**Popping A Balloon With An Orange Investigations***Lesson 2*

**INVESTIGATION QUESTION:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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**BACKGROUND INFORMATION:**

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| **Components of an Orange to Test** |
| Orange Peel (control group) |
| Orange Juice |
| Limonene (main component in orange oil) |
| Citric acid (sour taste in oranges) |
| Ascorbic acid (vitamin C) |
| Sucrose (main sugar in oranges) |

 **PLANNING INVESTIGATION #1**

**Materials available:**

* Balloons
* Orange peel
* Orange juice
* Limonene
* Citric acid
* Ascorbic acid
* Sucrose
* Pipettes
* Lemon peel

*Identify the following for this investigation:*

**Hypothesis:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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**Independent variable:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Control group:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Dependent variable:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Constants:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Procedure:** With your lab group, make a list, draw a picture, and/or write out your ideas of how to test the different components of an orange.

**Observations:**

|  |  |  |
| --- | --- | --- |
| **Main Components**  | **Popped**  | **Did Not Pop** |
| Orange peel -outside |  |  |
| Orange peel- inside |  |  |
| Orange juice (1-drop) |  |  |
| Limonene (1-drop) |  |  |
| Citric acid (1-drop) |  |  |
| Ascorbic acid (1-drop) |  |  |
| Sucrose (1-drop) |  |  |
| Lemon peel |  |  |

**Conclusion:**

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| **Problem/Question** |
| *Which component(s) (or part) of the orange peel causes the balloon to pop?* |
| **Claim** | **Evidence** |
|  |  |

**PLANNING INVESTIGATION #2: *WHAT FACTOR MAKES ONE BALLOON POP, BUT NOT THE OTHER?***

*Make a list of variables that you could test about the balloons:*

**Problem/Question:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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*Identify the following for this investigation:*

**Hypothesis:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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**Independent variable:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Control group:** \_\_\_\_Initial Observations\_\_\_\_\_\_\_\_

**Dependent variable:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Constants:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Procedure:** With your lab group make a list, draw a picture, and/or write out your ideas of how to test the variable you chose.

**Observations:**

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|  |

**Conclusion:**

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| **Problem/Question** |
|  |
| **Claim** | **Evidence** |
|  |  |
| **Reflection** |
| 1. What did you learn from this test?
2. Was your hypothesis correct? Use data to support your response.
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| **Next Steps/Questions** |
|  |