



MARCUS PATTEN

EXTERN 2021

○ Part I: Overview of Workplace

Whiterock Conservancy, Coon Rapids, Iowa

Put in place by the Garst Seed Corn Family as a place to exhibit sustainable agriculture and good land stewardship. 5500 acres, founded 2004. Services include, hiking, biking, equestrian, and gator trails. UTV rentals, kayak and canoe rentals. Features three complete campgrounds.



○ Part II: Workplace Focus

Providing quality campground and short-term house rentals.

Providing excellent hiking and biking facilities. Providing full service campgrounds. Providing boat and UTV rentals. Mow and maintain quality trails. Cut, split, provide firewood to campers. Supervise and clean up campgrounds.

Explore the effects of agriculture and mining upon a region.

Examine effects of soil depletion, as well as erosion and deposition.

Create sustainable farming practices for my ag-based students.



○ Part III: Introduce the Problem

One project that I will do is having my students create top soil from inert ingredients and consumers (red wiggler worms). This will be an ongoing project throughout the year. This will apply to real life as the majority of our families in my area are farmers. This project will pertain to real life for my students.

4-ESS3-1 Human impact upon Earth

4-ESS2-1 Energy research

4-4ES4-1 Energy source

5-PS3-1 Energy in animal food chains comes from the sun

5-ESS3-1 People use science to protect the Earth's resources

The next part of my school year will be a nine week-long energy unit. This unit is mostly directly for grade four, but elements of it will Segway into grade 5. This second part is based on the coal mines. The coal mines release poor quality dirt referred to as slag. The slag is extracted along with the coal from the mines. The slag must be removed and “put” somewhere. The tailings from this process usually means a deposit of slag growing in a ravine somewhere. The slag had no equitable value for agriculture. It has very high concentrations of iron. As the ingredients of the slag leaches into ground, this may cause a poor soil condition.

4-ESS3-1 Human impact upon Earth

4-LS-1 plant/animal structure

4-LS-2 Animal adaptations

4-4ES4-1 Energy source

5-ESS3-1 People use science to protect the Earth's resources





Part IV: Standards, Driving and Essential Questions

5-LS-1 Plants get materials needed for growth

Q: How do we impact a plant's ability to get sun and nutrients?

5-ESS3-1 People use science to protect the Earth's resources

Q: Why do we need to protect Earth's resources?

Q: How do we protect the Earth's resources?

Q: What decides whether a resource is renewable or non-renewable?

5-PS3-1 Energy in animal food chains comes from the sun

Q: How does a consumer get food from the sun?

4-4ES4-1 Energy source

Q: What is the Earth's main source of energy?

Q: What secondary sources of energy do we have?

4-ESS2-1 Energy research

Q: Go to [www.livebinders](http://www.livebinders.com) and follow instructions that I have posted for you

4-LS-1 plant/animal structure

Q: How causes plant and animal structures develop specifically from their environment?

4-LS-2 Animal adaptations

Q: Why does an animal have to adapt?

Q: Do adaptations happen overnight?

Q: What are an animal's options for adaptation?

4-ESS3-1 Human impact upon Earth

Q: How do the decisions made by people effect our region?



○ Part V: Extern Host Role

Leroy Wagner, or Matt are all people who have had an impact on my summer externship this year. Darwin and Matt are landowners and have grown up in the area of Whiterock. They are both third generation landowners here. They can tell you anything you would wish to know about the place. Carissa is the new land manager and is a very knowledgeable person. Leroy has been employed by Whiterock as guest services manager for 10 years. He too is very interesting to talk to.

This is the general Whiterock number to call. 1-712-790-8221. This number will get you to the necessary extensions.



○ Part VI: Student Learning

Yes, students absolutely do have a definable level of voice and choice. My students will work in groups on their projects this year. This last year was difficult as covid impacted our learning styles. This year my students will use simple machines to design a hoist and pulley system. They will create a movement-based model for their “workplace.”

Students will have multiple opportunities for revising their mechanical design. They will be able to work until a design is in place that reflects the needs of their project. As with any prototype, revision is a part of the work.

