Wildlife Monitoring Data Analysis

Kristen Westpheling

Mathematics

West Branch High School

2021 extern at Vectronic Aerospace

Part I: Overview of Workplace

Vectronic Aerospace was founded in 2000 in Germany and has two branches; wildlife monitoring and space applications.
The US office focuses on wildlife monitoring, where they provide GPS tracking collars for wildlife.
They work with thousands of researchers across the world to aid in a variety of projects related to wildlife monitoring.

Part II: Workplace Focus

Data collection and analysis are the main reasons for purchasing a GPS tracking collar. Customers can access a variety of information collected from the collars they deploy including GPS locations, elevation, temperature, mortality status, and more.

Part III: Introduce the Project or Problem

How do wildlife use their habitat?

Researchers attach GPS collars on wildlife to collect various data related to how an animal lives within their habitat, including where the animal travels, how they travel within the region, where they have their babies, how often they die, etc. This information gives researchers insight to the daily lives of wildlife.

Students will be creating their own research presentation on an animal of their choosing and will include a statistical analysis of the data from a study on that animal.

Part IV: Standards, Driving and Essential Questions

Standards:

HS: Statistics and Probability - Interpreting Categorical and Quantitative Data

HS: Statistics and Probability - Making Inferences and Justifying Conclusions

HS: Technology Literacy

HS: Employability Skills

Learning Targets:
- Distinguish between categorical and quantitative variables
- Understand populations and samples
- Distinguish between a statistic and a parameter
- Understand the differences between the levels of measurement and be able to place variables into the correct level of measurement
- Calculate mean, median, mode, midrange, weighted mean, percentiles, and quartiles
- Determine outliers
- Calculate the range, interquartile range, variance, and standard deviation

Guiding Questions:
- What types of questions do wildlife biologists want to answer when using collar data?
- How can statistics be applied to wildlife telemetry data?
- What is the benefit of analyzing collar data for researchers?

Part V: Extern Host Role

The Vectronic Aerospace team, led by CEO and President Chris Kochanny, will come to WBHS to show students some of the collars and explain what they are used for.

Students will get the opportunity to try out some of the equipment with the team's supervision.

Part VI: Design Elements Checklist

Can you document these elements?

1. Challenging Problem or Question
2. Sustained Inquiry
3. Authenticity
4. Student Voice and Choice
5. Reflection
6. Critique and Revision
7. Public Product