

# ARTIS MICROPIA

## Pectinase

More juice thanks to microbes



Answers to the questions to the experiment.

**Question 1:** Which measuring cylinder contains more juice?

**Answer:** The measuring cylinder with the 'P' on it.

**Question 2:** What do you think caused the difference in the amount of juice?

**Answer:** The pectinase. Pectinase is an enzyme. Enzymes are proteins which speed up chemical reactions that take place inside or outside of cells. The pectinase enzyme speeds up the breakdown of pectin. Pectin is a substance found in the cell walls of fruit. Due to the breakdown of the cell wall, the cell contents, the juice, are released more quickly and easily. That is why more juice was produced by the pieces of apple to which you added the pectinase than the pieces to which you only added water.

**Question 3:** Why did you first have to cut the apple into small pieces?

**Answer:** Enzymes work better on a larger surface area. So the smaller the pieces of apple, the larger the total available surface area on which the enzyme can act.

**Question 4:** Why were the beakers placed in a water bath at a temperature of 40°C?

**Answer:** Enzymes work better at somewhat higher temperatures.

**Question 5:** Why would fungi want to break down fruit?

**Answer:** Fruit cells are packed with valuable nutrients. In order to access them, the fungus breaks down the fruit, slowly but surely, by demolishing the cell walls of the fruit cells with its pectinase enzyme.