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Science

Exploring the world around us

Main Summary

Primary 6

Term 1

Free Sample



- Air: Burning and Respiration
- The Human Body: Digestion and Circulation
- Plants and Food Chains
- Solutions and Metals

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Unit 1

Air: Burning and Respiration

- In this unit I learn the conditions for burning and the role of oxygen.
- I learn how the air changes after things burn.
- I learn how respiration happens and how the lungs work.



1 Conditions for Burning

2 Respiration

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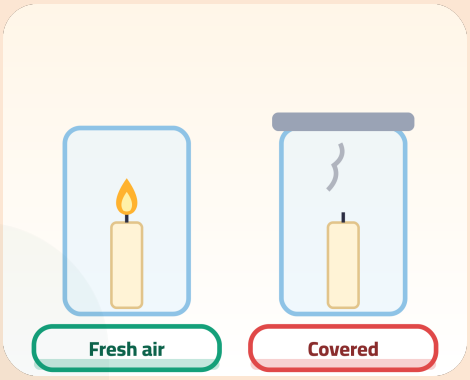
Chapter 1

Conditions for Burning

Book: p. 6-17

Today's goal

Explain what things need to keep burning, the role of oxygen, and how air changes after burning.



Lesson ideas

1. For things to keep burning, **fresh air** must constantly flow in and out.
2. A candle in a jar **without a lid** keeps burning, because fresh air comes in from the surroundings.
3. When we **cover the jar with a lid**, the flame goes out once the air inside is used up.
4. A candle burns best when there are gaps at **both the top and the bottom** of the jar, so air can move in and out.
5. Air is a mixture of gases: **nitrogen (about 78%)**, **oxygen (about 21%)**, carbon dioxide (about 0.04%) and other gases.
6. **Oxygen helps things burn**: a burning incense stick burns brightly in a jar of oxygen.

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Conditions for Burning

Book: p. 6-17

Contents

Lesson ideas (continued)

7. **Nitrogen and carbon dioxide do not help burning**: the flame goes out in them.
8. After burning, the amount of **oxygen decreases** (it is used) and the amount of **carbon dioxide increases** (it is produced).
9. **Clear limewater** is colorless; it turns **milky white** when it reacts with carbon dioxide, so we use it to test for carbon dioxide.
10. Tools to check gases: the **gas detector tube** (a chemical inside changes color; single-use only) and the **gas monitor** (shows the % of a gas in digital numbers).
11. Ancient Egyptians burned vegetable oil and animal fats for light, and craftspeople used a **bellows** to pump air into fire and melt gold.
12. Too much carbon dioxide causes **global warming**, so Egypt uses renewable energy such as the **Benban Solar power plant** in Aswan.

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Chapter 1

Conditions for Burning

Book: p. 6-17

Contents

New words

Burning Things reacting with oxygen and giving off heat and light.

Oxygen The gas in air that helps things burn (about 21%).

Nitrogen The main gas in air (about 78%); it does not help burning.

Carbon dioxide A gas produced by burning; it does not help burning.

Remember

Burning needs oxygen and fresh air. After burning, oxygen decreases and carbon dioxide increases.

In my life

When we put a cup over a candle, the flame goes out. Now I know fire needs fresh air!

Family activity

With an adult, cover a small candle with a glass cup and count how many seconds it keeps burning.

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Chapter 2

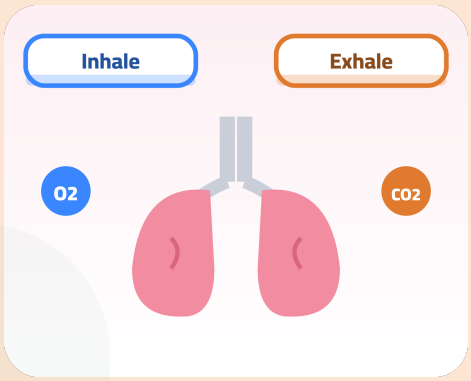
Respiration

Book: p. 18-23

Contents

Today's goal

Explain respiration, compare inhaled and exhaled air, and describe how the lungs work.



Lesson ideas

1. We inhale and exhale to **take in oxygen** from the air and **get rid of carbon dioxide**; this is called **breathing**.
2. **Respiration** is the process by which the body obtains oxygen and expels carbon dioxide.
3. Exhaled air turns **limewater milky white**, because it contains a lot of carbon dioxide.
4. Exhaled air still contains **oxygen**, but **less** than inhaled air, and it has **more carbon dioxide**.
5. The path of air: **nose and mouth → trachea (windpipe) → left and right lungs** in the chest.
6. **Gas exchange** takes place in the lungs, in the **alveoli**, through the blood vessels around them.

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Respiration

Book: p. 18-23

Contents

Lesson ideas (continued)

7. Oxygen moves from the air into the **blood**, and carbon dioxide moves from the blood into the air and is breathed out.
8. The blood carries oxygen to the whole body by the work of the **heart**.
9. **Fish** breathe with their **gills** and let out carbon dioxide from them.

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Chapter 2

Respiration

Book: p. 18-23

Contents

New words

Breathing Taking in oxygen and letting out carbon dioxide.

Respiration The body obtaining oxygen and expelling carbon dioxide.

Trachea The windpipe that carries air to the lungs.

Lungs The organs in the chest where gas exchange takes place.

Remember

In the lungs, oxygen enters the blood and carbon dioxide leaves the body with exhaled air.

In my life

When I run in the break, I breathe faster, because my body needs more oxygen.

Family activity

Put your hand on your chest and count your breaths in one minute before and after jumping.

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Unit 1

Unit Summary: Air: Burning and Respiration

Contents

1. Burning needs oxygen and fresh air.

2. After burning, oxygen decreases and carbon dioxide increases.

3. Clear limewater turns milky white with carbon dioxide.

4. Gas exchange happens in the alveoli of the lungs.

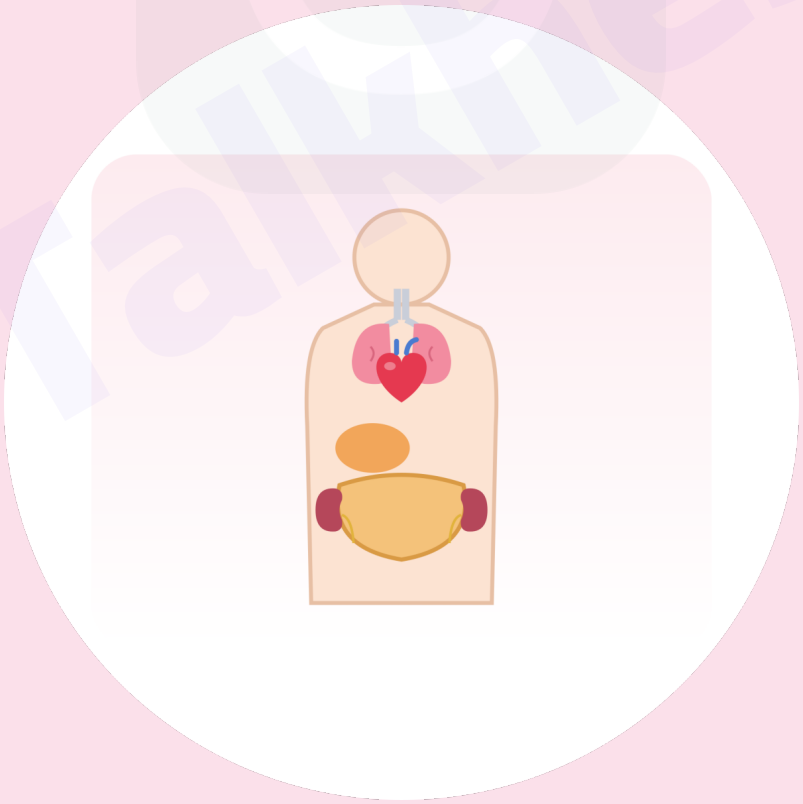
Next unit We learned about air and breathing. Next, we learn about digestion and blood circulation!

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Unit 2

The Human Body: Digestion and Circulation

- In this unit I follow the journey of food through the digestive tract.
- I learn the function of saliva and how nutrients are absorbed.
- I learn how the heart pumps blood and how the kidneys clean it.



1 Digestion

2 Blood Circulation and Excretion

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Chapter 3

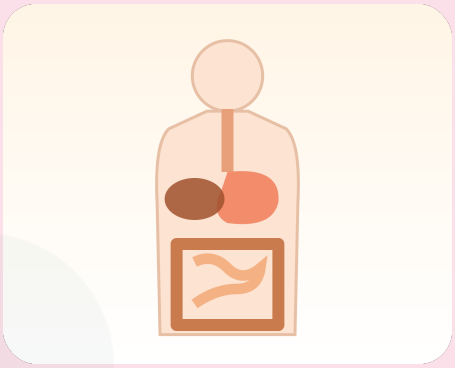
Digestion

Book: p. 24-33

Contents

Today's goal

Trace the path of food, explain the function of saliva, and describe how nutrients are absorbed.



Lesson ideas

1. **Digestion** is breaking down food with the teeth and changing it into a form that is easy to absorb.
2. Food passes in this order: **mouth → pharynx → esophagus (food pipe) → stomach → small intestine → large intestine**; undigested food leaves from the **anus**.
3. The path of food from the mouth to the anus is called the **digestive tract (canal)**.
4. **Saliva** breaks down the **starch** in food (like rice or bread) into another substance that is easy to digest; that is why bread tastes sweet when we chew it.
5. A liquid that digests food, like saliva, is called a **digestive juice**. Digestive juices are also made in the stomach and the small intestine.

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Digestion

Book: p. 24-33

Contents

Lesson ideas (continued)

6. Saliva experiment: **iodine** turns starch **dark blue**. Starch + water turns dark blue, but starch + saliva does not, because saliva broke the starch down.
7. We warm the test tubes in water at about **40 °C** to make the same temperature as inside the body.
8. Nutrients are mainly absorbed in the **small intestine** with water; more water is absorbed in the **large intestine**, and what is left leaves as **feces**.
9. **Villi** are small bumps inside the small intestine. They make its surface area larger, so it absorbs nutrients efficiently (like the loops on a towel).
10. Absorbed nutrients are carried by the **blood** and pass through the **liver** first. The liver stores some nutrients and sends them out when needed.
11. The liver also breaks down harmful substances and produces a digestive juice that helps digest fat.

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Chapter 3

Digestion

Book: p. 24-33

New words

Digestion Changing food into a form that is easy to absorb.

Digestive tract The path of food from the mouth to the anus.

Saliva A digestive juice in the mouth that breaks down starch.

Digestive juice A liquid in the body that breaks down food.

Remember

Food: mouth, pharynx, esophagus, stomach, small intestine, large intestine. Nutrients are absorbed by the villi.

In my life

When I chew bread slowly, it starts to taste sweet, because saliva is digesting the starch.

Family activity

With your family, chew a piece of bread for one minute and notice how its taste changes.

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Free Sample

Well done! You finished the free sample

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