

SUBJECT BRIEF

课程简介



03 Science Explorer

03 科学探索家

Our upper-level science program focuses on developing scientific thinking skills, practical skills, and scientific literacy. This course is designed to enhance students' ability to understand and engage with science in various contexts. Students learn to communicate complex scientific concepts both verbally and in writing, preparing them for further study.

科学探险家是一套面向小学生的科学进阶课程，全面培养学生的科学思考能力，动手实验能力和整体科学素养。如果说小小科学家和少儿科学家是启蒙，那么科学探险家则是对学生的科学知识和应用能力提出了更高要求。我们的学员不仅仅了解科学，喜爱科学，而且“能说会写”，从而为更高阶段的科学学习奠定了“科学探究能力”和“学术语言”的基础。

01 Junior Inventor

01 小小发明家

Our inquiry-based early years program is designed for curious and passionate kids. It aims to nurture their natural curiosity about the world and lay the foundations for scientific thinking. This program supports long-term science learning by introducing fundamental concepts in a fun and engaging way.

小小发明家是由爱思教研团队独立开发的科学启蒙课程。全套课程采用探究性教学方法，引导学生独立思考，动手实验。小小发明家作为一套“思维为主，知识为辅”的课程，小小发明家为孩子们创造了一个“敢想敢做”的空间。科学没有对错，只要敢想，只要敢做，每个小孩都是科学家。

02 Young Scientist

02 少儿科学家

The Young Scientist program is designed for lower primary students, aiming to develop their scientific thinking, hands-on experimental skills, and overall scientific literacy. Students learn to observe, ask questions, experiment, and express their findings, building curiosity and confidence in science.

少儿科学家课程是专为小学低年级学生设计的科学课程，旨在培养学生的科学思维能力、动手实验能力和整体科学素养。学生学习进行观察、提出问题、动手实验并表达自己的发现，培养对科学的好奇心和自信心。

JUNIOR INVENTOR COURSE

小小发明家课程

Get ready to spark your curiosity and unleash your creativity! Our Junior Inventor program is an exciting hands-on course designed to introduce young learners to the fascinating worlds of Chemistry, Physics, Biology, and more. Through engaging experiments, fun activities, and real-world applications, students will not only explore important scientific concepts but also develop critical thinking, problem-solving, and teamwork skills.

From mixing colorful chemical reactions, exploring the laws of motion, and discovering the wonders of living organisms to diving into the basics of engineering and innovation, this course is all about learning by doing. Whether it's building models, conducting experiments, or designing mini-projects, our Junior Inventors will gain a deeper understanding of how science shapes the world around us.

Join us for a journey full of discovery, creativity, and invention — where science comes alive and every child becomes an inventor!

准备好点燃你的好奇心，释放你的创造力吧！我们的 小小发明家课程 是一门令人兴奋的动手实践课程，专为年轻学习者设计，带他们走进奇妙的化学、物理、生物等科学世界。通过有趣的实验、趣味活动和真实场景的应用，孩子们不仅能探索重要的科学概念，还能培养批判性思维、解决问题的能力以及团队合作精神。

从调配绚丽的化学反应、探索运动定律，到发现生物世界的奥秘，再到初步了解工程和创新，这门课程真正实现了在“玩”中学。无论是搭建模型、进行实验，还是设计小项目，我们的小小发明家们都将更深入地理解科学如何塑造我们周围的世界。

加入我们吧，开启一段充满探索、创造和发明的旅程——在这里，科学变得鲜活，每个孩子都能成为发明家！

FIELDS OF JUNIOR INVENTOR



Chemistry

化学

走进神奇的化学世界！

In this section, students will explore the basics of chemistry by mixing safe household substances, creating colorful reactions, making slime, and understanding states of matter. They'll learn how substances interact and why chemistry is all around us, from cooking to cleaning to nature.

在这一单元里，孩子们将做一些有趣的小实验：把安全的家用材料混合在一起、观察五彩缤纷的变化、亲手做“黏黏史莱姆”，还会认识固体、液体和气体。大家会发现，不同的东西相遇会发生怎样的变化，并明白化学就在我们身边——做饭、打扫、甚至大自然里，到处都有化学的魔法！



Biology

生物

探索生物的奇妙世界！

In the biology section, students will investigate plants, animals, the human body, and ecosystems. They may grow their own mini-gardens, examine insect life cycles, or explore how our senses work. Through observation and experiments, they'll understand the diversity and interconnectedness of life.

在生物单元里，孩子们将认识植物、动物、人体和它们生活的环境。大家可以自己种小花园，观察小昆虫从卵到成虫的成长，还会探索我们的五官是怎样帮我们感知世界。通过观察和动手实验，孩子们会发现生命世界丰富多彩，所有生命之间都紧密相连！



Physics

物理

揭开自然界的奥秘！

From building simple machines to experimenting with gravity, motion, and energy, students will uncover the fundamental principles of physics. Activities may include making catapults, testing parachutes, or exploring magnets and circuits — all while learning how physics powers the world around them.

孩子们将通过搭建简单机械、探索重力、运动和能量，了解物理的基本原理。活动包括制作小投石器、测试降落伞、体验磁铁和电路等，帮助他们认识物理如何驱动世界。



Others

其他的

设计、发明、解决问题！

Here, we combine creativity with practical skills. Students will tackle engineering challenges, design simple inventions, and explore topics like renewable energy, environmental science, and robotics. This section encourages innovation, teamwork, and the joy of bringing ideas to life.

这一部分结合了创意和实践，孩子们将面对工程挑战、设计简单发明，并探索可再生能源、环境科学和基础机器人等主题。这里强调创新、团队合作，以及把想法变成现实的乐趣。

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7	Bubble Magic Makers
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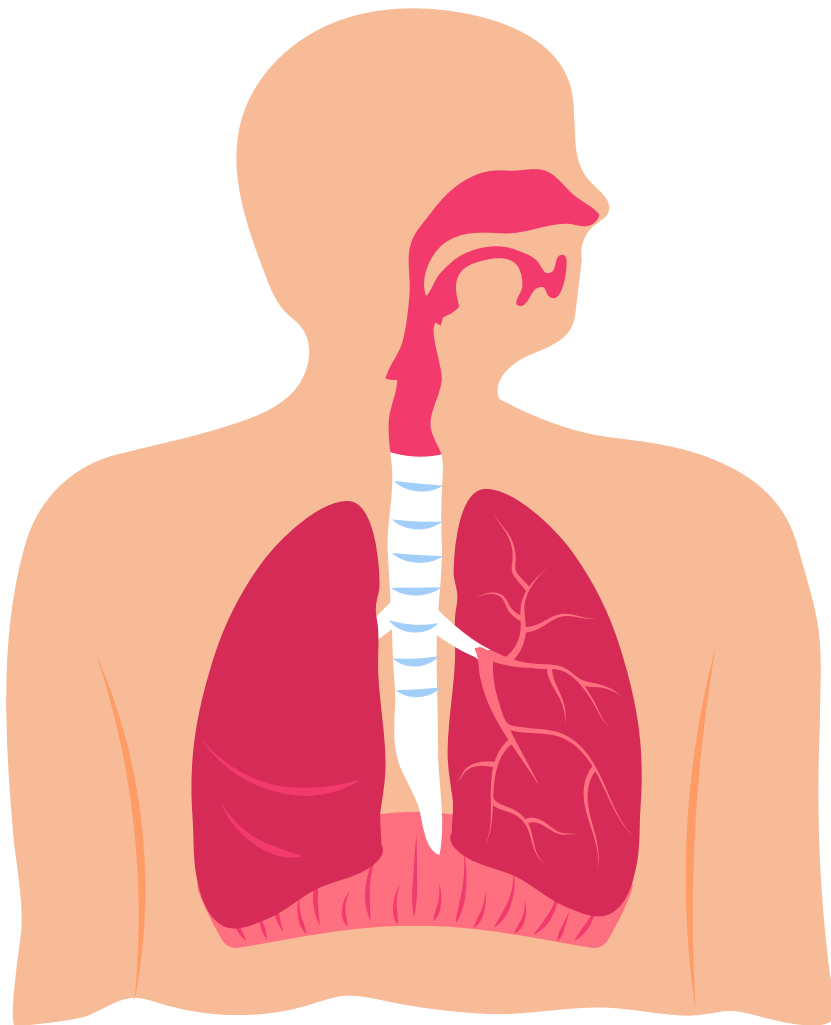


Name: _____



Breath Exploration

Take a moment to look at the picture.



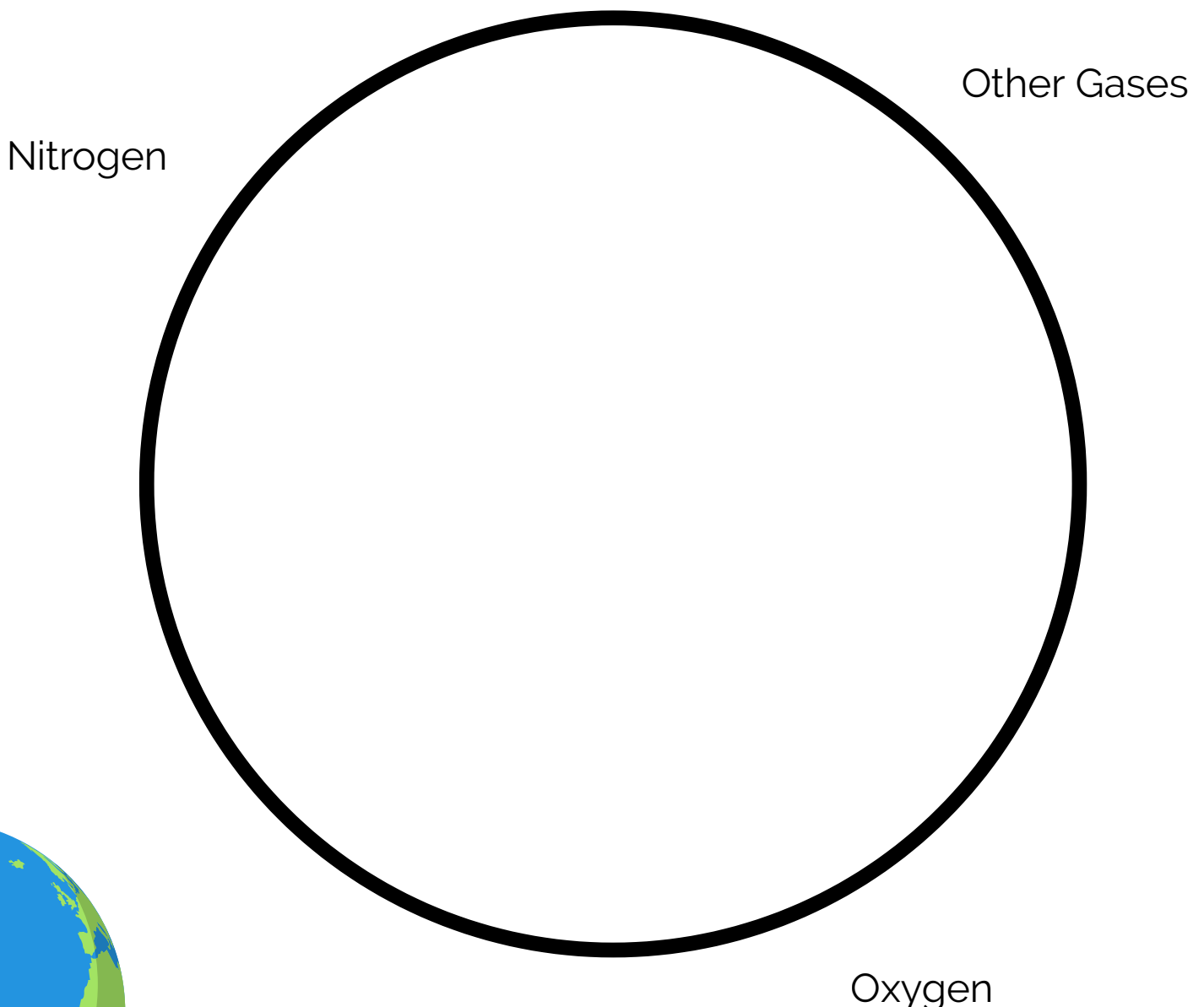
Why do living things die if they cannot respire?



COMPOSITION OF AIR

The layer that surrounds our planet and helps to protect us. It is made up of different gases like nitrogen, oxygen, and carbon dioxide. The atmosphere also helps to control the temperature on Earth and provides us with fresh air to breathe.

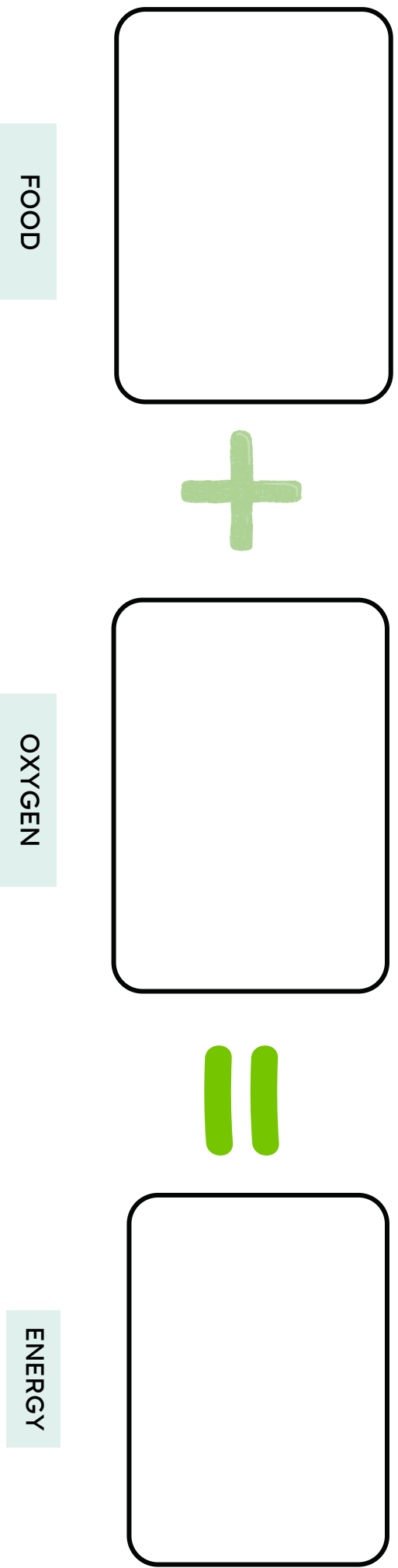
1. Draw the pie chart to show the different types of gases in the air we breathe
2. Draw pictures to show how we use different gases in our daily life.



Purpose of Respiration

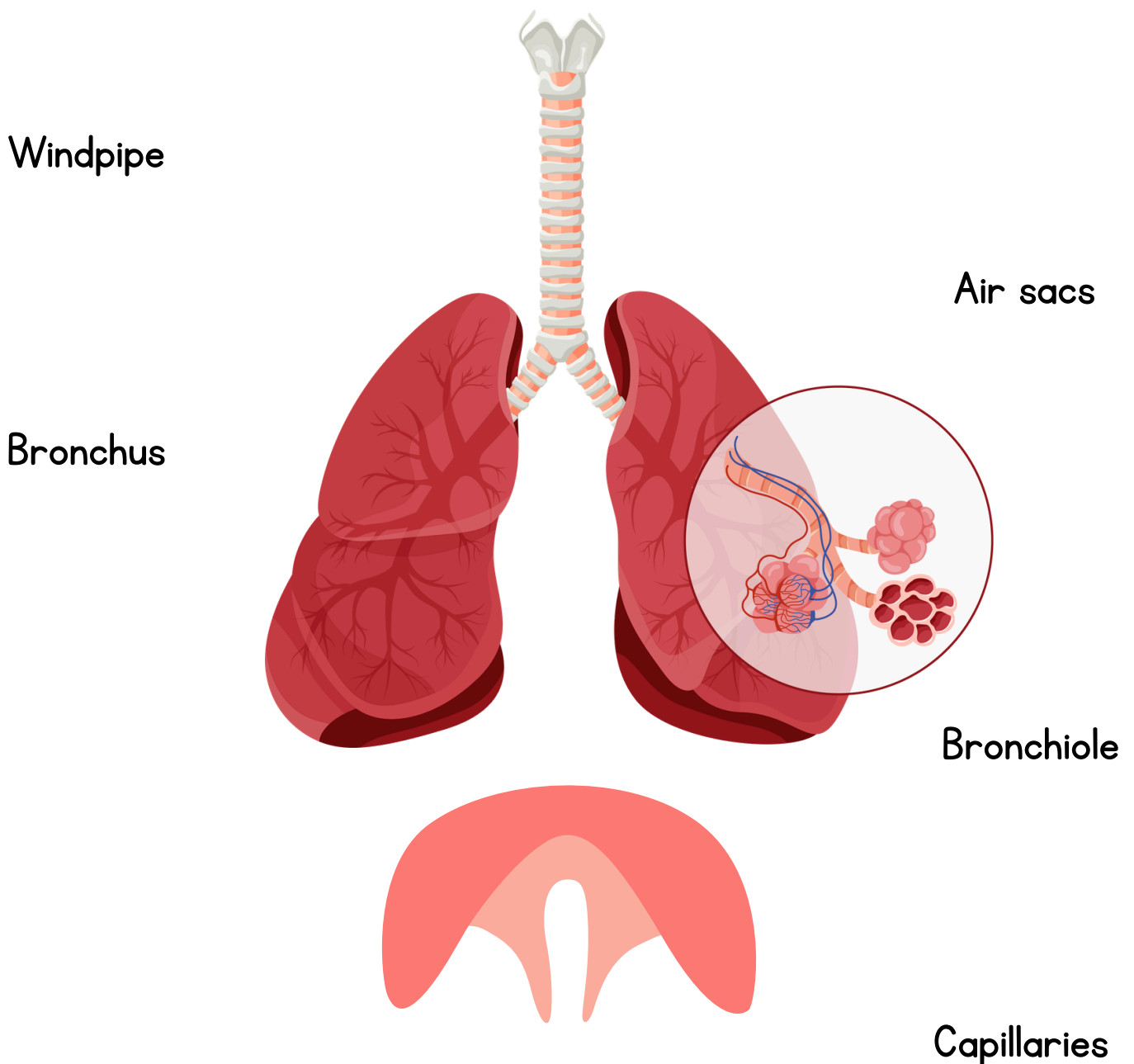
Respiration is how your body gets energy from the food you eat.

When you eat things like rice, bread, or fruit, your body breaks them down into small pieces (like sugar). Then, inside your body, these pieces mix with oxygen (from the air you breathe) and make energy.



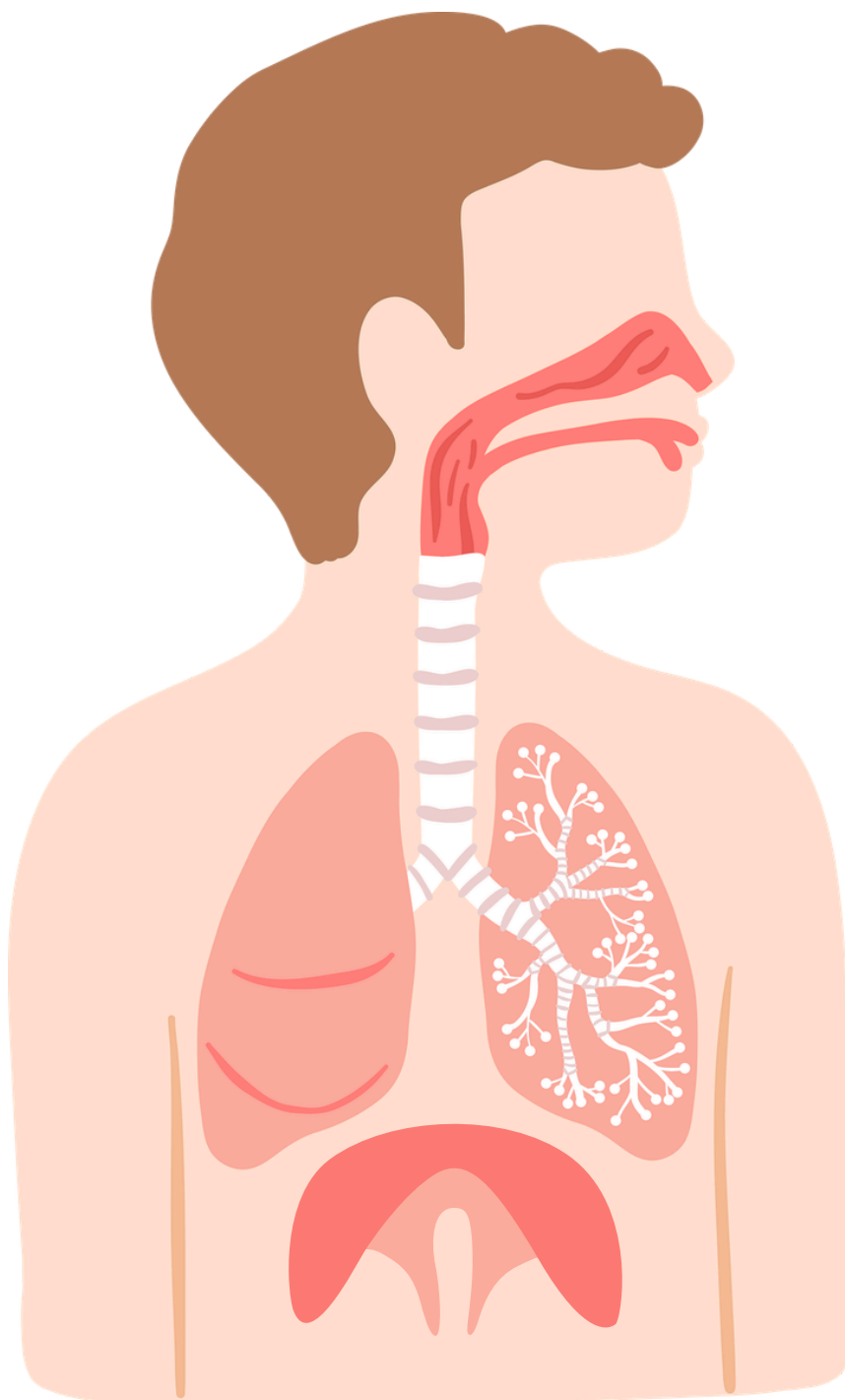
Label the Lungs

Below is a diagram of the human lungs.
Match labels to the different parts of the lungs.



Respiratory System

Draw the arrow on gases in the air to show which gases we inhale and exhale.



OXYGEN



CARBON
DIOXIDE

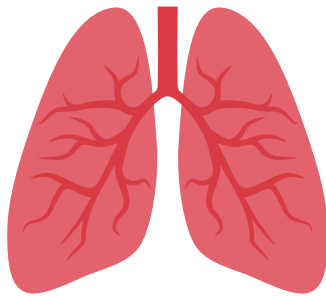
Draw the arrows to show contracts and relaxes in the diaphragms.

Contracts

Relaxes

Transportation Route

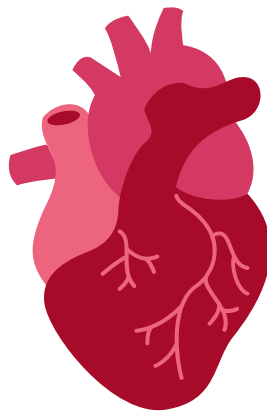
Draw how gases move through the body during respiration.



CARBON
DIOXIDE



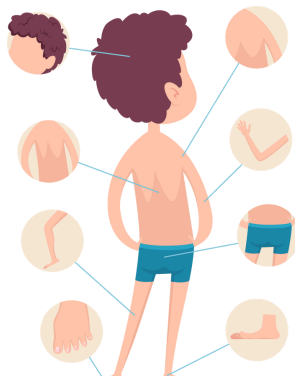
OXYGEN



CARBON
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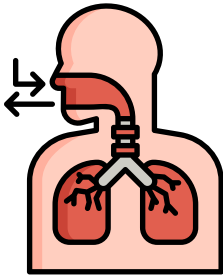


OXYGEN



Breathing vs Respiration

Breathing



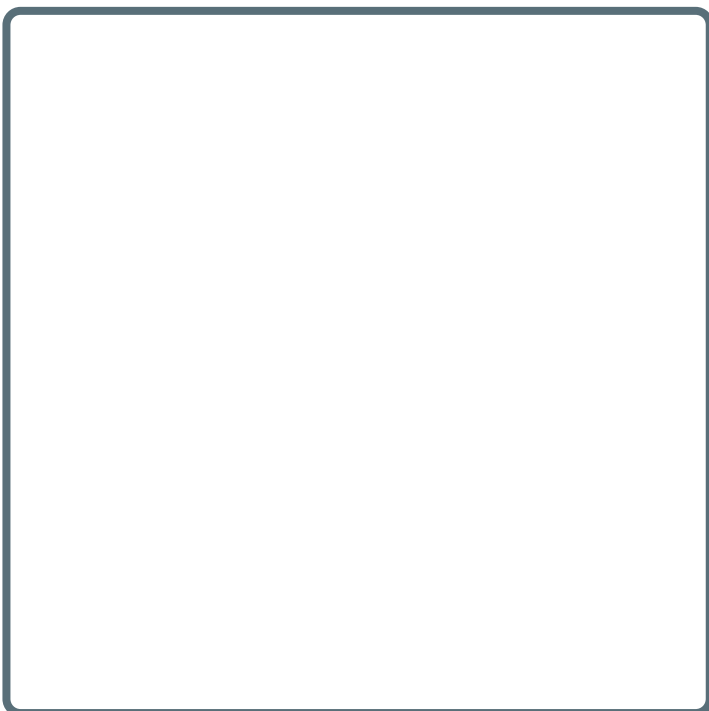
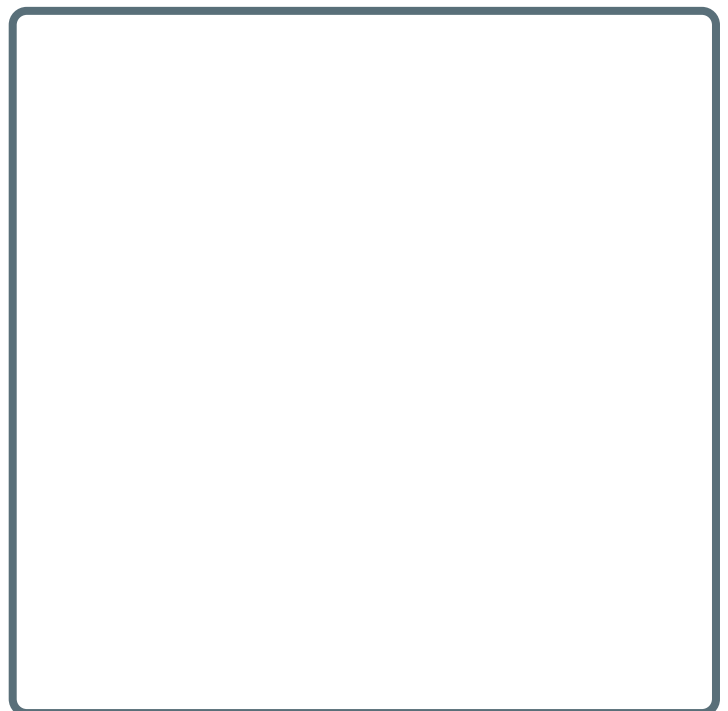
Respiration



Breathing is when you take in air and let it out, while respiration is when your body uses the air to make energy.



Can you draw breathing and respiration?
Draw your items below.

A large empty rectangular box with a dark blue border, intended for drawing a diagram of breathing.A large empty rectangular box with a dark blue border, intended for drawing a diagram of respiration.

Homework

Breathing vs Respiration

Draw breathing and respiration.

Breathing

Respiration

Bloom
EduHub 布谷教研

This image shows a single page of primary-ruled notebook paper. It features a solid horizontal line at the top, followed by multiple rows of horizontal dashed lines for writing. The paper is otherwise blank, with no text or markings.This is a blank, cream-colored page, likely a flyleaf or endpaper. It features a yellow sticky note in the top-left corner and a small black corner tab at the bottom-left. The page is otherwise empty of text or illustrations.This image shows a single sheet of white paper with horizontal blue lines. A small purple rectangular tab is attached to the top-left edge. The paper is set against a background of green grass and a blue sky with white clouds.This image shows a single sheet of white paper with horizontal blue lines. A yellow rectangular sticky note is attached to the top-left corner of the page. The paper has rounded corners on the right side and a small tab at the bottom-left corner. There is no handwriting or other markings on the paper.



Name: _____



Boat Buoyancy Test

Take a moment to look at the picture.
What do you think makes the boat float?



What material worked best to
keep the boat afloat?

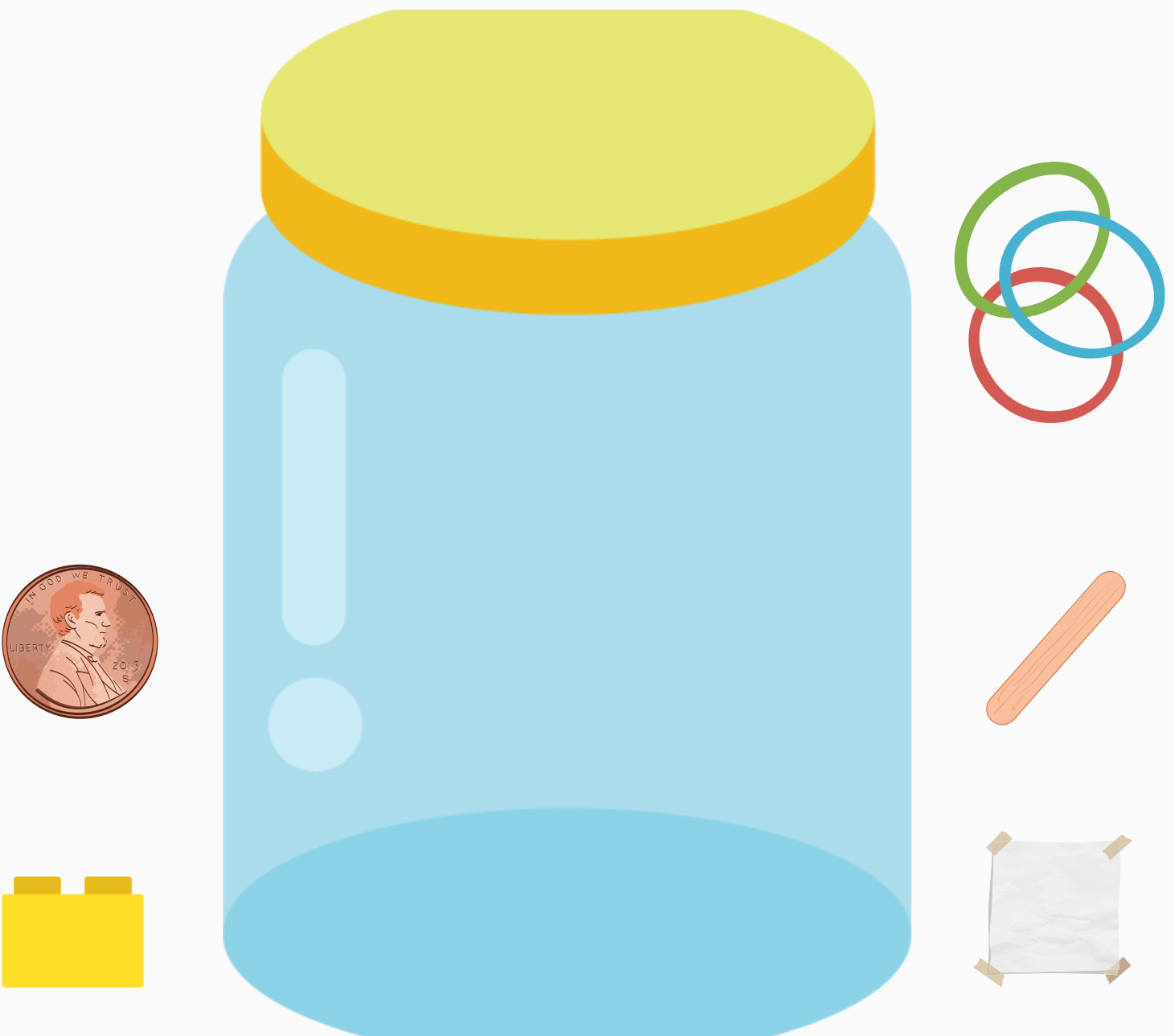


FLOAT OR SINK

Objective: To test different objects to see whether they float or sink in water.

WATER JAR TEST

Draw the items which float and sink.



To test different objects to see what their mass is.

Draw the pictures in order from lightest to heaviest. Put the lightest at the bottom and the heaviest at the top.

↑

MASS

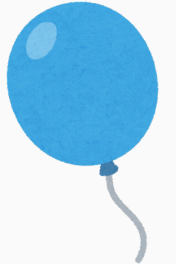
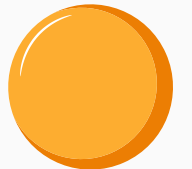
↓

Most

Mass

Least

Mass

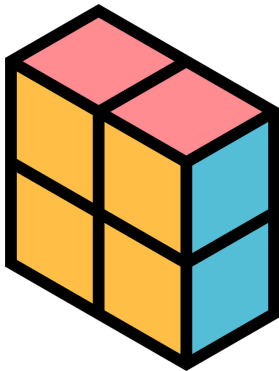





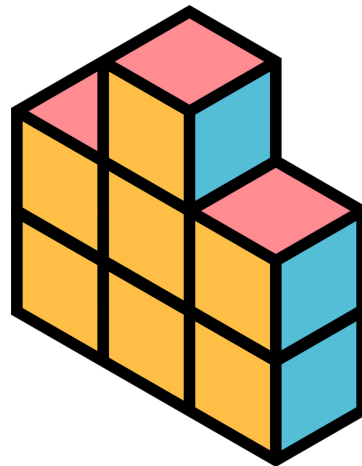


VOLUME

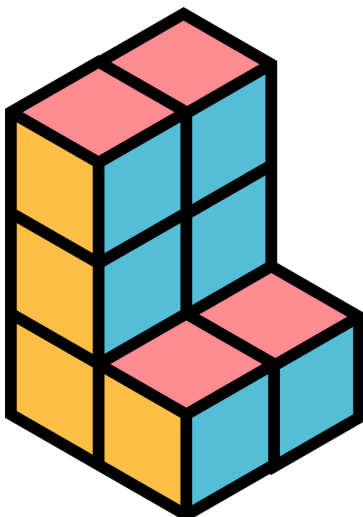
Look at each figure below. Count the number of unit cubes that make up each figure.



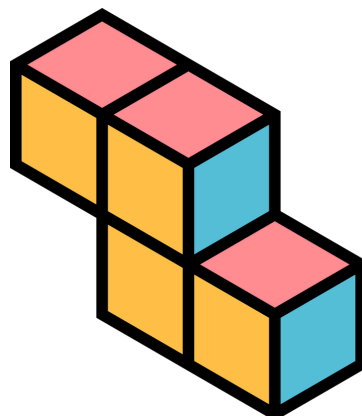
cubes



cubes



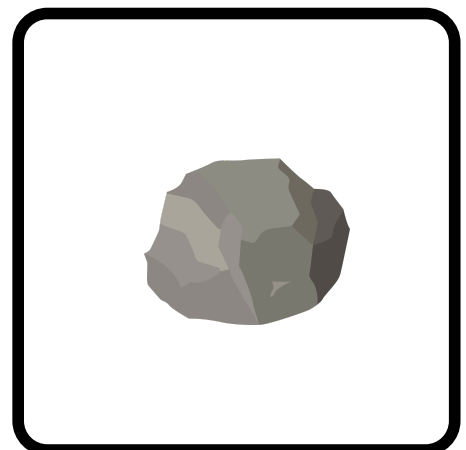
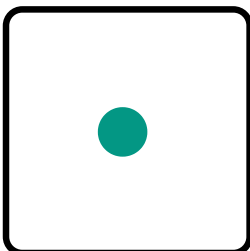
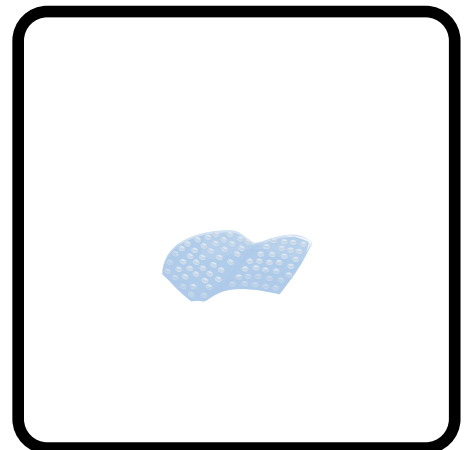
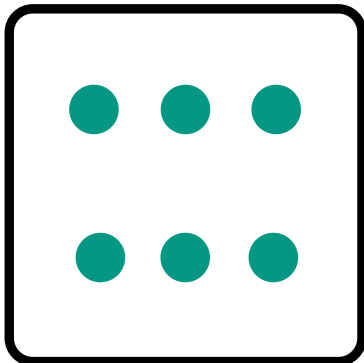
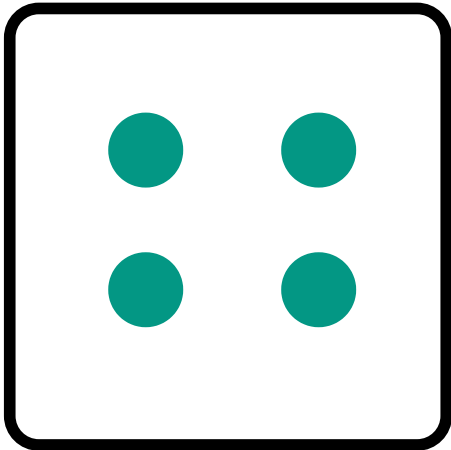
cubes



cubes

DENSITY

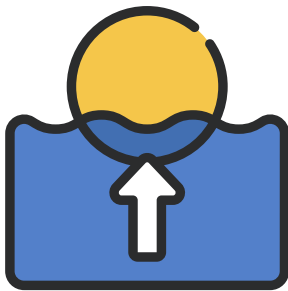
Look at each picture below. The dots show how heavy it is (mass), and the size of the shape shows how big it is (volume).
Match each picture to the correct density.



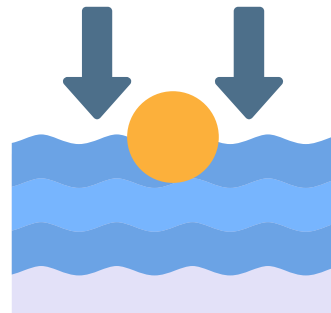
Density is how heavy or light something is for its size.

Float or Sink?

Bouyancy



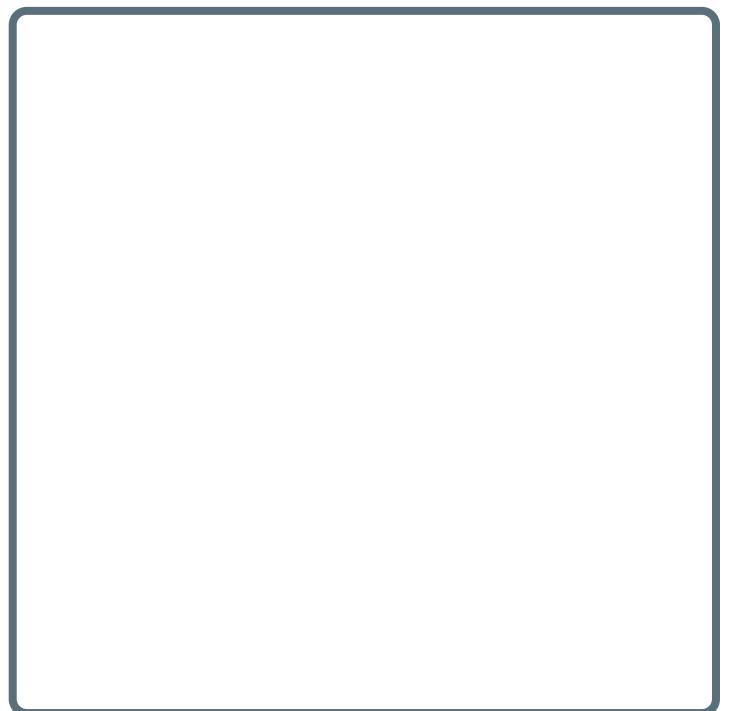
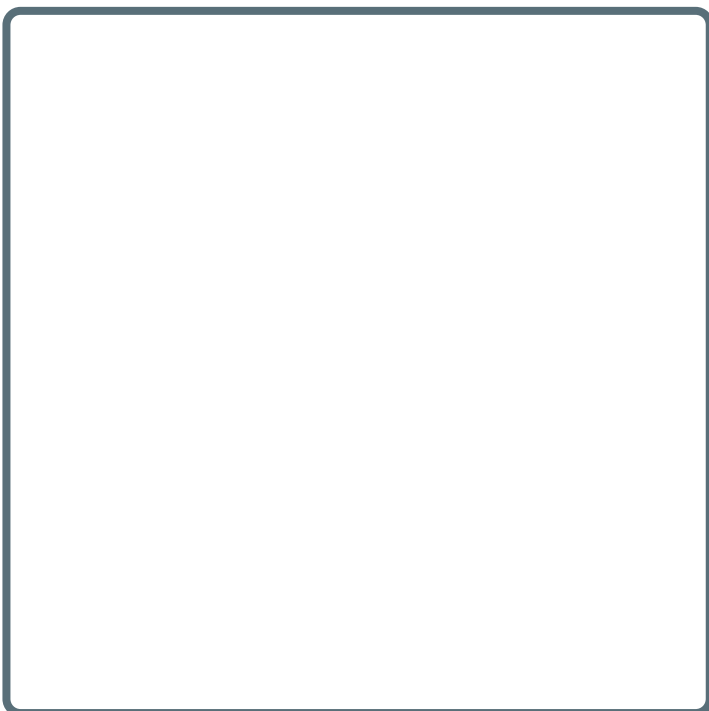
Weight



Buoyancy is the force that pushes things up in water, and weight is how heavy something is because of gravity pulling it down.



Can you think of times when we see buoyancy & weight? Draw them below.



Record

Build a Boat

Challenge:

Using only the materials provided, construct a functioning boat. As you build, explore how the different forces work together to make the boat float.

Test Result:

Draw your boat.

Homework

Float vs Sink

Draw items which float and sink.

FLOAT

LIGHT PER VOLUME

SINK

HEAVY PER UNIT VOLUME

Notes

[illegible]This image shows a blank, cream-colored page, likely a flyleaf or endpaper from an old book. A yellow sticky note is attached to the top left corner. The page has a slightly aged appearance with some minor discoloration and a small black corner tab at the bottom left.This image shows a single sheet of white paper with horizontal blue lines. A small purple rectangular tab is attached to the top-left edge. The paper is set against a background of green grass and a brown ground area.[illegible]



Name: _____



Umbrella Designers' Workshop

Take a moment to look at the picture.
What material is the top of an umbrella usually made of?



What would happen if we
used a paper umbrella in the rain?



Waterproof Inventions

Circle the objects that are waterproof.



glass bottle



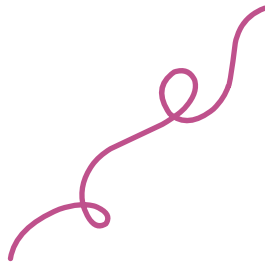
plastic spoon



cardboard



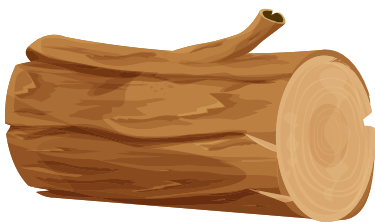
rubber boots



strings



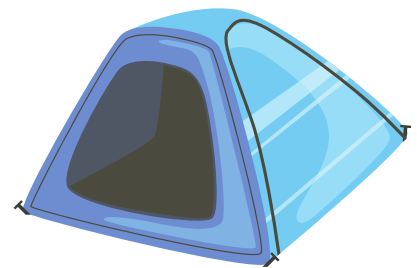
can



wood



foam



Tarpaulin

Cool Uses of Wax

Wax isn't just useful for making candles – it has many practical uses in our everyday lives too! Here are some ways wax is used:



Waterproof

Polishing

Food
Preservation

Others

Solidification Process

Put in the right order.



☐ After heating, stop the heat source and leave the wax to cool down.



☐ As it cools, the wax changes from a liquid back to a solid.



☐ The wax is first heated and turns into a liquid.



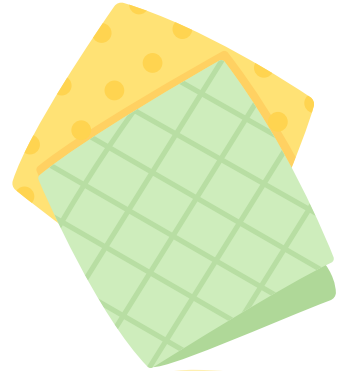
☐ Wax becomes solid again — this is solidification

Is It Waterproof?

Waterproof



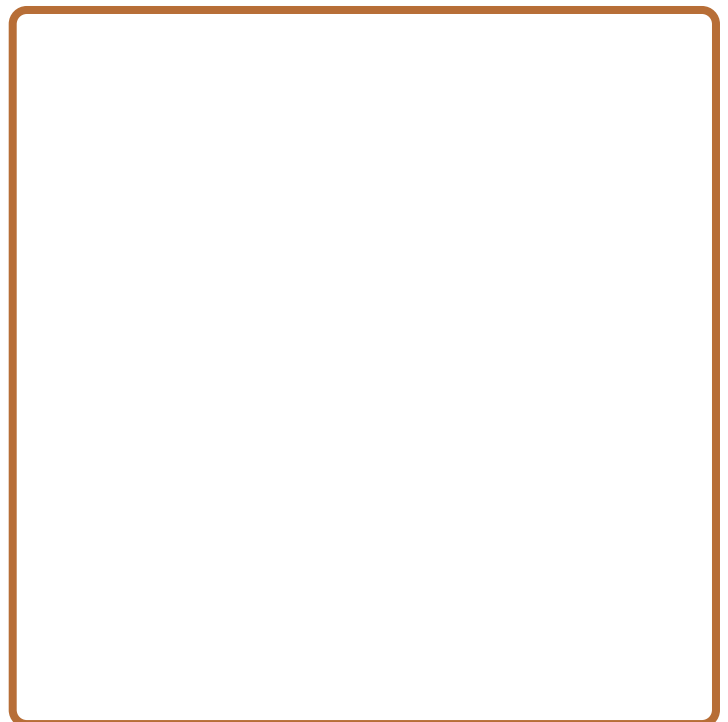
Absorbent



Waterproof materials do not absorb water, while water-absorbent materials soak up water.



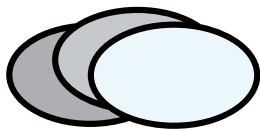
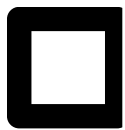
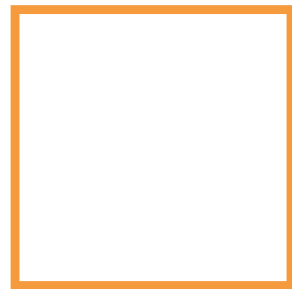
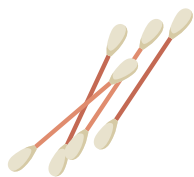
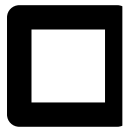
Can you name a waterproof material and water-absorbent material? Draw your items below.



Designing a Umbrella

Objective:

Materials Needed:



Prediction:

Thinner Layer of Wax

Thicker Layer of Wax

Thin vs Thick Layer

Test it out and draw what is the outcome of the experiment.

Thinner Layer of Wax

Thicker Layer of Wax

Homework

Waterproof or Absorbent

01

Test predications by testing each item with water drips.

02

Draw which items let or do not let water pass through.

Things that are
waterproof

Things that are
absorbent

Notes

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