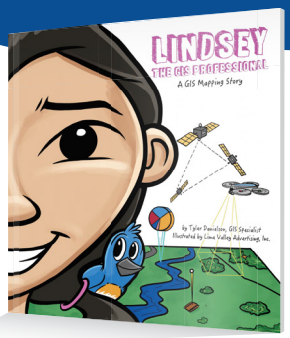
LINDSEY
THE GIS PROFESSIONAL



ISBN: 9781589486126

Lindsey loves mapping!

Follow along as she collects information about the world around her to make a map of her favorite park.

The first in a STEAM career-themed picture book series, *Lindsey the GIS Professional* describes what geographic information systems (GIS) means, what information is needed to make a map, and how to collect that information. Then Lindsey shows how to take all that information to create a map of her favorite park.

GIS supports STEAM learning with integrative, project-based experiences. Spatial analysis and critical thinking skills in K-12 students better prepares them for success, especially in science, engineering, and mathematics. Students can better analyze and interpret the world through spatial awareness and geospatial understanding. Students can explore community challenges using GIS problem-solving skills.

Vocabulary

These vocabulary words can be found throughout the book. Use these words as a starting point for a vocabulary study with Lindsey the GIS Professional. A glossary can be found in the back of the book.

Professional	**Satellite**	**Information**
Spatial	**Attribute**	**Pixel**
Raster	**Basemap**	**Boundary**
Vector	**Analyze**	**Geography**
Polygon	**Data**	**Engineer**

Activities for across the curriculum

Reading comprehension: What does Lindsey say is the first thing you need in order to make a map? Data is "spatial" when it has what? How does Lindsey get her data? Spatial data comes in what two forms? Points, lines, and polygons are what kind of data? Pictures are what kind of data? In the book, where does Lindsey go to collect data? What areas does she visit? What kind of tree does Lindsey record attribute data for? What does Lindsey use to take a picture from way up high in the sky? What does Lindsey use to show how far things in real life are on the map? What does she use to show direction?

Word study: Spatial data is key to using GIS. Data is information and facts about a specific thing or place. Data is spatial when it has a location, like an address. What does spatial mean? What do you think spatial awareness means? Or spatial relationships?

Compare: Lindsey uses GPS (global positioning system) in the book. What is the difference between GPS and GIS?

Writers' prompt: Lindsey observes and collects information about the world around her to share with engineers so that they'll know where to build around her favorite park. Many GIS professionals use GIS to solve problems like flooding, traffic, and crime. It's also used in conservation for things like visualizing at-risk habitats and species. What is a problem in the world around you that you would like to solve? What kind of data would you collect to help you solve it? Write about your problem and how you would use GIS to help solve it.

Think like a professional: A GIS professional is someone who uses Geographic Information Systems (GIS) to visualize, question, analyze, and interpret data to understand spatial relationships, patterns, and trends. GIS uses mapping and spatial analytics software to create maps. GIS professionals don't just make maps, they collect data and then use it to solve problems. GIS is used in a wide range of areas, including health, government, transportation, urban planning, business, geology, and archaeology. With the right data, a GIS professional can help predict which areas might flood during a storm, keep the population aware of how an epidemic is spreading, or even where best place for a park might be. What information do you think is important to a GIS professional? What kind of problems do you think a GIS professional can help solve? What would you use GIS to analyze?

Lindsey shares her analysis and map with engineers so they know where they can build around the park. What do you think they will build? A playground? A bench? A garden? What would you build? Based on the map Lindsey makes, which areas would be a bad place to build on top of? Why?

Map like a professional: Drawing a map is an excellent way to explore spatial relationships. On a blank sheet of paper, draw a map of your favorite park (or backyard, bedroom, or classroom). Don't forget to add a scale bar (10ft = 1in) and a North Arrow so that your map can be understood by others. Think about the boundaries of things like ponds or desks or beds (polygons), as well as paths or fences (lines), and trees, signs, toys (points) when making your map. Looking at your map, are there any places where you would make changes or build something new? Where would you do that? Also important to think about: Did you make the map for anyone? What do they need the map for? Navigation, making decisions (how many kids can play there? Can dogs go there?), maintenance?

Drawing activity: On a blank piece of paper, draw an outline of the country you live in (use a reference map if you need to). You've drawn a shape or a *polygon*. Other polygons you can draw are states and counties. Next, with a blue marker or crayon, draw a major river. You've drawn a *line*. Other lines on a map are roads or railways. Next, draw stars on the map at locations you've visited or want to visit. You've created *points*. Think about why you chose those locations. Are there any patterns to the points you made? How would the map help you to plan a trip to those locations? (Examples of patterns: Are they along the coast? Along a major road? Mostly in a single state/area?)

Collect data like a professional: Collecting data is very important to GIS. Without data, there's nothing to analyze. Pretend you're a conservationist counting the birds visiting your backyard or school. Record the color, size, and number of birds visiting, and where you see them (tree/flying/ground), over a period of time. Look up what kinds of birds you're recording at the library or online and learn more about the type of birds visiting, like what they eat or where they sleep. Can you make your yard or school more habitat friendly to them, like adding a bird feeder or water? Do those changes affect the number of birds you see? Once you finish counting, what analysis can you make about the birds? Create a map of where the birds were seen, using points to note each bird. Are there any patterns you can see? Is there a spot on the map where the points are more concentrated?