

Cool Careers for Girls in CyberSecurity Logic

Duration: Each student session last for 20 minutes. Students will have 5 minutes to travel to their next session.

Session Overview:

Students will use logic tools such as truth tables and Venn diagrams to understand the role of mathematicians in the workplace.

Objectives:

- Create a truth table about weather
- Complete a Venn diagram to evaluate statements

Materials/Supplies (include AV needs):

- Computer
- Excel

Introduction:

The science of logic goes back a long way into history. Plato, Sophocles and Aristotle all made valuable contribution to this science which is now considered to be a math skill. The goal of logic is to create an argument which will satisfy the conditions.

Consider the following statement
If it is raining there must be clouds

Create a Truth chart for this statement and decide which conditions allow for the conclusion to be true.

Rain	Clouds
True	True
True	False
False	True
False	False

Lesson:

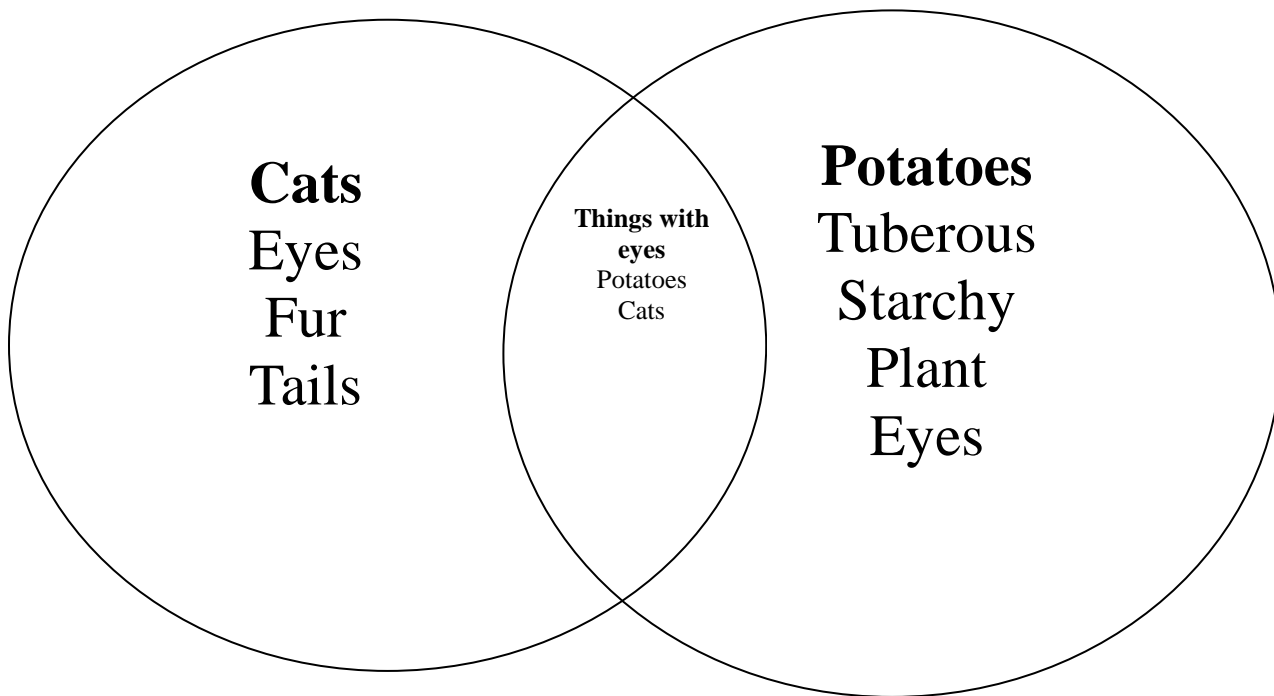
The same thing can be done with a Venn diagram. Consider the following statements:

Cats have eyes.

Potatoes have eyes.

Therefore all cats must be potatoes

Create a Venn diagram which helps students evaluate this statement. A Venn Diagram shows logical relationships between collections of things.



Final Thoughts:

Mathematicians help other scientist and engineers solve problems. They use their skills of logic to help teams come to identify possible solutions and to eliminate impossible solutions. One team of mathematicians and computer scientists help to find the shortest or fastest route when you put in an address into a GPS system. Mathematicians also create encryption algorithms that keep our data and communications safe.