

# **Prenatal Peanut Allergies**

New Mexico  
Supercomputing Challenge  
Final Report  
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Team 41  
Las Cruces YWiC

## **Team Members:**

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## **Teachers:**

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**Summary:**

We've started our project with a different problem than the one that we are using now. Our new problem is figuring out the population of mothers eating peanuts while pregnant versus the mothers who do not. We are also visualising if their children will have a peanut allergy or not. We've found out from our past research that 1 out of every 13 children will be born with a peanut allergy. We've discovered that the 1 child who has the peanut allergy, developed it in the mother's womb.

For our code we have decided to use StarLogo TNG. In our code we've modeled a society with 10 mothers who eat peanuts and 16 mothers who don't. These mothers will have children, 2 will have a peanut allergy and 24 will not. After the children are born they will have children of their own, who will have the same number of population as their parents.

**Statement of the Problem:**

Our problem is to figure out the population of people with peanut allergies in the future society. We would like to know if children who have mothers with the allergy will have a peanut allergy.

**Description of the Method:**

We've researched peanut allergies to make our model. We researched the average child percentage in peanut allergies as well. We also researched how many kids have a peanut allergy out of a certain amount of children. Our model was made using StarLogo TNG. We searched how the increases of peanut allergies affects the population of peanut allergies. In our code we are showing 16 mothers that do not eat peanuts and 10 mothers that do eat peanuts. These mothers then have children. 24 of the children do not have a peanut allergy and 2 children do have the allergy. We have this because 1 in 13 children will receive a

peanut allergy. These 26 children will soon have children of their own. The children they have will be the same number. So there will be 24 children without the peanut allergy and 2 with the allergy. We think that this will keep going with all of the children that these mothers have.

### **Description of the Method:**

Our results were that 1 out of every 13 children has a peanut allergy. We have found that that one child probably got that allergy from the mother eating peanuts while pregnant. So, if you are nervous about your child having a peanut allergy we recommend to not eat any peanuts.

We concluded that peanut allergies were formed in the mothers womb. the way we found this out is by doing a lot of research. we've also found out that 1 in every 13 children will be born with a peanut allergy.

### **Table:**



**Significant Achievement:**

Our most significant achievement while working on this project was finishing our code. This was our best achievement because when we first came into this project we had no idea what code/model really was. We were very confused on what to do in general. We also had a lot of problems while working on the code. When we were practicing it was very hard for us. So, when we finally figured it out we were very relieved. Eventually we figured out what exactly we wanted to model and we modeled it. Our model ended up being very good and detailed, so we were very happy.

**Acknowledgment:**

We would like to thank YWIC, Sam, Sp, Noor, and Becca. Sam was our biggest mentor throughout the whole year pushing us to do our best each time. She always helps when we need it but never takes over. YWIC is the sponsoring school taking us, so thank you for being a great supporter.

**Final Report:**

Peanut allergies are very dangerous. It's very helpful to know more about this allergy and how you can get them and prevent having them. We will give lots of information about peanut allergies. We will tell how they form and how you can get them. Some of our information we are providing is very helpful to new mothers who are nervous about their

child getting a peanut allergy. If you're nervous about your child getting a food allergy or if it runs in the family you should talk to an allergy specialist for more reliable information.

In the original project we have investigated why so many children are allergic to peanuts. From one of the research resources we have learned that a child can get peanut allergies while the baby is developing in the womb if the mother chooses to eat peanuts while pregnant.

the projects new problem is predicting the future increases in peanut allergies. Peanut allergies have been appearing to increase in population. According to F.A.R.E. (Food Allergy Research & Education), the number of children in the U.S. with peanut allergies has more than tripled.

We have modeled a society showing mothers and the probability of having children with peanut allergies. In the model we are showing some mothers that eat peanuts while pregnant and some that do not. We are also modeling the children that have a peanut allergy having children with a peanut allergy. The application for the code is StarLogo TNG. We used different characters to represent the mothers and children the picture of it is to on the poster board as well.

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<http://www.supercomputingchallenge.org/archive/14-15/finalreports/specs.shtml>