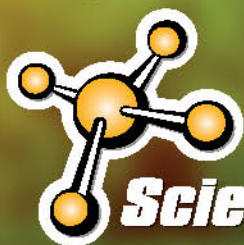


Discovering

# 5 Senses

Amazing experiments  
to discover the world  
using your 5 senses!



**Science4you**



## WARNING:

CHOKING HAZARD - Toy contains small parts, small balls, and marbles.  
Not for children under 3 years.



## WARNING:

CHOKING HAZARD - Children under 8 years can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.



## WARNING:

This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision.

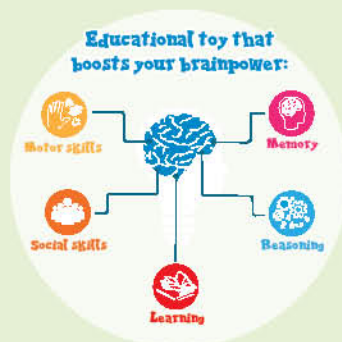
## Dear Parents and Guardians:

Through play, children develop different cognitive skills. Scientific studies show that when we are having fun or making discoveries during an experiment, a neurotransmitter called Dopamine is released.

Dopamine is known to be responsible for feelings like motivation, reward and learning and that's why experiences are related to positive feelings. So, if learning is a positive experience, it will stimulate the brain to develop various skills.

Therefore, Science4you aims to develop educational toys that combine fun with education by fostering curiosity and experimentation.

Find out below which skills can be developed with the help of this educational toy!



The educational feature is one of the key strengths of our toys. We aim to provide toys which enable children's development of physical, emotional and social skills.

Learn more about Science4you toys at:

[www.playmonster.com](http://www.playmonster.com)



1<sup>st</sup> edition 2020, Science4you Ltd.  
London, United Kingdom  
Author: Flávia Leitão  
Co-author: Vitória Batista  
Scientific review, Revision: Flávia Leitão  
Conformity revision: Luísa Chocalheiro

Project management: Flávia Leitão  
Product development: Flávia Leitão  
Design management: Marcos Rebelo  
Packaging design: Filipa Rocha and Eduardo Brito  
Pagination, Illustrations: Joana Gravata

**Play Monster**



We wanna hear how much fun you had! Get in touch at:  
Customer Service  
1400 E. Inman Plwy., Beloit, WI 53511  
playmonster@playmonster.com | 1-800-524-4263  
For more fun, visit playmonster.com

Copyright © 2020 PlayMonster LLC, 1400 E. Inman Plwy., Beloit, WI 53511 USA. Made in Portugal. All rights reserved.  
Science4you is a registered trademark of Science4you, S.A. and is used with permission.

## Index

<b>SAFETY RULES</b>	4
<b>GENERAL FIRST AID INFORMATION</b>	4
<b>ADVICE FOR SUPERVISING ADULTS</b>	4
<b>LIST OF SUBSTANCES SUPPLIED</b>	5
<b>DISPOSAL OF SUBSTANCES</b>	5
<b>KIT CONTENTS</b>	6
<b>1. The human body and the 5 senses</b>	8
<b>1.1. Using the 5 senses for our safety in the laboratory</b>	10
<b>Extra activity: Knowing the 5 senses!</b>	11
<b>2. Experiments</b>	12
<b>Experiment 1. The memory challenge</b>	12
<b>2.1. The skin and touch</b>	14
<b>Experiment 2. The mysterious bag</b>	14
<b>Experiment 3. Soil textures</b>	16
<b>Experiment 4. Hot or cold?</b>	18
<b>Experiment 5. Digital paintings</b>	19
<b>2.2. The eyes and vision</b>	20
<b>Experiment 6. The cartoons</b>	20
<b>Experiment 7. Mixture of colors</b>	21
<b>Experiment 8. Magic soap bubbles</b>	22
<b>Experiment 9. 3D Images</b>	24
<b>2.3. The ears and hearing</b>	26
<b>Experiment 10. Hello?</b>	26
<b>Experiment 11. The speed of sound</b>	27
<b>Experiment 12. Fun sounds – Maracas</b>	28
<b>Experiment 13. What noise is this?</b>	28
<b>Experiment 14. Where does the sound come from?</b>	29
<b>2.4. The nose and smell</b>	30
<b>Experiment 15. What smell is this?</b>	30
<b>Experiment 16. Why do bees like flowers?</b>	31
<b>Experiment 17. A scent for the home</b>	32
<b>2.5. The mouth and taste</b>	33
<b>Experiment 18. Hidden tastes</b>	33
<b>Experiment 19. The tongue zones</b>	34

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission in writing of Science4you Ltd., or as expressly permitted by law, or under terms agreed with the appropriate reprographic rights organization. Any unauthorised use of this book, or any violation of this book's rights, allows Science4you Ltd., to be fairly compensated in legal terms, and not exuding criminal liability for those who are responsible for such violations.



### SAFETY RULES

- Read these instructions before use, follow them and keep them for reference.
- Keep young children and animals away from the experimental area.
- Store this experimental set out of reach of children under 4 years of age.
- Clean all equipment after use.
- Make sure that all containers are fully closed and properly stored after use.
- Ensure that all empty containers are disposed of properly.
- Wash hands after carrying out experiments.
- Do not use any equipment which has not been supplied with the set or recommended in the instructions for use.
- Do not eat or drink in the experimental area.
- Do not replace food items back in their original container(s) or packaging. Dispose of immediately.
- Do not apply any substances or solutions to the body.
- **Warning:** All experiments of this kit should be carried out under the supervision of an adult.

### GENERAL FIRST AID INFORMATION

- **In case of eye contact:** Wash out eye with plenty of water, holding eye open if necessary. Seek immediate medical advice.
- **If swallowed:** Wash out mouth with water, drink some fresh water. Do not induce vomiting. Seek immediate medical advice.
- In case of doubt, seek medical advice without delay. Take the chemical and its container with you.
- In case of injury always seek medical advice.

### ADVICE FOR SUPERVISING ADULTS

- Read and follow these instructions, the safety rules and the first aid information, and keep them for reference.
- This experimental set is for use only by children over 4 years.
- Because children's abilities vary so much, even within age groups, supervising adults should exercise discretion as to which experiments are suitable and safe for them. The instructions should enable supervisors to assess any experiment to establish its suitability for a particular child.
- The supervising adult should discuss the warnings and safety information with the child or children before commencing the experiments.
- The area surrounding the experiment should be kept clear of any obstructions and away from the storage of food. It should be well lit and ventilated and close to a water supply. A solid table with a heat resistant top should be provided.
- This experimental set contains seeds. The seeds must be kept away from eyes, nose and mouth. In case the seeds come in contact with eyes or mouth, wash with running tap water. In case of rash or irritation seek medical advice.

In case of poisoning by any of the components used in the experiments of this toy, contact your local poison control center or the nearest hospital. Please consult the following link for more information: <https://www.poison.org/>

**In case of emergency dial:**  
**9-1-1 or Poison Control: 1-800-222-1222**



### LIST OF SUBSTANCES SUPPLIED

Corn starch (CAS # 9005-25-8)

Soil for plants

Sand

Chamomile seeds

Gravel

Recommendations for substances and mixtures: Do not ingest. Avoid contact with the eyes and mouth. Use only according to the instructions. Store in tightly closed containers. Keep in a cool, dry place. Protect from moisture, direct sunlight and heat sources.

### DISPOSAL OF SUBSTANCES

Observe national regulations concerning the disposal of chemicals when disposing of chemical substances and / or mixtures. Do not dispose of substances and / or mixtures together with household or other waste. Please recycle packaging materials where local recycling programs exist.







## KIT CONTENTS



Page with graphic elements



Card with sensory elements



Memory game



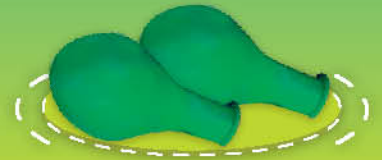
Test cups



Wooden stirrer



Small measuring cups



Balloons



Funnels



Marble



Yarn



Soil



Sand



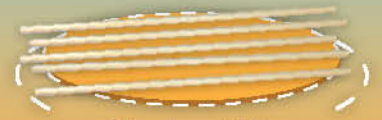
Gravel



Tubes



Styrofoam ball



Wooden sticks



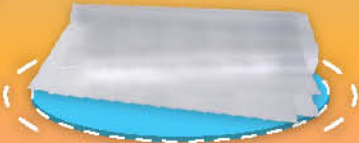
Paper cups



Flexible craft sticks



Chamomile seeds



Transparent sheets



Corn starch



Cotton ball



Flower pot

## PREPARE YOUR TEST CUPS!

With the help of an adult, cut out the page with graphic elements and glue one around each of the test cups.

## EXTRA CONTENT

### Lab bench

Look at the lab bench design! This will help you to always have your "lab" ready to work. Cut out the dashed lines and place the materials that you will use during the experiments in the indicated spaces.



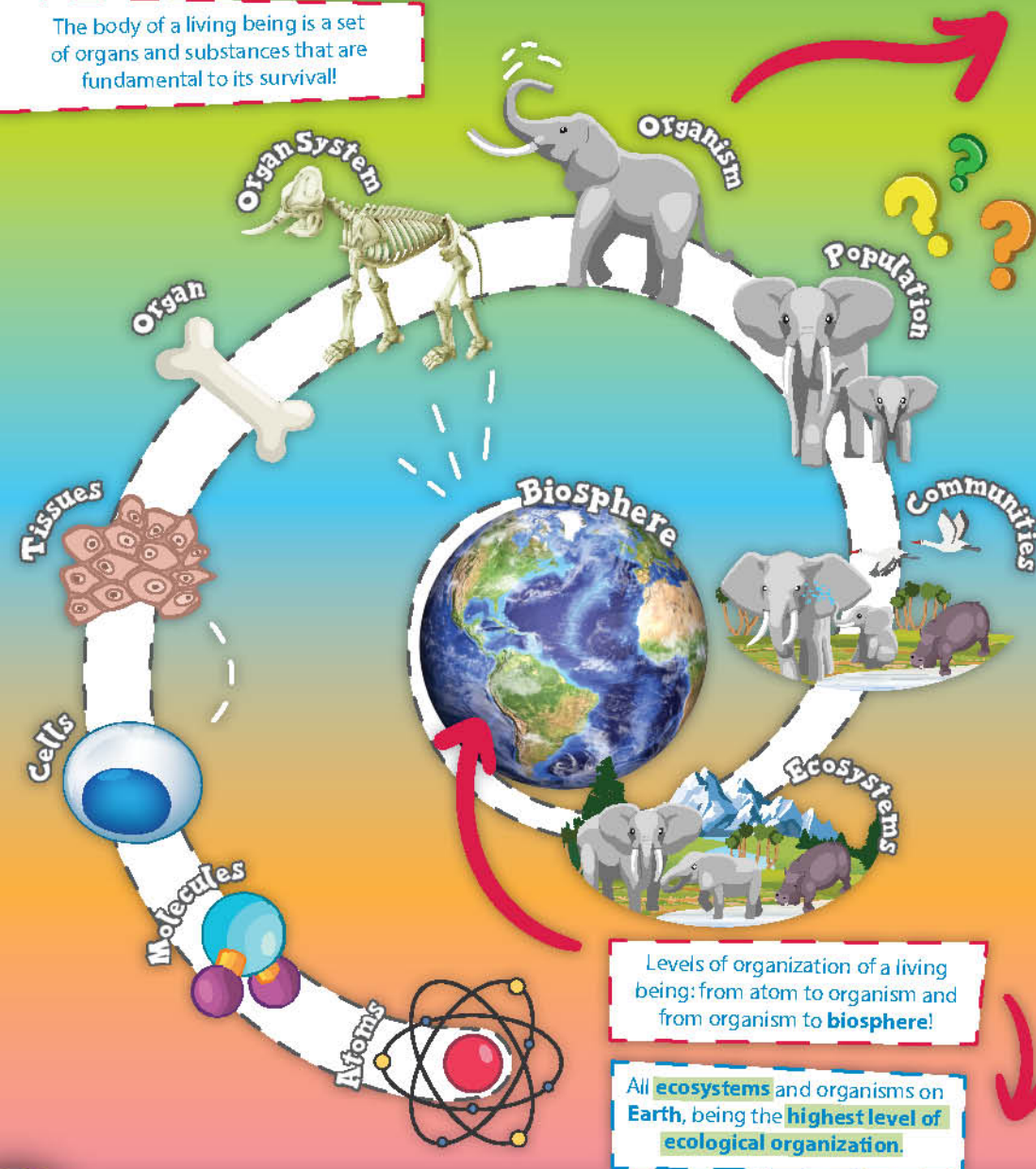
Suggested setup





## 1. The human body and the 5 senses

The body of a living being is a set of organs and substances that are fundamental to its survival!



Levels of organization of a living being: from atom to organism and from organism to **biosphere**!

All **ecosystems** and organisms on **Earth**, being the **highest level of ecological organization**.

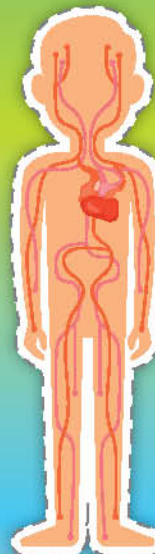
**Human Organism**



**Respiratory System**



**Circulatory System**



**Nervous System**



**Skeletal System**



**Muscular System**



The basic unit of our organism is the cell. Cells group together and form **tissues**. The tissues then build the **organs**. In turn, communication between some organs establishes organ systems. It is these **organ systems** that make up our body, and it is their function — and the communication between them — that allows our body to function smoothly.

## Sensory System

... is responsible for sending information received by the organs that composes it to the nervous system, which decodes it and sends responses to the body.

Our contact with the world and its perception is possible thanks to our **5 senses**!







## 1.1. Using the 5 senses for our safety in the laboratory



Are you ready to go through the five senses of your body?



When you finish an experiment, always wash your hands (and also your materials!). Your hands help you to recognize the world through your sense of **touch**.



It is very important to protect your eyes when doing an experiment. This way, your **vision** is always protected!



It is necessary to listen to all the recommendations of adults! Also, pay attention to strange sounds. That's what **listening** is for!



You should never smell any experiment unless directed — only then is the sense of **smell** protected!



If you want to protect your **taste** buds, don't taste any experiment. You should only taste if it's instructed! You must not eat or drink anything while conducting an experiment.

## Extra activity: Knowing the 5 senses!



Cut out the organs of the 5 senses from the card with sensory elements.

Then, put each organ in the right place, depending on which sense is used in each case.



Solution - page 35





## 2. Experiments

First, let's challenge our brain. It's the organ that receives all the information our senses detect!

### EXPERIMENT 1

#### The memory challenge

What you will need:

Material included in the kit:



• Memory game

Extra items you will need:

• Scissors • A friend

Always ask an adult for help!

#### Steps:

1. Ask an adult to help you cut out the memory game cards.

2. Shuffle all the cards and place them face up in a 4-by-5 rectangle.

Tip: Scientist, look at the colors on the cards.

Look at the cards for 30 seconds. Then, turn the cards over with the images facing down.

00:00:30

Here's a fun game!

Example:



3. Now, flip the cards over to find a match! Each match will show a sense and the organ that detects it.

4. Each player can flip over 2 cards at a time. If you make a pair, collect those cards and take another turn!

5. When all the cards have been collected, the game is over. Then, each player counts all the cards they collected. Whoever collected the most cards is the winner!

### DID YOU KNOW...

If one sense is absent, the rest develop to compensate for this limitation? For example, a person who does not have the sense of sight will develop advanced hearing and/or touch!

During your lunch, your organs sense different parts of your food. For example, how it looks or how it smells. But, looks can be deceiving! Sometimes the food looks great, but tastes really bad! That's because all your senses work together to perceive things.



Sight  
Chocolate cake

Smell  
Chocolate smell

Taste  
Sweet

Touch  
Fresh and fluffy

Hearing  
Crunch

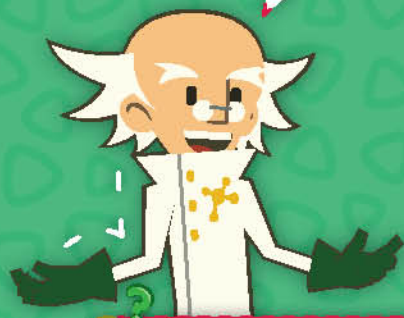
Now that you know the five senses better, let's explore each one of them! Is there any sense more important than another?





## 2-1 The skin and touch

Welcome to the skin, Scientist!



I am the skin: the largest organ in the human body! Do you know what my functions are?

2. Then put your hand in the bag without looking. Feel the different textures and try to identify them!

I make your body waterproof, help regulate your body temperature, and defend you from external forces. I connect you to the world through touch!

It is mainly with our hands that we feel the world!



### EXPERIMENT 2

#### The mysterious bag

What you will need:

Material included in the kit:

- Marble
- Wooden stirrer
- Yarn
- Styrofoam ball
- Balloon

Extra items you will need:

- Paper bag
- Piece of sandpaper
- Spiral pasta (uncooked)
- Cotton ball
- Other funny-feeling objects (optional)

Always ask an adult for help!

#### Steps:

1. Put all the objects inside a paper bag.



Based on the tips you find in SUPER SENSES, can you fill the table with the different textures? Make an X to identify.

### SUPER SENSES:

#### The hand of textures

Trace your hand on a piece of cardboard and, with the help of an adult, cut it out. Then, glue on a cotton ball (smooth/soft), a spiral pasta (rough), a piece of sandpaper (bumpy), a piece of plastic (smooth) and a screw (hard); one on each finger. Finally, try to identify each texture and then write it down.



	Gentle	Soft	Rugged	Rough	Smooth	Hard
Yarn						
Marble						
Styrofoam ball						
Wooden stirrer						
Balloon						
Piece of sandpaper						
Spiral pasta			X			
Cotton						





## EXPERIMENT 3

### Soil textures

#### What you will need:

Material included in the kit:



#### Extra items you will need:

• Water • Spoon • 4 Cups

**Always ask an adult for help!**

#### Steps:

1. Place a one spoonful of sand, soil, gravel and corn starch, in each cup.



2. Now, with the small measuring cup, place a full glass of water in each large measuring cup.



3. Stir well with the spoon. Then, use your fingers to feel the textures.

**Can you feel differences?**

Do all the substances mix?  
Which ones change their texture?  
Which just get wet?



### Substance



Soil



Sand



Gravel



Cornstarch



Texture



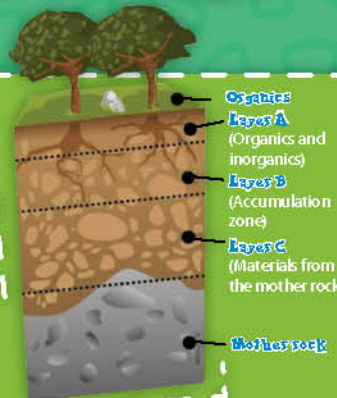
### EXTRA EXPERIMENT:

Use your taste buds!

### THE DELICIOUS SOIL LAYERS!

#### What you will need:

- Vanilla wafer-type cookies
- Chocolate cookies
- Yogurt/caramel pudding
- Grated coconut
- Green food coloring
- Worm-shaped gummy candy
- Transparent plastic cups



**Always ask an adult for help!**

#### Steps:

1. Break cookies in half and layer to represent the **mother rock** fragmenting.
2. Then, smash some more cookies into even smaller pieces. (**layer C**).
3. Place the yogurt/caramel pudding over the cookies (**layer B**).
4. Make "soil" (**layer A**), crushing the chocolate cookies and add it to the cup.
5. Add some green food coloring to the coconut and stir. Then add a layer of "grass." (**organics**).
6. Add a worm-shaped gummy candy to the "grass" layer, leaving only a small visible part.

**Consume immediately!**  
**How was your dessert?**

SOLUTION:







## EXPERIMENT 4

### Hot or cold?

#### What you will need:

#### Extra items you will need:

- 3 Big bowls • Cold water (from the refrigerator) • Ice cubes
- Warm water (from the tap) • Room temperature water

Always ask an adult for help!

#### Steps:

1. Fill the 3 bowls as follows:

Cold water - ice cubes

Hot water

Water at room temperature



2. For 1 minute (count up to 60), dip one hand in warm water, and another in cold water.

00:00:60



3. Then, dip both hands in the water at room temperature also for 1 minute.



With the hand that was in the warm water, you felt cold water and with the hand that was in the cold water, you felt warm water, right?

This is because your nervous system is using the heat flow that passes between your body and the outside world.

What do you feel?



Observe fingerprints!



Create art with your fingerprints!

Try to create drawings, using just the tip of your fingers (your fingerprints)! Use your imagination!



Thumb

Index finger

Middle finger

Ring finger

Pinky

## EXPERIMENT 5

### Finger paintings

#### What you will need:

#### Extra items you will need:

- Sheets of paper • Washable paints • Magnifying glass

Always ask an adult for help!

#### Steps:

1. Prepare the sheets of paper.

2. Choose a paint color and put your index finger in it. Then press your finger against the sheet of paper, making a print.



3. Use the magnifying glass to see the details of the fingerprint that remained on the paper.



What do you observe? This is your fingerprint!

4. Repeat the experiment, but now ask other people to make their prints.

Are their drawings the same as yours?

#### DID YOU KNOW...

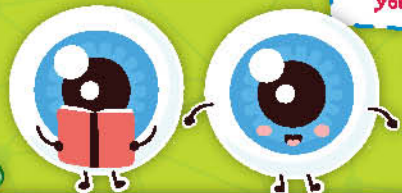
Even twin brothers don't have the same fingerprints! That's why they are the best way to identify people!







## 2-2- The eyes and vision



We are the eyes and we are the window that allows you to see the world!

It is thanks to light that our eyes can capture the images we see!

The sense of sight occurs when light enters our eyes, stimulates the nerves and sends signals to the brain, which deciphers the 'message'.

### EXPERIMENT 6 The cartoons

**What you will need:**  
Material included in the kit:



- Circles - birds and cage (card with sensory elements)
- Extra items you will need:
- Scissors • Sharpened pencil • Glue stick

**Always ask an adult for help!**

- Ask an adult to poke two holes in each circle in the indicated spots with a sharp pencil.



- Use the glue stick and glue both circles together so the pictures face out on each side and with the tops and bottoms facing opposite ends.



- Ask an adult to help you cut 2 strings of yarn about 16 inches each. Tie 1 string in each hole on the edge of the circles.



- Twist the circles to wind up the strings.

- Stretch the strings quickly (but gently) and see what happens!

When you stretch the yarn, the circles start spinning very fast and it looks like the little birds are entering the cage -- an optical illusion is created! This 'technique' is used in cartoons.



### Steps:

- Ask an adult to help you cut out the colored circles from the card with sensory elements.

- With a pin, make a hole in the center of each disc.



### EXPERIMENT 7 Mixture of colors

**What you will need:**  
Material included in the kit:



- Wooden sticks

- Colored circles (card with sensory elements)
- Extra items you will need:
- Scissors • Pin • Clear tape

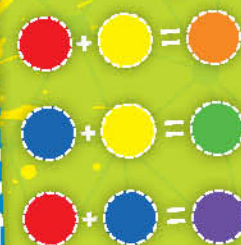
**Always ask an adult for help!**

- Now, one by one, put a wooden stick through each hole and spin the disc, like it was a top. If needed, use some tape to secure the circles.



**What colors do you see?**  
Add that color in the right spot of the table below!

Colored disc	Observed color



The combination of two primary colors gives rise to a secondary color and it is these that you observe when the discs rotate quickly!







## EXPERIMENT 8

### Magic soap bubbles

#### What you will need:

Material included in the kit:

- Small measuring cup
- Wooden sticks
- Flexible craft sticks
- Wooden stirrer

#### Extra items you will need:

- Straw • Water • Dish soap • Cup or bowl
- Container to store the solution • Fuzzy mitten or glove

**Always ask an adult for help!**

2. Again using the small measuring cup, add 20 ml of dish soap.

3. Mix everything, slowly, with the wooden stirrer. Then store your solution in a container so you can use it later.

### Part 2 - Rings for Soap bubbles

#### Steps:

1. Bend the craft sticks to a shape, for example: a square, a triangle, a star... Leave extra at the bottom.

**Tip:** you can use different shapes of cookie cutters to help you shape the sticks into fun molds for the soap bubbles.



### Part 1 - The substance for Soap bubbles

#### Steps:

1. Using the small measuring cup, measure 40 ml of water and pour it into a bowl (or cup). You will have to make 2 measurements of 20 ml each.

2x 20 ml



2. Attach a wooden stick to each craft stick, as illustrated. The wooden stick will serve as a handle.

### Part 3 - The colors of the soap bubbles

#### Steps:

1. Use your rings to make soap bubbles. Dip them in the solution you prepared in part 1 and then blow slowly.

**What happens?**  
Take a good look at the soap bubbles.



Soap bubbles have no color, but their amazing structure and the properties of light make an incredible rainbow visible inside them!

**The way the light interacts with the different layers of the soap bubbles is what creates the colors we observe!**

The colors of the soap bubbles change position and some even disappear when we move in relation to them. As the thickness of the soap film changes, the colors also change, forming bands of more regular colors.



**WHOA!**

#### SUPER SCIENTIST:

Hold the soap bubbles without them bursting! Put on a mitten or glove and let a soap bubble rest very carefully on it! Watch it closely, Scientist.







## EXPERIMENT 9

### 3D Images

#### What you will need:

Material included in the kit:



- Glasses – card with sensory elements

- Transparent sheet

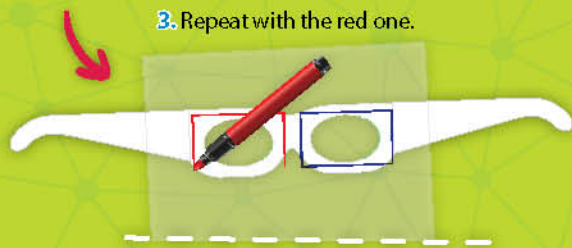
#### Extra items you will need:

- Scissors • Clear tape • Blue and Red marker (works better with permanent ink)

**Always ask an adult for help!**

2. Now, you will need 2 pieces of transparent sheet, which will be the lenses for the glasses. So, with the blue marker, make a rectangle on the sheet, which should be a little larger than the space of the lens.

3. Repeat with the red one.



4. Color the two lenses with each color and finally, cut them out.



5. With clear tape, attach the lenses to the glasses (on the back of the frame). Be careful to not put tape over the center of the lens where you see through.



6. Put on the glasses and have fun seeing the world in 3D. Start with the images we give you here!

#### Steps:

1. With the help of an adult, cut the glasses from the card with sensory elements. Also cut out the center of the lenses (white part).



Our eyes are separated by about 1-1/2 inches, so each eye sees the world from a slightly different perspective -- it's called **binocular vision**.

To see in 3D, two images are displayed, one in red and one in blue. The filters in the lens allow only one image to reach each eye and the brain does the rest.



#### SUPER SENSES:

##### Bouncy images!

1. Close one eye and look around you for an object that is a few feet away from you (about 10 feet).
2. Without losing sight of the object, close the eye that is open and open the one that is closed.

#### What happens?

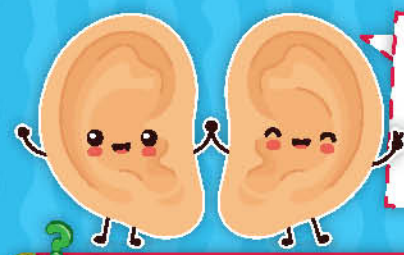
When you change the eye that is open, the object seems to change its place. Each eye receives a slightly different image, because they observe it from slightly different angles.







## 2-3 The ears and hearing



**We are the ears. We pick up sounds that travel through the air and send them to the brain like nerve impulses!**

The ears receive the vibration of sound, they send this information to our brain, and then we can understand the message!

### EXPERIMENT 10 Hello?

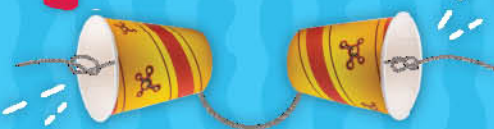
**What you will need:**  
Material included in the kit:



**Extra items you will need:**  
• Yarn (about 6.5 feet)  
• Sharpened pencil

**Always ask an adult for help!**

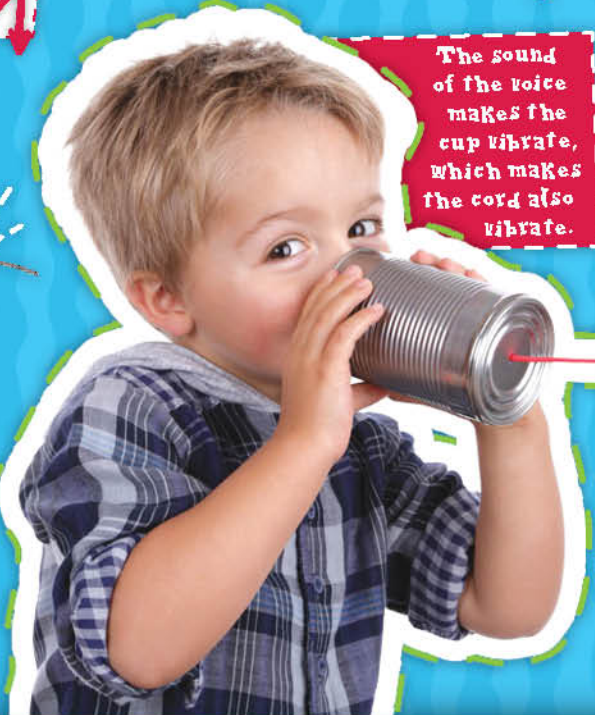
2. Pass the string through the holes at the bottom of each cup and tie a knot on each end.



3. Now, you have to hold one of the cups and give it to another person. Move away from each other until the string is stretched tight.



4. Take turns, talking inside the cup — while one talks, the other puts the opening of the other cup to their ear.



The sound of the voice makes the cup vibrate, which makes the cord also vibrate.

### EXPERIMENT 11 The speed of sound

**What you will need:**  
Material included in the kit:



**Extra items you will need:**  
• Spoon • Safety pin • Funnel

**Always ask an adult for help!**  
**It is best to perform this experiment outside!**

#### Steps:

1. With the funnel and spoon, put 3 spoons of corn starch inside the balloon. Then, inflate and tie the balloon.

2. Ask an adult to hold the balloon a far distance away from you.  
3. Now, with the safety pin, the adult should pop the balloon.

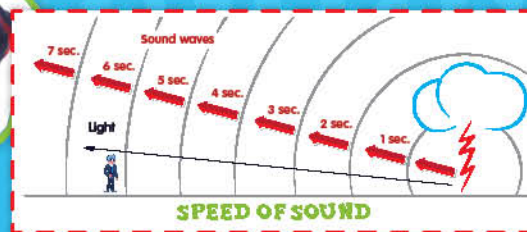


**What happened?**  
You should see the cloud of cornstarch falling from the balloon before you hear the sound of the balloon popping!

**ATTENTION: when you finish the experiment, be sure to throw everything away!**

#### DID YOU KNOW...

The speed of sound is much slower than the speed of light? The rays of light move about a million times faster than the sound waves — first you see, then you hear!







## EXPERIMENT 12

Fun sounds – Maracas

**What you will need:**

Material included in the kit:



• 4 Small measuring cups



• Gravel



• Sand

Extra items you will need:

• Adhesive tape • Spoon

**Always ask an adult for help!**

**Steps:**

1. Put 10 ml of sand in a small measuring cup and gravel in another. Use a spoon to help you.

2. Now, with the adhesive-tape, attach an empty cup to each of the cups you have prepared, as you see in the illustration.



3. Your maracas are ready! Shake them rhythmically.

**How are the sounds you hear? Are they different?**

## EXPERIMENT 13

What noise is this?

**What you will need:**

Material included in the kit:



• Yarn

Extra items you will need:

• Metal clothes hanger • Scissors

**Always ask an adult for help!**

**Steps:**

1. Cut 2 pieces of yarn long enough to go from your ears to your waist.

2. Tie each piece of yarn to one end of the hanger.



3. Hit the hanger on objects while holding the yarn.

4. Now, hold the yarn up to your ears and hit the same objects.

When hitting the metal hanger on an object, it vibrates, and these vibrations produce a "wave" that spreads in the air. The waves arrive to our ears, hit the eardrum, which vibrates and the brain identifies the vibrations like sounds.

**What happens? When do you hear better?**

## EXPERIMENT 14

Where does the sound come from?

**What you will need:**

Material included in the kit:



• Funnels



• Tubes

Extra items you will need:

• Adhesive tape

**Always ask an adult for help!**

**Steps:**

1. Position the 2 funnels on the tip of each tube and secure them with adhesive tape as you see in the picture.



2. Use the system you assembled as you see in the image below and ask a friend to speak softly near each of the funnels. Be careful to not put the tubes inside your ears.



3. Direct the funnels toward other sound sources, like a radio or speaker. Do you hear better?

**What do you hear, scientist? Where does the sound come from and where do you hear it?**

Our ears are able to hear sounds coming from different directions. However, when you use the funnels, they direct the sound straight to your ears and so you hear better!

When you change the source of a sound, your brain can become confused where the sound comes from.







## 2.4. The nose and smell

I am the nose: a cave with walls full of mucus, with many cells that are very sensitive to smell! I am responsible for everything you smell -- good and bad!

The sense of smell starts to work when small particles of what you smell reach two sensitive areas inside your nose. These areas are at the top of the passage from your nostrils to your throat.

2. Guess what spice is in each cup. Then, remove your blindfold and see how many you got right!
3. Clean the test cups well with soap and water.
4. Repeat the experiment, but now ask an adult to put some drops of liquid scents (such as different perfumes or fruit juices) on cotton balls.



Were you able to identify all the different smells?



### Olfactory memory



At the moment we are considered one of the most important animals for the preservation of the environment, did you know Scientist?

### EXPERIMENT 16 Why do bees like flowers?

What you will need:  
Material included in the kit:

- Flower pot
- Soil
- Chamomile seeds
- Wooden stirrer
- Extra items you will need:  
• Water • A sunny spot

Always ask an adult for help!

- Steps:
1. Fill the flower pot with soil.
  2. Carefully make a hole in the center of the soil with the wooden stirrer.
  3. Put some chamomile seeds in the hole.



4. Finally, water the pot with a little water. Don't forget to keep watering and put it in a nice sunny spot!

Now all you have to do is wait for the flowers to grow so that you can smell them!

### DID YOU KNOW...

Chamomile flowers are used for various medicinal purposes and to make tea? Not only their smell, but also their taste is also very pleasant!

### Why do bees and insects like flowers?

Insects are attracted by flowers, especially their scent.

Flowers produce nectar that attracts and feeds the insects. Meanwhile, the pollen from the flowers clings to their feet and they carry it to other flowers, thus helping new flowers to be born!

Wow!

### EXPERIMENT 15 What smell is this?

What you will need:  
Material included in the kit:



- Test cups
- Extra items you will need:  
• Blindfold
- Different spices, perfumes
- Fruit juices
- Other things you want to test
- Cotton balls

Always ask an adult for help!

- Steps:
1. Without you seeing, ask an adult to put a spice (cinnamon, garlic, coffee, chocolate, vanilla, etc.) or something fragrant in each test cup.







## EXPERIMENT 17

### A scent for the home

#### What you will need:

#### Extra items you will need:

- Chopsticks • Rosemary, lavender or other fragrant plant
- 2 Bottles • Strainer • Olive oil
- Aluminium foil

**Always ask an adult for help!**

#### Steps:

1. Ask an adult to help and cut enough rosemary (or lavender or other plant) to fill a jar.



2. Wash the rosemary in plenty of water and let it dry outdoors for a few days until completely dry.

3. Fill the jar with olive oil until the rosemary is completely covered and close the jar's opening with aluminium foil.



4. Let the jar sit undisturbed for 2 weeks.

5. With a strainer, strain the oil with the rosemary infusion into a new jar. Throw away the rosemary.

6. Cover the opening with aluminium foil.

7. With the chopsticks, pierce the aluminium foil and let them stay soaked in the oil.



**Your fragrant infusion is ready! You can use it as air freshener for your room.**

Here you use the olive oil's properties as a fat, and the properties of the plants you chose. The smell of the air freshener will also depend on the plant you use!

The sticks are made of wood and absorb the olive oil, which then goes up by capillarity to the top of the sticks. Afterwards, it ends up dissipating through the air, spreading the smell throughout your home!

A curious thing about sense of smell is that it gets tired quickly. If you smell something for a long period of time, the scent appears to fade.



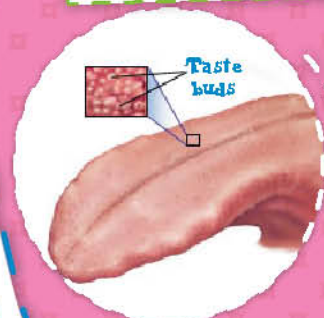
**ATTENTION:** when you finish the experiment throw away all used food.

**Tip:** To take advantage of the air freshener and prolong the aroma, you should flip over the sticks weekly.

## 2.5. The mouth and taste



I am the tongue and I am responsible for detecting flavors! I detect 5 basic flavors in different areas: sweet, salty, acid, bitter and umami (a special kind of flavor that exists, for example, in cheeses!)



**Taste is the sense that detects chemicals present in food and beverages, through receptors in our tongue.**

These receptors are the taste buds, they are small elevations on the tongue, responsible for detecting different tastes and then sending these sensations to the brain, through nerve cells.

## EXPERIMENT 18

### Hidden tastes

#### What you will need:

#### Material included in the kit:



• Test cups

#### Extra items you will need:

- Lemon juice • Chocolate powder
- Instant coffee • Table salt

#### Steps:

1. Fill 4 test cups with water until half full.

2. Without looking, have an adult put a teaspoon of the following ingredients into each cup:

Lemon juice  
Chocolate powder  
Instant coffee  
Table salt

**ATTENTION:** ask an adult for help.



3. Then, without looking, taste what's in each cup one at a time.

4. Can you guess the flavors in each cup?

**Human tongue detects 5 different types of flavors! Taste and smell work together, helping us experience all the flavors.**

Repeat the experiment but cover your nose. Do you taste all the flavors in the same way?





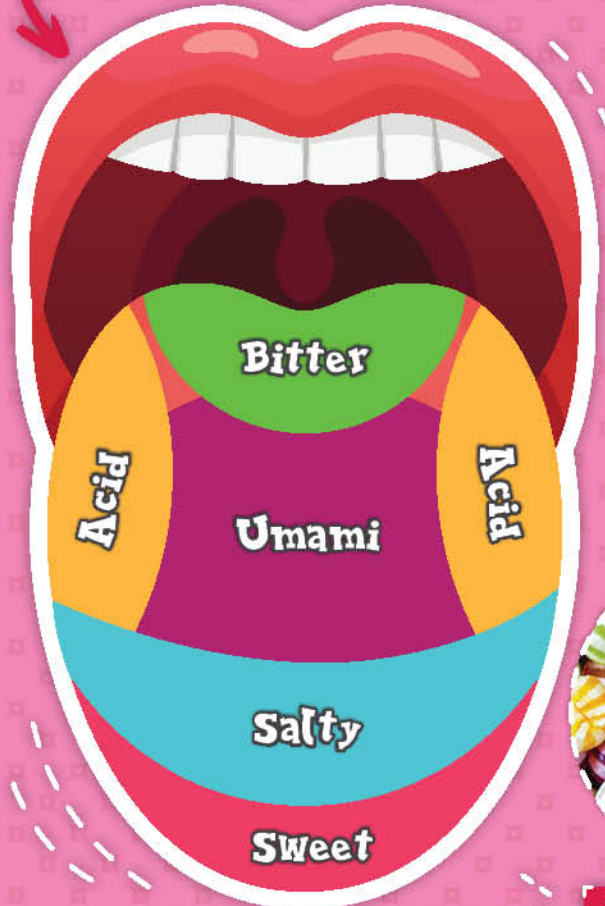


## Steps:

1. Ask an adult to help you cut out all the food circles from the card with sensory elements.



2. Then, on the tongue below, place each food on the area that will most likely taste the flavor.



See solution - page 35

## EXPERIMENT 19

### The tongue zones

**What you will need:**  
Material included in the kit:



- Food circles - card with sensory elements
- Extra items you will need:
- Scissors

Always ask an adult for help!

## SUPER SENSES:

Choose a candy. You know this is a sweet food, because it contains sugar! Try putting it on different zones of the tongue: first at the bottom, then at the side and finally at the tip! Did you taste it in all areas of the tongue?



Save the food cards and challenge your friends!

Extra activity solutions (page 11) and Experiment 19 (page 34)

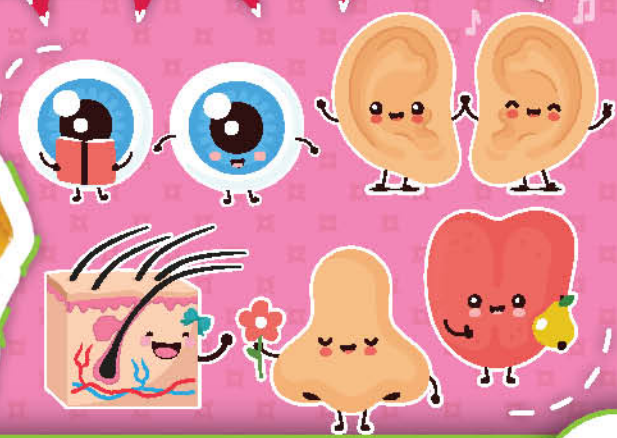


Page 11



Page 34

We hope you enjoyed getting to know yourself better and learning to understand how your body uses all 5 senses to experience the world around you!





Check out more COOL  
experiments!



Science4you



Find out more at [www.playmonster.com](http://www.playmonster.com)



9990200078590