

# Are enzymes the future of plastic recycling?

## Student workbook

In this lesson, you're going to think about your relationship with plastic, recycling and how new enzyme technology is playing a part in changing the recycling system. You will discover how enzymes work, and observe some in action.

### Part One

#### Plastic and recycling

1- Which natural resources is plastic derived from?

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2- In your own words, define recycling:

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3- Why does the current way we recycle plastic need to change or improve?

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# Part Two

## Enzymes

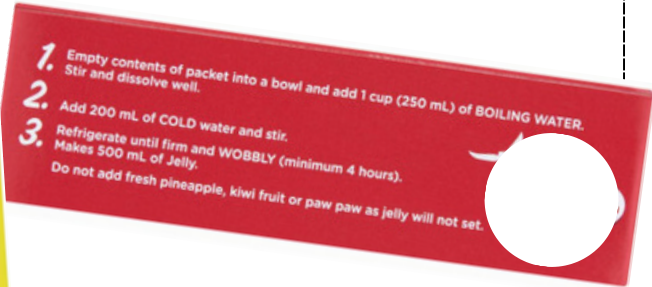
4- Define enzyme:

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5- Take a look at these jelly packet instructions. Which fruits do they ask you to leave out, and why?



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6- Research to find out which enzyme is in these fruits that stops the jelly from setting, and briefly explain why.

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## Part Three

### Enzyme experiment

We now know what enzymes are, so let's see them in action. In this experiment, you will be observing the effects of fruit on set jelly.

#### Equipment

- Three cups of set jelly, 0.5 to 1cm high
- Spoons
- Chopped fresh pineapple
- Chopped fresh strawberries, or other fruit\* (excluding kiwi fruit, papaya, mango or guava).
- *Optional, a camera*

#### Set up

1. Gather three cups of pre-set jelly. Label one cup A, one cup B and one cup C.
2. Gather pineapple and strawberries using different containers. Do not let the two fruits mix.
3. Use the next page to design your experiment and write your hypothesis.
4. When you have completed this, note your observations on page 5

## Method Design

Remember, to make this a fair test:

**C**ows

**M**oo

**S**oftly

We **C**hange one thing,  
Measure one thing and  
Keep everything else the **S**ame

What are you changing?

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What are you measuring?

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What are you keeping the same?

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## Hypothesis

Considering your learning about the enzyme, bromelain, and instructions on the packet of jelly, what is your hypothesis for this experiment?

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## Follow Up

Was your hypothesis correct? Justify your statement

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Re-watch the Sam Eco video. How do you think this technology will impact the future of plastic recycling?

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This lesson was developed by Planet Ark with support of Samsara Eco