Science Inquiry and Application Standards
(Ohio Department of Education, March 2011)

PreK to Grade 4:
- Observe and ask questions about the natural environment
- Plan and conduct simple investigations
- Employ simple equipment and tools to gather data and extend the senses
- Use appropriate mathematics with data to construct reasonable explanations
- Communicate about observations, investigations and explanations
- Review and ask questions about the observations and explanations of others

Grades 5-8:
- Identify questions that can be answered through scientific investigations
- Design and conduct a scientific experiment
- Use appropriate mathematics, tools, and techniques to gather data and information
- Analyze and interpret data
- Develop descriptions, models, explanations, and predictions
- Think critically and logically to connect evidence and explanations
- Recognize and analyze alternative explanations and predictions
- Communicate scientific procedures and predictions

Students are researchers!

I am a Student Researcher

The Scientific Method in Action
I want to blow really big bubbles, but my bubbles are always popping!

This book says that bubbles are made out of soap and water. It also says that you can add other ingredients, like glycerin, sugar, or corn syrup.

Soap + Water + Corn Syrup = the Biggest Bubbles

I need to share my conclusions with others so that other people can benefit from my findings. Now, using my research, further research can be done by others to create even bigger and better bubbles.
Step 6: Draw a Conclusion

When I compare the measurements of the bubbles, the solution with the corn syrup added to it made the biggest bubbles. I can now conclude that adding corn syrup to a soap and water solution is the way to make the biggest bubbles.

Step 3: Make a Hypothesis

I predict that one of these other ingredients added to a soap and water solution will make bigger bubbles.
Step 4: Plan an Experiment

I will need to do a lot of things before I can start. I need to make a list of materials, including safety equipment and measuring tools, and then collect them. I also need to find a place to conduct my experiment. Lastly, I need papers or a computer to collect my data on.

Step 5: Conduct an Experiment

First, I will mix soap and water together, and pour equal amounts of the solution into different flasks. Second, I will add one of the other ingredients to each flask. Third, I will test each solution by blowing bubbles and measuring them.