**Ideas:**

I chose the **Giant Component** simulation in the NetLogo networks library as my basic template.

* Identify two random turtles to be linked
* Delete the longest chain function
* Remove red color from turtles
* End program when selected turtles have linked
* Program will identify the number of turtles linking both “chosen turtles.

**Research & Rules:**

My article was “Six degrees of separation”

By: Margaret Rouse

Six degrees of separation is the theory that any person on the planet can be connected to any other person on the planet through a chain of acquaintances that has no more than five intermediaries. The concept of six degrees of separation is often represented by a [graph database](http://whatis.techtarget.com/definition/graph-database), a type of [NoSQL](http://searchdatamanagement.techtarget.com/definition/NoSQL-Not-Only-SQL) database that uses [graph theory](http://whatis.techtarget.com/definition/graph-theory) to store, map and query relationships.

Real-world applications of the Six Degrees of Separation theory include power grid mapping and analysis, disease transmission mapping and analysis, computer circuitry design and search engine ranking. The theory was first proposed in 1929 by the Hungarian writer Frigyes Karinthy in a short story called "Chains." In the 1950's, Ithiel de Sola Pool (MIT) and Manfred Kochen (IBM) set out to prove the theory mathematically. Although they were able to phrase the question mathematically (given a set N of people, what is the probability that each member of N is connected to another member via k\_1, k\_2, k\_3...k\_n links?), after twenty years they were still unable to solve the problem to their own satisfaction.

In 1967, American sociologist Stanley Milgram devised a new way to test the theory, which he called "the small-world problem." Milgram randomly selected people in the mid-West to send packages to a stranger located in Massachusetts. The senders knew the recipient's name, occupation and general location. Each participant was instructed to send the package to a person he knew on a first-name basis who was most likely, out of all the participant's friends, to know the target personally. That person would do the same, and so on, until the package was personally delivered to its target recipient. Although participants expected the chain to include at least a hundred intermediaries, it only took (on average) between five and seven intermediaries for each package to be delivered successfully.

Milgram's findings were published in Psychology Today and inspired the phrase "six degrees of separation." Playwright John Guare popularized the phrase when he chose it as the title for his 1990 play of the same name. Although Milgram's findings were discounted after it was discovered that he based his conclusion on a very small number of packages, six degrees of separation became an accepted notion in pop culture after Brett C. Tjaden published a computer game on the University of Virginia's Web site based on the small-world problem.

Tjaden used the Internet Movie Database (IMDB) to document connections between different actors. The game, which asked website visitors to guess the number of connections between the actor Kevin Bacon and any other actor in the database, was called The Oracle of Bacon at Virginia. Time magazine selected it as one of the "Ten Best Web Sites of 1996."

In 2001, Duncan Watts, a professor at Columbia University, continued his own earlier research into the phenomenon and recreated Milgram's experiment on the Internet. Watts used an email message as the "package" that needed to be delivered, and surprisingly, after reviewing the data collected by 48,000 senders and 19 targets (in 157 countries), Watts found that the average number of intermediaries was indeed, six.

In 2008, Microsoft attempted to validate the experiment by analyzing the minimum chain length it would take to connect 180 billion different pairs of users in the Microsoft Messenger database. According to Microsoft's finding, the average chain length was 6.6 hops. In 2016, researchers at Facebook reported that the social networking site has reduced the chain length of its members three and a half degrees of separation. Dutch mathematician Edsger Dijkstra is credited with developing the [algorithm](http://whatis.techtarget.com/definition/algorithm) that made it possible to Facebook researchers and others to find the shortest path between two nodes in a graph database.

* This theory has been tested multiple times
* Each experiment became more advanced and confident than the last
* The average chain lengths came to around six
* The sample sizes must be large enough or else the data may be untrustworthy

**Create Prompt:**