



## Safety Information

- » » **WARNING.** Not suitable for children under 3 years. Choking hazard — small parts may be swallowed or inhaled.
- » » Keep the packaging and instructions as they contain important information.

### Instructions for handling experiment materials:

None of the substances in this kit are classified as hazardous substances in the quantities included and the applications presented in this kit. However, you must read these safety instructions before use, follow them, and keep them for reference.

- Do not get in eyes, into the mouth, or on clothing.
- Wash hands thoroughly after handling.
- Do not ingest.
- Avoid breathing dust.
- Use only as instructed. Read cautions in this manual carefully.
- Keep slime powder out of reach of small children and animals.
- Store the slime locked up.
- Use the materials carefully, as they may stick to or stain fabric, wood, carpet, or other materials. Clean with water.
- In case of eye contact: Wash out eye with plenty of water, holding eye open.
- If swallowed: Wash out mouth with water, drink some fresh water. Do not induce vomiting.
- In case of doubt, seek medical advice without delay. Take the chemical and/or product together with the container with you. For household substances, take the retail packaging with you.
- In case of injury always seek medical advice.

Use the brain cutter only for the experiments described in this set. Do not use it in the kitchen or for other activities.

Here is information specific to each chemical in this kit:

Glow-in-the-dark slime powder, 6.5-7.5 g (0.22-0.26 oz.) (Art.-Nr. 717691)

Main ingredients: Locust bean gum, guar gum, silica, glow-in-the-dark color pigment

Hypercolor slime powder, 6.5-7.5 g (0.22-0.26 oz.) (Art.-Nr. 719157)

Main ingredients: Locust bean gum, guar gum, silica, hypercolor dye, color pigment

Yellow slime powder, 6.5-7.5 g (0.22-0.26 oz.) (Art.-Nr. 72154)

Main ingredients: Locust bean gum, guar gum, silica, color pigment

Red slime powder, 6.5-7.5 g (0.22-0.26 oz.) (Art.-Nr. 721977)

Main ingredients: Locust bean gum, guar gum, silica, color pigment

How to dispose of waste: Leftover chemicals can be poured down the drain with plenty of water. Please dispose of leftover solids in the household garbage.

Please observe the safety information and the instructions for handling experiment materials on this page, the advice for supervising adults on page 3 and the safety rules on page 4.

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**Science Fact vs. Science Fiction**

The science experiments and explanations in this manual are real. The storyline about the aliens and everything concerning the alien slimes are purely fictional and intended only to make the scientific experimentation more fun and playful.



## >>> KIT CONTENTS

**Good to know!** If you are missing any parts, please contact Thames & Kosmos customer service.

### What's inside your experiment kit:



### Checklist: Find – Inspect – Check off

✓	No.	Description	Qty.	Item No.
<input type="radio"/>	1	Base station	1	721964
<input type="radio"/>	2	Vertical rod	2	721965
<input type="radio"/>	3	16-mm holder clip	1	722002
<input type="radio"/>	4	22.5-mm holder clip	2	722003
<input type="radio"/>	5	Station connector piece	1	721966
<input type="radio"/>	6	Wide test tube holder	1	722062
<input type="radio"/>	7	Plastic scalpel	1	721970
<input type="radio"/>	8	Small test tube ring	1	721969
<input type="radio"/>	9	Alien head stamp	1	721967
<input type="radio"/>	10	Large test tube	1	717120
<input type="radio"/>	11	Lid for large test tube	1	721968
<input type="radio"/>	12	Brain cutter	1	721971
<input type="radio"/>	13	Large pipette	1	717122
<input type="radio"/>	14	Petri dish	1	715232
<input type="radio"/>	15	Syringe	1	720555
<input type="radio"/>	16	Small test tube with lid	1	721972
<input type="radio"/>	17	Spatula	1	721959
<input type="radio"/>	18	Tweezers	1	721973
<input type="radio"/>	19	Googly eye	2	721975

✓	No.	Description	Qty.	Item No.
<input type="radio"/>	20	Glow-in-the-dark slime powder (7 g / 0.24 oz)	1	717691
<input type="radio"/>	21	Hypercolor slime powder (7 g / 0.24 oz)	1	717710
<input type="radio"/>	22	Yellow slime powder (7 g / 0.24 oz)	1	721541
<input type="radio"/>	23	Red slime powder (7 g / 0.24 oz)	1	721977
<input type="radio"/>	24	Alien reflective particles (glitter) (1 g / 0.03 oz)	1	721976
<input type="radio"/>	25	Sticker sheet	1	721974

**You will also need:** Water, scissors, string, clock or timer, flashlight, darkened room, hot water, bowl

## &gt;&gt;&gt; SAFETY INFORMATION

## Advice for Supervising Adults

With this experiment kit, you will be accompanying your child on an introductory exploration of the fascinating world of chemistry. Please support your child in his or her first chemical experiments and help him or her with both advice and in physically performing experimental steps when help is needed.

Please read and follow these instructions as well as the safety rules. Please keep this information for reference.

This chemical toy is not suitable for children under 6 years. For use under adult supervision. Keep this chemical toy set out of reach of children under 6 years old.

Only carry out those activities which are listed in the instructions.

Because children's abilities vary so much, even within age groups, supervising adults should exercise discretion as to which activities are suitable and safe for them. The instructions enable supervisors to assess any activity to establish its suitability for a particular child.

The supervising adult should discuss the warnings, safety information and the possible hazards with the child or children before commencing the activities.

The working area should be cleaned immediately after carrying out the activity.

Emphasize to your child the importance of following all instructions and warnings, and the importance of carrying out only those experiments that are described in this manual. Inform your child, but do not frighten him or her — there's no need for that.

A dedicated "laboratory" room will not be necessary for these simple experiments. A sturdy table with a washable, heat-resistant surface is good enough. It should be well lit and ventilated, equipped with a nearby water tap, and not too close to any stored foods. The surroundings should be free of all obstacles. Always get any required equipment and chemicals ready before beginning an experiment. Your child should wear old clothes (or an old smock). After completing the experiments, he or she should pick up and clean the work area and thoroughly wash his or her hands.

We hope you and your child have a lot of fun doing these experiments!

Any materials not included in the kit are marked in *italics* in the "You will need" sections.



## Safety Rules

The first thing a lab researcher does is get an overview of what he or she will be doing. All of the experiments described in this manual can be performed without risk, as long as you conscientiously adhere to the advice and instructions. Read through the following information very carefully. Think about everything that you will need. Always pay attention to the safety notes that accompany an experiment.

Read these instructions before use, follow them and keep them for reference.

Keep younger children under the specified age limit and animals away from the activity area.

Store chemical toys out of reach of young children.

Wash hands after carrying out activities.

Clean all equipment after use.

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 activity area.

Make sure that all containers are fully closed and properly stored after use.

Ensure that all empty containers are disposed of properly.

Do not allow slime powder or finished slime to come into contact with the eyes or mouth.

Do not replace foodstuffs in original container. Dispose of immediately.

Do not apply any substances or solutions to the body.

Carefully prepare your work area for the experiments. Clear off the table and gather everything you will need.

Always leave your work area in clean condition. Always pay attention to proper disposal of any residues.

When experimenting, wear old clothes that can take a little abuse, or wear something over your clothes (such as an apron or old shirt).

Take care while handling with hot water or hot solutions. Store solutions out of the reach of small children (under 6 years of age).

Pay special attention to the quantity specifications and the sequence of the individual steps. Only perform experiments that are described in this instruction manual.

Do not use any eating, drinking, or other kitchen utensils for your experiments. Any containers or equipment used in your experiments should not be used in the kitchen afterward.

Immediately wipe up any spills with a paper towel to avoid leaving any stains.

Handle additionally required items made of glass carefully. Do not use broken test tubes or glassware. Throw away broken test tubes and glassware.

Disposal: Throw solid waste away in the household trash. Pour leftover liquid down the sink drain and rinse thoroughly.

If you have any questions about the experiments, your parents or older siblings will be able to help you.

**Now let's get started. Have fun with the experiments!**

## &gt;&gt;&gt; INTRODUCTION

HELLO EXTRATERRESTRIAL RESEARCHER:

THANK YOU FOR JOINING US ON THIS MISSION.  
WE NEED YOUR HELP.

OUR EXPLORATION TEAM ON PLANET CIGNA-17B HAS  
SENT BACK FIVE SAMPLES OF ALIEN MATERIALS.  
THE SAMPLES HAVE BEEN DEHYDRATED FOR  
INTERSTELLAR SHIPPING.

PLEASE REHYDRATE THE SAMPLES FOLLOWING THE  
INSTRUCTIONS IN THIS MANUAL. THEN, CONDUCT THE  
EXPERIMENTS TO TEST THE MATERIALS.

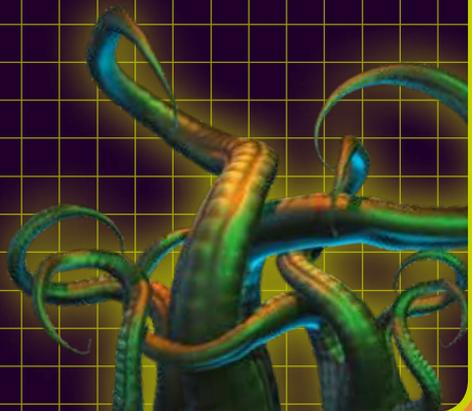
THESE ARE ALIEN MATERIALS BUT OUR TEAM HAS  
DETERMINED THEY ARE NOT TOXIC OR HARMFUL TO  
YOUR HEALTH.

FIRST, PLEASE ASSEMBLE THE LABORATORY BASE  
STATION. INSTRUCTIONS ARE ON THE NEXT PAGE.

THEN, ON THE FOLLOWING TWO PAGES, THERE ARE  
ASSIGNMENTS THAT MUST BE COMPLETED, BASED  
ON THE FINDINGS FROM YOUR EXPERIMENTS.

GOOD LUCK! AND DON'T  
FORGET TO WASH YOUR  
HANDS ... THIS ALIEN  
OOZE SEEMS TO GET  
ALL OVER EVERYTHING!

- MISSION CONTROL





# Lab Station Assembly

Before starting any experiments, follow these instructions to put your Lab station together.

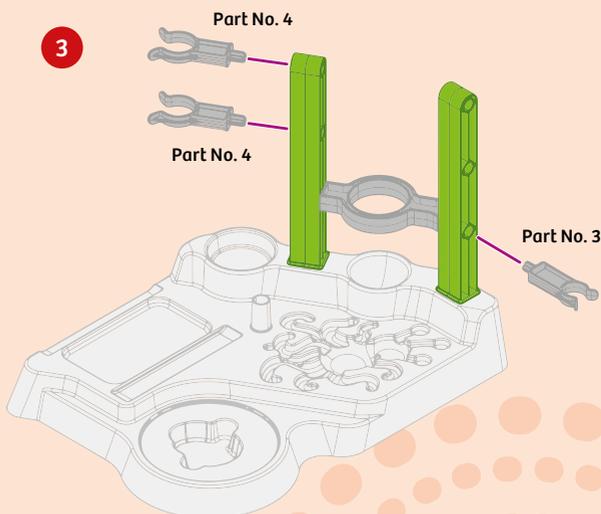
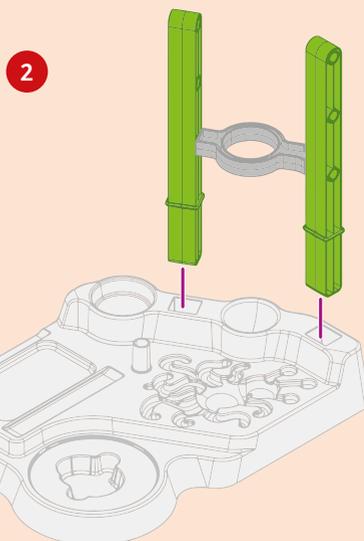
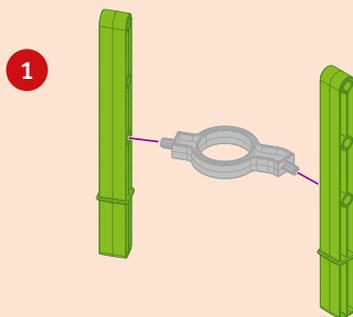
## YOU WILL NEED

All of the pieces of the Lab station

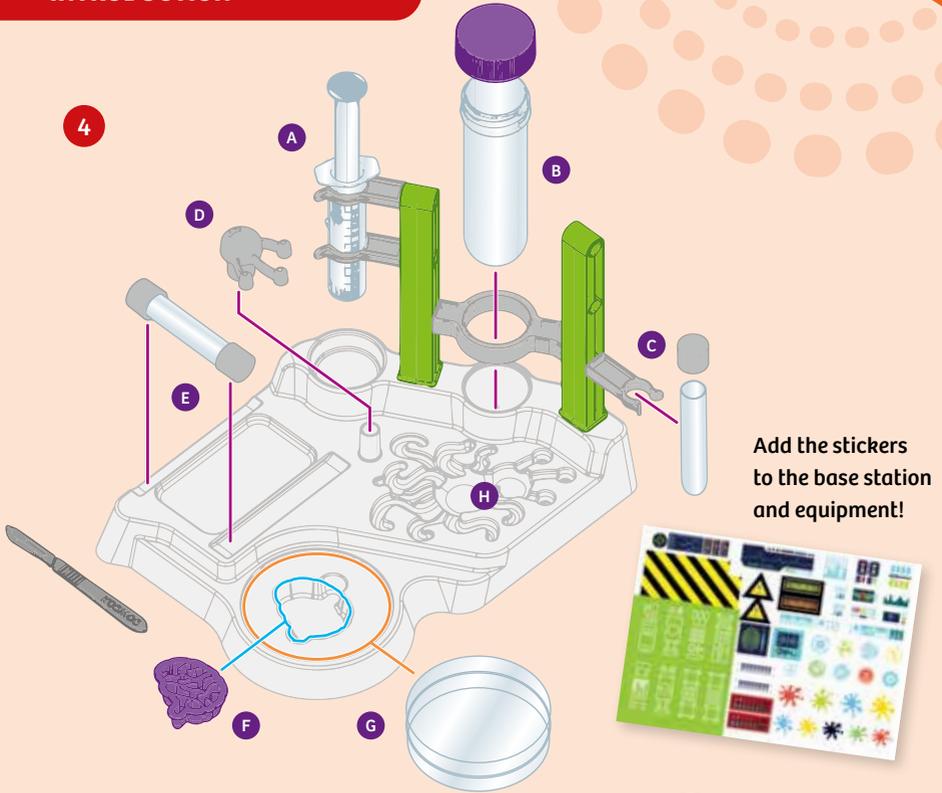
## HERE'S HOW

- 1 Insert the test tube holder into two vertical rods as shown.
- 2 Insert the two vertical rods into the station base as shown.
- 3 Insert the three clips (part numbers 3 and 4 from the kit contents list) into the vertical rods. They are all moveable and can be repositioned for experiments as needed.
- 4 The tools and equipment can be positioned on the station in different places depending on the experiment. This image shows the locations where specific items are designed to fit.

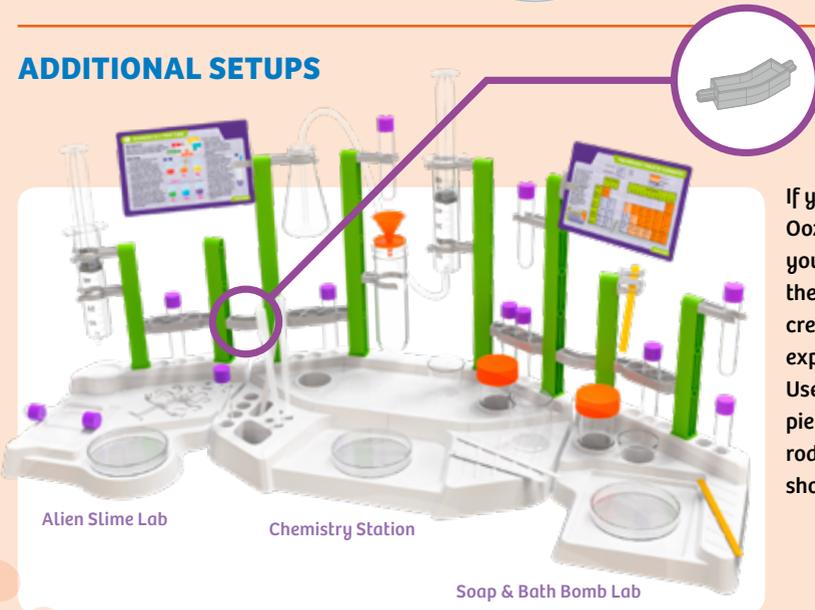
- A Syringe clips
- B Large test tube holder
- C Small test tube clip
- D Alien head stamp holder
- E Rolling pin area
- F Brain stamp recess
- G Petri dish recess
- H Alien slime mold



>>> INTRODUCTION



ADDITIONAL SETUPS



If you have other Ooze Labs kits, you can connect them together to create one larger experiment station! Use the connector piece to attach the rods together as shown.



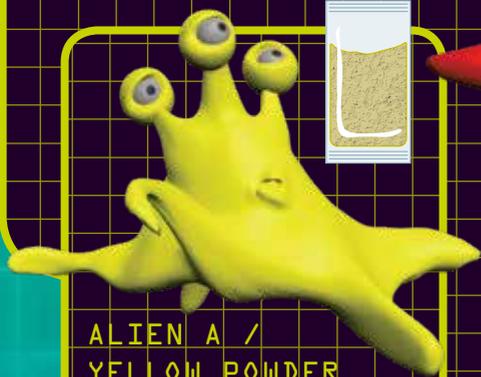
## >>> ALIEN SLIME IDENTIFICATION

ASSIGNMENT 1:  
REHYDRATE THE YELLOW SLIME POWDER.  
CONDUCT VISCOSITY AND GAS TESTS ON THE POWDER.

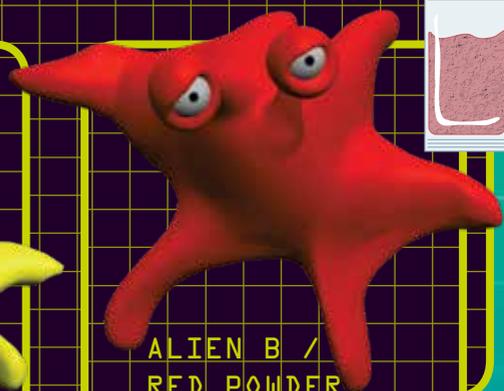
ASSIGNMENT 2:  
REHYDRATE THE RED SLIME POWDER.  
CONDUCT GRAVITY TESTS AND ROLLING TESTS ON THE  
RED AND YELLOW SLIMES.  
USE THE BRAIN CUTTER TO MAKE AN ALIEN BRAIN.

ASSIGNMENT 3:  
REHYDRATE THE GLOW-IN-THE-DARK SLIME POWDER.  
MOLD A GLOWING SLIME ALIEN, MAKE ITS FACE, TEST  
ITS REFLECTIVE PROPERTIES, AND DISSECT IT.

ASSIGNMENT 4:  
REHYDRATE THE HYPERCOLOR SLIME AND TEST ITS  
PROPERTIES.



ALIEN A /  
YELLOW POWDER

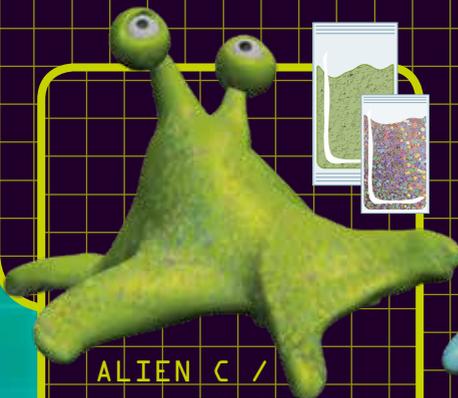


ALIEN B /  
RED POWDER

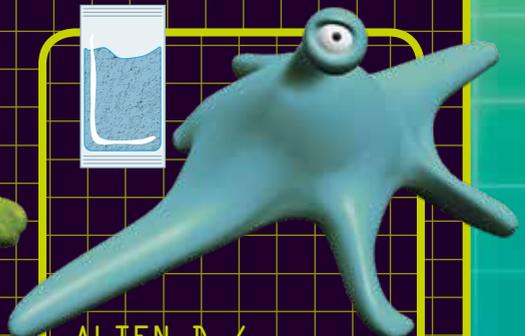
## &gt;&gt;&gt; ALIEN SLIME IDENTIFICATION

AFTER YOU HAVE COMPLETED THE ASSIGNMENTS, PLEASE ANSWER THE FOLLOWING QUESTIONS.

1. BASED ON YOUR EXPERIMENTS, WHICH ALIEN SPECIES (SHOWN BELOW) IS REACTIVE TO LIGHT?
2. WHICH ALIEN SPECIES HAS THE LOWEST LIQUID CONTENT AND IS THE MOST VISCOUS?
3. WHICH ALIEN SPECIES REFLECTS LIGHT?
4. WHICH ALIEN SPECIES REACTS TO HEAT AND WHAT COLOR DOES IT TURN WHEN HEATED?
5. WHICH ALIEN SPECIES CAN BE CUT WITH THE SCALPEL?
6. WHICH ALIEN SPECIES IS THE SMARTEST?
7. OF SPECIES A AND B, WHICH ALIEN CAN ROLL ITSELF OUT INTO A FLAT SHEET EASIER?



ALIEN C /  
GLOW POWDER



ALIEN D /  
HYPERCOLOR POWDER

ASSIGNMENT 1:  
REHYDRATE THE YELLOW SLIME  
POWDER. CONDUCT VISCOSITY  
AND GAS TESTS ON THE POWDER.

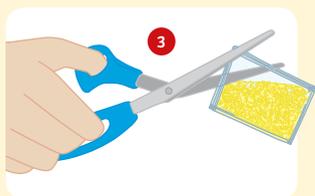
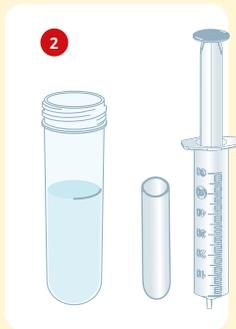
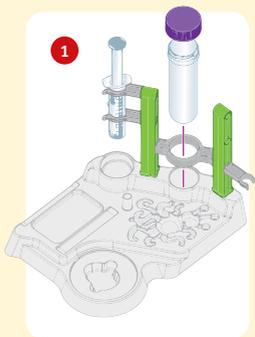
## Rehydrate the yellow alien slime

### YOU WILL NEED

Large test tube, lid, base station, syringe, small test tube, packet of yellow slime powder, spatula, water, scissors

### HERE'S HOW

- 1 Place the large test tube into the holder in the base station.
- 2 Fill the test tube with 75 ml of water. To measure this, you can use the small test tube with which you can measure 10 ml at a time, or the syringe with which you can measure 25 ml at a time.
- 3 Open the packet of slime powder using a pair of scissors. Do not use your teeth. Be careful not to get any of the powder in your eyes or mouth.
- 4 Pour all of the powder slowly into the tube and avoid creating airborne dust.
- 5 Mix the powder into the water with the spatula.
- 6 Close the test tube with the lid and shake it for 30 seconds. Let it sit for a few minutes, and then suck up 10 ml of the slime solution into the syringe, for Experiment 1. Immediately proceed to Experiment 1.
- 7 Let the remaining contents sit, shaking the tube every few minutes, until they have solidified. This takes about 15–20 minutes.



### WHAT'S HAPPENING?

This slime powder contains long **molecules** that are made up of many repeating parts, like the links of a chain. Each molecule can also connect to other long molecules, forming a web. These molecules are called **polysaccharides**. One key property of this big tangled web of molecules is its ability to hold a lot of water! When the dry polysaccharides in the slime powder are mixed with water they form a **gel**, short for gelatinous substance. Gels contain mostly liquids, but behave more like solids. Other ingredients in the slime prevent it from completely solidifying.

## &gt;&gt;&gt; EXPERIMENT 1

# Slime viscosity test

## YOU WILL NEED

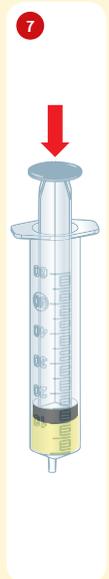
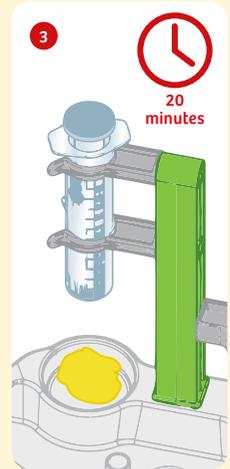
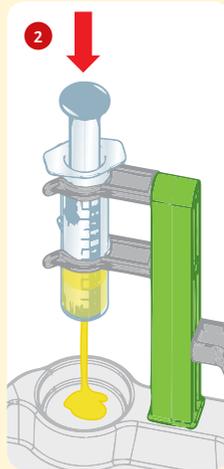
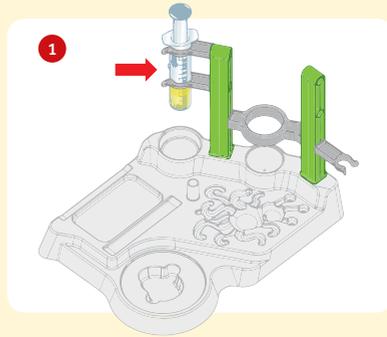
Yellow slime, syringe, base station

## HERE'S HOW

- 1 Starting with the syringe filled with 10 ml of the liquid slime solution from the previous experiment, attach the syringe to the clips on the base station.
- 2 Slowly push down on the syringe plunger to squeeze some solution out of the syringe into the basin below.
- 3 Wait 20 minutes until the slime has completely solidified.
- 4 Remove the syringe from the base station and pull the plunger all the way out of the syringe tube.
- 5 Pick up the solidified slime from the basin and push it into the syringe tube.
- 6 Reinsert the plunger into the syringe tube.
- 7 Now, push the slime out of the syringe again. What do you observe?

## WHAT'S HAPPENING ?

The slime was easier to push through the syringe the first time. The slime solution became thicker, or more **viscous**, over the course of the experiment. **Viscosity** is the scientific term for the measure of a fluid's resistance to deformation (change in shape) by forces applied to it. Honey is more viscous than vegetable oil, which is more viscous than water. And peanut butter is more viscous than all of these!



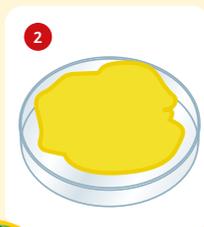
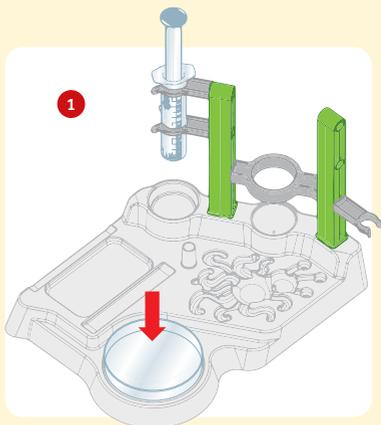
# Slime gas test

## YOU WILL NEED

Petri dish, base station, yellow slime, pipette

## HERE'S HOW

- 1 Place the bottom half of the petri dish in the holder in the base station.
- 2 Put some yellow slime into the petri dish.
- 3 Insert the tip of the pipette into the slime. Squeeze the pipette to blow air into the slime. Can you inflate the slime? Can you make the slime make funny sounds by squeezing the air in and out of it?
- 4 Keep the yellow slime in the petri dish for now.



## WHAT'S HAPPENING?

Although it may appear to be a **solid**, the slime is actually a very **viscous liquid**.

The atoms of solids are packed together densely and have fixed positions in space relative to each other (like bricks in a wall), which makes solids rigid. Liquids have atoms that are packed less densely than are those of solids, and while solids form a rigid shape, liquids move freely. But when liquids are poured into a container, they must conform to the shape of the container, except for possibly one surface (like the surface of water in a fish tank). With the slime, this takes a long time — but it does happen!



Solid



Liquid



Gas

This is not the case for **gases**, which must conform to the shape of the container entirely (like water vapor in a fish tank, which would have no surface different from the walls of the tank). The atoms of gases are packed the least densely of all three phases, and are in relatively random motion. Gases have no definite shape or volume and spread easily to distribute themselves evenly throughout a container.

In this experiment, you made a container for **air** (a gas) out of slime (a liquid). The air pushed outward on the slime in all directions equally, forming a rounded **bubble**.



Soap bubble

## &gt;&gt;&gt; EXPERIMENT PREP

# Rehydrate the red alien slime

## YOU WILL NEED

Large test tube, lid, base station, syringe, small test tube, packet of red slime powder, spatula, water, scissors

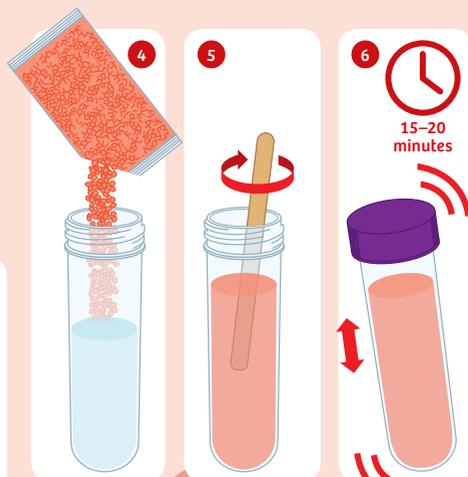
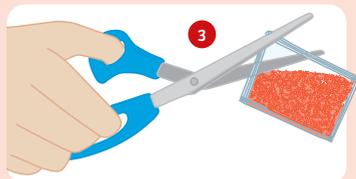
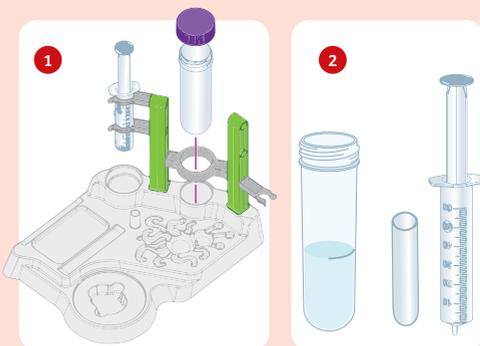
## HERE'S HOW

- 1 Place the large test tube into the holder in the base station.
- 2 Fill the test tube with 55 ml of water — 20 ml less than used in the yellow slime. To measure this, you can use the small test tube or the syringe.
- 3 Open the packet of slime powder using a pair of scissors. Do not use your teeth. Be careful not to get any of the powder in your eyes or mouth.
- 4 Pour all of the powder slowly into the tube and avoid creating airborne dust.
- 5 Mix the powder into the water with the spatula.
- 6 Close the test tube with the lid and shake it for 30 seconds. Let the contents sit, shaking the tube every few minutes, until they have solidified. This takes about 15–20 minutes.

## WHAT'S HAPPENING ?

Just like with the yellow slime, the red slime powder absorbs the water and turns into a slimy substance. Chemically, the only difference between the red and yellow slime powders is the colored dye pigments in them. Continue with the next experiments to see how the amount of water used affects the properties of the red and yellow slimes.

ASSIGNMENT 2:  
REHYDRATE THE RED SLIME  
POWDER. CONDUCT GRAVITY  
TESTS AND ROLLING TESTS ON  
THE RED AND YELLOW SLIMES.  
USE THE BRAIN CUTTER TO MAKE  
AN ALIEN BRAIN.



# Gravity test

## YOU WILL NEED

Yellow slime, red slime, base station, string, clock or timer

## HERE'S HOW

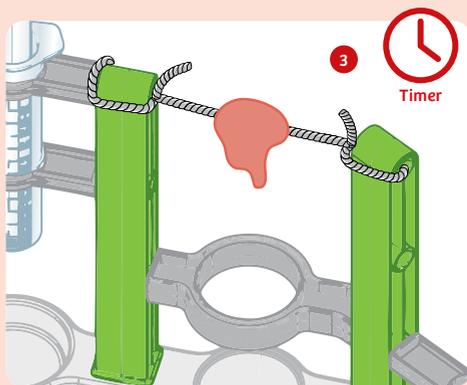
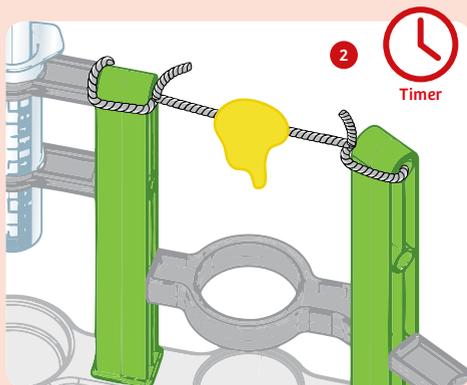
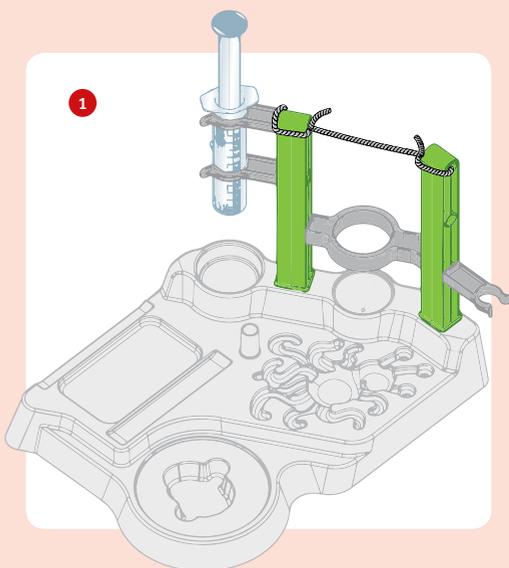
- 1 Tie a string from one vertical rod to the other. Make it as taut as possible.
- 2 Place a small lump of yellow slime — about the size of a grape — on the string, pushing it around the string so that the string is in the center of the slime.

With a timer or a clock, time how long it takes for the slime to ooze down from the string to the station below.

- 3 Now repeat steps 2 and 3 for the red slime. What do you notice?
- 4 Keep the red slime in the large test tube and the yellow slime in the petri dish for now.

## WHAT'S HAPPENING?

The yellow slime has more water content, and therefore it is less viscous and more likely to flow off of the string faster, than the red slime, which has less water content. However, there are some other factors here, such as the amount of each slime you stuck onto the string. A small amount of slime will stick to the string better than a large amount of slime, because there is an adhesive property to the slime. The slime is adhesive because the molecules at its surface are attracted to the surface molecules of the string. This is what enables the slime to temporarily stick to the string.



## &gt;&gt;&gt; EXPERIMENT 4

# Rolling out

## YOU WILL NEED

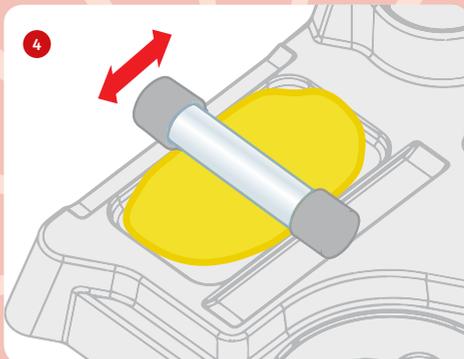
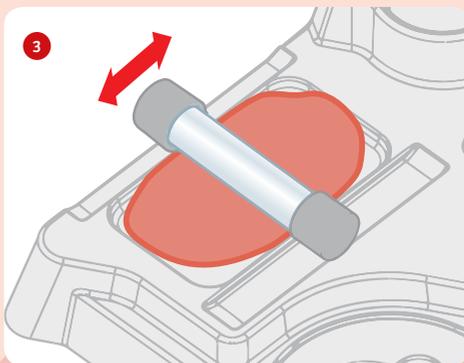
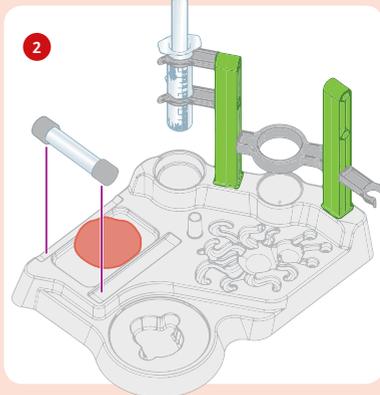
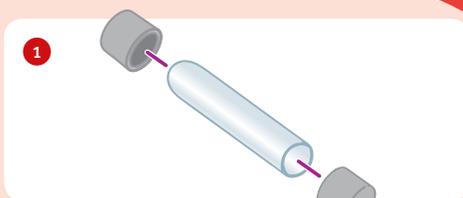
Small test tube with lid, test tube ring, red slime, yellow slime, base station

## HERE'S HOW

- 1 Screw the lid onto the small test tube. Slide the test tube ring onto the other end of the test tube. This converts the small test tube into a rolling pin!
- 2 Place a lump of red slime — about the size of a ping pong ball — in the rolling area on the base station.
- 3 Start rolling the slime back and forth with the rolling pin. Eventually, you can get the ends of the rolling pin to sit in the channels on either side of the rolling area. Then, you can roll back and forth to make a smooth, flat piece of slime.
- 4 Now try steps 2 and 3 with the yellow slime. What do you notice about the difference between the red and yellow slime?
- 5 Keep the red slime in the large test tube and the yellow slime in the petri dish for now.

## WHAT'S HAPPENING ?

The red slime has less water content, and therefore it is a stiffer and thicker slime. This makes it more resistant to being rolled out into a flat sheet.



# Slime brain

## YOU WILL NEED

Brain cutter, red slime, base station

## HERE'S HOW

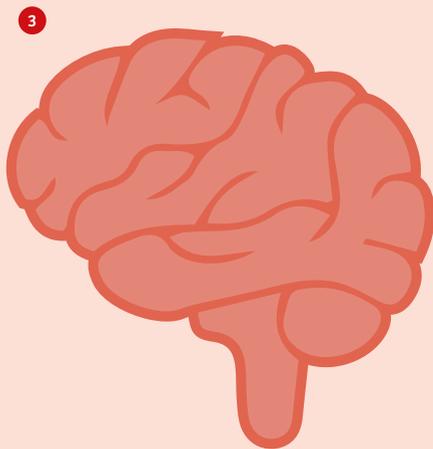
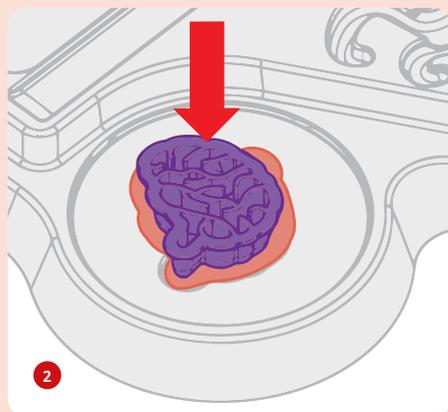
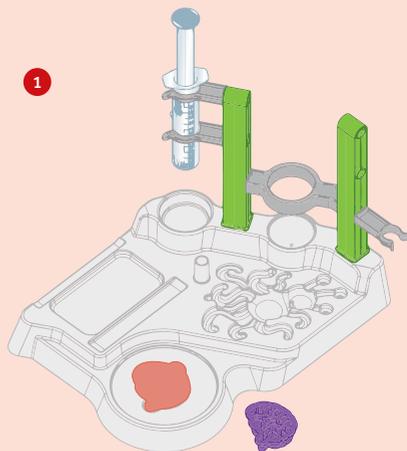
- 1 Fill the brain cutting recess with red slime.
- 2 Position the brain cutter over the brain cutting recess. Push down on the brain cutter to cut a brain shape out of the slime. Remove the slime brain from the recess and peel it out of the brain cutter.
- 3 What do you notice about the shape the brain cutter made in the slime? You can also try cutting the slime with the brain cutter on the flat rolling area of the station.
- 4 Keep all of the red slime in the brain cutting recess area for now.

## WHAT'S HAPPENING ?

You made a fake brain out of slime. The brain cutter works like a cookie cutter in cookie dough. Parts of the cutter cut all the way through the slime, while other parts just left impressions in the slime.

An actual brain is made of billions of brain cells. As you already learned, the slime is mostly made of polysaccharides. Polysaccharides are a type of biological **polymer**. A single polymer molecule is made up of hundreds of thousands of repeating units known as **monomers**. The monomers may be identical or they may vary. The monomer in this slime is a type of simple sugar molecule.

This slime brain and a real brain have an interesting similarity: they are both mostly made of **water!**



## &gt;&gt;&gt; EXPERIMENT 6

**ASSIGNMENT 3:**  
 REHYDRATE THE GLOW-IN-THE-DARK SLIME POWDER.  
 MOLD A GLOWING SLIME ALIEN,  
 MAKE ITS FACE, TEST ITS  
 REFLECTIVE PROPERTIES, AND  
 DISSECT IT.

## Glowing slime alien

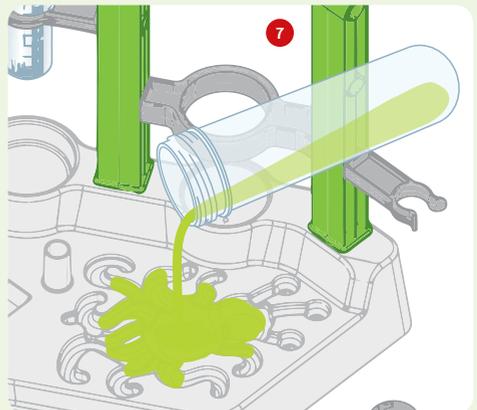
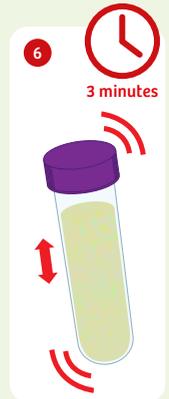
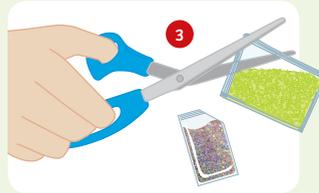
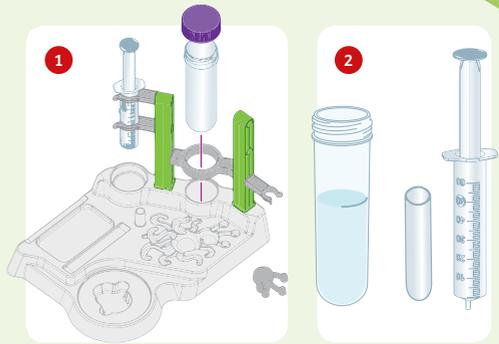
### YOU WILL NEED

Glow-in-the-dark slime powder, alien reflective particles, spatula, large test tube, lid, base station, alien head stamp, tweezers, petri dish, scissors, water

### HERE'S HOW

- 1 Place the large test tube into the holder in the base station. Make sure the station is level on the work surface.
- 2 Fill the test tube with 75 ml of water. To measure this, you can use the small test tube or the syringe.
- 3 Cut open the packets of slime powder and reflective alien particles with scissors.
- 4 Pour the contents of both packets slowly into the tube and avoid creating airborne dust.
- 5 Stir the test tube contents with the spatula.
- 6 Close the test tube with the lid and shake it for 30 seconds. Let the contents sit for three minutes, shaking the tube a few times each minute.
- 7 Slowly pour the slime solution into the center of alien mold in the base station. Give the solution time to flow out into the tentacles.

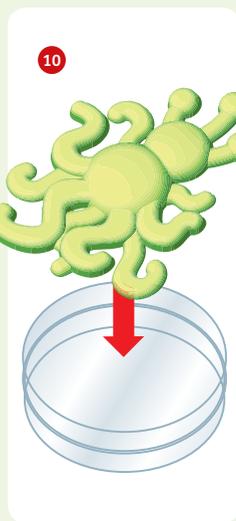
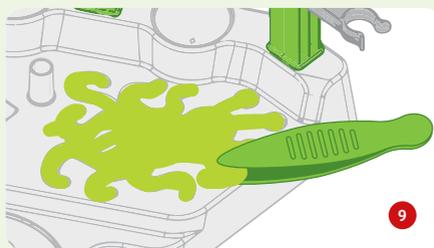
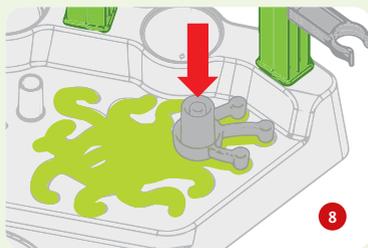
Continued on the next page.





Continued from the previous page.

- Stamp the alien head stamp into the head area of the mold.
- Remove the slime alien shape from the mold with the tweezers!
- Store the slime alien in the petri dish.



## WHAT'S HAPPENING ?

By pouring the slime solution into the mold before it had completely solidified, you were able to mold the alien shape out of slime.

### >>> EXPERIMENT 7

## Alien face

### YOU WILL NEED

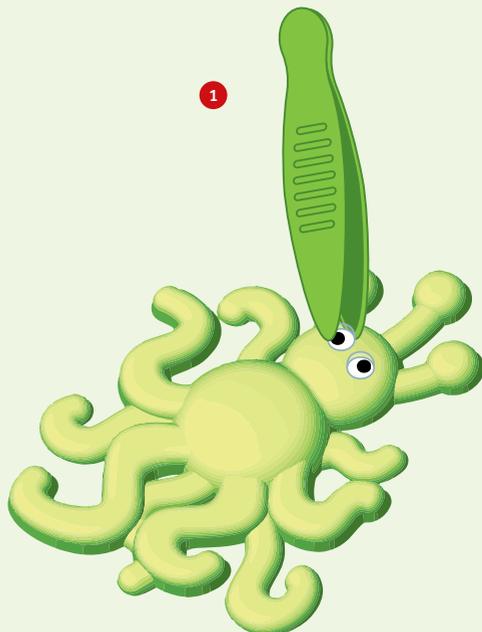
Googly eyes, slime alien, tweezers

### HERE'S HOW

- Carefully pick up a googly eye with the tweezers and position on the alien wherever you imagine the alien's eyes might be.

## WHAT'S HAPPENING ?

Scientists use tweezers, which they often call forceps, to perform delicate operations when human fingers are not small or nimble enough.



## &gt;&gt;&gt; EXPERIMENT 8

# Sparkling and glowing alien

## YOU WILL NEED

Glowing slime alien, *flashlight*, *darkened room*

## HERE'S HOW

- 1 Turn on a flashlight and aim it at the glowing slime alien. Move the flashlight and the alien. What do you notice about the reflective alien particles embedded in the slime?
- 2 Now darken the room as much as possible. Observe the alien. What do you notice?

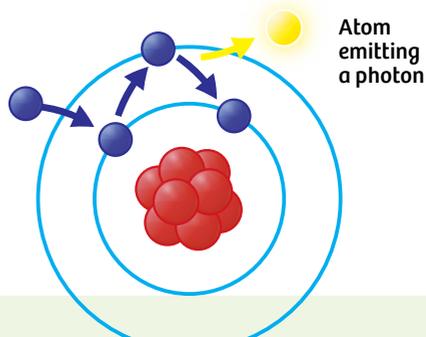
## WHAT'S HAPPENING ?

The shine of the reflective alien particles (which is actually just glitter) is created when particles of light, called **photons**, bounce off of the small flat surfaces of the reflective pieces in different directions. Each one is like a tiny mirror. The light changes color with the movement of the observer or the object. When the color of the reflected light changes like this, it is called **iridescence**.

As for the glowing effect, a solid substance that lights up when exposed to energy, like light or electricity, is called a **phosphor**. A phosphor can be **phosphorescent**, which stays glowing after the energy source is removed, or **fluorescent**, which only glows while the energy is present and for a brief moment after. The reason that a phosphorescent material glows after the light source has been removed is because the molecules in the material store the incoming light energy and then gradually emit it in the form of light.



Boy covered in fluorescent paint



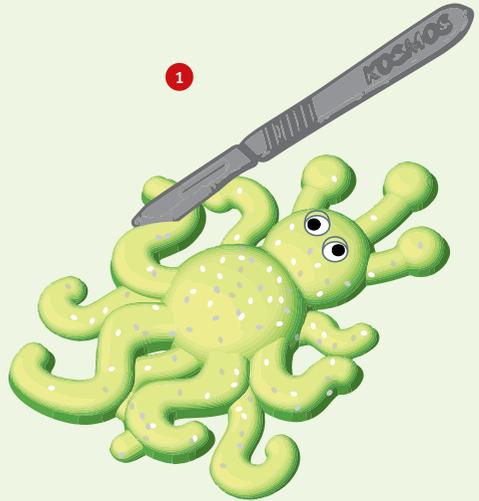
# Alien dissection

## YOU WILL NEED

Plastic scalpel, slime alien, base station

## HERE'S HOW

- 1 Place the slime alien on the flat surface of the rolling pin area on the base station. With the scalpel, practice cutting through the alien.



## WHAT'S HAPPENING ?

You are performing a pretend dissection on the make-believe alien. The plastic **scalpel** in this kit is not sharp. A real scalpel is a very sharp tool that is used to slice into animal and plant tissues in dissections, and also in surgery.

A **dissection** is the careful separation of the various parts of a plant or deceased animal for the purpose of studying its anatomical structure. In a real plant or animal, there are many different parts, and each part performs different functions. Dissections have been used for centuries to better understand the inner workings of various organisms.

Your slime alien is not a real lifeform. However, it is made of some organic materials that originated from plants.



A real scalpel

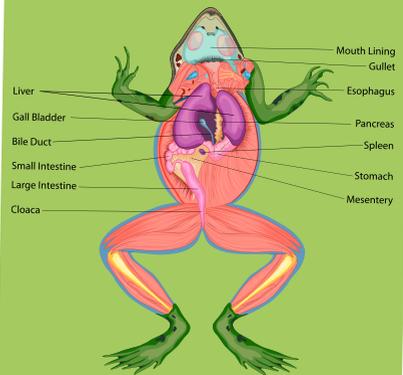


Diagram of a frog dissection

&gt;&gt;&gt; CHECK IT OUT

## The Search for Extraterrestrial Life

Are we alone?

This is a question that has been on scientists', explorers' and many other people's minds for centuries. **SETI**, or the **Search for Extraterrestrial Intelligence**, is the name for all sorts of ideas and activities that involve the search for intelligent life on other planets.

The first question we should consider is: Are there planets that may be able to support life in the universe? You may find the answer a bit surprising. In just our galaxy alone, the Milky Way Galaxy, there are anywhere from 200 to 400 billion stars and 50 billion planets. In recent studies, it has been estimated that 500 million of these planets may be able to support life or have environments similar to Earth.

One of the most common ways scientists look for possible life in space is by listening for and looking at electromagnetic radiation. **Electromagnetic** radiation exists all around us, all the time. Anytime you watch TV, listen to



the radio, or use your microwave, there are electromagnetic waves present. We can tell the difference between types of electromagnetic radiation by comparing the distances between their wavelengths.

Scientists at the Search for Extraterrestrial Intelligence Institute use large radio telescopes to listen and see if there is intelligent life somewhere in the universe that is trying to communicate using a type of technology that emits electromagnetic radiation. What would you do if we received a signal? Do you think we should respond?



A radio telescope



# Rehydrate the hypercolor alien slime

## YOU WILL NEED

Large test tube, lid, base station, syringe, small test tube, packet of hypercolor slime powder, spatula, *water*, *scissors*

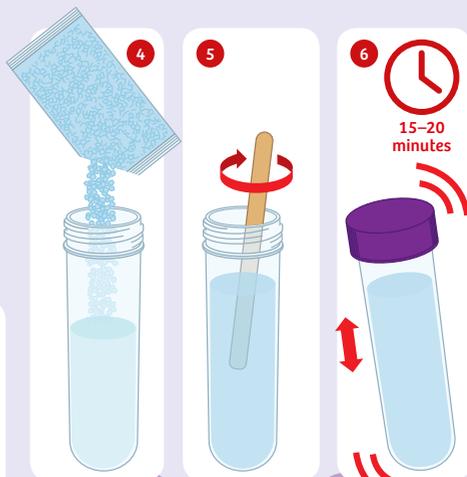
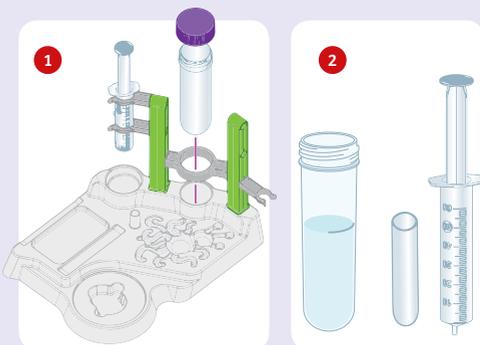
## HERE'S HOW

- 1 Place the large test tube into the holder in the base station.
- 2 Fill the test tube with 75 ml of water. To measure this, you can use the small test tube or the syringe.
- 3 Open the packet of slime powder using a pair of scissors. Do not use your teeth. Be careful not to get any of the powder in your eyes or mouth.
- 4 Pour all of the powder slowly into the tube and avoid creating airborne dust.
- 5 Mix the powder into the water with the spatula.
- 6 Close the test tube with the lid and shake it for 30 seconds. Let the contents sit, shaking the tube every few minutes, until they have solidified. This takes about 15–20 minutes.

## WHAT'S HAPPENING ?

By now you are getting the hang of mixing the slime. This slime is also chemically identical to the other slimes in this kit, except for the pigment in it. This slime has a very special pigment in it — to learn about what it does, proceed to the next experiment.

ASSIGNMENT 4:  
REHYDRATE THE HYPERCOLOR  
SLIME AND TEST ITS  
PROPERTIES.



## &gt;&gt;&gt; EXPERIMENT 10

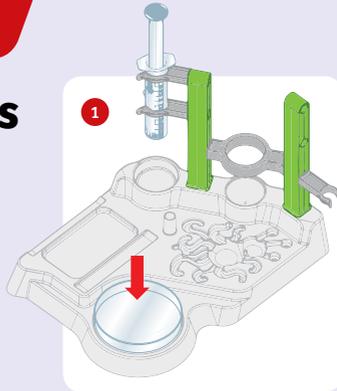
# Hypercolor slime tests

## YOU WILL NEED

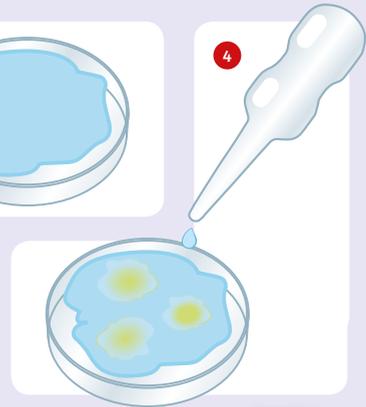
Hypercolor slime, base station, petri dish, pipette, *hot water (from the tap)*, bowl

## HERE'S HOW

- 1 Place the petri dish in the base station.
- 2 Fill a small bowl with hot tap water. The water should be the hottest water you can get from the tap, but not boiling. Have an adult help you with the water. Be careful when working with hot water.
- 3 Place the hypercolor slime in the petri dish.
- 4 With the pipette, slowly place drops of hot tap water on the slime. What happens to the color of the slime in the spots where the hot water touches it? Then, let the slime cool down to room temperature. What happens when the slime has cooled down?



**Caution!**  
**Hot water!**



## WHAT'S HAPPENING ?

A material that changes color due to a change in temperature is called **thermochromic**. A thermochromic material changes color because when it is heated, the way that its molecules absorb and release light changes. This process is reversible because it does not involve a change in the structure of the molecules in the material. This type of change is called a **physical change**. A classic example of a thermochromic material is a **mood ring** which changes color in response to the wearer's body heat. There are two common groups of thermochromic materials: **liquid crystals** and **leuco dyes**. As the name suggests, liquid crystals are materials that are in a state between a liquid and a crystal solid. A common use for liquid crystals is in liquid crystal displays (LCDs), which are used in TVs and computer monitors. Leuco dyes are chemicals that can switch between two different forms, one of which is colorless, depending on exposure to light, heat, or pH.

Mood ring



LCD screen





EXTRATERRESTRIAL RESEARCHER:

THANK YOU FOR CONDUCTING THE EXPERIMENTS AND TRANSMITTING YOUR ASSIGNMENT DATA. WELL DONE.

WE HAVE CHECKED AND VALIDATED THE DATA. HERE ARE THE CORRECT ANSWERS:

1. ALIEN SPECIES C IS REACTIVE TO LIGHT.

2. ALIEN SPECIES B HAS THE LOWEST LIQUID CONTENT AND IS THE MOST VISCOUS.

3. TRICK QUESTION! THEY ALL REFLECT LIGHT. BUT THE REFLECTIVE PARTICLES IN SPECIES C ARE THE MOST REFLECTIVE ELEMENTS.

4. ALIEN SPECIES D REACTS TO HEAT. IT TURNS FROM BLUE TO GREEN WHEN HEATED.

5. ALL OF THE ALIEN SPECIES CAN BE CUT WITH THE SCALPEL.

6. INCONCLUSIVE. BUT YOU DID MAKE THE SLIME FROM ALIEN SPECIES B INTO A BRAIN SHAPE!

7. ALIEN SPECIES A IS EASIER TO ROLL OUT INTO A FLAT SHEET.

OVER AND OUT. — MISSION CONTROL



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