**Year 11 Research Lesson**

**PART 1 – USES OF TRANSITION METALS**

1. Complete the following table with 5 examples:

|  |  |  |
| --- | --- | --- |
| **Name of transition metal** | **Use** | **Properties of metal/ reason for use** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. Explain the difference between a dye and a pigment?

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1. How can you tell that the pigments in a can of emulsion paint are insoluble?

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1. How do paints get their colours?

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1. What is a mordant?

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1. Complete the following table:

|  |  |
| --- | --- |
| **Transition metal** | **Colour of compounds** |
| **Titanium** |  |
|  | **Yellow** |
| **Copper** |  |
|  | **Royal blue** |

**PART 2 – ORGANIC CHEMISTRY**

1. Complete the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| **Homologous group** | **Functional group** | **Structure** | **uses** |
|  | **-OH** |  |  |
| **ESTER** |  |  |  |
|  |  | **O**  **R-C**  **O-H** |  |

1. What solvent is often used to dissolve oily solids in cosmetics? Why?

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1. Explain why there are a range of solvents in cosmetic products, rather than just relying on water.

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1. What is a carboxylic acid?

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1. Give 2 reasons why ethanoic acid is used in foods such as pickled onions.

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1. Write the **displayed formula** equation for the formation of methyl methanoate from methanol and methanoic acid.

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1. What are esters used for? Why?

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1. What do the words miscible and immiscible mean?

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1. Give an example of a pair of liquids that are immiscible.

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**TASK 3: THE COSMETICS INDUSTRY**

**You run an advertising agency and one of your clients, Green People, have asked you to produce a leaflet about the benefits of their products.**

<http://www.greenpeople.co.uk>

They would like you to include the following:

* A list of ingredients they don’t use ;
* Some of the ingredients they do use;
* The benefits of natural products;
* The problems associated with synthesised produces.

**You have the summer to complete this assignment.**