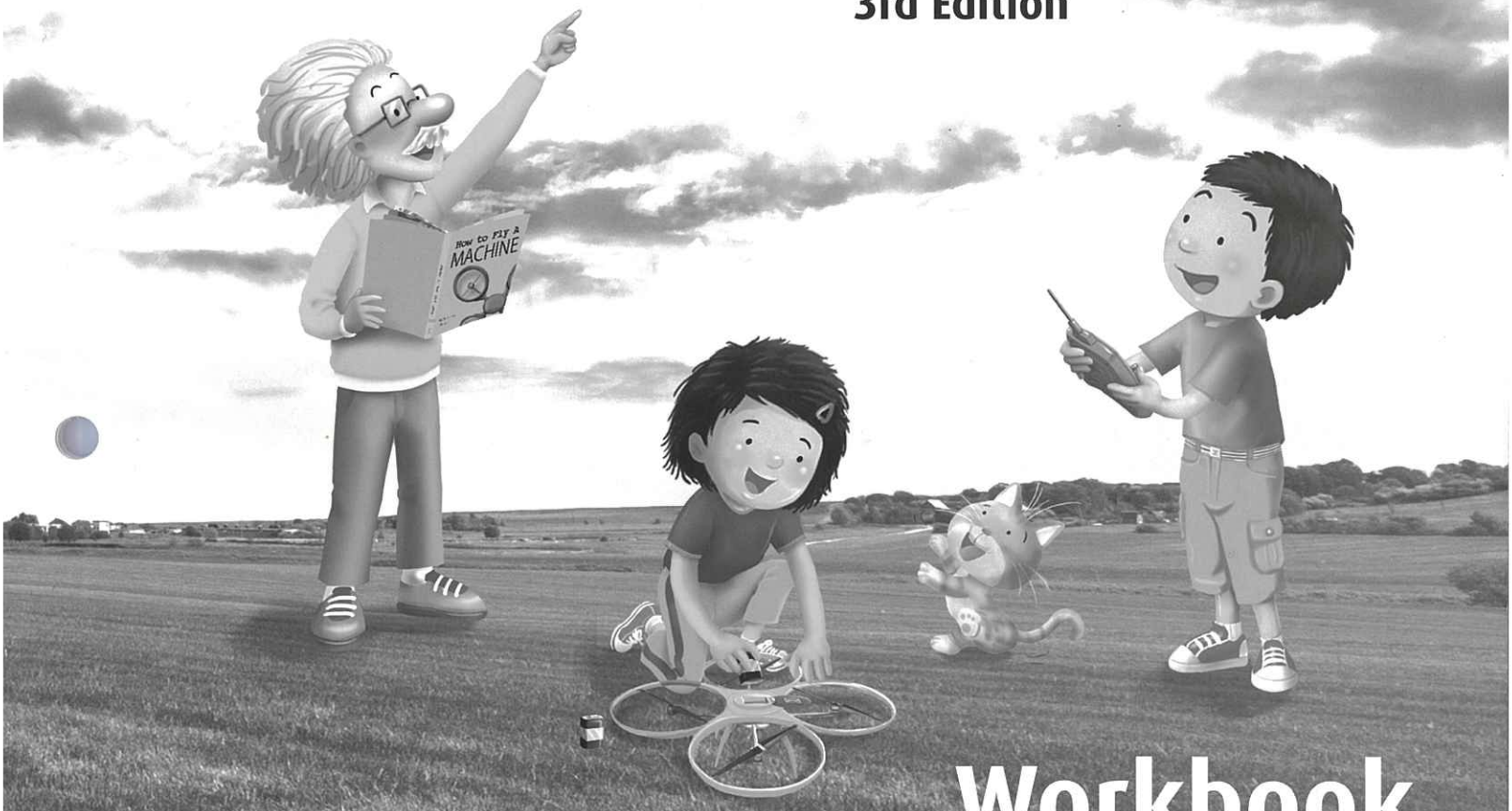
Marshall Cavendish Education

Systems

MY PALS ARE HERE!

Science 5&6

3rd Edition



Workbook

Name: _____ Class: _____

Lissy Phetiam

Koh Siew Luan • Dr Kwa Siew Hwa • Teo-Gwan Wai Lan

2 Air and the respiratory system

Activity 2.1 Fun with air!

Skills: Observing, inferring

Aim: To find out more about the different gases in air
Materials: Test tube, limewater, straw, mirror

Procedure

Work in small groups.

A. What happens to the limewater?

1. Fill half a test tube with limewater. Use a straw and gently blow into the limewater for one minute.

> ⚠ Do not drink the limewater. It is harmful.

> **Note** Limewater turns cloudy when there is carbon dioxide.

2. What change did you observe in the limewater?

_____

3. Based on our observations, we can conclude that there is _____ in the air we breathe out.

B. What do you see on the mirror?

1. Breathe out onto a mirror.
2. What did you see on the mirror?

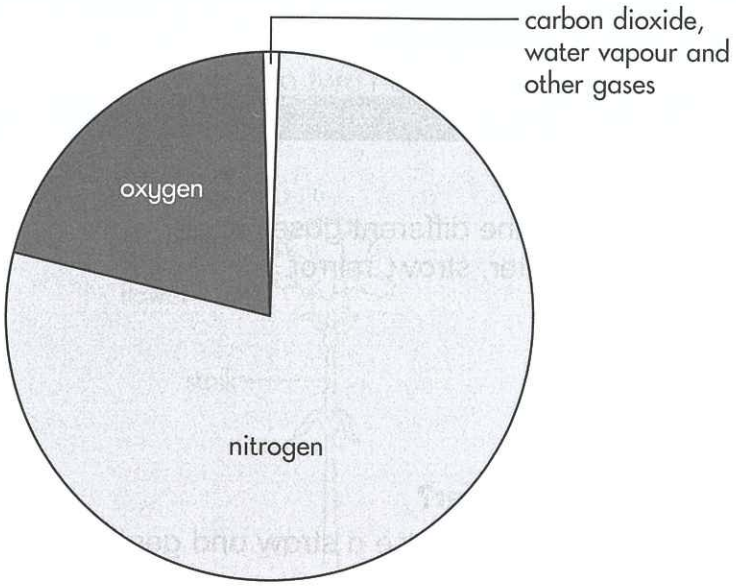
_____

3. Explain your observations.

When I breathed out, the _____ in my breath changed to _____ on the mirror.

C. What are the gases in the air?

1. Study the pie chart below. It shows the composition of air.



2. The different types of gases in air are present in _____ amounts.

3. Air consists mainly of _____.

Reflection

Air is a mixture of gases. Some of these gases are _____,

_____, _____ and nitrogen.

Activity 2.2 Act it out!

Skills: Communicating, analysing

Aims:
- To identify the parts of the organ systems in the human body
- To recognise the different organ systems that are involved when we perform different activities

What I have learnt:

The human body consists of different _____ working together.

If one system does not _____, the whole body cannot function properly.

Materials: Pen, writing paper, balloon, chair, biscuits

Procedure

1. Work in groups of five.
2. Review what you have learnt about the parts and functions of the various organ systems in your body. Complete the table below.

Organ system	Organs / Body parts

3. Each group member will take the role of one of the five organ systems in the table above.
4. One group member will choose an activity listed in the table on the next page to act out.
5. Take turns to share how the organ system you represent is involved in the chosen activity.
6. Record your answers in the table.
7. Repeat steps 4 to 6 until all the activities are completed.

Activity	Organ system(s) involved in the activity
Jogging on the spot	
Writing on a piece of paper	
Blowing a balloon	
Resting on a chair	
Eating a biscuit	

Reflection

1. An organ system consists of a group of organs or body parts working together to perform different _____.

2. Different organ _____ are required to carry out various activities.

Activity 2.3 Breathe easy!

Skills: Observing, inferring, analysing, comparing

Aim: To show how our lungs work when we breathe by using a model

What I have learnt:

The respiratory system consists of the _____, _____ and _____.

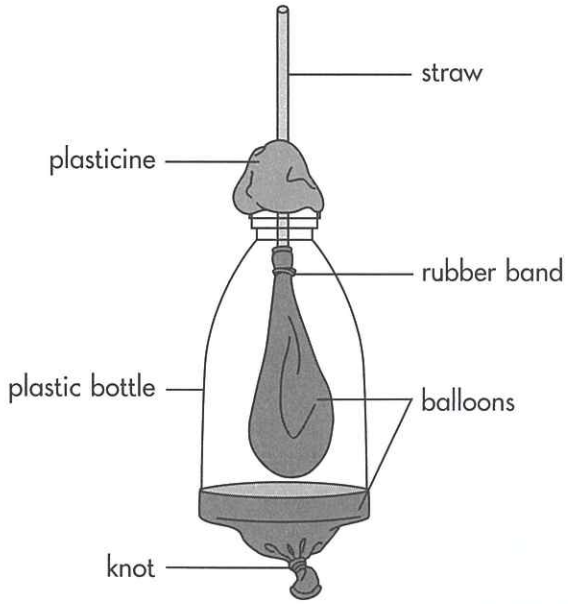
Materials: Scissors, plastic bottle, balloons, straw, rubber band, plasticine

Procedure

1. Work in small groups.
2. Cut away the bottom of a plastic bottle.

> ⚠ Be careful not to cut yourself when using a pair of scissors.

3. Tie a knot at the mouth of a balloon and cut across the widest part of the balloon.
4. Stretch the cut end of the balloon around the cut end of the plastic bottle.
5. Put a straw in the neck of another balloon and tie it with a rubber band.
6. Push the balloon and straw through the neck of the plastic bottle.
7. Seal the mouth of the plastic bottle with plasticine.



8. Gently pull and hold the knot on the balloon, then let go of the knot. Observe what happens.
9. What did you observe as you pulled and held the knot? Explain your observation.

_____

_____

10. What did you observe as you let go of the knot? Explain your observation.

_____

_____

Reflection

1. Which part of the human respiratory system does each part of the model represent?

Part of the model	Part of the human respiratory system
Straw	
Balloon inside the bottle	

2. Air enters the body through the _____. The air then passes through the _____ and into the _____.

Activity 2.4 The compare story

Skills: Observing, inferring, communicating, comparing

Aim: To compare how plants, fish and humans take in oxygen and give out carbon dioxide

What I have learnt:

There are _____ found on the surfaces of leaves.

In humans and fish, the respiratory system takes in _____ and gives out _____.

Materials: Beaker, hot water, freshly plucked leaf from a plant, forceps, fish in a plastic tank, specimen of a fish

Procedure

A. How does a plant take in or give out air?

1. Work in small groups.
2. Soak a leaf in a beaker of hot water.

> ⚠ Be careful when you are handling hot water. Do not touch the beaker or hot water.

3. Observe the surfaces of the leaf.
4. Record your observations.

_____

_____

B. How does a fish take in or give out air?

1. Work in small groups.
2. Look at a fish in a plastic tank. Observe its mouth and gill covers.
3. Record your observations.

_____

_____

4. Look at a specimen of a fish. Observe its gills.
5. Record your observations.

_____

C. How does a human breathe?

1. Work in pairs.
2. Place a finger below your nostrils. Take in a deep breath and then breathe out. Repeat this a few times and take note of the movement of air.
3. Record your observations.

_____

_____

D. Comparing a plant, fish and human

In the table below, compare in detail how a plant, a fish and a human take in oxygen and give out carbon dioxide.

Living thing	Plant	Fish	Human
Part(s) of the living thing that is/are involved in the exchange of gases			
How the exchange of gases takes place			

Reflection

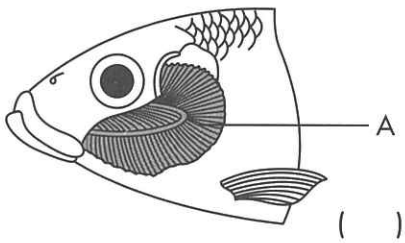
There are different parts that living things use to carry out the exchange of gases. Plants use _____ on the leaves, fish use their _____, and we use our nose, windpipe and _____ to take in _____ and give out carbon dioxide.

Exercise 2

Section A Multiple-choice question

Choose the most suitable answer and write its number (1, 2, 3 or 4) in the brackets provided.

1. The diagram on the right shows some parts of a fish. What takes place at part A?



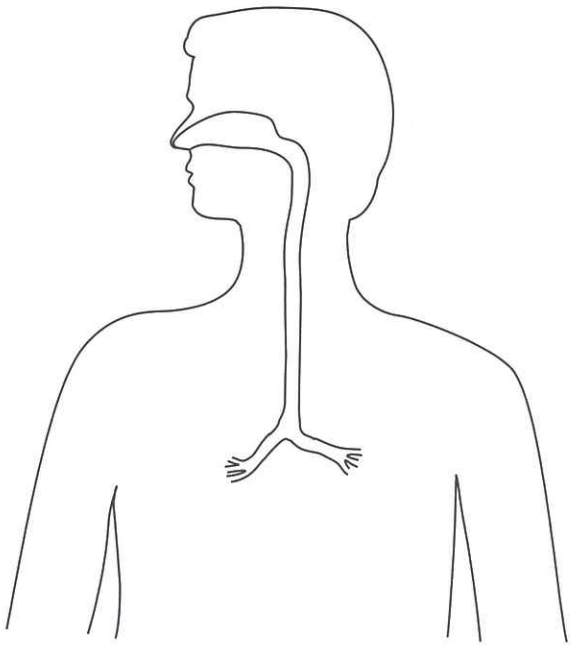
(1) Carbon dioxide is taken in and oxygen is given out.
(2) Oxygen is taken in and carbon dioxide is given out.
(3) Water is taken in and carbon dioxide is given out.
(4) Water is removed and carbon dioxide is taken in.

( )

Section B Structured question

Read the question carefully. Write your answers in the spaces provided.

2. a) On the diagram below, draw the missing part of the human respiratory system. Label all the parts of the respiratory system (including those that you have drawn).



b) In the diagram above, draw red arrows to show how air enters the respiratory system.
c) Draw blue arrows to show how air leaves the respiratory system.