USING YEAST

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an alternative to reduce the use of fossil fuels. Plants provide sugars which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can then break down to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Ethanol is sometimes called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. [2]
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is one of the crops that is used in this process. It is first treated with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ enzymes, which break down stored starch to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Yeast is then added, and allowed to use the glucose in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ respiration. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that is produced can then be extracted from the mixture by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. [3]

Using Enzymes

Biological washing powders

1. Biological washing powders contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, as well as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The detergents help greasy dirt to mix with water, so that it can be washed away. The enzymes help to break down other kinds of substances that can stain clothes. [1]
2. Some of the enzymes are protease, which catalyse the breakdown of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules. This helps in removal of stains such as blood which contains red protein \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. [1]
3. Some of the enzymes are \_\_\_\_\_\_\_\_\_\_\_\_\_, which catalyse the breakdown of \_\_\_\_\_\_ to fatty acids and glycerols. This is good for removing greasy stains. [1]

Pectinase

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ juices are extracted using pectinase. \_\_\_\_\_\_\_\_\_\_\_\_ is a substance which helps to stick plant cells together. Pectinase is widely used commercially both in extraction of juice from fruit, and in making the juice \_\_\_\_\_\_\_\_\_ rather than cloudy. [2]

**Investigation**

Investigate the following hypothesis.

* Biological washing powders remove egg stains better than non-biological washing powders.
1. What is your independent variable?

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1. What is your dependent variable? How and when will you measure it?

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1. What variable do you need to keep the same? How do you plan to do this?

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1. Are there any risks involved? What will you do to keep yourself and others safe?

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1. What do you predict your results will show? Why do you think this will happen?

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