

## Test artificial urine samples for the presence of protein and glucose

### Introduction

The urine of a patient has been tested and found to contain both protein and glucose. The presence of protein could indicate damage to the kidney and the presence of glucose is an indicator of diabetes. However, the urine samples have become mixed up in the lab. It is important that the person is identified so that they can be treated. There are four people that it could be. Test the four samples of urine to identify the owner of the original sample.

### Apparatus

3 test tubes  
 3 × 5 cm<sup>3</sup> syringe  
 1 × 10 cm<sup>3</sup> measuring cylinder  
 dropping bottle of biuret solution  
 dropping bottle of Benedict's reagent  
 4 × 30 cm<sup>3</sup> solutions of artificial urine – Samples A, B, C and D

#### Access to:

water bath set at 80°C

### Method

#### To test for glucose

1. Using a 10 cm<sup>3</sup> measuring cylinder, add 5 cm<sup>3</sup> of Sample **A** into a test tube
2. Add 5 cm<sup>3</sup> Benedict's reagent and heat in a water bath set at 80°C
3. Observe and record any colour change
4. Repeat steps 1-3 with Samples **B**, **C** and **D**

#### To test for protein

1. Using a 10 cm<sup>3</sup> measuring cylinder, add 5 cm<sup>3</sup> of Sample **A** into a test tube
2. Using a syringe, add 2 cm<sup>3</sup> of Biuret solution
3. Shake the test tube gently
4. Observe and record any colour change
5. Repeat steps 1-4 with Samples **B**, **C** and **D**

### Analysis

1. Conclude which sample is from the original patient.