**Isomers**

**YOYO**: On a separate paper, draw as many different structures using the formula C5H12. Each compound you draw must have 5 carbons and 12 hydrogens.

What is an isomer?

* Isomers are compounds with the same chemical formula, but different molecular structures.
* A good tip: If you are not sure if something is an isomer, name it. If it has a different name then the original compound, it IS an isomer. If the name is the same, it is NOT and isomer. Some things may looks like isomers but aren’t actually.

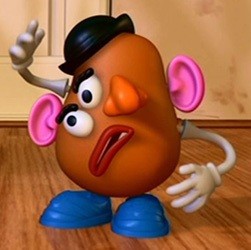
Are These Isomers?

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| Compound 1 | Compound 2 | Are these isomers? Explain. |
| Formula:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Formula:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

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| Compound 1 | Compound 2 | Are these isomers? Explain. |
| Formula:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Formula:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

Check Point Question:

1. Are these pictures of Mr. Potato Head Considered to be isomers? Explain in terms of structure.



1. Are these pictures of Mr. and Mrs. Potato Head Considered to be isomers? Explain in terms of structure.



Creating Alkane Isomers

* Use the **same molecular formula**
* Draw a different structural formula
  + If the name of the compound is different but it has the same molecular formula, it is an isomer.

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| Original Compound | Isomer #1 | Isomer #2 |
| Lab Hexane | Various Sizes | Summit Research  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Original Compound | Isomer #1 | Isomer #2 |
| Butane - Wikipedia  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Original Compound | Isomer #1 | Isomer #2 |
| Isopentane - Wikipedia  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Creating Alkene and Alkyne Isomers

* Use the **same molecular formula**
* Move the location of the double or triple bond
  + *NOTE:* Be careful not to move it into the same position. Remember you can read compounds left to right or right to left.

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| * Original Compound | Isomer #1 | Isomer #2 |
| http://faculty.ccbcmd.edu/courses/chem100e/nchem100/lectures/ch5pb3c.jpg  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Original Compound | Isomer #1 | Isomer #2 |
| http://upload.wikimedia.org/wikipedia/commons/thumb/a/af/Ethylacetylene.svg/180px-Ethylacetylene.svg.png  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Original Compound | Isomer #1 | Isomer #2 |
| GCSE CHEMISTRY - What are the Isomers of Pentene? - Pent-1-ene ...  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Creating Isomers with Functional Groups

* Use the **same molecular formula**
* Move the location of the functional group (if possible) or shift part of a carbon chain.
* These are a bit more challenging, and only basic isomers with functional groups will be asked.

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| Original Compound | Isomer #1 | Isomer #2 |
| Untitled  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Original Compound | Isomer #1 | Isomer #2 |
| n-Butanol - Wikipedia  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| Original Compound | Isomer #1 | Isomer #2 |
| A close up of a clock  Description automatically generated  Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Molecular Formula: \_\_\_\_\_\_\_\_\_\_\_  Compound Name:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |