California State University of Bakersfield, Department of Chemistry

Bend Honey

Standards:

3-PS2-3. Ask questions to determine cause and affect relationships of electric or magnetic interactions between two objects not in contact with each other.

MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

HS-PS2-6. Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

HS-PS3-5.Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Introduction:

In this experiment you will be demonstrating how molecules can be charged. The static electricity you built up by rubbing it against the balloon attracts the stream of honey, bending it towards the balloon like magic![2] Negatively charged particles called electrons jump from your hair to the balloon as they rub together, the balloon now has extra electrons and is negatively charged. The honey features both positive and negatively charged particles and is neutral.

Positive and negative charges are attracted to each other so when you move the negatively charged balloon towards the stream, it attracts the honey's positively charged particles and the stream bends! [2]

Materials:

- Jar of Honey
- Balloon
- A space that can get messy (sink)

Safety:

- Always have an adult with you to help you during your experiment.
- Always wear gloves and safety goggles.

Procedure:

1. Prepare a space for your experiment (preferably a sink)
2. Then blow up the balloon and statically charge it by rubbing it on (preferably a thick and frizzy) head of hair
3. Take the bottle of honey (make sure there are no chunks in it) and let it smoothly flow in a stream while holding the balloon close by. The honey should start to bend towards the balloon

Data and Observations:

What did you see? Anything you were not expecting?

Questions:

1. Why is a thick and fizzy head better for the statically charge than any other type of head of hair?

2. What is the point of this experiment and what did you learn from it?

3. How long were you able to get the honey to bend?

References:

1. Experiments to try at your desk. Virgin Media Science and Nature. http://www.virginmedia.com/digital/galleries/desk-experiments.php (accessed July 31, 2013)
2. Bending Water with Static. Science Experiments for kids. http://www.sciencekids.co.nz/experiments/bendingwater.html (accessed July 31, 2013)