



# CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

<b>Name(s)</b> <b>Andrew I. Cardoso</b>	<b>Project Number</b> <b>J1902</b>
<b>Project Title</b> <b>Determining the Most Effective Method to Clean a Pacifier</b>	
<b>Objectives/Goals</b> The objective of this project is to determine the best way to wash a pacifier to prevent babies from placing bacteria in their mouth. If parents are going to give a child a pacifier we should find the most effective way to kill the germs on it.	
<b>Abstract</b> <b>Methods/Materials</b> Use gloves to open pacifier, then swab with cotton swab. Apply sample to petri dish treated with agar. Drop pacifier on floor, swab pacifier with cotton swab. Apply sample to petri dish treated with agar. Clean pacifier, swab pacifier, and apply sample to petri dish treated with agar. Repeat steps cleaning with Soap and Water, Baby Wipes, Hand Sanitizer, and Bottled Water. Perform 10 trials per control and each cleaning method. Observe petri dishes for 10 days and perform a quantitative count. Chart number of bacteria each day in data book.	
<b>Results</b> #Cleaning a pacifier with hand sanitizer after being dropped on the floor showed an average bacteria growth of 3.1 colonies after 10 days. This was the most effective of all methods used. #Cleaning a pacifier with soap and water after being dropped on the floor showed an average bacteria growth of 4.2 colonies after 10 days. Which was effective at eliminating some of the bacteria found on pacifier. #Cleaning a pacifier with baby wipes after being dropped on the floor showed an average bacterial growth of 8.7 colonies after 10 days. This method was slightly effective at removing bacteria from the pacifier. #Cleaning a pacifier with Purified Water after being dropped on the floor showed an average bacterial growth of 9.9 colonies after 10 days. Which, was the least effective method cleaning a pacifier.	
<b>Conclusions/Discussion</b> After completing this project it has been determined that the hand sanitizer is most effective allowing the least amount of bacteria growth with an average of 3.1 bacteria colonies per petri dish. Hand soap is slightly less effective with an average bacteria colony growth of 4.2 bacteria colonies per petri dish; baby wipes averaged 8.7 bacteria colonies per petri dish, and the purified water is the least effective with an average bacteria colony growth 9.9 per petri dish. In conclusion, hand sanitizer is the best cleaning option of the samples tested for killing germs on pacifiers. Since many illnesses and infections are caused by bacteria it is very important to take reasonable precautions to prevent unnecessary exposure to infants. This will help keep babies healthy and happy.	
<b>Summary Statement</b> This investigation is to determine the best way to wash a pacifier to prevent babies from placing bacteria in their mouth. If parents are going to give a child a pacifier we should find the most effective way to kill the germs on it.	
<b>Help Received</b> Mom helped with photos and board. Dentist help with Experimental procedures.	