HOW DO WE BREATHE?

Event Objective:
To identify the structures and organs that make up the respiratory system through a model and to explain the harm caused by bad habits like smoking. To explore the organization of Yeşilay (Green Crescent).

Transdisciplinary Theme:
Who We Are
Sharing the Planet

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INQUIRY CYCLE

TUNING IN

Let's arouse curiosity!

FINDING OUT

What Should Little Science People Discover?

SORTING OUT

Let's Start Discovering!, Scientific Explanation For The Curious, Video

GOING FURTHER

What else can we do?

MAKING CONCLUSIONS

Activity Pages, Exit Card

TAKING ACTION

Question Of The Day?

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HOW DO WE BREATHE?

Let's Spark Curiosity!

Before the activity, a poster of "March 1-7 Yeşilay Week" was hung in the classroom. The following questions are asked to the students:

- How do you feel when you go to the forest?
- Why is fresh air more abundant in areas with more trees, such as forests?

Then, the teacher says, "Do you know what is the most important thing in our lives? Breathing! Breathing is a treasure and a necessity for living. It is essential not only for survival but also for leading a healthier and happier life. We need clean air for healthy breathing. Today, increasing population and rapid consumption are decreasing the amount of clean air, which is affecting people's health. Let's explore what we can do together!
Materials are then taken out and examined for the activity.

Let's Start Exploring!

The activity video is watched by pausing. The content of the set is checked before proceeding with the activity. All the lid and package opening stages are done simultanously with the students.

Set Content

- [ ] Breathing child model
- [ ] Cup
- [ ] 2 water balloons
- [ ] 1 cut balloon
- [ ] Y-shaped tube
- [ ] Large rubber band
- [ ] 2 gaskets
- [ ] Dough adhesive (putty glue)
- [ ] "Clean Air!" activity sheet

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How Do We Do It?

1. Take the Y-shaped tube and attach small balloons with gaskets to its two short ends.
2. Insert the Y-shaped tube through the hole in the cup.
3. Push it in until it reaches the middle of the tube. Then wrap modeling adhesive (putty) around the Y-shaped tube and seal the area around the hole.
4. Take the cut balloon and attach it to the bottom of the cup.
5. Secure the balloon by placing a rubber band around it.
6. Carefully place the breathing child model.
7. Pull the balloon at the bottom to make the balloons representing the lungs inflate.

What Should Future Science People Discover?

Students are directed the following questions:

- How does the air we breathe enter our body?
- What is the effect of bad habits on our health?

How Do We Breathe?

Breathing is one of the common characteristics of living beings. All living creatures breathe. Humans perform oxygen-based respiration.

Inside our lungs, there are tiny air sacs called 'alveoli.' Alveoli help oxygen pass into the blood, which then carries oxygen throughout the body, providing us with energy.

However, don't forget that when we breathe, we also produce carbon dioxide. This carbon dioxide, produced during our body's work, is expelled through the alveoli via the blood. This way, we're ready to take in fresh air again.

Through the respiratory system, we continuously breathe and maintain our energy. So, every breath in and out is part of the amazing functioning of our body.

Breathing clean air and keeping our respiratory system healthy is essential for growing and playing. Therefore, let's not forget to take in clean air and take care of our respiratory system!

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How Do Our Lungs and Diaphragm Move When We Breathe?

In our experiment, the two small balloons represent our lungs, and the large balloon represents our diaphragm.

First, let's take a deep breath! Inflate your chest, then slowly release it.

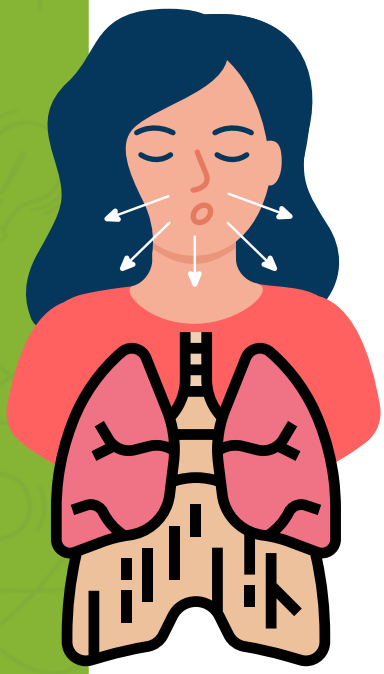
. This is how our body begins to breathe.

During inhalation, both the diaphragm and the lungs work together. The diaphragm is like a large muscle beneath our abdominal cavity. As we inhale, the diaphragm contracts and expands our abdominal cavity.

This movement affects our lungs too. Our lungs are like two large balloons in our chest cavity. When the diaphragm contracts, our lungs expand and draw in air.

The diaphragm contracts, the lungs expand, and fresh air fills our body. During this inhalation moment, our body fills with oxygen, giving us energy.

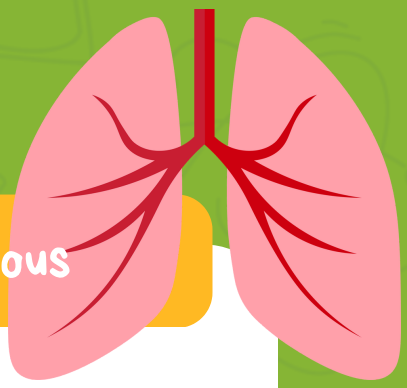
Now it's time to exhale! During exhalation, the diaphragm and lungs do the opposite. The diaphragm relaxes, the lungs contract, and the air inside is released out of the body.



Yeşilay: Working for a Healthy Life

Yeşilay (The Green Crescent) is a charitable organization. It carries out various activities to help people overcome many addictions found in society. Through these activities, Yeşilay aims to raise awareness and ensure that people are informed about harmful habits.

Using substances like cigarettes, alcohol, drugs, etc., harms our health and prevents our body's organs from performing their functions. Smokers' lungs start to clog over time, leading to a persistent cough and deteriorating quality of life. That's why we should stay away from these harmful substances and warn others who use them about the dangers to their health risks.



Scientific Explanation For The Curious

Ask the students the following question:

- After you take a breath, where do you think it goes inside your body?

Various systems in the body play a role in delivering the oxygen required for respiration to the cells and removing carbon dioxide, the waste of respiration, from the body. The respiratory and circulatory systems work together in this process.
The organs responsible for respiration are the nose, pharynx, windpipe, and lungs.
When we breathe through our nose, air enters our body. (We also use our nose to expel air.) The inside of the nose is covered with hairs and mucus. The mucus keeps the inside moist, and the hairs trap microbes, preventing them from entering our body.
The pharynx directs the incoming air to the correct location, similar to how a courier delivers a package to the right address. The pharynx then directs the air to the windpipe.
The windpipe carries the air to the lungs.
We have two lungs in our body, one on the right and one on the left. Inside the lungs are structures called "alveoli." The alveoli contain numerous capillary blood vessels. These capillaries distribute the oxygen that enters our body to all our structures and organs.

What Did We Discover?

"Today, we discovered that with every time we inhale and exhale, our bodies fill with energy, taking in fresh air and expelling used air. We also learned the importance of Yeşilay. Remember, breathing healthy air is essential for our body to function well. Now, let's all take a deep breath together and give our bodies the energy they need. Wonderful!" Afterward, the "Clean Air!" activity sheet is completed, and students are asked how they felt during the activity.

What Else Can We Do?

Dear Teacher,
With your mini scientists, you have learned about the structures and organs that make up the respiratory system. You can now perform an activity to learn about the capacity of our lungs

Breath Test

Materials (Balloon)

- Give each student a balloon.
- Have them breathe in through their nose and blow into the balloon in one breath.

It is important to blow in one breath because the size of the balloon will indicate lung capacity. The balloon's size will vary depending on age, gender, and whether the student smokes or not.
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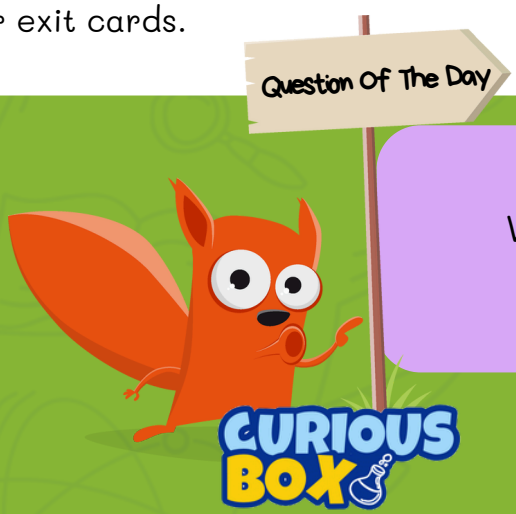
Exit Card

"The teacher concludes by saying:
"Today, we discovered that with every breath we take, our body fills with energy, taking in fresh air and expelling used air. We also learned the importance of the Yeşilay association. Remember, breathing healthy air is essential for our body to function well. Now, let's all take a deep breath together and give our bodies the energy they need. Wonderful!"
The students are then asked to complete the "Clean Air!" activity sheet and create their exit cards.



Which city in Turkey has the cleanest air?

Exit Card

Write three things you learned today

Write down two things you want to learn in the future!

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