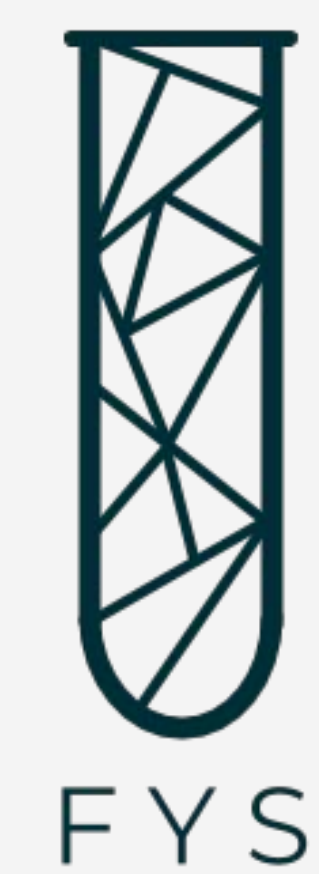


Please mute your microphones.
You may keep your video on if you wish.
We will begin shortly.

Thank you.



Introduction!



Electric Oobleck

Chemistry and Physics

Materials

Cornstarch

Vegetable oil

Balloon

Spoon

Measuring cup ($\frac{1}{2}$ cup)

Optional: food coloring



Let's go on an adventure...

Greetings young scientists!

On this quest, you will discover the magnificent electric properties of Magic Qobleck! This book will give you all of the clues you need to complete this quest. Are you ready?

To solve the first puzzle, let's think:

What are the different phases of matter?

Puzzle 1 completed! Once you complete four more puzzles, you will find your first clue!



Gases

- Gases do **not** occupy a **fixed** space.
- Gases will take up the form of the container they are in, and will **expand** to fill up the container.
- Gases also do **NOT** have a **definite** surface.
- Gases are all around us and are what we breathe in!



Puzzle #2

Can you name three examples of a gas?

Puzzle 2 completed! Once you complete three more puzzles, you will find your first clue!



Liquids

- Liquids occupy a **fixed** space.
- Liquids will take up the form of the container they are in, but will **not expand** to fill up the container like gases do.
- Liquids also have a **definite** surface.



Puzzle #3

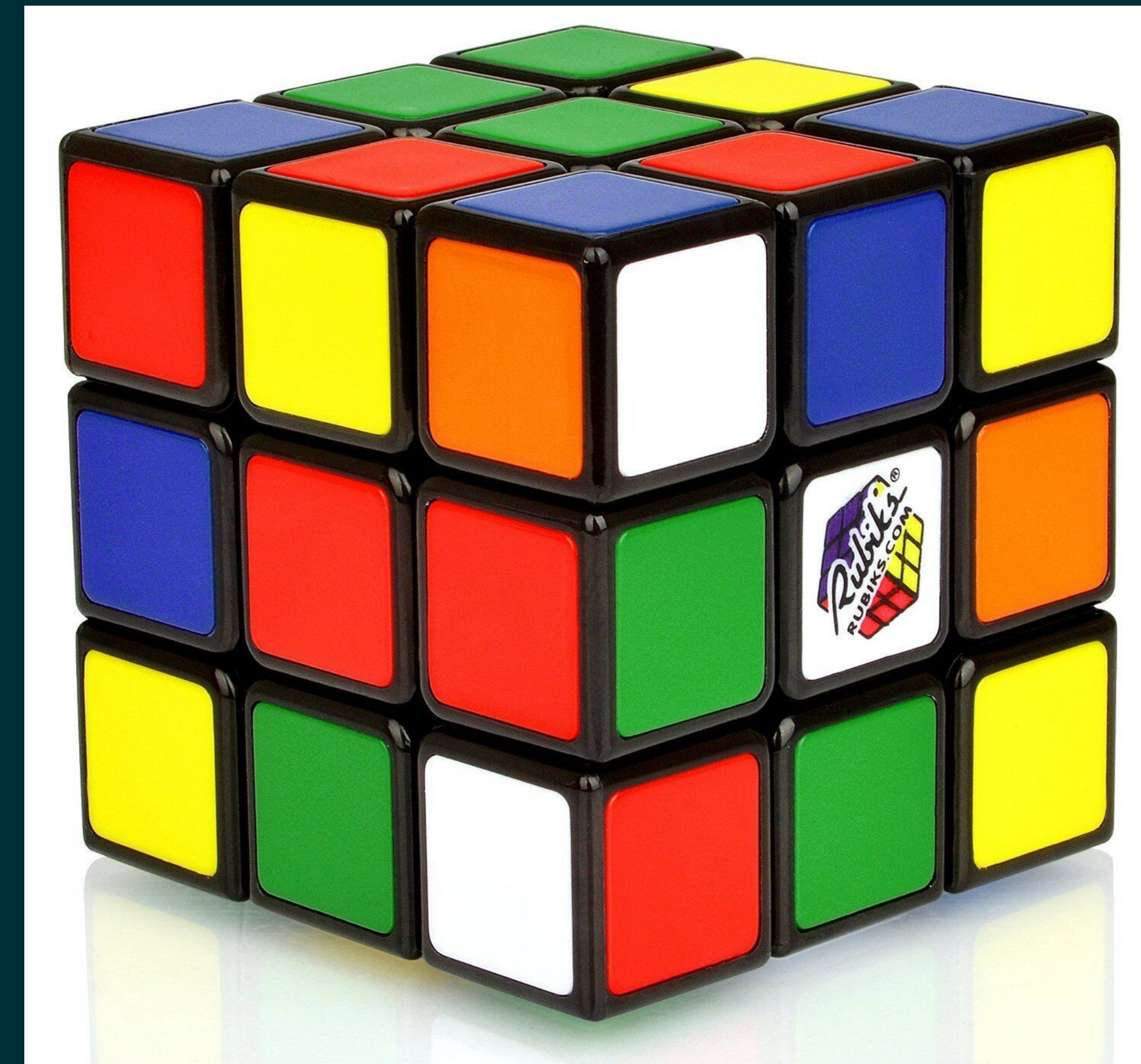
Can you name three examples of a liquid?

Puzzle 3 completed! Once you complete two more puzzles, you will find your first clue!



Solids

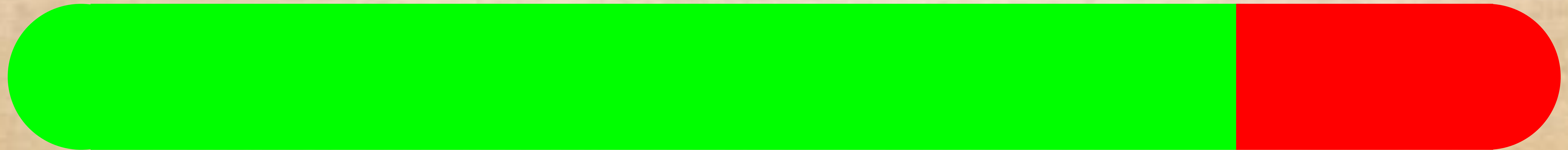
- Solids occupy a **fixed** space.
- Solids will **NOT** take up the form of the container like liquids do, and will **NOT** expand to fill up the container like gases do.
- Solids also have a **definite** surface.



Puzzle #4

Can you name three examples of a solid?

**Puzzle 4 completed! Only one more puzzle
until your first clue!**



Puzzle #5



Rain



People



Soda



Sun



Bell



Crayons



Glue



Syrup



Helium



Computer



Rocket Exhaust



Lemonade



Smoke



Books



Steam



Milk



Soccer Ball



Hot Air



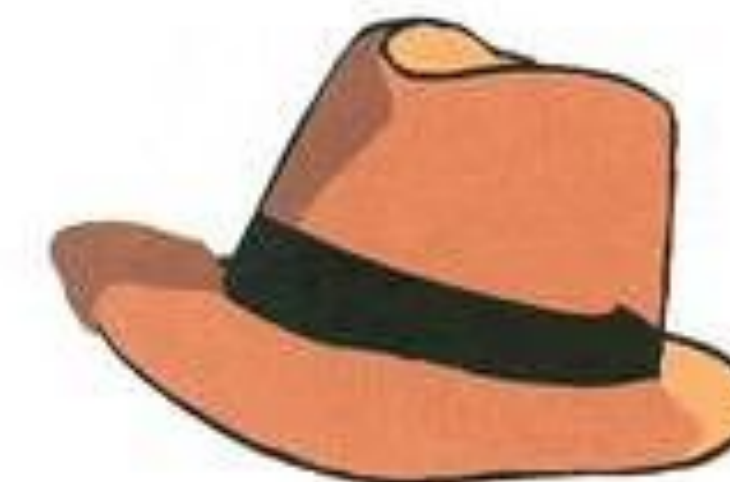
Pear



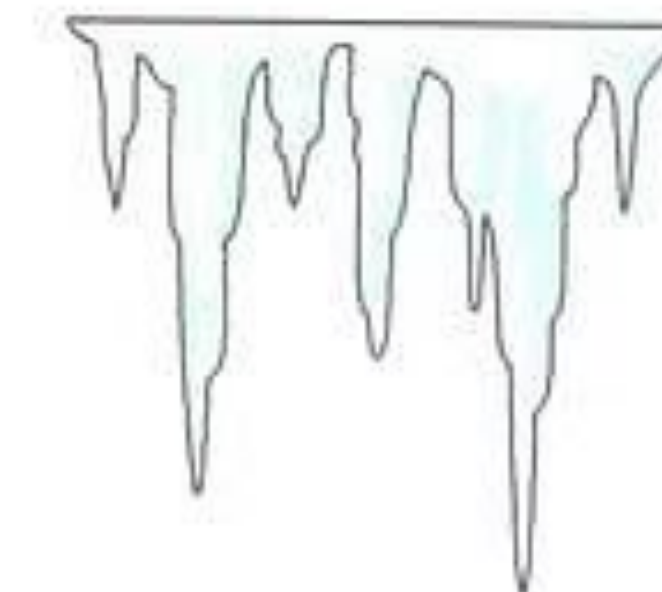
Oxygen



Gasoline



Hat



Ice



Flowers

**You have successfully
completed five puzzles and
unlocked your first clue!**



Materials

Cornstarch

Vegetable oil

Balloon

Spoon

Measuring cup ($\frac{1}{2}$ cup)

Optional: food coloring



Clue #1: How to make Oobleck!

Mix 1 cup of cornstarch with ½ cup vegetable oil.

Experiment to see when it feels most solid
(hint: try punching or pounding it) and
when it feels most liquid (hint: try slowly
sinking an open hand into it). What are you
noticing?



Questions?

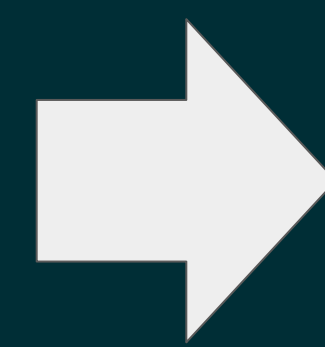
Protons/Electrons

- Protons and electrons are tiny little particles. They lay around on our hair, on our skin, on the walls, on the floor; everywhere!
- Here's a proton! Protons are positively charged (+).
- Here's an electron! Electron are negatively charged (-).



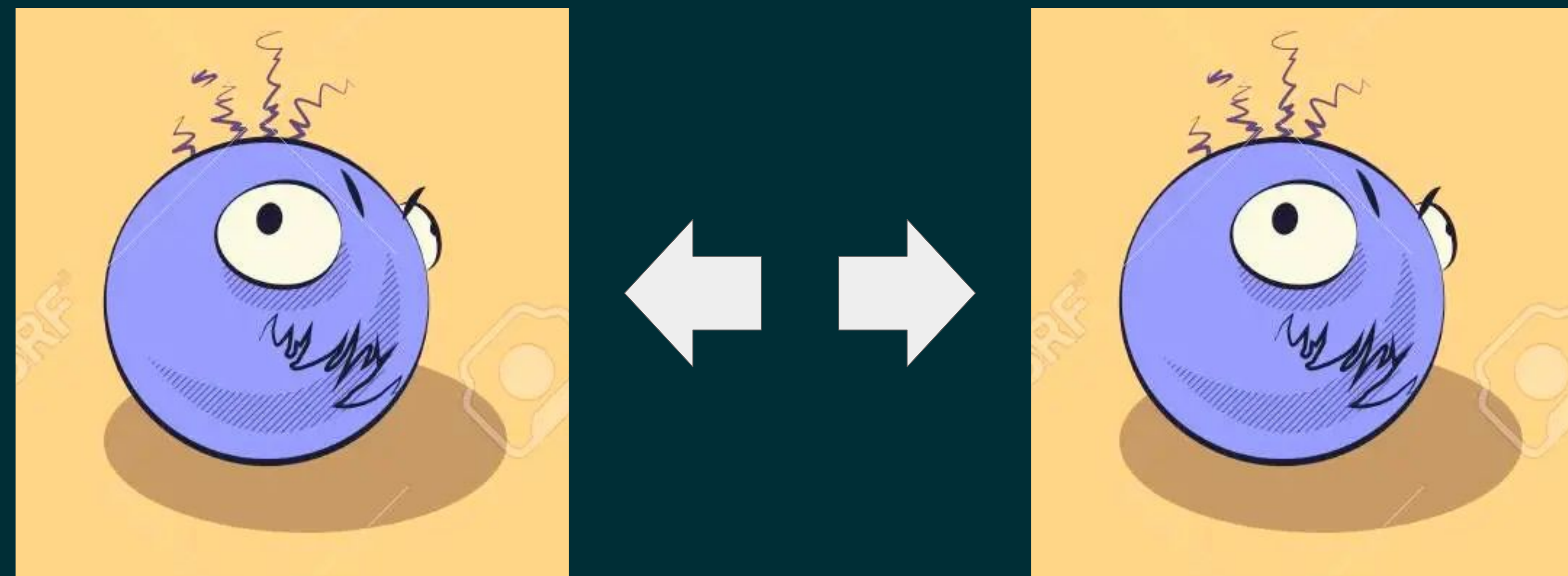
Protons (+) and electrons (-) like each other.

They attract.

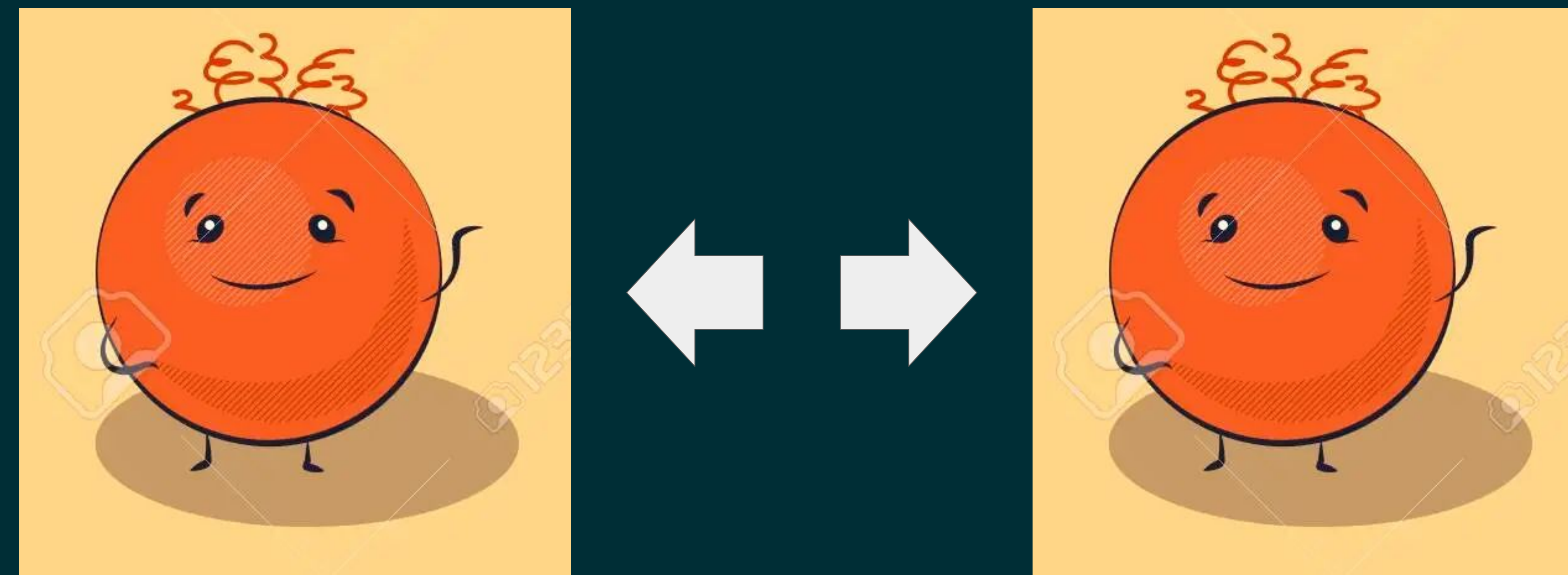


Electrons (-) and electrons (-) don't like each other.

They repel.



**Protons (+) and protons (+) don't like each other.
They repel, but they're stuck, so they can't move.**



Puzzle #6

Answer each of these with “repel” or “attract”.

1. + -

2. + +

3. - -

4. - +

**What you've just learned is
known as "Electrostatics". Now
you've unlocked your second
clue!**


Clue #2: How to turn it into Magic Oobleck!

Blow up the balloon and rub it against your hair or clothes until it is electrically charged. Your hair will give some electrons to the balloon, the balloon is now negatively charged (-).



Now take a spoonful of the oobleck
and hold it near the balloon.

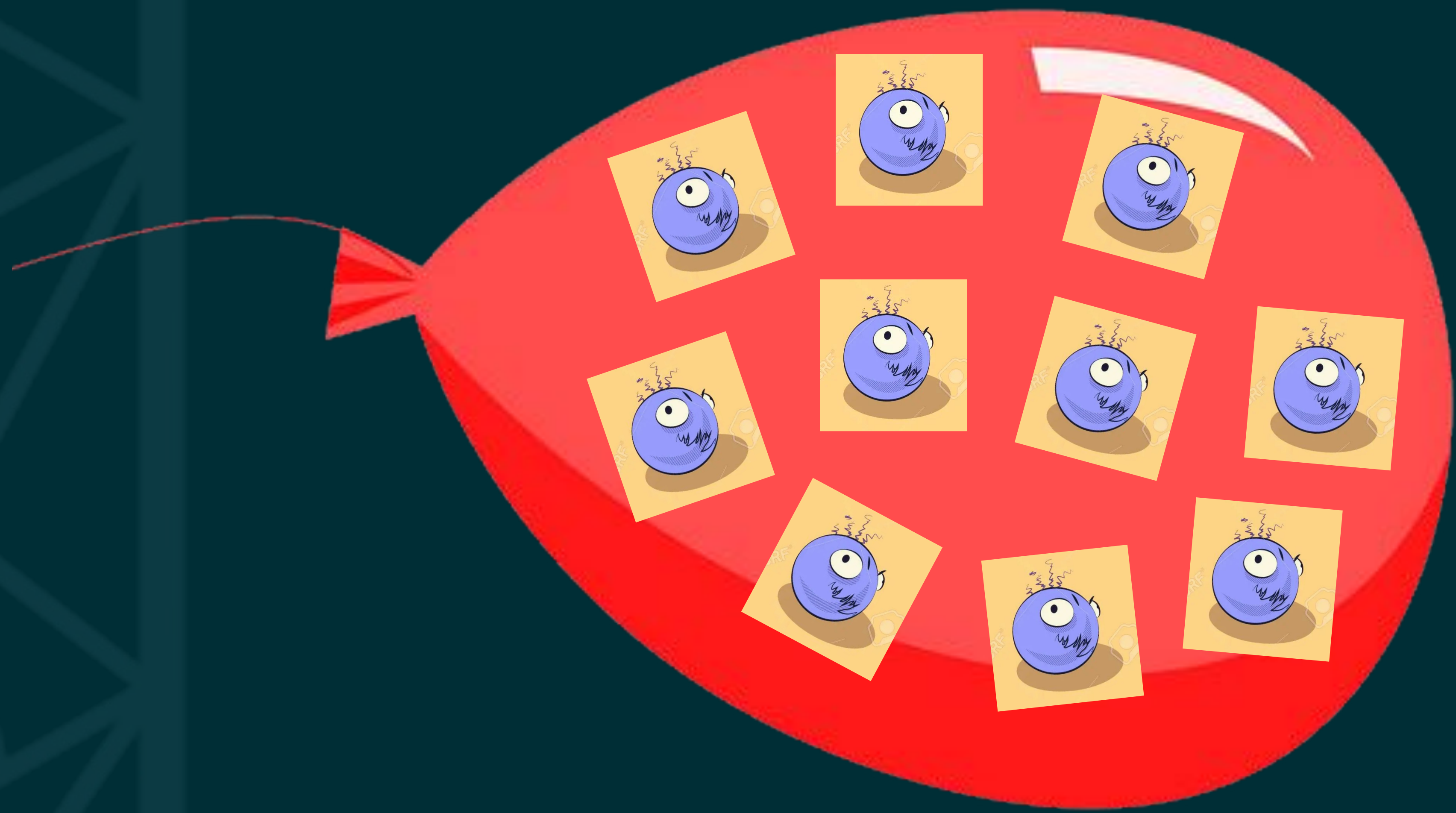
The oobleck should reach out toward
the balloon and may even leap from
the spoon onto the balloon!

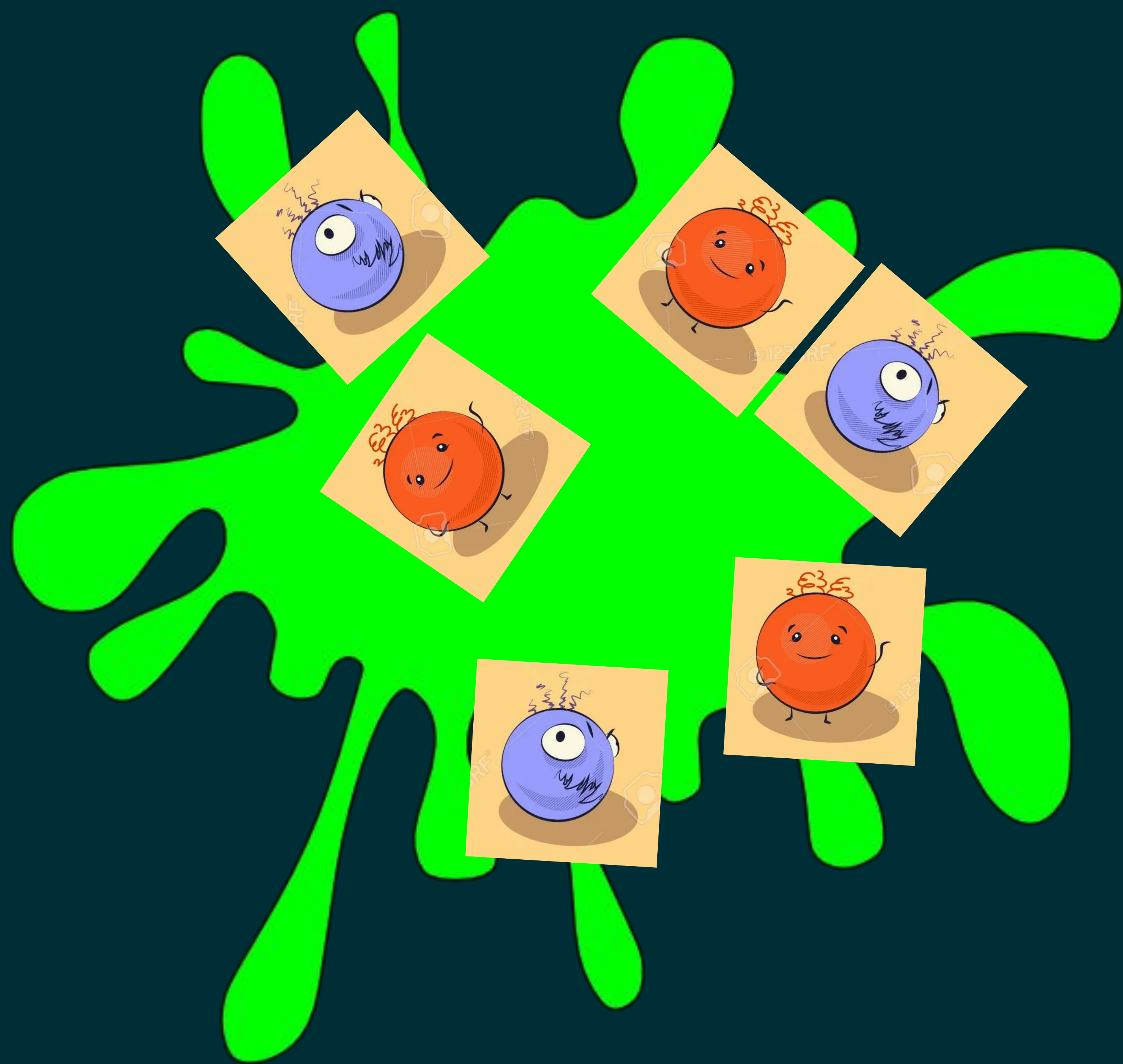


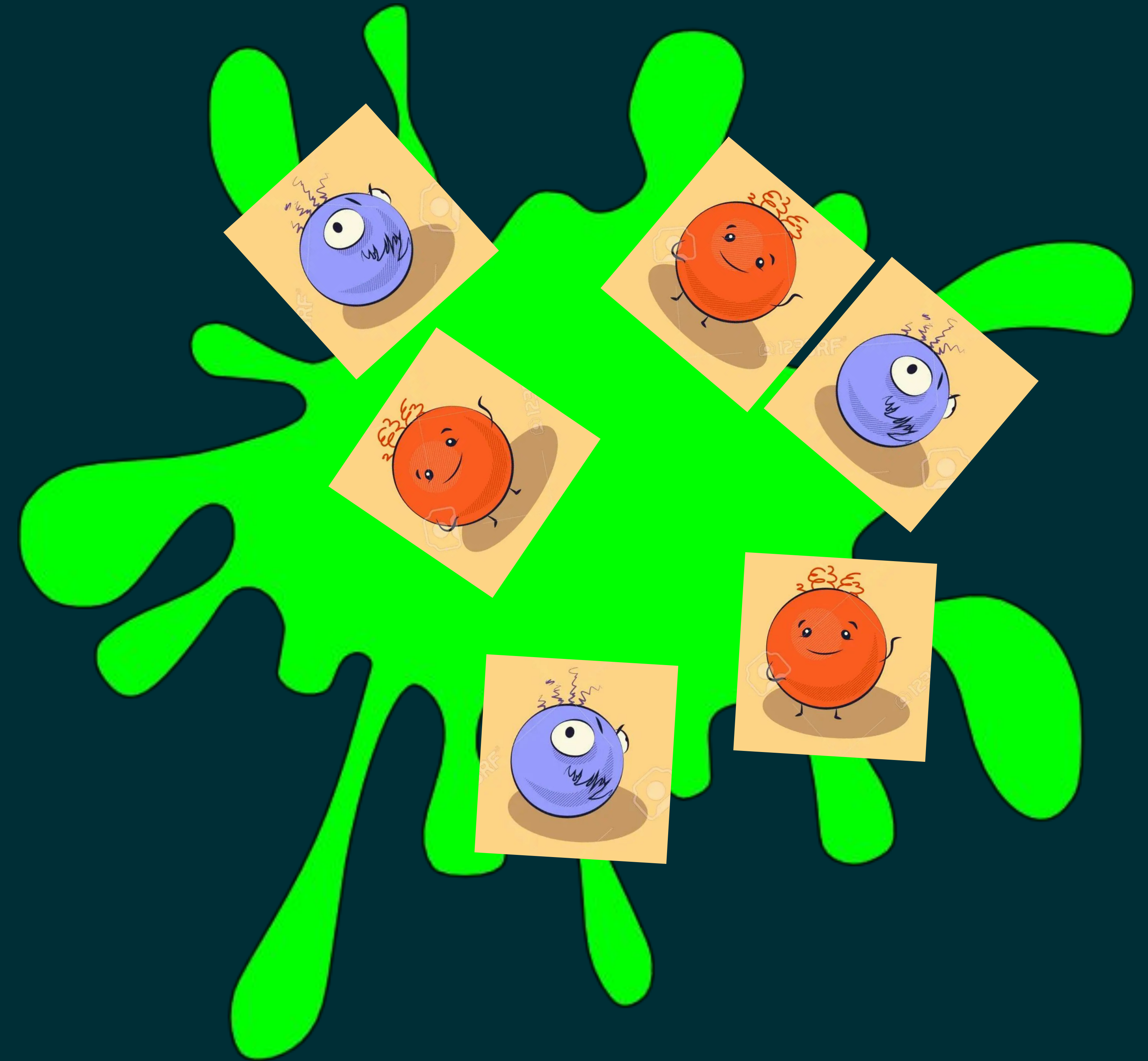
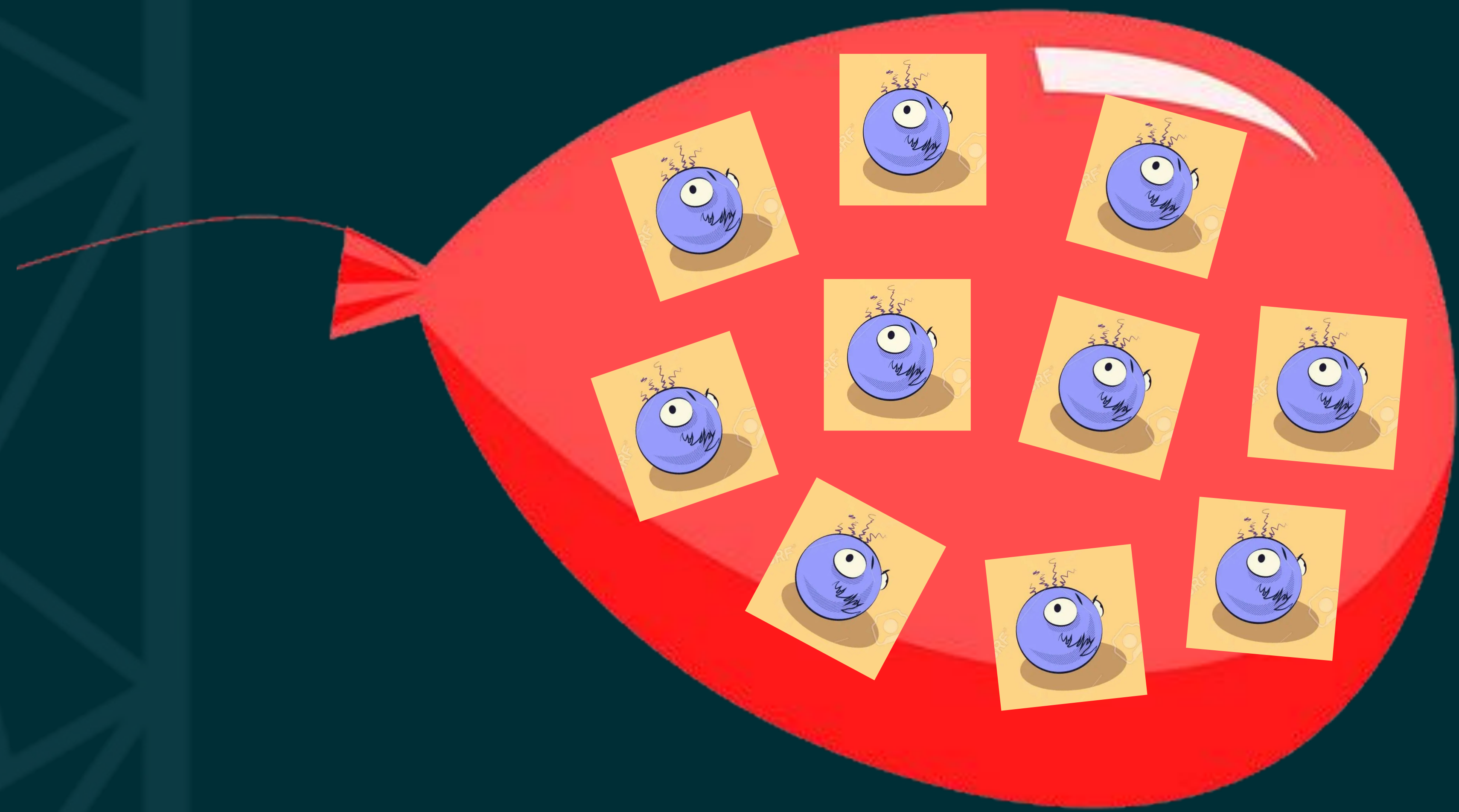


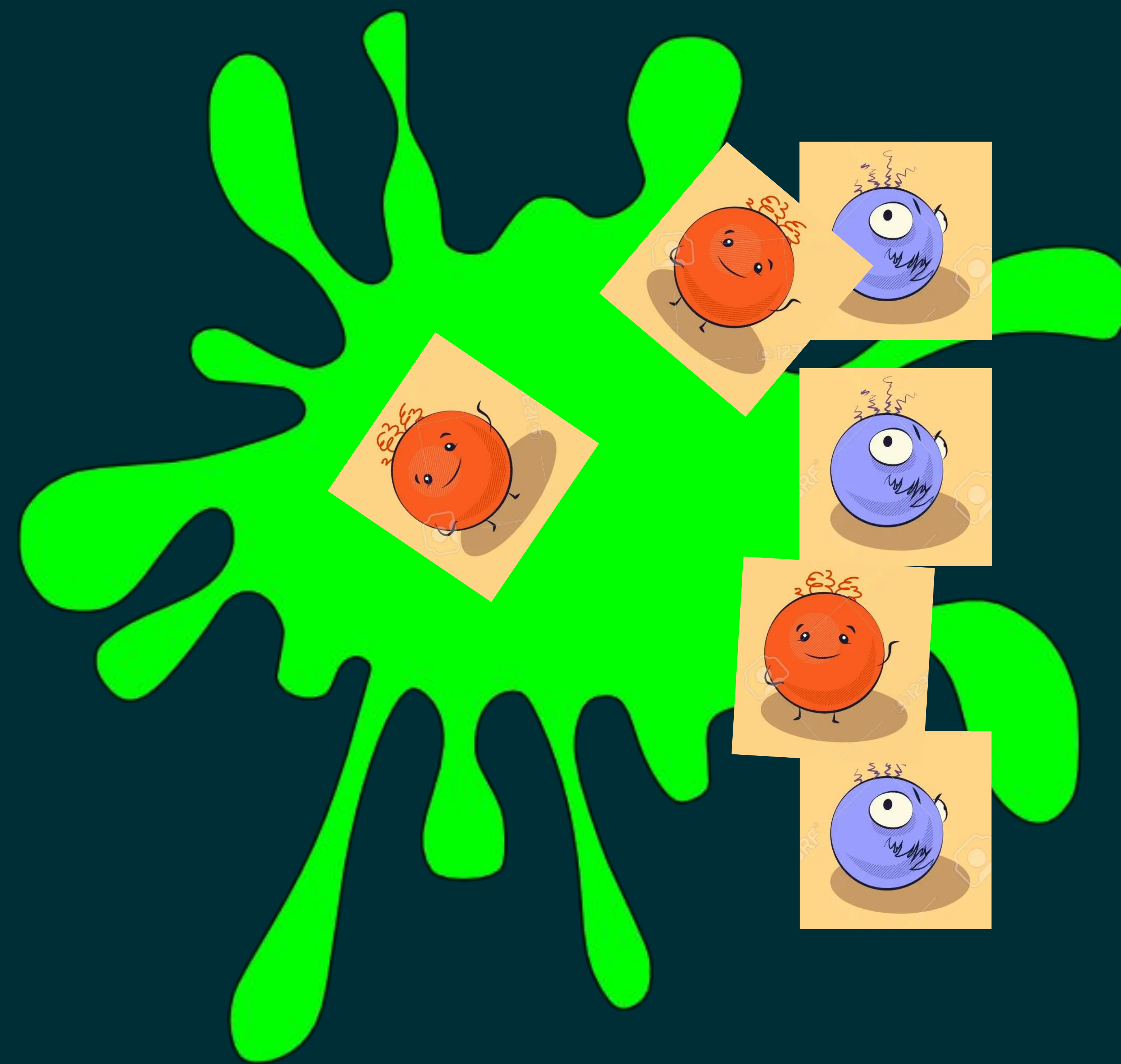
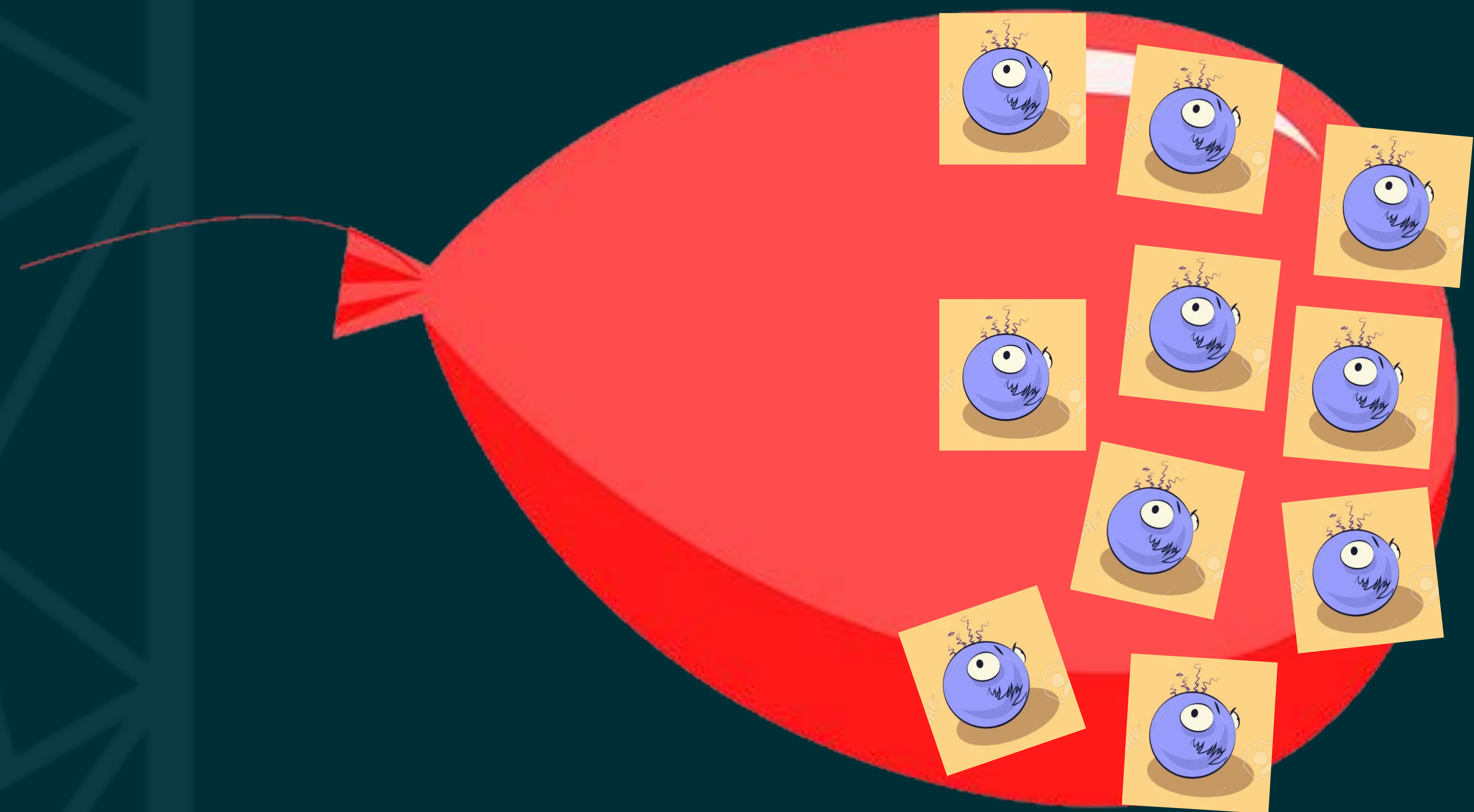
Why does this happen?

The balloon becomes negatively charged (-) when rubbed against your hair. The Magic Oobleck has negative (-) and positive charges (+). So why is the Magic Oobleck attracted to the balloon?

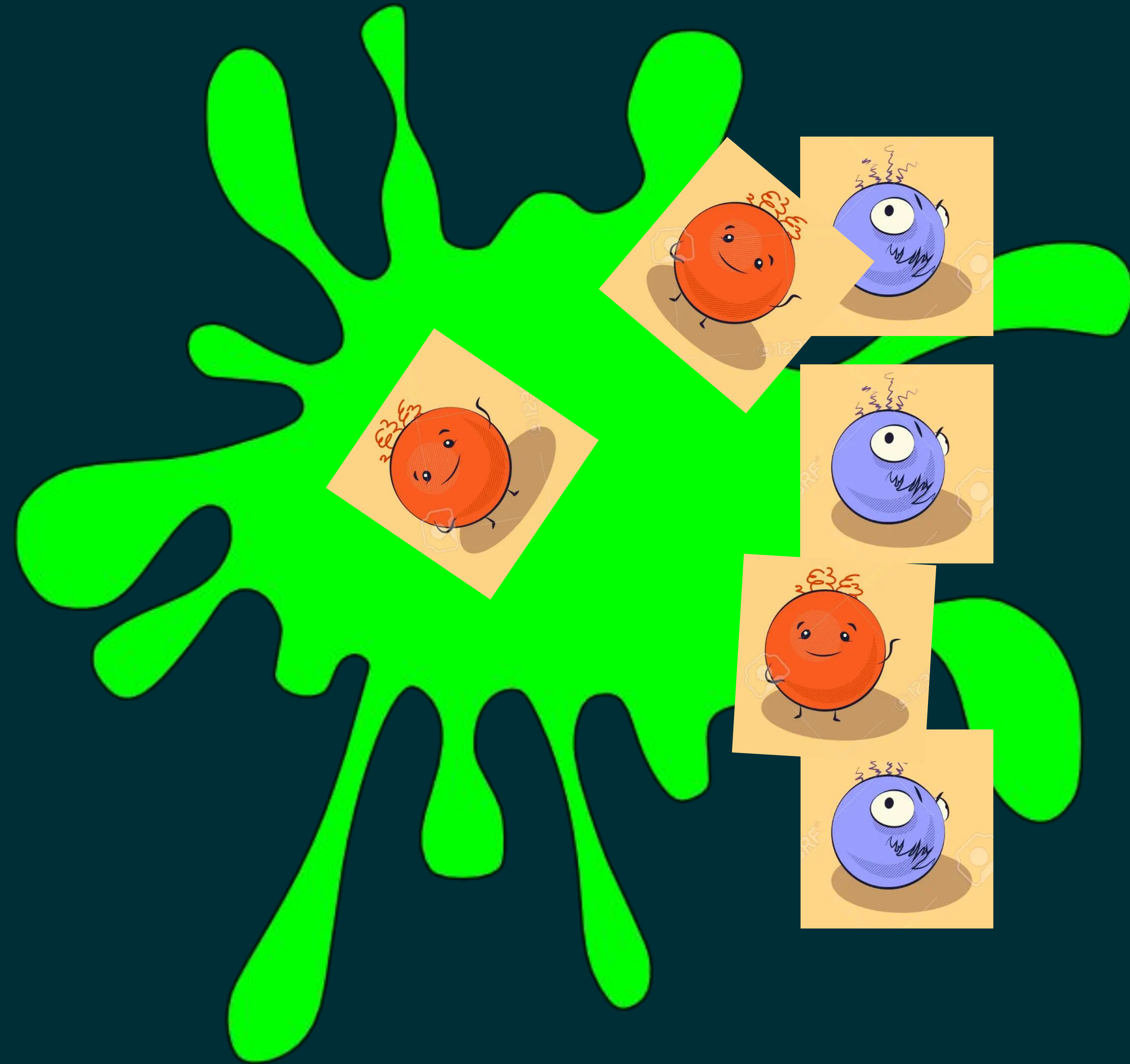
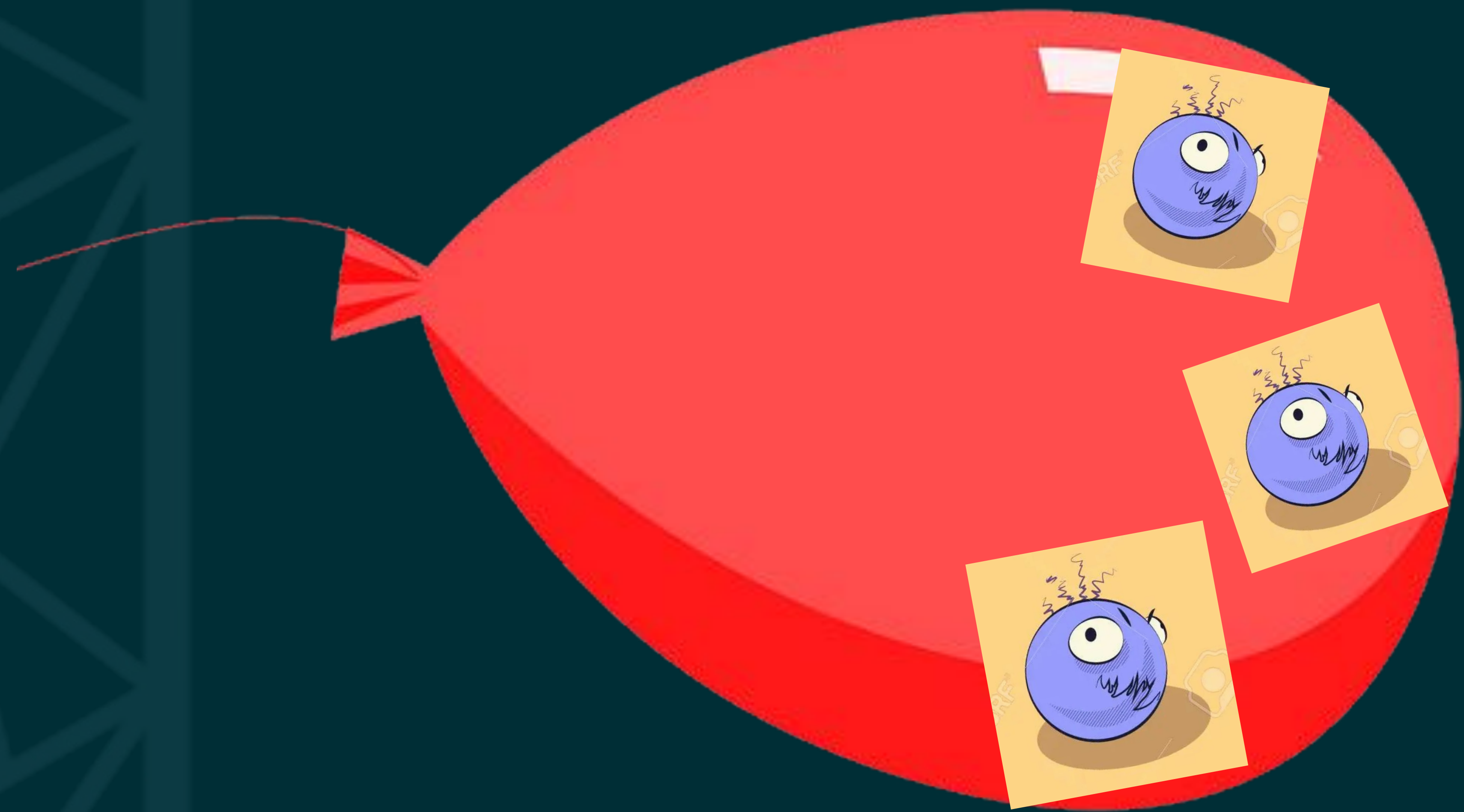








“charge polarization”



We did it!

Now that we've discovered and mastered the secret to making Magic Oobleck, we can happily leave the forest!

Now that you know the magic behind creating electric oobleck, make sure to spread this amazing discovery to your friends and family!

Reflection Questions!



FYS

Think about what you just observed
through your electric oobleck experiment.
Try to answer the following questions!



Where have you noticed the effects of
static electricity in your lives?



What was the most fun part of this
experiment?

Name one thing that you learned?



**Congrats for finishing your
first adventure! We'll be back
for another journey next week!**



FYS

Feedback form!

If you wouldn't mind, please take two minutes to complete our brief feedback form. This will really help us to plan our future classes.

(link in chat)

See you all next week!

Visit our website, **futureforyoungscientists.org**.

If you have any photos from this week, please share these with us by email (futureforyoungscientists@gmail.com) or Facebook, as we would like to be able to share everyone's experience.