Grapefruit Candle
Investigation #2

Description
Oh, what is that wonderful smell?

Materials
• Grapefruit, orange, lemon, or lime
• Fruit peeler
• Knife
• Cutting board
• Slate coaster
• Lighter or matches
• Essential oil of grapefruit, orange, or lemon

Procedure
1) You are going to remove the top half of the rind first. Use the fruit peeler to pierce the rind of the grapefruit around the grapefruit’s middle. Be careful not to cut into the flesh.
2) Continue the cut around the circumference or middle of the fruit.
3) Insert your index finger under the rind and slowly create space between the rind and the top half of the fruit.
4) Continue to remove the upper rind until you can twist off the very top of the rind.
5) Now you will remove the grapefruit itself, leaving just the bottom half of the rind with the stalk intact. Insert the knife between the
rind and the outer part of the fruit and slowly begin to separate the two. Be sure to avoid the bottom center where the stalk is.
6) Use your fingers to begin to twist out the flesh of the fruit while leaving the stalk in the bottom center. You should end up with a hollow bowl with the center stem stalk intact.
7) Place the rind bowl on a slate coaster, as the bottom will get hot.
8) Fill the bottom of the rind with olive oil so that the surface of the oil is at least ¼ inch below the top of the stalk. Make sure the tip of the stalk gets wet with oil in the filling process.
9) Add in a few drops of essential oil and light the stalk with a lighter or a match. Don’t worry if the stalk takes a moment to light.

My Results
Explanation

The center stalk of the fruit can act like a natural wick, in which the oil works its way up the stalk using capillary action. As the oil gets to the flame, the oil vaporizes and combusts. Adding drops of essential oils magnifies the citrus aroma that comes from the limonene and other molecules found in citrus fruits. Limonene has two kinds of molecules present in citrus fruits, the R, which makes up about 97% of the molecules, and the S, which makes up about 1-4%. When Limonene is combined with other molecules, specifically 2-decanol, 2-carene, and octanal, there is more of an orange smell. In lemons, limonene combines with alpha-terpinene, 3-carene, and geraniol to emit a lemony fragrance.

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