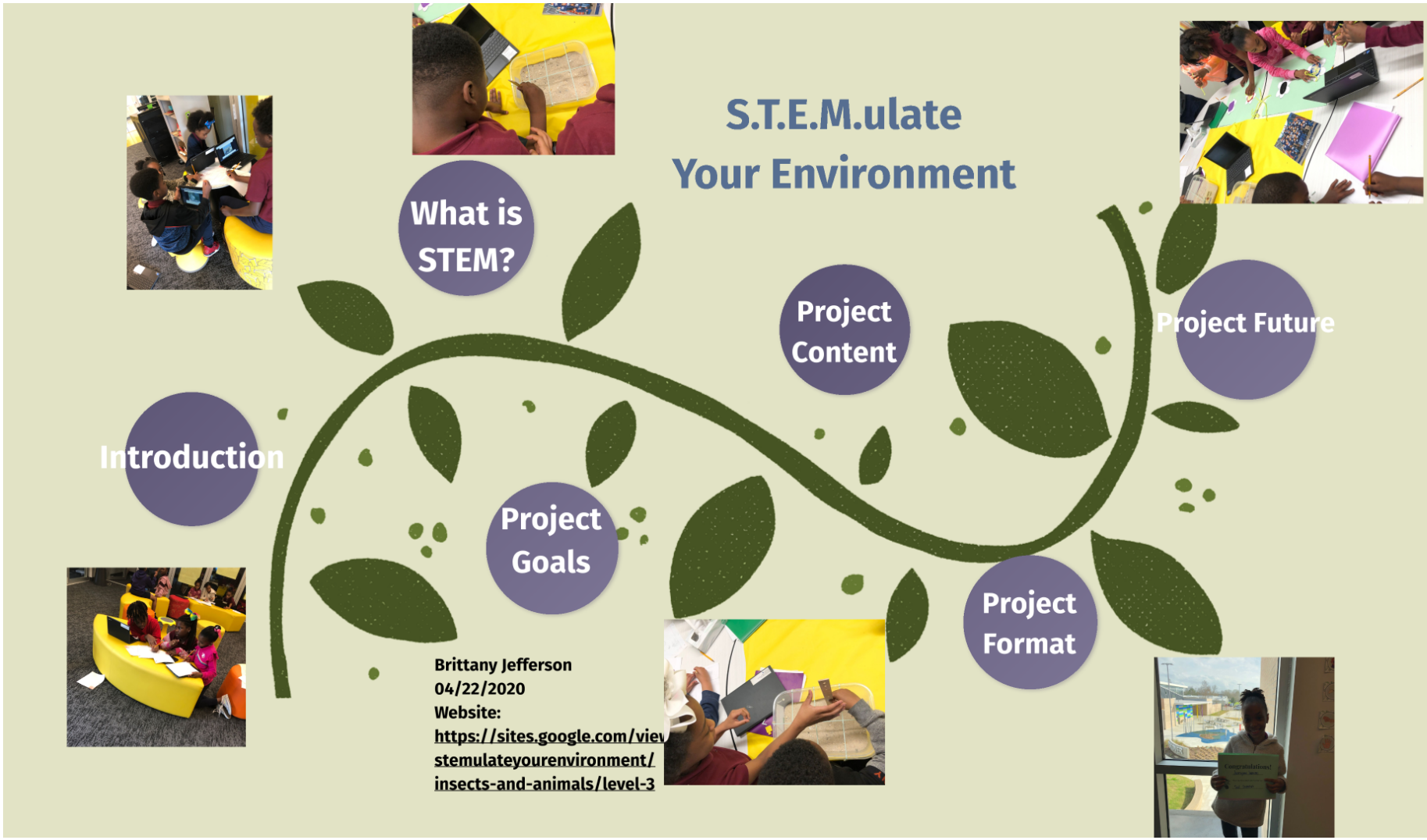

Growth towards...
• Completely cross-curricular in the upcoming year.
• Broadcasting the importance of creating a STEM culture by presenting on multiple platforms.
• Recreating similar experiences for other grade levels to pursue involving career-centered instruction.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