# MODULE: *Photosynthesis and Respiration*

## Activity Sheet 1.4: Investigating respiration

Can you blow up a balloon with cellular respiration?

Yeast can respire, depending on environmental conditions. With warmth, liquid, oxygen and sugar, aerobic respiration occurs in yeast, and the process produces carbon dioxide.

You are going to use this information to demonstrate respiration and see if yeast can produce enough carbon dioxide to inflate a balloon.

### Practical activity

You will need:

- A balloon
- A narrow funnel
- 15ml dried yeast
- 5 ml sugar
- Measuring cylinder
- Warm water
- Tape measure, or string and a ruler.

What to do:

1. Place the bottom of a funnel into the opening of the balloon. You may need to stretch the opening of the balloon a little so that it fits.
2. Pour the yeast and the sugar into the balloon through the funnel. Then fill the measuring cylinder with 30ml of warm water and carefully pour it into the balloon.
3. Remove the funnel and tie a knot in the balloon to keep the water and yeast mixture inside.
4. Measure the circumference of the balloon.
5. Place the balloon in warm water and wait.
6. Measure the circumference of the balloon at regular intervals, and complete the table below:

| Time (minutes) | Circumference of balloon (cm) |
|---|---|
| 0 (start) | |
| | |
| | |
| | |
| | |
| | |

Now answer the following questions.

1. What are the reactants in the investigation?

2. What are the products?

3. What are the purposes of the warm water?

    a) at Stage 2, inside the balloon:

    b) at Stage 5, around the balloon:

4. What other conditions could you investigate? Explain your answer.

5. Why is respiration important for living organisms?