



# Bavaria Has Issues...

## Experimental Components



K20 Center, Alexandra Parsons, Alex Parsons  
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<b>Grade Level</b>	11th – 12th Grade	<b>Time Frame</b>	3-4 class period(s)
<b>Subject</b>	Mathematics, Social Studies	<b>Duration</b>	150 minutes

### Essential Question

How can evidence be evaluated and used?

### Summary

This lesson address the components of evidence used to support hypotheses. It addresses qualitative versus quantitative, as well as primary versus secondary. This would be a good lesson to start the year and requires no prerequisite skills. This lesson includes optional modifications for distance learning. Resources for use in Google Classroom are included.

### Snapshot

#### Engage

Students gauge their abilities about data analysis before the lesson.

#### Explore

Students play the game The Detective: Bavaria.

#### Explain

Students complete a honeycomb relatedness based on the academic language from the game.

#### Extend

Students identify different data sources and how the student will use them in lab handouts.

#### Evaluate

Students reevaluate their abilities about data analysis.

## Attachments

- [Bavaria Honeycomb Explain.docx](#)
- [Bavaria Honeycomb Explain.docx](#)
- [Bavaria Honeycomb Explain.docx](#)
- [Bavaria Honeycomb Explain.docx](#)
- [Biology Lab Extend.pdf](#)
- [Biology Lab Extend.pdf](#)
- [Biology Lab Extend.pdf](#)
- [Biology Lab Extend.pdf](#)
- [Chemistry Lab Extend.pdf](#)
- [Chemistry Lab Extend.pdf](#)
- [Chemistry Lab Extend.pdf](#)
- [Chemistry Lab Extend.pdf](#)
- [Physics Lab Extend.doc](#)
- [Physics Lab Extend.doc](#)
- [Physics Lab Extend.doc](#)
- [Physics Lab Extend.doc](#)
- [The Detective Bavaria Instructors Guide.pdf](#)
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## Materials

- Chromebooks or enough computers with internet access for every student
- Copies of the Honeycomb sort (cut out before the lesson)
- Copies of lab handouts
- Sticky notes

# Engage

Pass out a sticky note to every student. Have students evaluate the statement "I feel like I can do a good job of evaluating evidence and drawing conclusions" using a [Sticky Bar](#) strategy. Students should write their name and how much they agree with the statement on the sticky note, using a scale from 1-5 (1 = highly disagree and 5 = highly agree). Have students hang on to their number, since they'll revisit it in the Evaluate portion of the lesson.

## Teacher's Note: Group Effort

If you want, create a number line for students to put their sticky note on. That way, as the lesson progresses, if they want to move their square up or down the number line they can, and you can quickly see how the students are doing for a formative assessment.

## Optional Modification For Distance Learning

To make the sticky bar activity accessible, you may consider a polling application (such as [Mentimeter](#)).

# Explore

Pass out Chromebooks or any other way for students to get on a computer with internet access.

Direct students to the [K20 Game Bavaria](#).

## Teacher's Note: Accessing The Game

You will need to have game access set up ahead of time. If you are using the iPad app, you only need to install the app to be ready to go. If, however, you need students to play the game via computer, contact either Will Thompson (will.thompson@ou.edu) or Javier Elizondo (elizondo@ou.edu) directly at the K20 Center to be granted access. Further contact information can be found at the end of the teacher's guide in the Attachments section.

## Teacher's Note: What's It Like?

This is set up into four different 'missions', with each mission being a little harder than the last one. A teacher's guide is attached to the lesson if background information is needed. In this lesson, students will do all four missions now. If time runs out, their progress will be saved, so they can keep working the next day.

## Teacher's Note: Tracking Students

If you are having the students play the game on computers, it is possible to track student progress through the Game Portal Teacher Dashboard where you access the game. Unfortunately, this functionality does not exist for the iPad version of the game.

# Explain

## Extend

Keep students in their groups, and pass out one of the lab handouts provided in the attachments to each group. Keep in mind, there are many labs you can provide, and only three have been given in this lesson for the sake of keeping the lesson file small.

### Teacher's Note: Pick Your Favorite

The lab handouts included in the attachments are options. Decide which ones fit your curriculum. OR, pick your own. You don't have to use the handouts include; they're more for inspiration than required.

In the groups, have students create two [Justified Lists](#), one for quantitative and one for qualitative data. The students will read through the lab handout, and determine what kind of data they are collecting in that particular lab, and why they know it is either quantitative or qualitative. When they are done, have groups share out what they've written.

### Optional Modification For Distance Learning

Consider creating multiple copies of the attached lab handouts using Google Docs. Assign small groups of students to each copy of the lab handout and have them collaborate virtually. Students can add notes to the document and collaborate as a group using the "chat" feature in the document. You may also consider making this activity a discussion board post to which your students can respond directly. [Download all attachments](#) to use this lesson in [Google Classroom](#).

# Evaluate

Tell the students to look back on the number they assigned themselves for the statement "I feel like I can do a good job of evaluating evidence and drawing conclusions." Prompt students to think about how they'd rank themselves now, and why. Have students write, as an [Exit Ticket](#), what they changed their number to and why. Encourage them to use as many words from the lesson as possible, and not just talk about personal feelings.

## Teacher's Note: From A 5 To A 5

Some students may stay at their number but have a different reason. That's fine, tell them to write about how their perspective has changed based on what they've learned.

## Optional Modification For Distance Learning

You may also consider making this activity a discussion board post to which your students can respond directly. [Download all attachments to use this lesson in Google Classroom.](#)

## Resources

- Honeycomb Harvest (Explain): <https://learn.k20center.ou.edu/strategy/6f19b778b73e4c339d1a7d9653001825>
- Sticky Bar (Engage): <https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f505ee0f>
- Exit Ticket (Evaluate): <https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f505d6f2>
- Justified List (Extend): <https://learn.k20center.ou.edu/strategy/d9908066f654727934df7bf4f5074d76>
- K20 Center Bavaria Game (Explore): <https://k20center.ou.edu/games/detective-bavaria/>
- K20 Center. (n.d.). Mentimeter. Tech Tools. <https://learn.k20center.ou.edu/tech-tool/645>
- K20 Center. (n.d.). Google Classroom. Tech Tools. <https://learn.k20center.ou.edu/tech-tool/628>