**Student Worksheet: Spinning spaghetti into nanonoodles**

**Directions**: Read the online *Science News* article “[Starchy nanofibers shatter the record for world’s thinnest pasta](https://www.sciencenews.org/article/thinnest-pasta-nanofibers).” Then answer the following questions as directed by your teacher.

**Before Reading**1. Consider different ways that you might create spaghetti noodles from dough. Based on your current knowledge, describe a technique that you think would allow you to make thin "angel hair" spaghetti.

2. A spinning wheel is a tool that enables someone to create yarn or thread. Watch [this short video](https://www.youtube.com/watch?v=AoGuNPdlbls). Then, briefly explain how a spinning wheel is used to create yarn. Feel free to sketch a picture to support your explanation.

**During Reading**
1. Describe this new pasta’s width by comparing it to something familiar.

2. In your own words, describe the role of acid in the new pasta “dough” recipe. What food-preparation step does the acid replace?

3. Based on your answer to Question 2, how might the acid contribute to the pasta’s extreme thinness?

4. Explain the process of electrospinning and what role it plays in creating the super-fine noodles described in this story.

5. Identify one ingredient in the original “dough” not present in the final noodle product. What happened to this ingredient?

6. Describe one non-food-based application for the technology described in this story. Explain the value of these super-thin fibers to this particular application.

**After Reading**

1. A polymer is a molecule made from many repeating units linked together like a chain. Review this story and identify two molecules mentioned that would be classified as polymers. Why do you think polymer-type molecules are so useful for crafting thread and yard?

2. Based on what you learned about traditional spinning wheels and the description of electrospinning in this story, come up with one similarity and one difference between them.