Hi. I'm Jess Winkelaar, and today I'm going to walk you through analyzing maps. We'll be using some online or digital maps and a tool to analyze a map to think like a geographer.

Why are maps so exciting and engaging? Well, they appeal to visual learners. Maps are more than just location. Maps tell stories. Identifying the source and perspective of a map helps to identify the bias of the map. Just like all texts, maps do have bias. Including maps to illustrate a time period or a topic is very engaging, due to their visual nature. Finally, data is just more fun with a map.

So, we have a map analysis tool. And there are two parts to the map analysis tool. The first part is called "TODALSS". And these are the parts of the map. And by finding the parts of the map, really helps you to read the map and get the context. Once we walk through the TODALSS, then we'll do some higher order thinking. And there are two additional questions underneath about perspective. And so, the two questions are, the first one is, "Why was the map drawn?" and "What questions are left unanswered?" Once you read the map using the TOTALSS and think about the why, then it's always good just to think about what is missing from the map, and other questions such as that.

So, let's look at an example. So, this is a map of Puerto Rico, and we're going to use this to walk through the TOTALSS. So, we're going to start with T, the Title. And you can see clearly that this is Puerto Rico and the U.S. Virgin Islands. The next letter is O for Orientation. How is the map oriented? Find that compass rose. And most maps do have a compass rose. And like most maps, north is at the top on this map. The D or Date is a very important part of reading a map. And this particular map was created in 2004. The next part of the acronym is the Author. And this map was created by National Atlas, and the cartographer there actually made this map. The next one is L for Legend. And again, maps tell stories, so the legend can help us to understand the story this map is telling. Sometimes key is also used, but legend is the preferred name of this part of the map. You can see in this legend there are different colored lines to represent different types of roads. There are some other symbols. The legend helps us to read the information on the map, to crack the code. The next one is S for Scale. And you can see the scale underneath the compass rose. And the scale helps us to measure distance on a map, which is a very important part of reading the map. And finally, the second S in TOTALSS is for Source. And the source of the data that was used to create a map is very, very important. This particular map, the data was from the U.S. Department of the Interior and the U.S. Geological Survey. So, these two government agencies collect an enormous of data. And then what happens is, an author such as the National Atlas will take that data and create a map. So, always have your students find the source of where the data comes from, and then who took that data to create the map.

All right. We're going to apply this framework to a historical map. And we're going to go way back to 1890. And we're going to use the Library of Congress to find a map called Distribution of the Foreign-Born Population. So, we're going to jump to the Library of Congress website, we're going to find this particular map, and we're going to use the map analysis tool to analyze this map. After we find the TODALSS on the Library of Congress site, we'll come back and look at those higher order thinking skills.

So, when you go to the Library of Congress, you can search for different maps by topic. Some of them are included in primary source sets. And this particular map is in the immigration primary source set. So, here it is. One amazing feature about the Library of Congress is that you can manipulate the map. You can move it around, you can zoom in. This really helps us to read the entire map, because a lot of the maps, the labels and the text are very, very small.

So, let's start with the T. If we go to the top of this map, we can see the title is right there, Distribution of the Foreign-Born Population of the United States, 1890. So, we'd put that in the template for the T. The next part of the TODALSS acronym to read the map is the O for Orientation. And although there's not a compass rose on this map, we do know, this is a familiar place, that north is the top of the map, being that it's our country, the United States of America. The next one is D for Date, and the date was in the title, 1890. Let's move on to the next one, the Author. If we look down at the bottom, that is often a place where you can find the author. So, we can kind of zoom in and there he is, a name, Julius Bien & Company. They were a lithograph company in New York. So, that was the cartographer, who actually created this particular map. The L is for Legend. And this map does have a legend over on the left side. In this map, the legend shows color. And each of the colors shows a certain number of people. So, you can see the lightest color, there's under 1 person per square mile, up to the darkest color, there are 25 and over, at least 25 people per square mile in the darkest shaded areas. So the legend tells us how many people are in each square mile. The next one is S for Scale. And you can see there is a scale at the bottom. And this particular map of the United States, you can measure the distance in miles. And you can see there that it breaks it down into 50, 100 and 200 miles. So if you were curious and wanted to investigate distances, you could use that scale.

And finally, the final S is for Source. And that's the one piece that's missing from this map. You cannot say, well, where did this data come from? How did the cartographer know how to create this map? And so, that's something that you can do some further investigation. On the Library of Congress website, below each of the primary sources is the metadata. So if we scroll down, we can find out, the information just found, we can reinforce that, and then we can also find the source. To start with though, when we look at the contributor, we're going to find a different name than was on the map itself. If you look, Henry Gannet actually was the cartographer who created this particular map. He was an employee of the Julius Bien company, but you can find that detailed information. So, you can go back and that's a good lesson for students is, sometimes the actual map itself may have a little bit different information than this metadata. But you can replace the author of this map with Henry's name. So, where did Henry get the information to create this map? And that is the U.S. Census. And you can see in 1890, the U.S. Census was taken. And the population of foreign-born immigrants to our country was part of that census. And so, Henry took that and mapped it.

There's one other discrepancy between the map and the actual metadata. The source of the data was the 1890 census, but Henry actually did not finish this map and it wasn't actually printed until 1898. So, you can see there in the metadata that it was created. So, there was a lag time, there was a little lapse between when the data was actually collected and when this map was created. So, you also could have students go back and change the date of this map to 1898.

And again, another lesson learned about being a really critical map reader, that sometimes you have to go deeper and investigate beyond the map itself. And so that's why this metadata is just amazing.

So now we've found the first layer, those map basics, the TOTALSS. But we need to take a different look. We have to go deeper. And so, we're going to ask about why. Why was this map drawn? A good place to start would be the title. The title is the purpose of the map, just like the title of another text, a book, tells us the purpose. So this map is drawn to show where did the foreign-born population, where did the immigrants live in 1890? And this map was drawn to show the distribution.

What questions are left unanswered? This is where you really can do some deep analysis with students, pick up on their curiosities, and really read a map as a geographer. So, when we think about a spatial analysis, and we ask some questions, we might say, “Well, why were the darker areas along bodies of water, particularly the East Coast, the Great Lakes region and the West Coast?” We might ask, “Why were there no dark colors in the South, for the most part, or in the Western part of the United States?” So then, we can think about the time period, and we can think about who might be living in those other places. So, those are just a few questions to get a deeper spatial analysis using this particular template.

Now that we’ve looked at this map and read this one as a geographer, you can layer some other maps with this map to really broaden students’ understanding of the time period and bring in other perspectives. So, here are some challenge questions that you could add on. So, you could first of all start with some maps and do the same process we just did, have the students read the map, get to know the basics. Then you could put the three maps in chronological order. So, you’d take the two new maps, this map of the U.S. Foreign-Born Population, and lay them out side- by-side. And then you could really get to those higher order thinking skills, and look at comparing and contrasting. Look at the differences, and then why are these maps from the same time period different?

So, let’s just peek at these other two maps. We’re not going to take time to do the TOTALSS today, but that would be your first step, again, to get that content and that basic, that first step of reading a map. But then you can see the top map from the time period, you can see the outline of the states. You can also see some red regions. And those red regions show the Native American lands. So, they are there, but you still really have that western perspective. So, we’re still looking west as a, looking west to that land.

If you look at the map on the bottom, you can see that the state boundaries are not as clear. What really stands out are the American Indian lands. So, this is more of an indigenous perspective and we would say an eastward-looking perspective to immigration.

So, it’s great layer maps to bring in different perspectives, let students read maps as geographers by looking at those spatial components, and so they can bring geography to life, and also make connections to history. So, find some maps from the Library of Congress, go to your Minnesota Historical Society or Wisconsin Historical Society, find these amazing digital maps, get your magnifying glasses out, and be geographers. Thank you.