

sandwich SCIENCE

a Mini unit

to teach students
about germs and
the importance of
hand washing!



By KELLY BATES

TERMS of USE

First of all, I just want to say, I see you, teacher. Working late hours, drinking far too much caffeine just to feel like a human, spending your own money buying things like this to help your students grow. Please, be reminded and encouraged that you are an amazing teacher. Your students are so lucky to have a teacher that loves them and cares for them the way that you do! You are doing a great job! You are appreciated!!!

*Please give credit where credit is due. Don't give away to others or claim as your own.

*This purchase is for YOUR CLASSROOM ONLY. If you want to share with a friend, additional licenses may be purchased for a discount.

*Mistakes happen. Please (kindly) let me know if I made one so I can fix it right away! (buildingbrillianceblog@gmail.com)

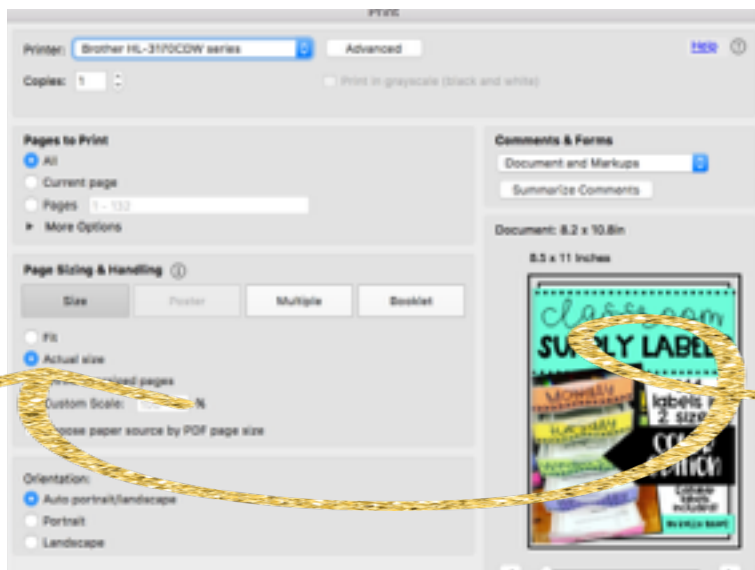
*If you love this, please leave me some feedback and consider following my TPT store!

Want to see how I use these and more? click any of the buttons below to find me!



PRINT HELP

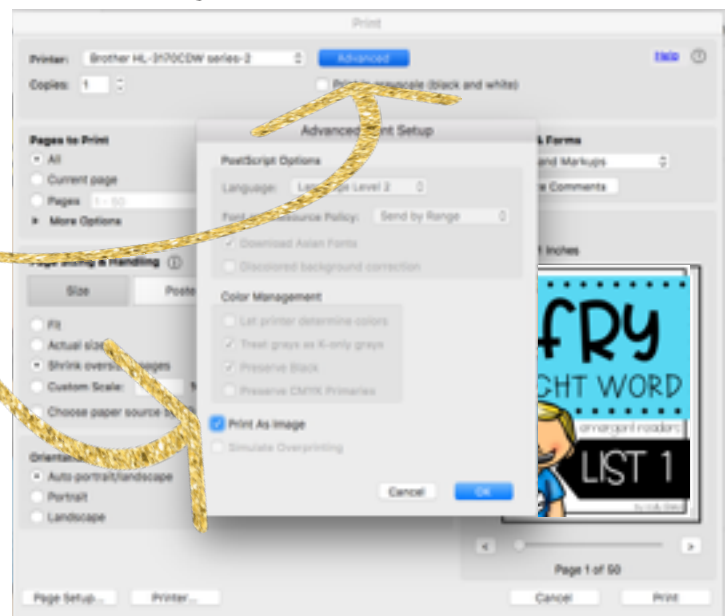
If you are having trouble printing this document to the correct size...



From your print system dialog, choose "actual size" as your size option. This should make these images print to correct size. :) If you choose "fit" they will just print a little smaller.

If you are having trouble with some letters missing from pages...

From the same print system dialog, click "advanced". A new window will pop up that says "Advanced Print Setup", click "Print as Image" and this should fix the problem! If you want a permanent fix, be sure that you are using the most current version of Adobe and that your print driver is updated! :)



QUICK FIND

examples &
directions

practice
sheets

word bank
& writing

poster &
song

science
fair

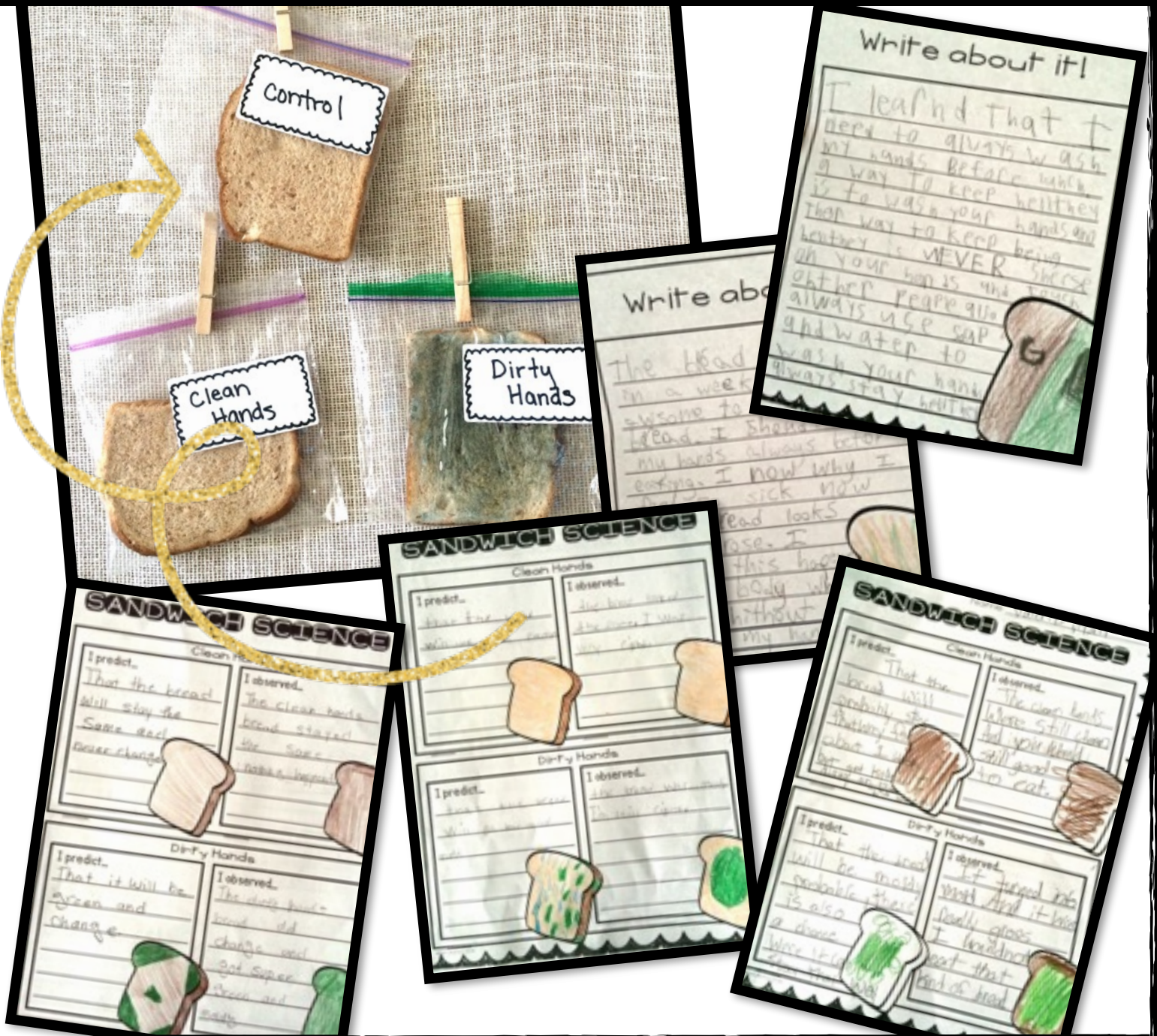
answer
keys

Click on the word you want to go straight to that page!

examples & Directions



EXAMPLES from MY CLASS



FREQUENTLY ASKED QUESTIONS

Hand washing is an important habit for students to develop in order to help reduce spreading of bacteria and viruses that may cause sickness. Because germs cannot always be seen, kids don't always realize that they are even present. This experiment will help give students a visual to help them understand that germs, even though they cannot be seen, can still impact their health.

The question I get asked the most is "What kind of bread should I use?" Honestly, any bread will work! I have used my local store brand bread each year and it has worked great for me. That said, bread without preservatives i will mold faster. White bread is easier to see bacteria growth. OR, take it one step further and try a couple different types of bread and compare/contrast them! :) If you are using bread with preservatives, expect about a 2 week window before you will see a lot of activity. If you want to see growth happen faster, use a spray bottle to add a little moisture, since fungus likes moisture to grow.

When we do this experiment in my class, I let my students put both the dirty and clean hands bread in the bags, but I put the control piece in a bag using a disposable glove. I pick a couple kids to go wash their hands and they come back, touch the bread, and put the bread in the bag. For the dirty hands...I literally have my class pass the piece of bread around to everyone who wants to touch it. If you wan too expand it, I have included a few more labels that you can try a wide variety of variables. (If you decide to use multiple types of bread, be sure to label each of them to compare.)

Hope this helps clarify some of your questions!

Kelly

PREPARE the EXPERIMENT

1. Place 3 pieces of bread in their own separate Ziploc bags. Label one bag "control", one "clean hands" and one "dirty hands".
2. Have a volunteer go wash their hands with soap and water and touch the "clean hands" bread slice.
3. Have one or many volunteers touch the "dirty hands" bread slice. I allowed my kids to rub their hands on their shoes, etc to get maximum germs on that bread slice.
4. Leave the control bread in the bag.
5. Place in a part of the room where it can easily be seen. Observe changes for 2-4 weeks.

*Please note: This is an experiment with many variables. I cannot promise a certain outcome for you. I have; however, had great success with my own students. If you live in a warm environment, your bread may mold faster or differently. Overly processed bread may mold differently than fresh baked bread. Try different variables to see how they work for you. Experiment! (And if you reaaaaalllly want your "germy" bread to mold, add a little moisture. ;)

BAG LABELS

Cut out these labels and tape to the outside of the bread bags to help students remember which bread had which variable.

CONTROL

CLEAN
HANDS

DIRTY
HANDS

Want to expand this experiment? Try it with even more variables!

- Different types of bread
- Different germs on bread (rubbed on floor, set on desk, spit on, rubbed on shoe, send down the slide, etc)
- Bread touched by hands washed without soap or with hand sanitizer

RUBBED
ON FLOOR

HAND
SANITIZER

White
BREAD

WHEAT
BREAD

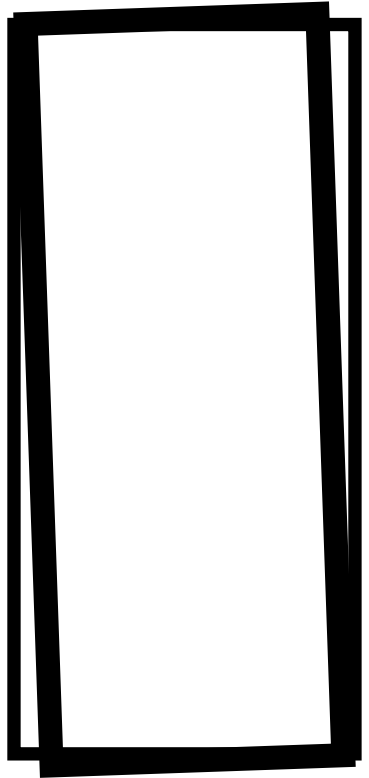
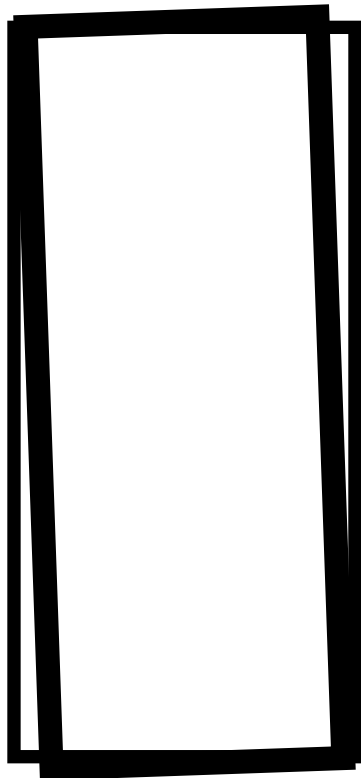
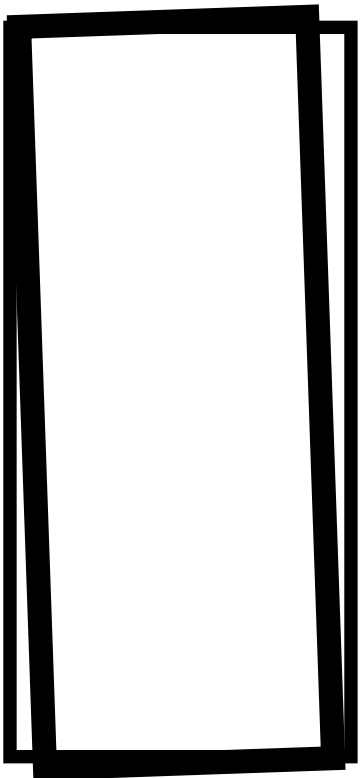
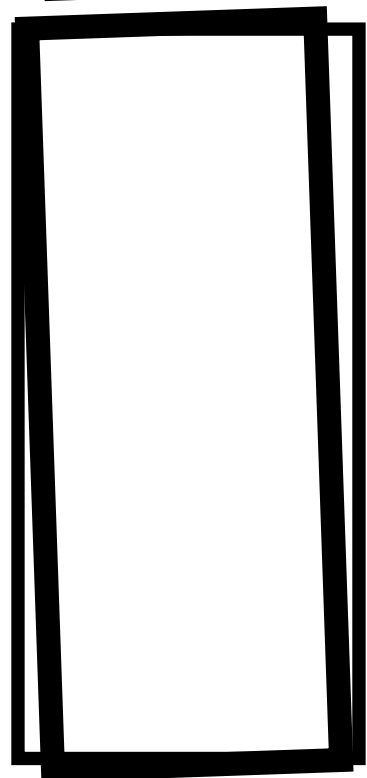
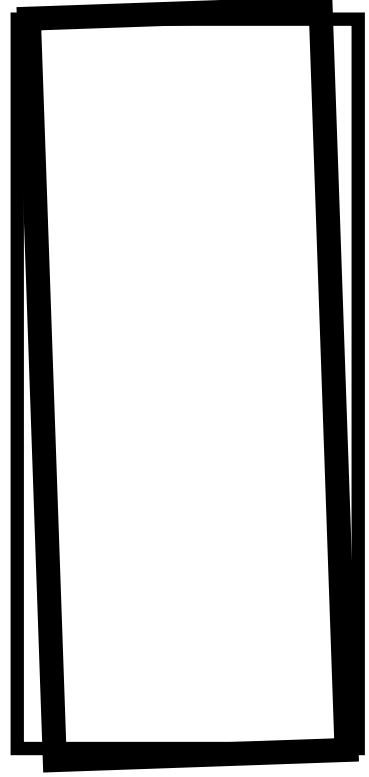
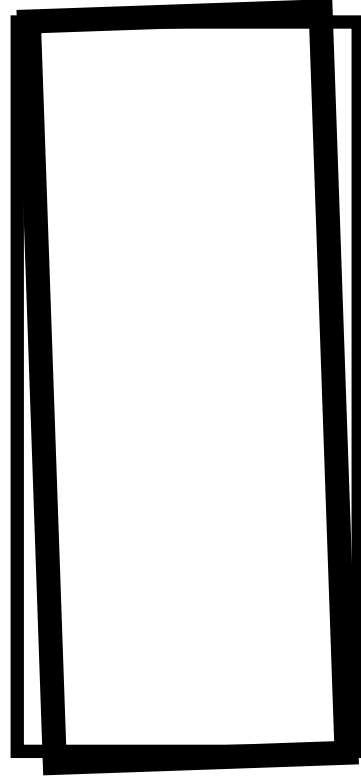
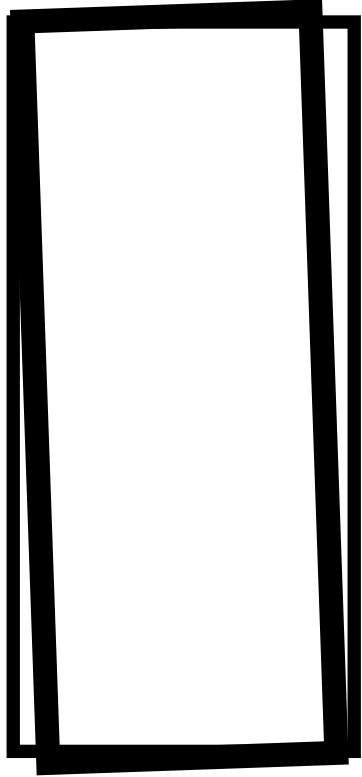
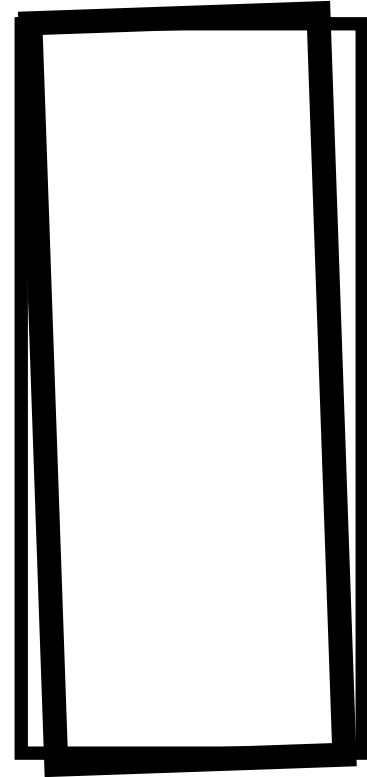
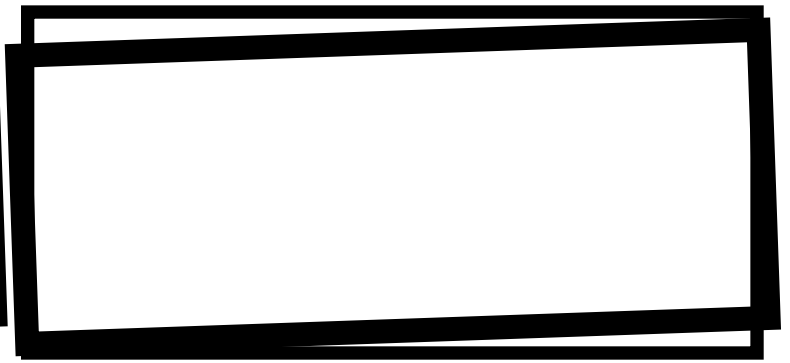
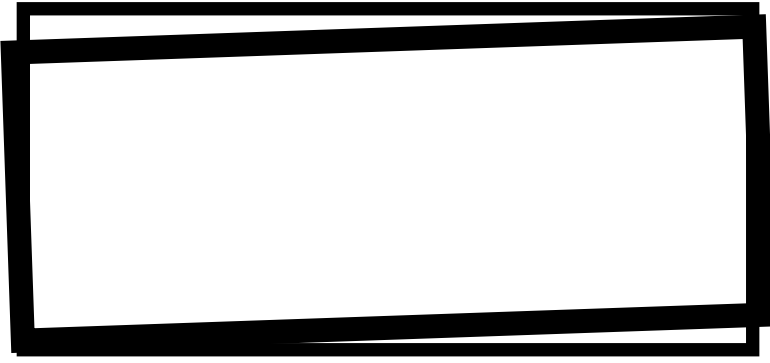
COUGHED
ON

WATER
ONLY

LICKED

RUBBED
ON SHOE

Blank Labels. Fill in the labels with variables you choose.



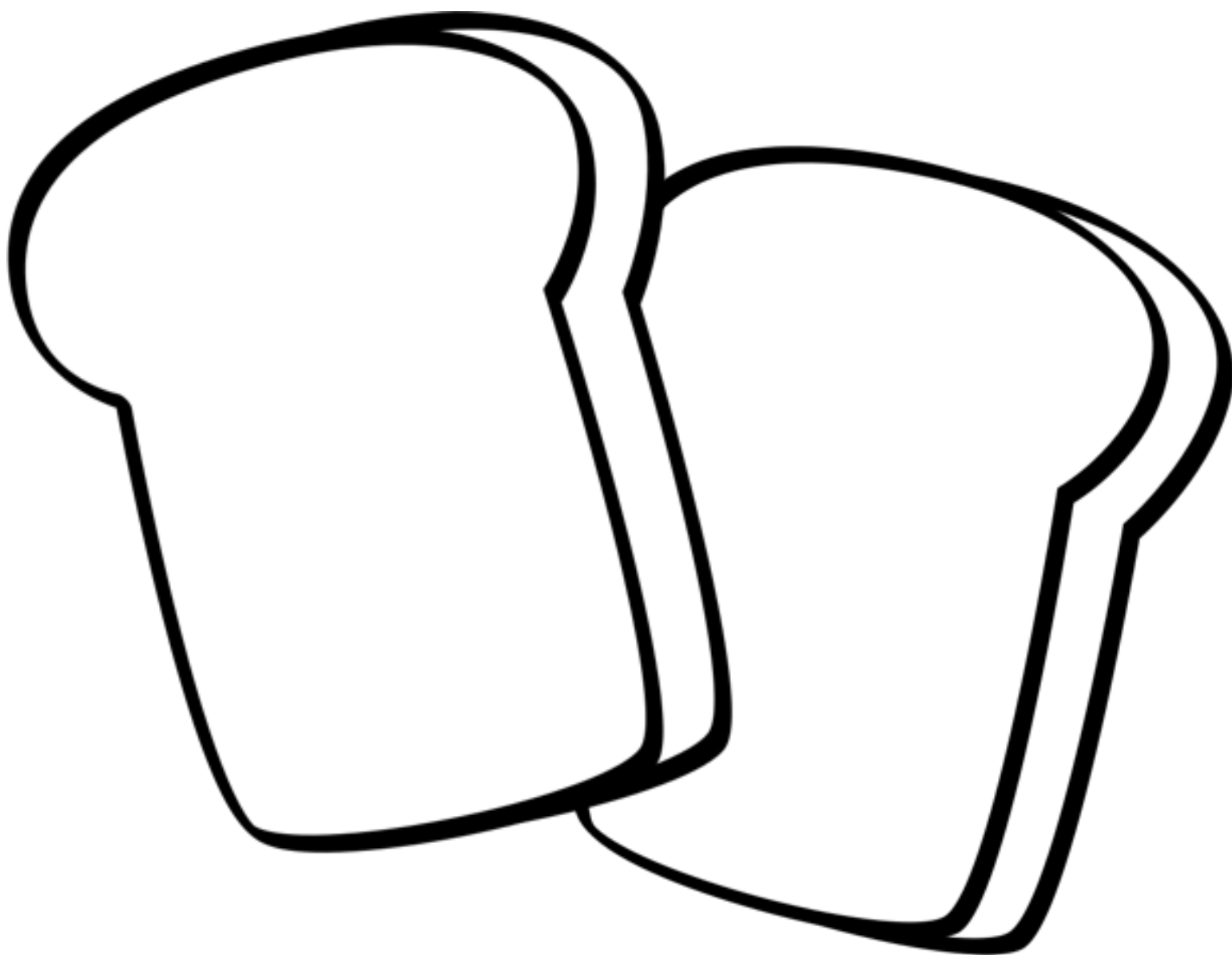
PRACTICE SHEETS



Use these pages as standalone, or group them together and create a journal. If you make a journal, I recommend folding an 11x18 sheet of construction paper in half and adding these pages inside. They can easily be stapled into a journal. *You will want to make extra copies of the observation page.*

'S

OBSERVATION JOURNAL



Name _____

my SCHEMA

What I know about germs:

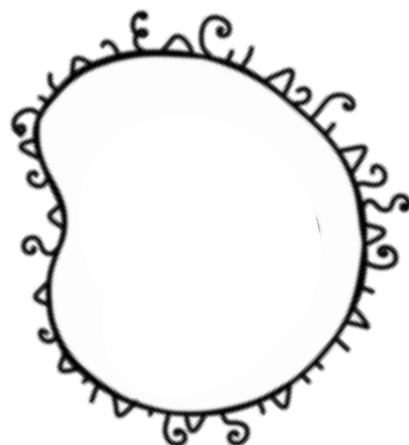
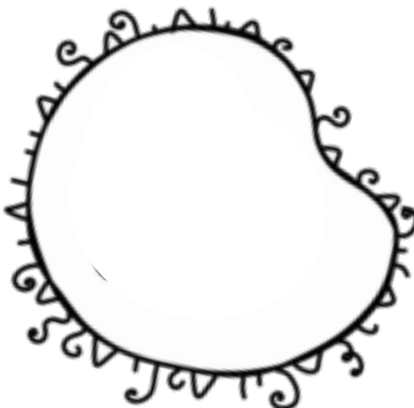
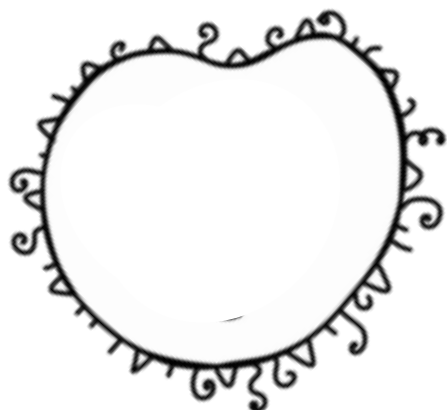
What I want to know about germs:

What I learned about germs:

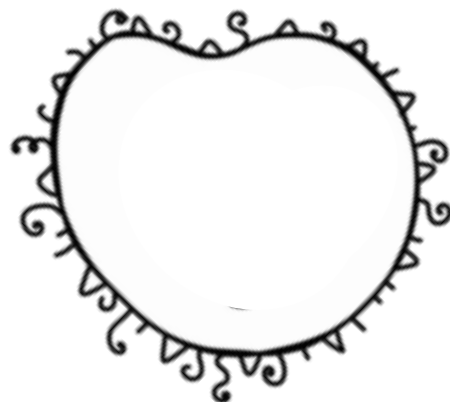
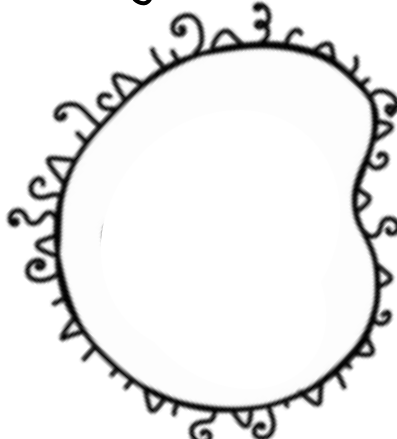
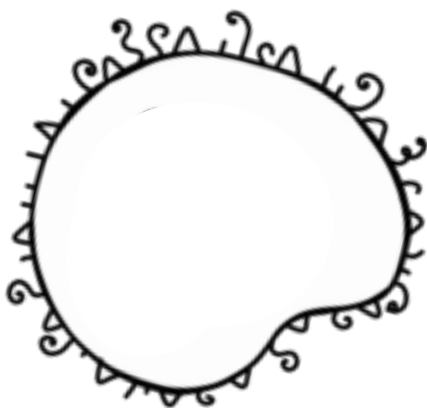
Name _____

my SCHEMA

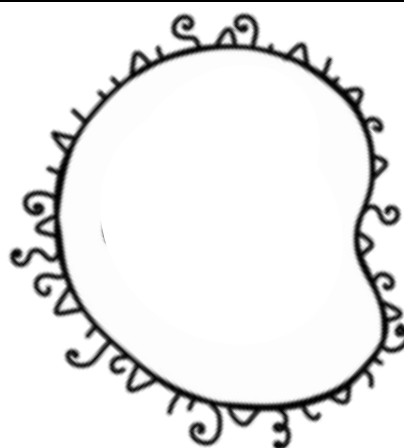
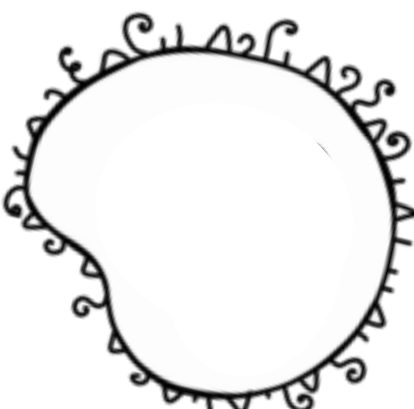
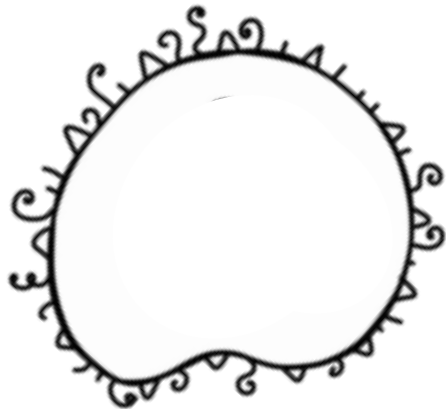
What I know about germs:



What I want to know about germs:



What I learned about germs:

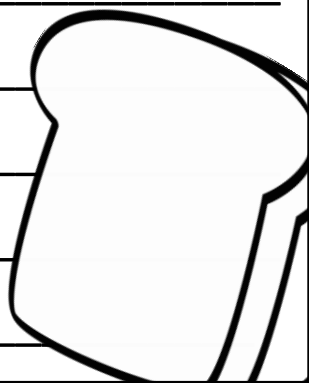


Name _____

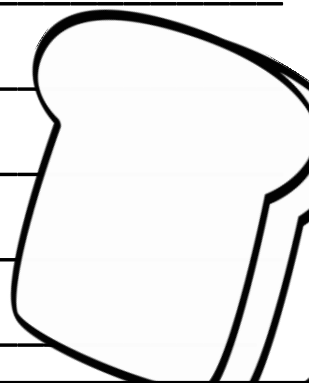
My Predictions

Clean Hands

I predict...

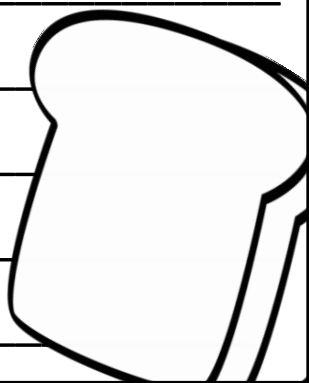


I observed...

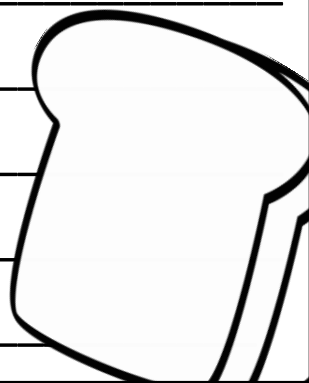


Dirty Hands

I predict...



I observed...



Name _____

WORDS TO KNOW

organism

tiny living thing

environment

where something lives

nutrients

food needed for
survival

reaction

a response to
something

host

place where a germ
lives

observe

to watch something
closely

survival

how something lives

predict

make a good guess of
what will happen

Name _____

ALL ABOUT GERMS

Germs are found everywhere; however, they are so small that you need a microscope to actually be able to see them! All germs are tiny living things called organisms. There are four main types of germs: bacteria, virus, fungi, and protozoa.

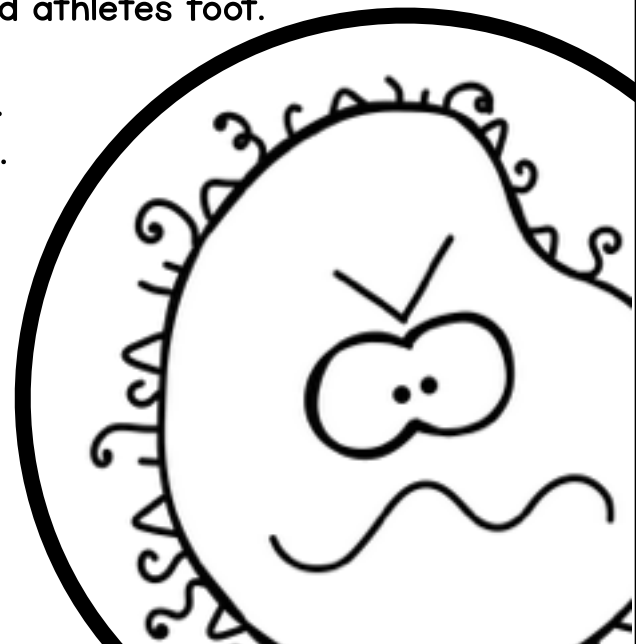
Bacteria are organisms that survive by eating the nutrients in their environment. Their environment could be animals, people, or non-living objects like tables, sports balls, or pencils. When bacteria get inside a person's body, it feeds off of that environment too. Some bacteria are good for you, but some are not. You might feel sick if bad bacteria gets inside your body. Examples of bacteria sicknesses are ear infections and cavities.

Viruses are organisms that need a host in order to survive. A host must be something living like a person, plant, or animal. Viruses cannot survive for very long without a host, so washing your hands regularly helps to kill viruses. Viruses can make a person feel very sick if they get inside their body, just like bacteria can! Examples of virus sicknesses are the chickenpox and flu.

Fungi are plant-like organisms. They also get their nutrients from something living, but don't attack from the inside like bacteria and viruses. Fungi grow in places that are damp and warm. Fungi can cause an external, or outside, reaction on a person. Examples of fungi sicknesses are warts and athlete's foot.

Protozoa are organisms that also love moisture. They can live in places like swimming pools and lakes. When protozoa are ingested, or swallowed, they can spread disease and make a person feel very, very sick. Diarrhea and nausea can be symptoms of a protozoa sickness.

Germs are found everywhere. It's important to help stop the spread of bad germs by washing your hands regularly with soap and warm water, especially before you eat!



Name _____

ALL ABOUT GERMS

1. Are germs living or non-living?

2. Where are germs found?

3. What kind of germ grows in bodies of water?

4. What are some examples of sicknesses caused by germs?

5. Write the four main types of germs.

6. How can you help prevent the spread of germs?

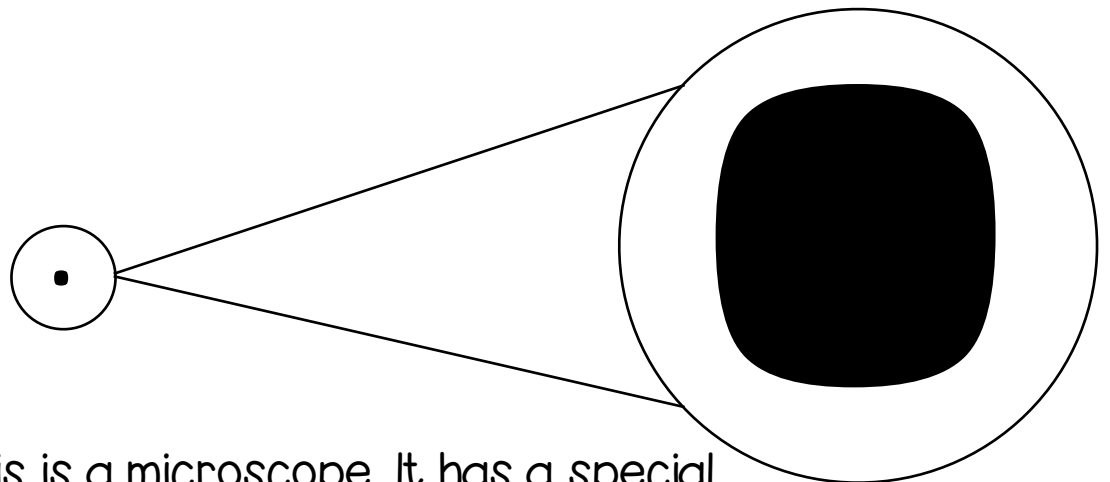
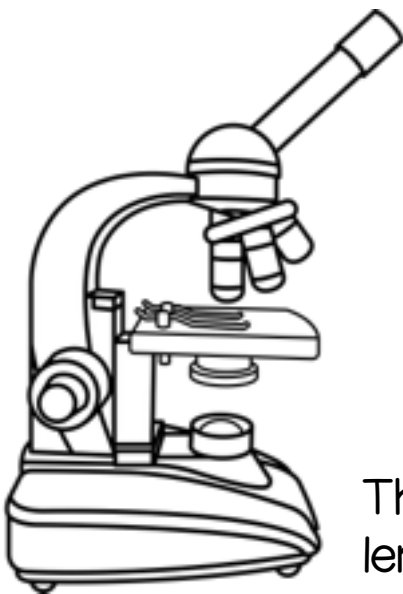
Name _____

WHAT ARE GERMS?

All germs are tiny living things called organisms. They are found everywhere, but they are so small that you need a microscope to actually be able to see them!

There are four main types of germs: bacteria, virus, fungi, and protozoa.

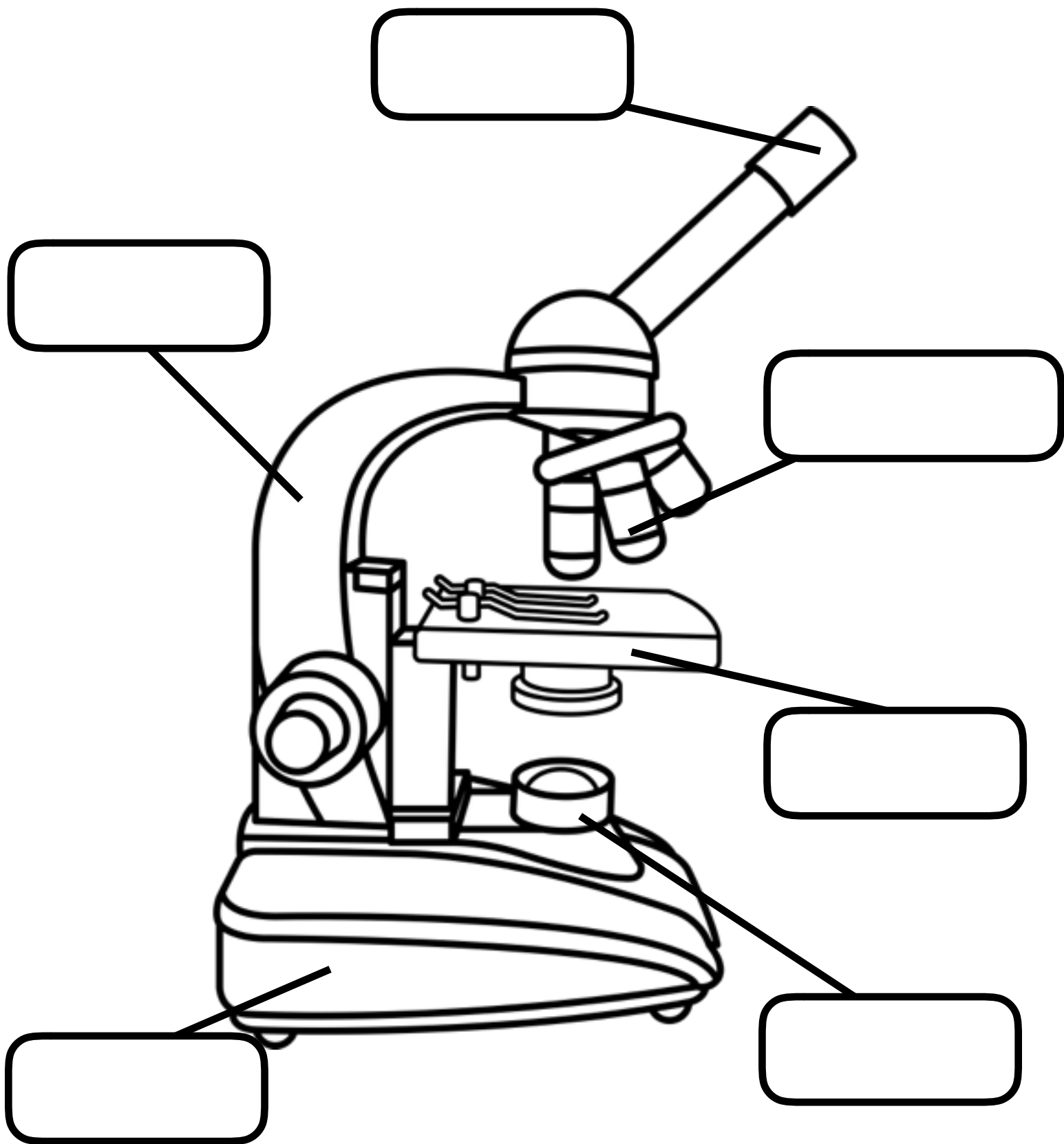
Since germs are found everywhere, it is important to wash your hands regularly with soap and warm water to help stop them from spreading to others!



This is a microscope. It has a special lens that will make small things look big!

Name _____

PARTS OF A MICROSCOPE



Name _____

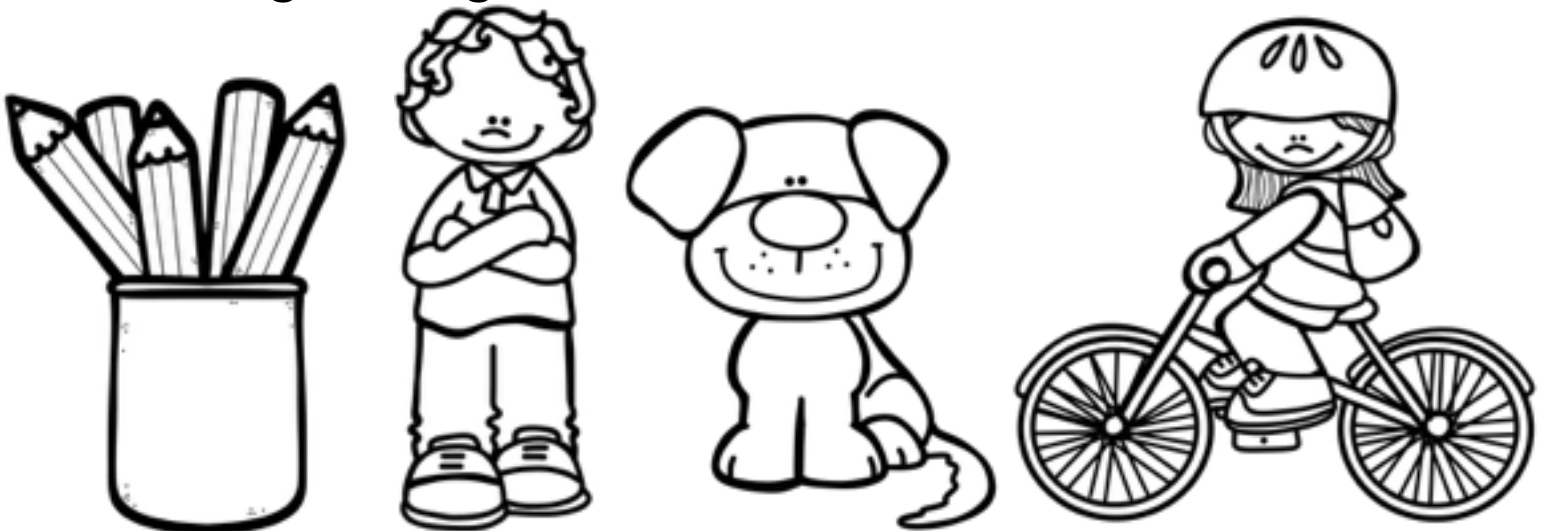
Bacteria

Bacteria are germs that survive by eating the nutrients in their environment. Their environment could be animals or people, or even objects like pencils!

There are both good and bad bacteria. Bad bacteria can make you feel sick if it gets inside your body.

Examples of bacteria sicknesses are ear infections and cavities.

Taking care of yourself by brushing your teeth and taking baths can help reduce the risk of getting a bacteria infection.



Bacteria likes to grow everywhere! It can grow on people, animals, or objects!
Color the pictures above. Can you think of another object where bacteria can grow?

Name _____

VIRUSES

Viruses are germs that need a host in order to survive. A host must be something living, like a person, plant, or animal.

Viruses cannot survive for very long without a host, so washing your hands will help kill viruses!

Examples of virus sicknesses are the chickenpox and flu.

Taking care of yourself by washing your hands after you go to the bathroom and before eating can help reduce the risk of getting a virus infection.

rinse with
warm water



get soap
on hands



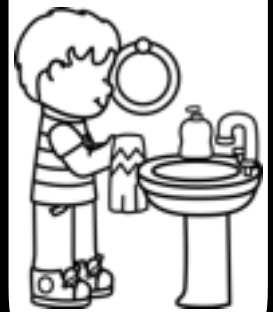
rub soap
for 30
seconds



rinse with
water again



dry hands
completely



Washing your hands is one way to help stop the spread of viruses. When you wash your hands, remember to use soap and warm water! Color the steps that you should take when you wash your hands.

Name _____

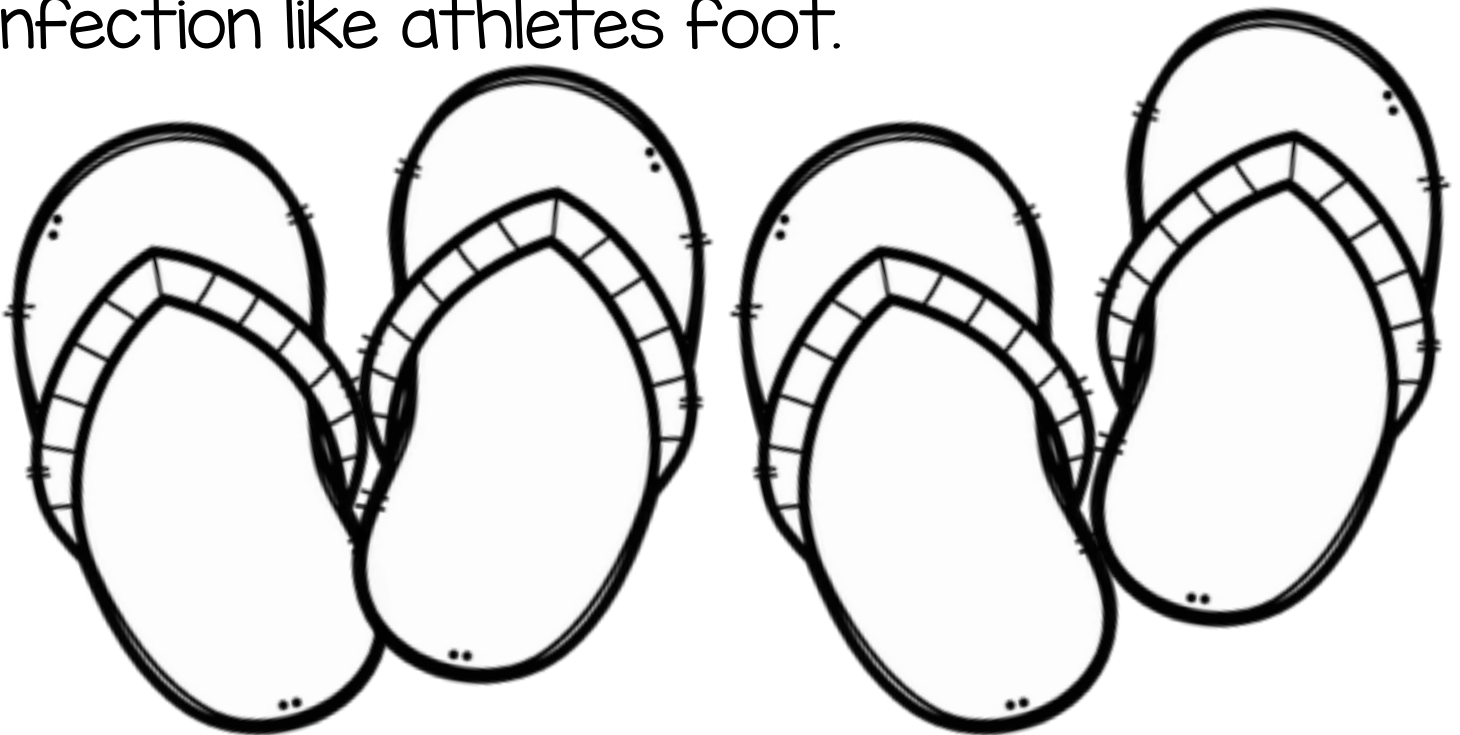
fUNgi

Fungi are plant-like organisms. They also get their nutrients from something living, but they will cause an external, or outside, reaction on a person.

Fungi grow in places that are damp and warm, like bathrooms and old food.

Examples of fungi sicknesses are warts and athlete's foot.

Wearing sandals in the shower at a swimming pool can help reduce the risk of a getting fungi infection like athletes foot.



Wearing flip flops can also help protect you from getting a fungi infection.
Design and color your own pair of flip flops (or two!) above.

Name _____

PROTOZOA

Protozoa are organisms that live in wet environments. They can live in places like swimming pools and lakes.

When protozoa are swallowed, they can make a person feel very, very sick.

Diarrhea and nausea can be symptoms of a protozoa sickness.

To help reduce the risk of getting a protozoa infection, be sure to not drink dirty water.



A lot of different animals may live in lakes. Can you draw at least three animals you might find at a lake?

Name _____

GERM TYPES

Directions: Glue the correct germ name from the next page on top of the correct term here. Only put glue on the flap with the glue stick.



.....

lives in wet environments like swimming pools and lakes



.....

causes a reaction on the outside of a person



.....

can be both good and bad types



.....

needs a host to survive for very long

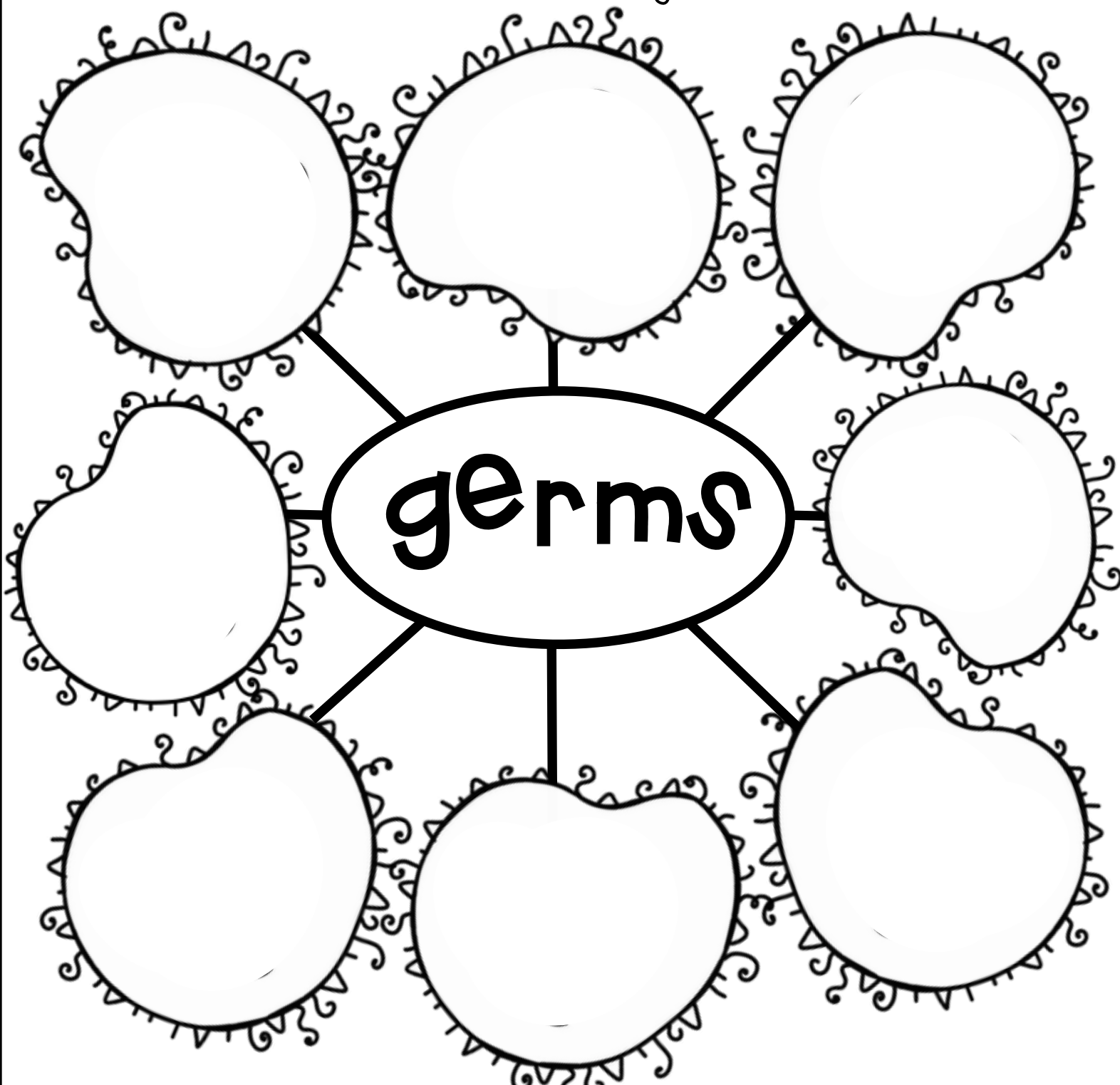
Cut out these germ types and glue them on to the correct description.



Name _____

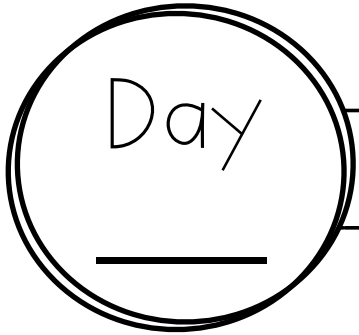
GERM mapping

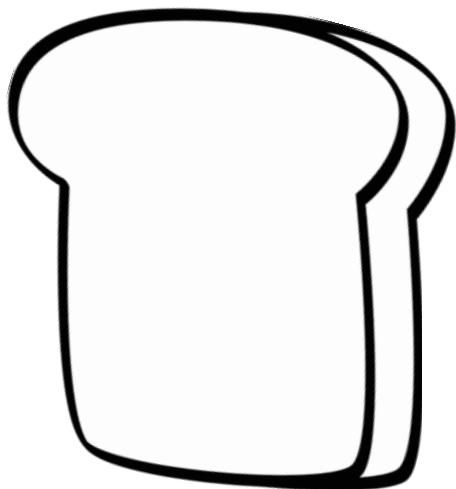
Directions: Fill in the bubbles with words or information you have learned about germs.



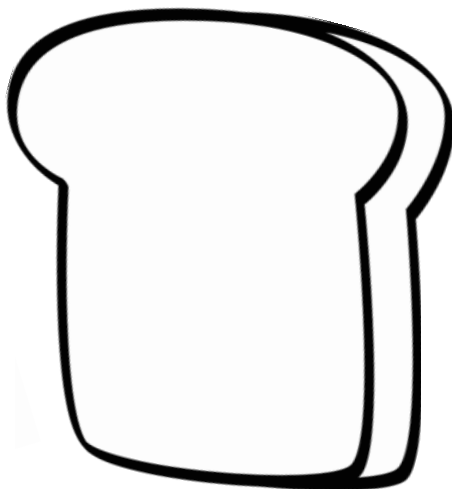
Name _____

MY OBSERVATIONS

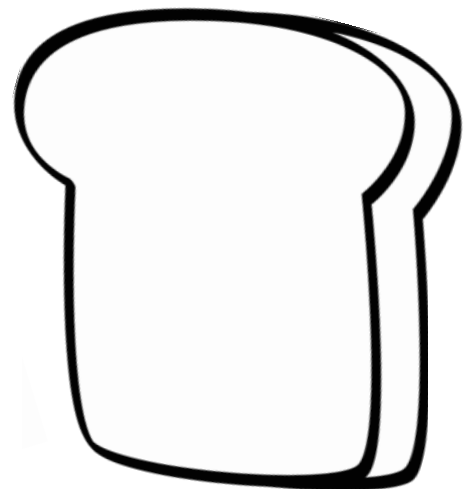




clean



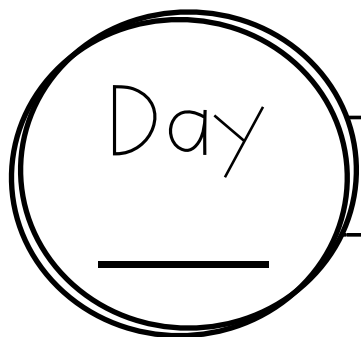
control

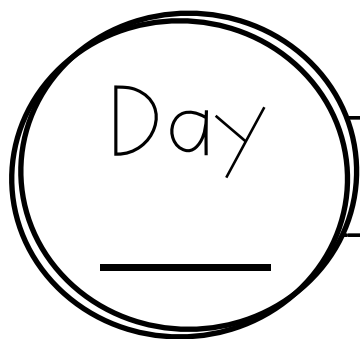


dirty

Name _____

MY OBSERVATIONS





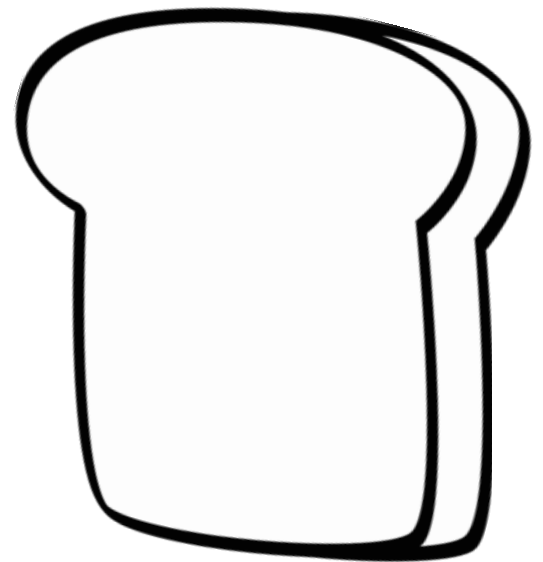
Name _____

mold

Mold is a type of fungi. Molds can grow in different colors and shapes, and in different environments.

Mold likes to grow in damp environments. Sometimes, mold can grow in bathrooms. It may make you cough, sneeze, or get a rash. Mold also likes to grow on foods, like bread and fruit. You don't want to eat mold that grows on your food!

Some mold can be good though. Different molds can be used to make food like cheeses and soy sauce. Scientists have even used mold to make antibiotics to help you get better when you are sick!



Mold can grow in different sizes, shapes, and colors. Draw some different ways you have seen mold grow on this piece of bread.

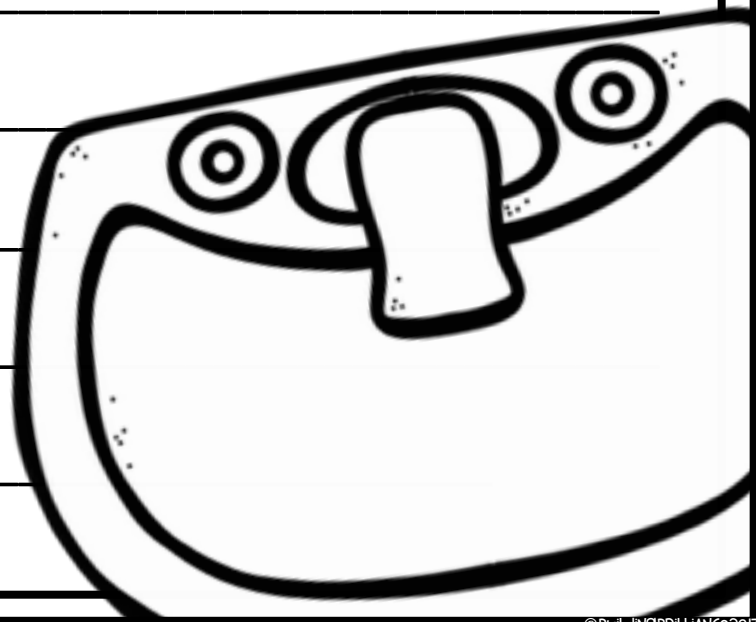
WRITING SHEETS AND WORD BANK CARDS



Name _____

Write ABOUT it!

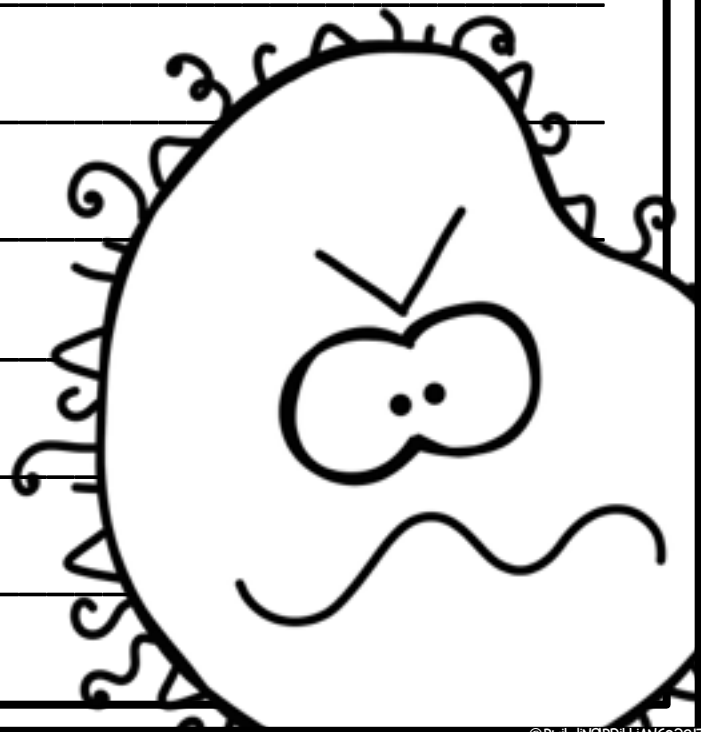
Why is it important to wash your hands before you eat?



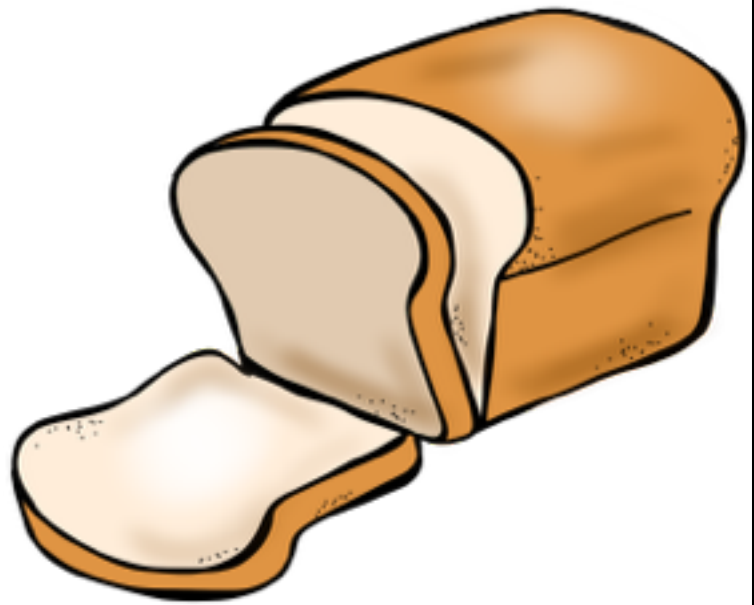
Name _____

Write ABOUT it!

Where can you find germs and how can you protect yourself from them?



bread



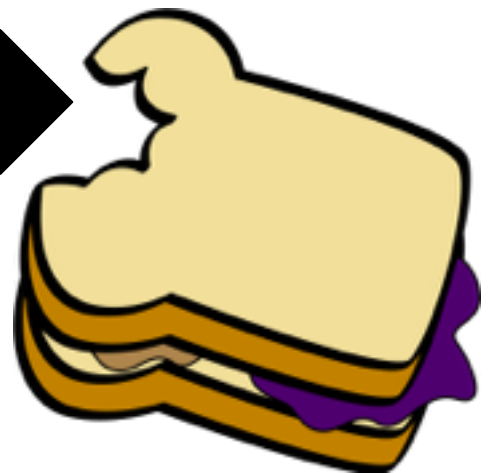
© BUILDING BRILLIANCE 2017

sandwich



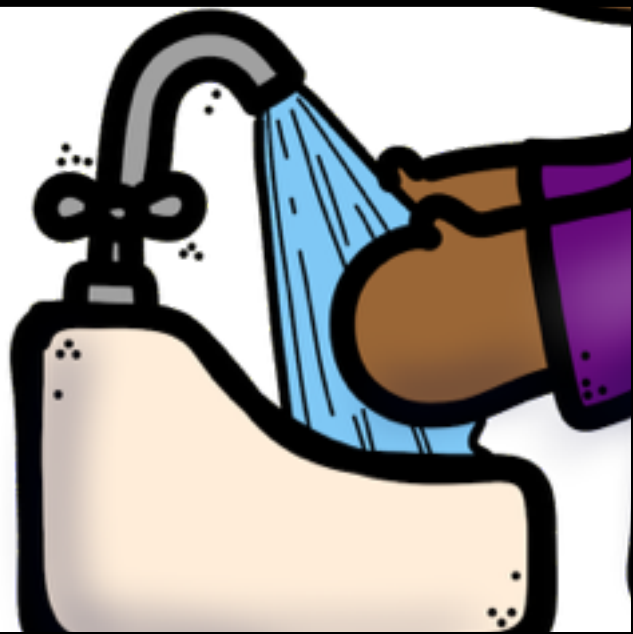
© BUILDING BRILLIANCE 2017

eat



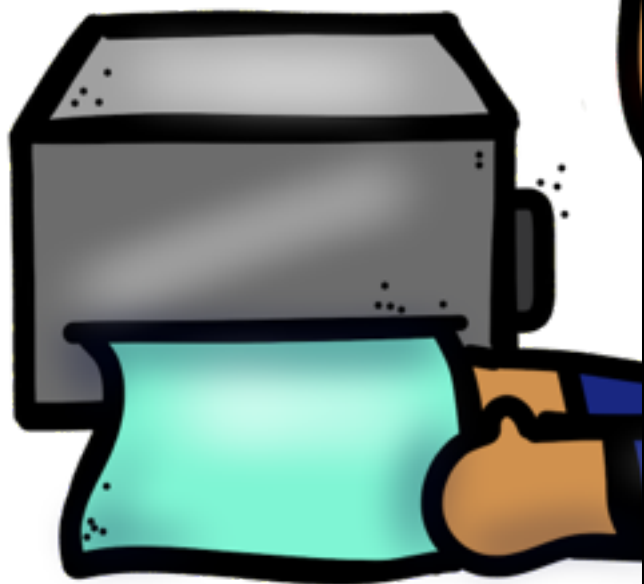
© BUILDING BRILLIANCE 2017

wash



© BUILDING BRILLIANCE 2017

dry



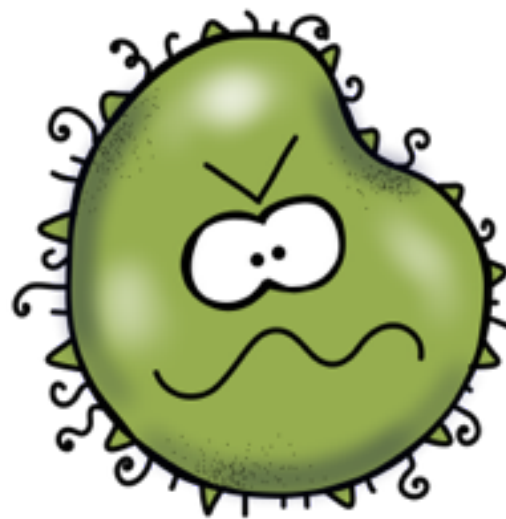
© BUILDING BRILLIANCE 2017

soap



© BUILDING BRILLIANCE 2017

germ



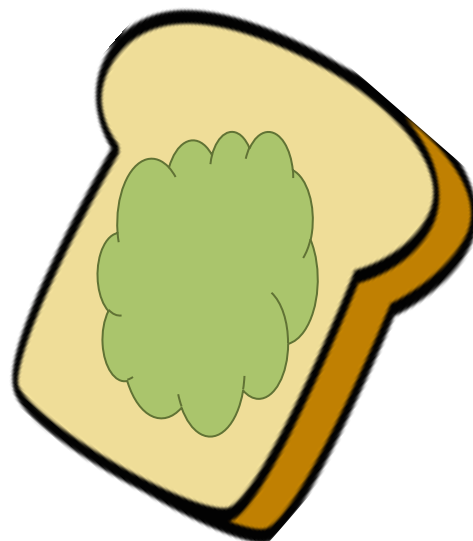
© BUILDING BRILLIANCE 2017

sick



© BUILDING BRILLIANCE 2017

mold



© BUILDING BRILLIANCE 2017

BACTERIA

eat nutrients in their environment

© BUILDING BRILLIANCE 2017

VIRUS

must have a host in order to survive

© BUILDING BRILLIANCE 2017

FUNGI

grows in warm, damp places

© BUILDING BRILLIANCE 2017

PROTOZOA

grows in water

© BUILDING BRILLIANCE 2017

ORGANISMS

tiny living things

© BUILDING BRILLIANCE 2017

GERMS

bacteria, virus, fungi,
and protozoa

© BUILDING BRILLIANCE 2017

HAND-WASHING STEPS POSTER



These passages are very similar, but are provided in a variety of levels to help better fit student levels. Pick the one that makes the most sense for your class. :)

WASH YOUR HANDS

Turn on warm water.



Get soap on your hands



Rub soap on your hands for 30 seconds



Rinse soap off your hands.



Dry your hands completely.



Name _____

HAND WASHING SONG

Sung to the tune of "Here We Go Round the Mulberry Bush"

-This is the way I wash my hands, wash my hands, wash my hands.

-This is the way I wash my hands, several times a day.

*I use warm water and soap, and soap, and soap,

*I use warm water and soap, to scrub the germs away.

-When I am done I dry my hands, dry my hands, dry my hands,

-When I am done I dry my hands with a nice clean towel.

*Washing my hands gets rid of germs, gets rid of germs, gets rid of germs.

*Washing my hands gets rid of germs and helps keep me healthy.

SCIENCE FAIR



I have had so many questions about using this as a science fair project. LOVE THE IDEA! Here is a little tool to help get kiddos started.

SCIENTIFIC METHOD

Question

What is the question you are hoping to answer through this research?

Hypothesis

What is your best guess for how this experiment will turn out?

Experiment

Conduct the experiment. Make observations and take notes along the way.

Analyze

How did your experiment end? What do you think your results mean?

Report

Put your results in writing. What did you learn? What questions do you still have?

Name _____

SCIENTIFIC METHOD

Question

Hypothesis

Experiment

Analyze

Report

ANSWER KEYS



There is not a lot that would need an answer key specifically, but here are those if you need them.

Name _____

ALL ABOUT GERMS

1. Are germs living or non-living?

Germs are living organisms

2. Where are germs found?

Germs are found everywhere. On people, animals, and everyday objects.

3. What kind of germ grows in bodies of water?

Both Protozoa and Fungi can grow near bodies of water. Fungi can also grow in other places.

4. What are some examples of sicknesses caused by germs?

Colds, athlete's foot, and diarrhea are a few examples.

5. Write the four main types of germs.

Bacteria, Virus, Fungi, and Protozoa

6. How can you help prevent the spread of germs?

Washing your hands is a great way to help stop the spread of germs. Showering regularly, brushing your teeth, and cleaning up after yourself can also help.

GERM TYPES

Directions: Glue the correct germ name from the next page on top of the correct term here. Only put glue on the flap with the glue stick.

.....Protozoa.....

lives in wet environments like swimming pools and lakes

.....Fungi.....

causes a reaction on the outside of a person

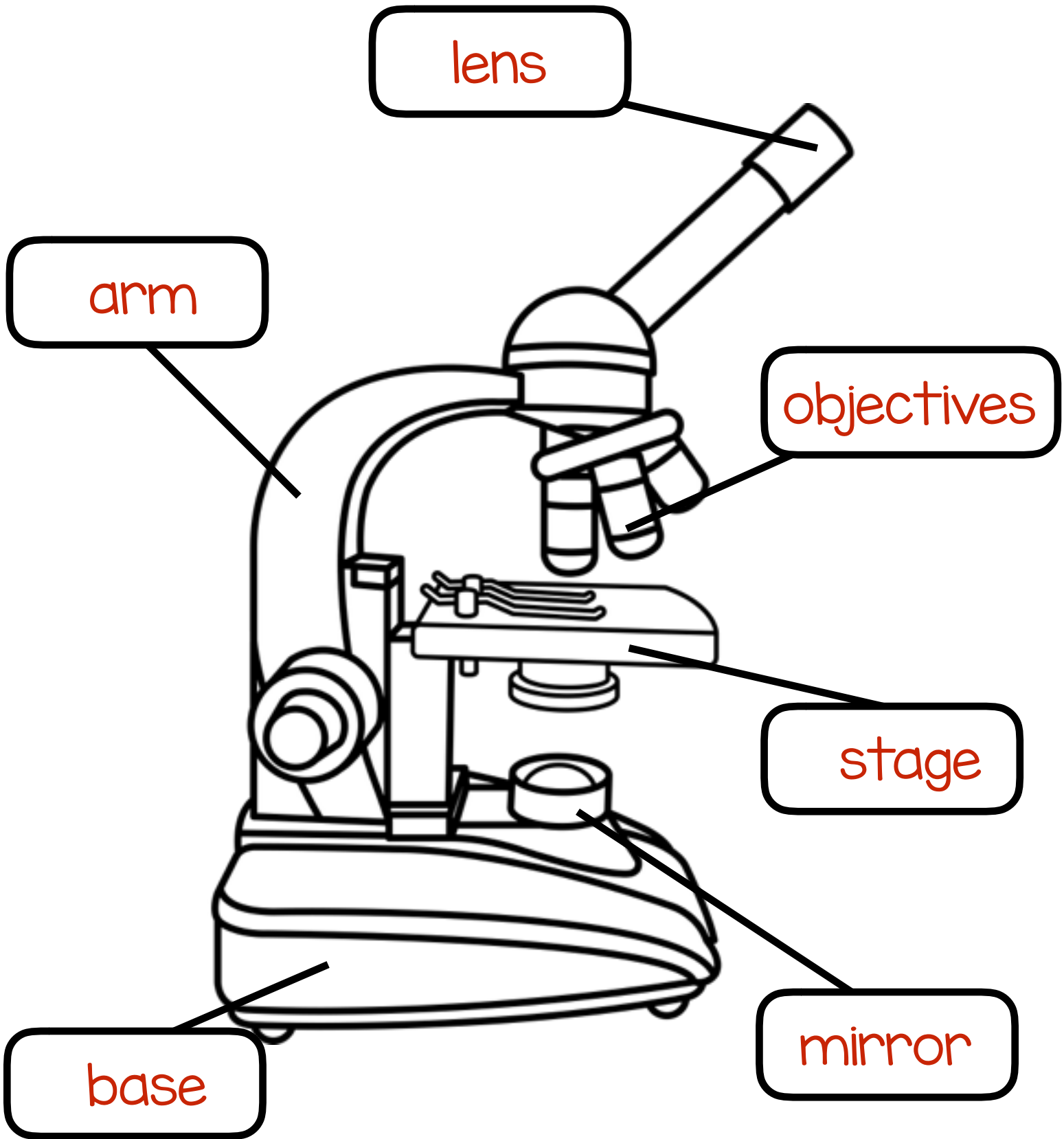
.....Bacteria.....

can be both good and bad types

.....Virus.....

needs a host to survive for very long

PARTS OF A MICROSCOPE



Credits

