

Lab Safety and Magnification Unit

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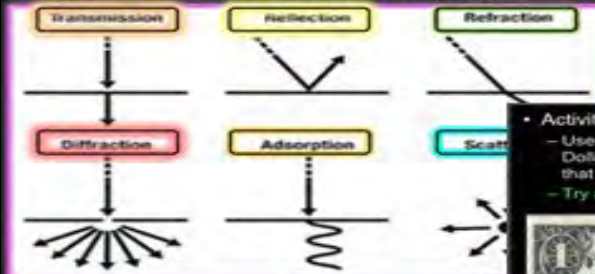
This is a light microscopist.
It lets you magnify images that light can pass through. Uses a glass slide and cover slip.



• Quiz! Parts of the Microscope.



• Which is **scattering**, **reflection**, **refraction**, **refraction**, **absorption**, and **transmission**?



- Low power is 4x
- Medium power is 10x
- High power is 40x

• Activity! Hand Lens

- Use a hand lens to practice focusing on a US \$1 Dollar bill. Record two pictures of neat things that you find.
- Try and find the hidden owl.



is stereoscopic microscope.
looks at things in which light cannot pass
like a bumble bee.

- Lets you see the image in 3D.



- D.) Throw out all of your materials in the waste bin.
- C.) Pour everything into the sink and run the water.
- D.) Take any extra materials home with you.
- E.) Leave class and let your lab partners deal with the clean up.

- Light row of votive candles.
- Add baking soda to bottom of container.
- Add enough vinegar to create foam that goes close to top.
- Let the foam settle.
- Pour out the invisible carbon dioxide.



WHY?
In use
AVOID SPILLS

7 Lessons

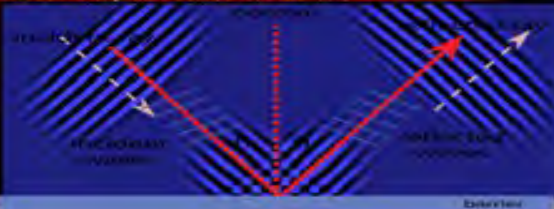
Activities, Assessments, Keys, and more all built-in

• Video Link! Ray Box and Optics.

– <http://www.youtube.com/watch?v=8qvGfiiC3ms&feature=related>



• Reflection involves a change in direction of waves when they bounce off a barrier.



• Which is double concave?



– Use a stereoscope to investigate a penny.
– In 1918, the initials _____ were added to the penny.

Who was the engraver of the modern penny?

- A.) Arnold Smith Jr.
- B.) Victor David Brenner
- C.) Simon Ohms Pierce
- D.) Madeleine Jana Korbel Albright
- E.) There are no initials.

• What is this a picture of? Hint- It may be on your person. Answer: Velcro



• Keep flammable solutions and materials away from flame.

! DANGER

**Flammable
Keep flames
and heat**

• Activity (Optional) High Wire.

- Use tape to create a winding path on the floor.
- Move tall hazard objects to the side.
- Try to walk the line without stepping off.
- You must look through binoculars backwards.



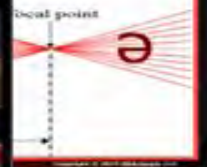
• Convex lens: A convex lens bends the light that goes through it toward a focal point.
• The light spreads out again past this focal point. (Image reverses)

Scanning electron microscope.

– Let's you see small specimens in 3-D.

Cost? Any guesses

1 MILLION DOLLARS



• Many laboratories contain significant hazards and the prevention of laboratory accidents requires great care and constant vigilance.



specimens

gloves?



Part 1 Lab Safety and Magnification: Lab Safety, Ways to be Safe in the Lab, Lab Safety Equipment and how to use it, Building a Mini Fire Extinguisher Activity, Lab Safety Quiz and Contract, Magnification, Demagnification, Light Transmission, Absorption of Light, Reflection, Scattering, and Interference, Refraction, Diffraction, Optics, Convex Lens, Concave Lens, Converging and Diverging of Light, Microscopes, Stereoscopes, Hand Lenses, Electron Microscopes, Compound Light Microscopes, Parts of a Compound Microscope, Using a Microscope and Microscope Safety, Pond Life Study

Part 1: Science Skills Unit



Part 1 Lesson 1 Lab Safety



Part 1 Lesson 2 Lab Safety and Quiz



Part 1 Lesson 3 Magnification



Part 1 Lesson 4 Optics



Part 1 Lesson 5 Microscope Quiz



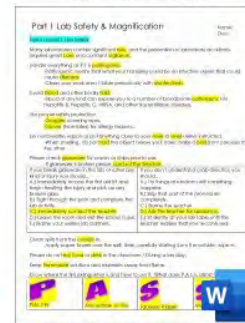
Part 1 Lesson 6 Microscope Wrap Up



Part 1 Lesson 7 Review Game



Part 1 Lesson 8 Review Game Answers



Part 1 Work Bundle Answers



Part 1 Work Bundle Print

SlideSpark Science



MIDDLE-LEVEL EDUCATIONAL RESOURCES

Interactive slideshows provide the roadmap for an amazing learning experience for students in grades 5-9. A Detailed set of work bundles chronologically follow the digital learning, providing a clear and intuitive roadmap to understanding. As the teacher or student advances through a slideshow, exciting hands-on activities, fantastic visuals, fill-in notes, review opportunities, video links, assessments, and much more are strategically placed throughout. Interactive learning unfolds step by step and supported by the work bundle to reach all types of learners. Everything you need to run to an amazing learning experience is provided in this one-of-a-kind science curriculum.

Each unit in the curriculum is designed to help teachers deliver the best possible learning experience for their students. Our interactive science slideshows are filled with questions and answers, important fill-in notes, hands-on activities, projects, games, built-in quizzes, and end of the unit assessment pieces. Students follow along with a work bundle that documents the entire learning experience for a fantastic review and assessment piece.

- Know where the eyewash station is and how to use it. Where is the station?
- If you get something in your eye.
 - Get it out now! Includes under your eyelids.
 - Hold eyelid open!
 - Gently run water over your eyes.
 - Remove contact lenses if you have them.

EMERGENCY
EYE WASH STATION
KEEP AREA CLEAR

• Refraction: The bending of a wave when it enters a medium where its speed is changed.

• Which is scattering, reflection, refraction, absorption, and transmission?

Translucent	Reflection	Refraction
Diffraction	Absorption	Scattering

ser of a particular color through the same color all of the light it is being transmitted.
en shining a laser of a particular gummy bear of the opposite o light will pass through, as it is gummy bear.

Some Scattering

• Reflection involves a change in direction of waves when they bounce off a barrier.

A magnifying glass is a convex lens that is used to produce a magnified image of an object. The lens is curved outward in the center and is thicker in the middle than at the edges. A magnifying glass is used to see small objects more clearly. It is used by holding the lens over the object and looking through the lens. The object is placed between the lens and the eye. The lens is held close to the eye. The object is held close to the lens. The lens is held close to the eye. The object is held close to the lens.

A microscope is a device for viewing a microscopic pair of separate images, the same scene, are a single three-dimensional image.

The electron microscope is a microscope that can magnify very small details with high resolving power. It is used to study the structure of materials, including the structure of atoms and molecules.

Convex **Concave**

Converges Light **Diverges Light**

• Which is double concave?

• The eyepiece lens is 10x –That means it multiplies the object ten times.

- Low power is 4x
- Medium power is 10x
- High power is 40x

- Magnification: The act of expanding something in apparent size.



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Part 1: Lesson: Magnification

Magnification: The act of _____ something in apparent size.

De-magnification: To make something _____ in appearance.

Describe two uses of magnification on the lines below. Write a couple of complete sentences that describe the specifics of the use.

Magnification works because of _____. Without light, you would not be able to see any image, magnified or not.

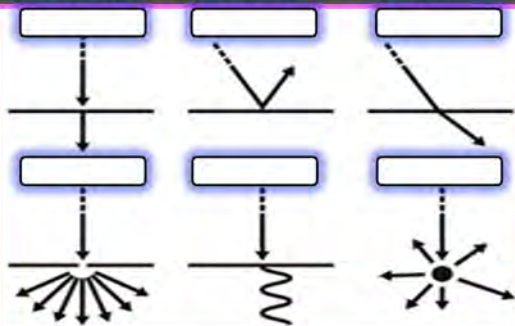
Where is the hidden Owl? Circle it!



Red Slide Notes: Help students record important information in a fun and easy-to-understand way. Designed red-colored slides contain a few pieces of crucial information that students must record into their work bundle to complete the notes. Students will use these important notes throughout the work bundle.

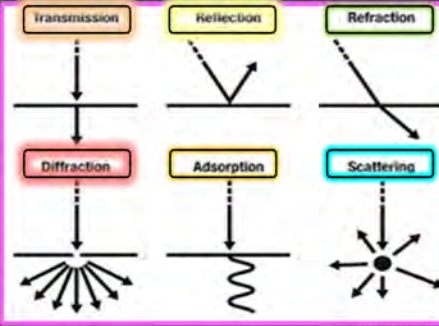
The set-up of the slideshows are designed to make learning fun and interactive for students. With a mix of questions and answers, teachers can use these slides to get their students thinking and actively participating in their education. Plus, the answers are always revealed on the next slide, providing students with immediate feedback and helping teachers assess their understanding.

• Which is **scattering**, reflection, **diffraction**, refraction, **absorption**, and transmission?



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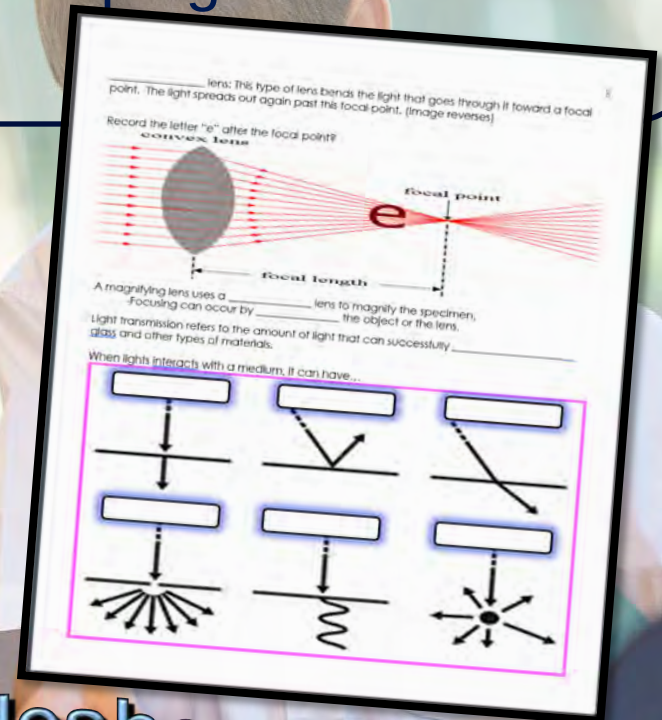
• Which is **scattering**, reflection, **diffraction**, refraction, **absorption**, and transmission?



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Next set of slides

slideshow supports
Work Bundle



Lesson Planning

Daily lessons space exciting hands-on activities, red slide notes, video and academic links, projects, simulations, readings, built-in quizzes, and review opportunities throughout the slideshows. A typical day may have many different learning styles being targeted. Daily lesson planning becomes advancing through the slideshow roadmap the night before. Each lesson is roughly 50 minutes, but sometimes things can speed up or slow down. The best strategy is just to go at your classes own pace. The work bundle chronologically follows the interactive slideshow and you can always spend extra time assessing the quality of the writing within. If you don't quite finish a lesson, you can always pick it up the next day where you left off. The only real trick in timing is not starting a larger activity if you don't have the available time to complete. The slideshows have been designed to be a low stress, go at your classes own pace experience. Most activities are designed to be cost effective, using general materials that can be gathered from your local stores.



Part 1 Lesson 1 Lab Safety



Part 1 Lesson 2 Lab Safety and Quiz



Part 1 Lesson 3 Magnification



Part 1 Lesson 4 Optics



Part 1 Lesson 5 Microscope Quiz



Part 1 Lesson 6 Microscope Wrap Up



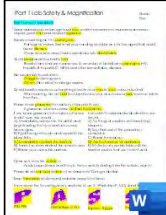
Part 1 Lesson 7 Review Game



Part 1 Lesson 8 Review Game Answers



Part 1 Materials List



Part 1 Work Bundle Answers



Part 1 Work Bundle Print

Lessons chronologically follow a single work bundle

Follow Along Work Bundle

Each science unit includes a single printable work bundle that stays with students from start to finish. Just print and distribute on day one—no daily handouts needed. The bundle follows the unit chronologically and includes everything: fill-in notes, diagrams, quizzes, lab activities, with follow up questions and much more. It's used daily, supports the end-of-unit quiz game, and is handed in for an additional assessment. Answer keys, some writable .pdf versions, and digital versions are also included for flexible classroom use..

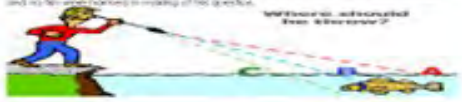
The collage displays 12 sample pages from the 'Follow Along Work Bundle' for science units. The pages include various activities like unit conversion, diagrams, and quizzes.

- Page 1 (Top Left):** 'Part 3 Metric Base Units' featuring a 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 2 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 3 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 4 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 5 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 6 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 7 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 8 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 9 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 10 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 11 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.
- Page 12 (Top Left):** 'King, Hecto, Deca, D, Base, Deci, Centi, Milli' mnemonic and a ruler diagram.

Lab Safety and Magnification Unit Work Bundle

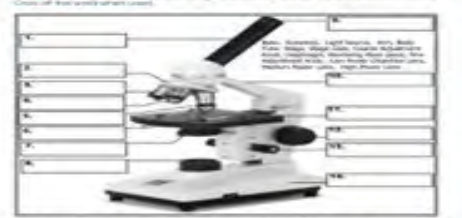
Refraction involves a change in the direction of light when it passes from one medium to another. This occurs because light travels at different speeds in different media. The bending of light is called refraction. The amount of bending depends on the change in speed and the angle at which the light hits the boundary between the two media.

When light travels from air into water, it slows down, causing it to bend away from the normal. This is why a straw in a glass of water appears to be broken. Similarly, when light travels from water into air, it speeds up, causing it to bend towards the normal.



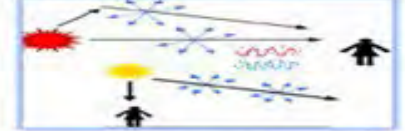
Without refraction, you would not be able to see the fish in the water. The light rays from the fish bend away from the normal as they exit the water, making the fish appear closer to the surface than it actually is.

Microscopes are used to view objects that are too small to be seen with the naked eye. They consist of two lenses: the objective lens and the eyepiece lens. The objective lens is closer to the specimen and provides the primary magnification. The eyepiece lens further magnifies the image created by the objective lens.



Microscopes are used to view objects that are too small to be seen with the naked eye. They consist of two lenses: the objective lens and the eyepiece lens. The objective lens is closer to the specimen and provides the primary magnification. The eyepiece lens further magnifies the image created by the objective lens.

Light rays travel in straight lines. When they encounter an object, they can be reflected, refracted, or absorbed. The study of light and its properties is called optics. Optics is a branch of physics that deals with the behavior of light and the design of optical instruments.



Light rays travel in straight lines. When they encounter an object, they can be reflected, refracted, or absorbed. The study of light and its properties is called optics. Optics is a branch of physics that deals with the behavior of light and the design of optical instruments.

Magnification is the process of making an object appear larger than it actually is. This is achieved by using a magnifying glass or a microscope. The magnifying glass uses a convex lens to create a virtual, upright, and magnified image of an object. The microscope uses two lenses to create a much larger magnified image.

Without light, you would not be able to see anything. Light is the source of all the information we have about the world around us. It allows us to see the colors of objects, the shapes of buildings, and the details of the natural world.



Concave lenses are used to diverge light rays. They are thinner in the center and thicker at the edges. When light rays pass through a concave lens, they spread out. This is why concave lenses are used in eyeglasses for people who are nearsighted.

Convex lenses are used to converge light rays. They are thicker in the center and thinner at the edges. When light rays pass through a convex lens, they come together at a point called the focal point. This is why convex lenses are used in eyeglasses for people who are farsighted.

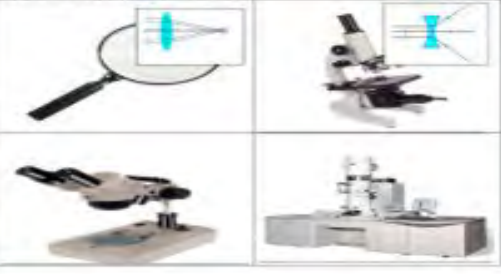


Concave lenses are used to diverge light rays. They are thinner in the center and thicker at the edges. When light rays pass through a concave lens, they spread out. This is why concave lenses are used in eyeglasses for people who are nearsighted.

Use a magnification device to look at a penny. What can you tell me about the penny before?



Working 3 Part Question: Check each diamond after completion. If it is blank, record the name of each type of magnification device below. If it is blank, record the name of each type of magnification device below. If it is blank, record the name of each type of magnification device below.



16 Pages

What type of microscope is this? What kind of specimens does it use?



Magnification = $\times$

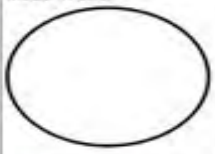
Please make a quick sketch of a specimen found in pond water using a depressed slide or from a prepared slide.

Low Power



Magnification = $\times$

Medium Power



Magnification = $\times$

High Power



Magnification = $\times$

Part 1: Wet Mount Slide

In this space please draw how to prepare a wet mount slide. Draw what you see on the right after making a wet mount slide. What's the magnification?



The electron microscope uses a beam of _____ and their wave-like characteristics to magnify an object's image, unlike the optical microscope that uses visible light to magnify images.

Across

- A _____ microscope is an upright microscope that uses two sets of lenses (a compound lens system) to obtain higher magnification than a stereo microscope.
- The _____ lens is 10x. That means it multiplies the object ten times.
- A _____ is a laboratory instrument used to examine objects that are too small to be seen by the naked eye.
- Body _____ connects the eyepiece to the objective lenses.
- To make something smaller in appearance.
- The flat platform where you place your slides.
- A transparent optical device used to converge or diverge transmitted light.
- Used to focus the microscope.
- Do not use the coarse adjustment when the microscope is using the _____ power lens.
- It is a diverging lens, meaning that it spreads out light rays that have been refracted through it.

Down

- _____ lens: A lens that bends the light that goes through it toward a focal point.
- The act of expanding something in apparent size.
- _____ Lenses: They almost always consist of 4x, 10x, 40x and 100x powers.
- Revolving _____ This is the part of the microscope that holds two or more objective lenses and can be rotated to easily change power.
- The bending of a wave when it enters a medium where its speed is changed.
- A _____ lens uses a single lens to magnify the specimen.
- A _____ is a device for viewing a pair of separate images, depicting left-eye and right-eye views of the same scene, as a single three-dimensional image.
- Magnification works because of _____.
- Many microscopes have a rotating disk under the stage. This _____ has different sized holes and is used to vary the intensity and size of the cone of light that is projected upward into the slide.
- A concave _____ is a mirror that is curved inward in the middle.
- Light travels in a _____ line.
- Supports the tube and connects the microscope to the base.
- An _____ microscope is a microscope that uses a beam of accelerated electrons as a source of illumination.

Teacher can remove this word bank to make the crossword more challenging.

Possible Answers:
AAMA, COARSE, CONCAVE, CONVEX, DEMAGNIFICATION, ELECTRON, HIGH, LENS, LIGHT, MAGNIFICATION, MIRROR, NOSEPIECE, OBJECTIVE, REFRACTION, STAGE, TUBE, COMPOUND, DIAPHRAGM, EYEPIECE, MAGNIFYING, MICROSCOPE, MIRROR, STEREOSCOPE, STRAIGHT

Part 1 Review Game

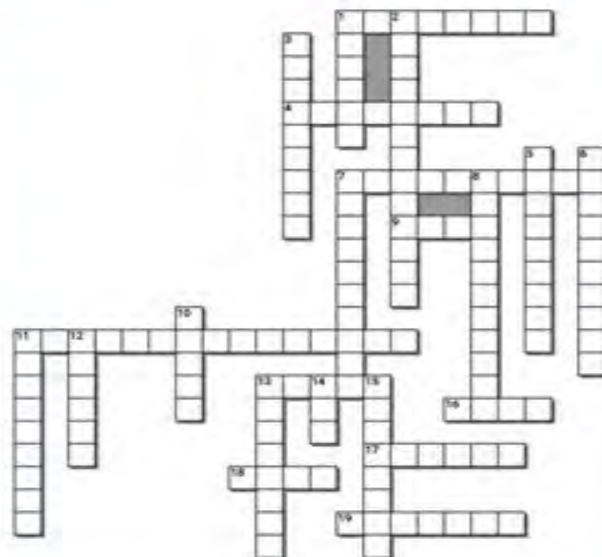
1-20 = 5 pts.
20-25 = Bonus = 1 pt.
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Number: _____
Date: Today
Score: _____ / 100

SHOULD I	IT BURNS	MYSTIC MESSAGE	REAR END UP	SUPER SUB ARE
1)	6)	11)	16)	21)
2)	7)	12)	17)	22)
3)	8)	13)	18)	23)
4)	9)	14)	19)	24)
5)	10)	15)	20)	25)

Final Question Wager _____ (5 Answer)

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Review Games / Assessments

This unit concludes with a review quiz. Answers are provided in slideshow form so students can self assess. A blank template sheet is provided in the work bundle. Students can benefit from working together in small table groups with quiet communication. You can decide if you want to allow the use of work bundles or not. These are a nice review opportunity and get the students looking through their work bundles for the answers.



Part 1 Review Game

1-20 = 5 pts
21-25 = Bonus = 1 pt
(Secretly write owl in correct space +1 pt)
Final Question = 5 pt wager

Name: _____
Date: Today
Score: ____ / 100

SHOULD I	IT BURNS	MICRO MANAGE	BEAM ME UP	SUPER SIZE ME
1) None of the above	6) Fake Eyeglasses are not safety glasses	11) Demagnification	16) A-Doubles Corners	21) Money I think the Owl
2) Ask the teacher for assistance	7) All of the above	12) Air Reflection B-Transmission C-Absorption D-Refraction	17) Concave Lens	22) Also in Wonderland
3) Immediately contact the teacher	8) Let the Owl A and B	13) Refraction	18) Reversing slide piece, 25 Eyeglass, 30mm AL, Google Eyeglass, 30 Light Source	23) Safety Key
4) Clean your table and dispose of the materials according to your teacher	9) Never cut toward yourself or others	14) Diffraction	19) One power lens is 4x Medium power lens is 10x High power lens is 40x	24) Owl's Feet
5) Name the locations of safety equipment in room	10) No goggles, no gloves, face is not back, don't put hazardous materials away from burner flame	15) Lens	20) Section Microscope	25) Weight of the Museum

Final Question Wager: _____ (5 pts Answer: _____)

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Lab Safety and Magnification Unit Quiz Game

Which one of the following is allowed in the lab?

- A.) Running
- B.) Chewing gum
- C.) Eating and drinking
- D.) Horseplay
- E.) None of the above

1



• This the term for the bending of a wave when it enters a medium where its speed is changed.

13

REFRACTION

• Which lens is double concave?

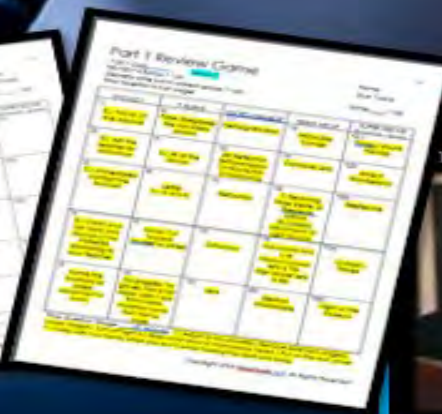
16

DOUBLE CONCAVE

A



B



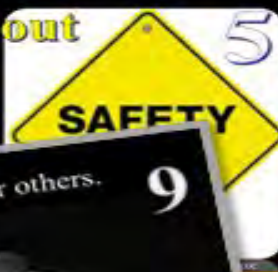
What is the term for making an object look smaller? **Demagnification**

11



Please write the name of at least three pieces of safety equipment that can be found in the lab. Draw an arrow to where they are found from your current seat?

I will Point some out



Never cut toward yourself or others.



If you break glassware in the lab or suffer any kind of injury you should...

3

- A.) Immediately access the first aid kit and begin treating the injury and pick up any broken glass.
- B.) Fight through the pain and complete the lab activity.
- C.) Immediately contact the teacher.
- D.) Leave the room and visit the school nurse.
- E.) Blame your useless lab partners.

List some lab safety infractions below.
1 Point each

10



How could this have been avoided?

- A.) Keep flammable materials away from flame.
- B.) Keep your hair back.
- C.) Avoid spontaneous combustion.
- D.) A and B.
- E.) All the above.
- F.) None of the above.



8

All unauthorized experiments are prohibited.

If you don't understand a lab direction you should...

2

- A.) Try things at random until something happens.
- B.) Skip that part of the procedure completely.
- C.) Blame your useless lab partners.
- D.) Ask the teacher for assistance.
- E.) Sit silently at your lab table until the end of class.

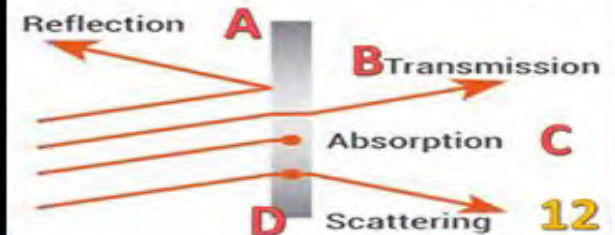
- This involves a change in direction of waves as they pass through an opening or around a barrier in their path.



This is the name for an optical device used to converge or diverge transmitted light?



Which is Absorption, scattering, reflection, transmission,

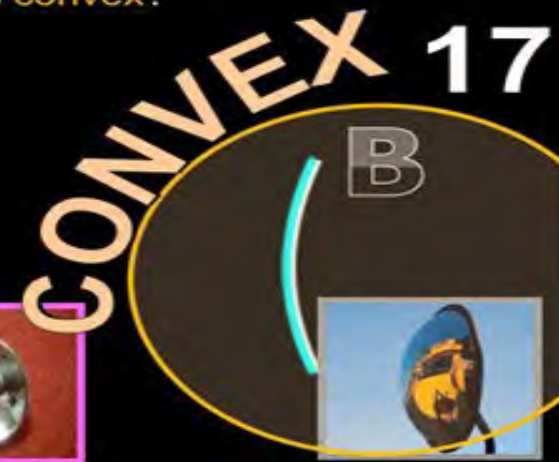


When your group has completed the lab activity you should...

- A.)
- B.)
- C.)
- D.)
- E.)



- Which mirror is **convex**?



Name at least four steps you should take when putting a microscope away?

- 1.) Adjust to low power
- 2.) Remove slide from stage
- 3.) Lower stage
- 4.) Turn off light
- 5.) Wrap cord around microscope neck
- 6.) Put on the dust cover
- 7.) Carry with two hands when you put it away holding the neck and base.

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Name the parts of the microscope below 18

- 1) Revolving Nose piece, 2) Eyepiece, 3) Base
- 4) Coarse adjustment, 5) Light Source.



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What type of microscope is shown below.

It uses a beam of negatively charged particles and their wave-like characteristics to magnify an object's image, unlike the optical microscope that uses visible light to magnify images.

20

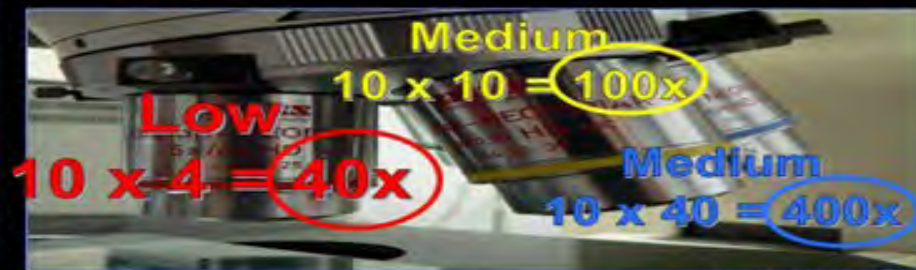


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- The eyepiece lens is 10x – What's an object's magnification under Low, Medium, and High power based on the microscope below.

- Low power lens is 4x
- Medium power lens is 10x
- High power lens is 40x

19



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Activities / Labs

Our science activities are designed to help students explore and understand complex scientific concepts in an engaging and interactive way. Each science unit includes several hands-on activities that encourage students to collect data and think critically about the world around them. Our easy-to-follow slideshow provides detailed visuals, simple materials, and clear directions, making it easy for both students and teachers to navigate the activities.

• Alien Blood.

- Teacher will give you a set of vinyl gloves.
- Put on and don't fool around with the gloves.
- Teacher will then give you green alien blood (food coloring)
- Spread all over the outside of gloves "No drips"
- Watch video (next slide) and then try to get gloves off using proper technique and disposal.

• Light row of votive candles.

- Add baking soda to bottom of container.
- Add enough vinegar to create foam that goes close to top.
- Let the foam settle.
- Pour out the invisible carbon dioxide gas onto the votive candles without spilling the

Which put out the fire?



- Line up a clear, orange, or yellow gummy bears and shine a green laser through.

- Was the laser able to shine through (transmission), was any light reflected?
- Next, put a green on the end and use the green laser? What happened?
- Repeat and put a red gummy bear at the end. What happened?
- This can be reversed if all you have is a red laser.

• The moving arrow. Magic or refraction?

- Draw an arrow on a sheet of white paper.
- Place a clear empty glass in front of the arrow.
- Fill the glass with water and observe from the front view

Rather just see the 1 minute video.
<https://www.youtube.com/watch?v=colbaur7el>

• Use a stereoscope to investigate a penny.

- In 1918, the initials were added to the penny.

Who was the engraver of the modern penny?

- A.) Arnold Smith Jr.
- B.) Victor David Brenner
- C.) Simon Ohms Pierce
- D.) Madeleine Jana Korbel Albright
- E.) There are no initials.

• Materials

- Clear pitcher / container.
- Baking Soda
- Vinegar
- Several candles (smaller votive type)
- Lighter.

• Activity! Hand Lens

- Use a hand lens to practice focus: Dollar bill. Record two pictures of neat things that you find.
- Try and find the hidden owl.



• Activity! Disappearing Coin.

- Place a coin under an empty glass and cover with a plate or board and observe.
- Try again and this time fill the glass ¾ of the way with water and cover with plate or board.



In 1918, the initials V.D.B were added to the penny.

In this space, please draw how to prepare a wet mount slide. Draw what you see on the right after making a wet mount slide. What's the magnification?

Works well for viewing living / motile organisms

A wet mount slide is made by placing a fluid solution on a slide, suspending a specimen in a solution, and then covering the specimen and the solution with a cover slide.

Magnification = $10 \times 10 = 100\times$

What type of microscope is this? What kind of specimens does it use?

A stereoscope is a device for viewing a stereoscopic pair of separate images, depicting left-eye and right-eye views of the same scene, as a single three-dimensional image.

Better for larger specimens

Magnification = $20-50\times$



Video link if needed: <https://www.youtube.com/watch?v=91CQL9>

Built-in Assessment

Each unit contains several built-in assessment questions that students answer in their work bundle. With the question revealed before the answer, the teacher can easily call on individual students or table groups to respond. These provide an effective and efficient way for teachers to assess student learning.

• Lab Safety Quiz! 1-10

**QUIZ
WIZ**

• #9.) The invisible lab person below is missing what two pieces of lab equipment.

- A.) Goggles and Gloves.
- B.) Fire Blanket and Squir Bottle.
- C.) Cell Phone and iPod
- D.) Underwear



• #9.) The invisible lab person below is missing what two pieces of lab equipment.

- A.) Goggles and Gloves.
- B.) Fire Blanket and Squir Bottle.
- C.) Cell Phone and iPod
- D.) Underwear



Part 1: Lab Safety Quiz

Keep _____ equipment away from water and vice versa.

Know where the _____ station is and how to use it. Where is the station?

Clean _____ before and after use to avoid harmful residue.

Handle _____ with care.

When handling chemicals in the lab, you want to read the _____ chemical when not yet _____ for safe handling.

Be _____ in your measuring of reagents and chemicals.

Never _____ towards yourself or others.

When you have finished a lab investigation you should:

A.) Clean your lab area according to the teacher.
B.) Wear your lab coat and gloves and wash.
C.) Return equipment to the proper area.
D.) Wash on any questions from the lab that need answering.
E.) All of the above.

When your group has completed a lab activity you should:

A.) Clean your lab table and dispose of the materials according to your teacher.
B.) Throw out all of your materials in the waste bin.
C.) Pour everything into the one and run that.
D.) Take any extra materials home with you.
E.) Leave clean and let your lab partner deal with the residue.

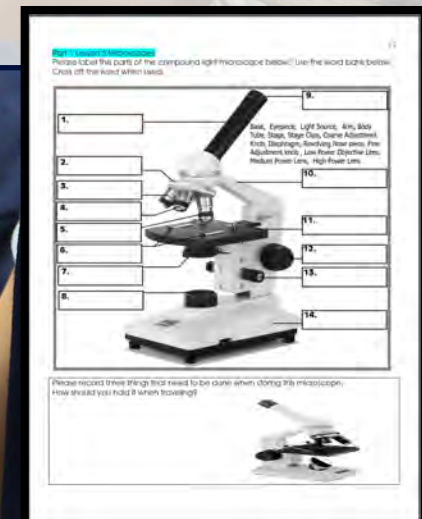
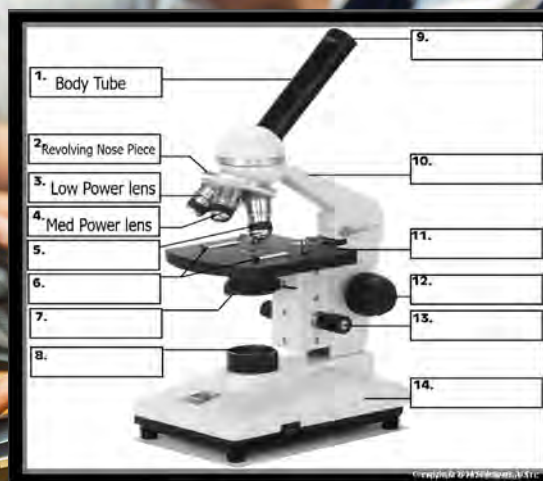
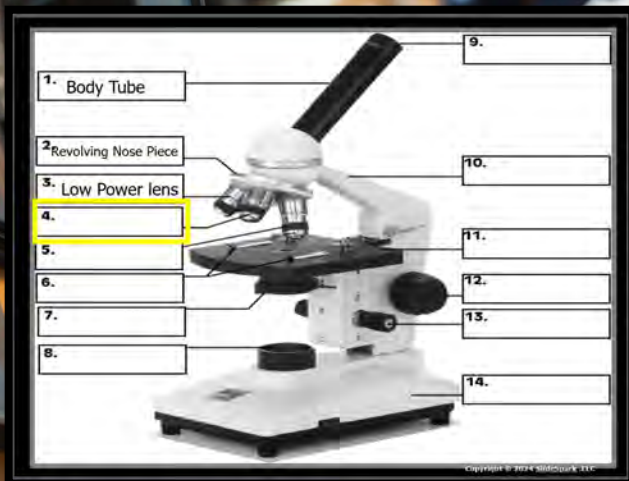
Quiz Lab Safety 1-10

1)	2)	3)
4)	5)	6)
7)	8)	9)
*10 Bonus		10)
Name _____		Score _____

Questions in Work Bundle

Built-in Questions and Assessments

Many slides will have relevant terms covered with a box. When advancing through the slideshow an outline around the box will glow with a bright color. The next slide will make the box disappear. These slides allow the teacher to call upon students or table groups / check for understanding before advancing. The team at SlideSpark has found that using this technique helps to keep the students focused. Constantly recalling and reviewing information learned is necessary when moving through a large unit. The slideshows don't just give everything away for free. Students should be able to demonstrate knowledge before moving on. Some slides have full questions instead of just covered terms. In these slides, the teacher should encourage small group work. The teacher can then call upon one or two groups to share before advancing the slide. The next slide will always reveal the correct answer.



Built-in Video Links

Our science education program is designed with the modern, multimedia learner in mind, and our video links are a perfect complement to our educational materials. These short clips are embedded into the slideshow at just the right places for a fantastic review. Whether you're studying biology, chemistry or physics, our video links are an excellent way to reinforce your learning.

- Activity! Optional / Alternative Video-Humor
<http://www.youtube.com/watch?v=cr7roogzM8>



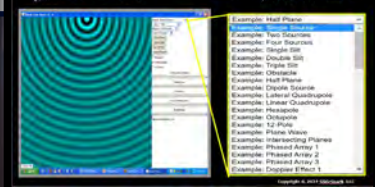
- Glove Safety.
– https://www.youtube.com/watch?v=xTYioOo6U&ab_channel=RegisteredNurseRN



- Optional. A few minutes of looking at specimens under the microscope.
– We will be magnifying some of these things soon.
• https://www.youtube.com/watch?v=gaElg0M3N2w&ab_channel=Sci-Inspi



- Ripple Tank Simulator.
• <http://www.falstad.com/ripple/>
- Explore the different examples of wave interference.



- Activity! Video Lab Safety
– <https://www.youtube.com/watch?v=YdYapyzJNsE>



- Activity (Optional) High Wire.
– Use tape to create a winding path on the floor.
• Move all hazard objects to the side.
– Try to walk the line without stepping off.
– You must look through binoculars backwards.



- Caring for a microscope.
– https://www.youtube.com/watch?v=F5yildOr4I4&ab_channel=StileEducation

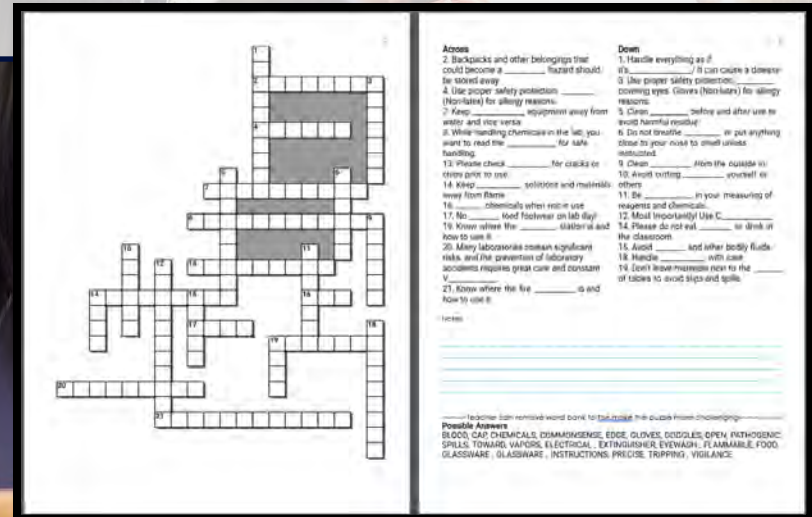
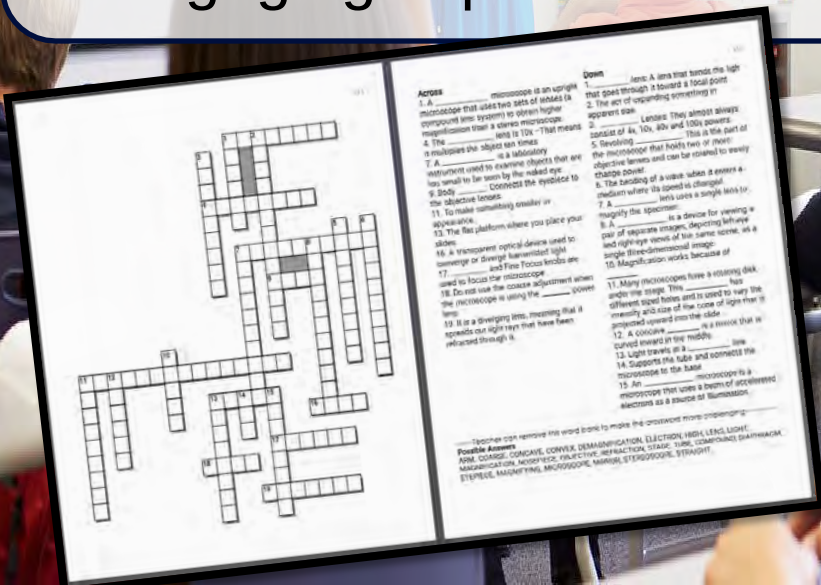


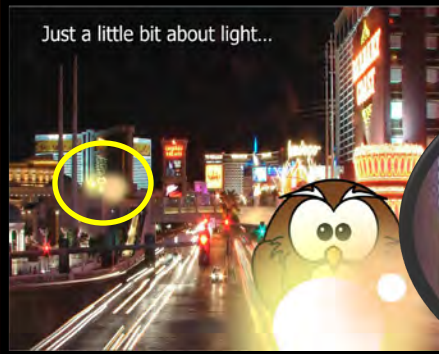
- Making a wet mount slide.
– <https://www.youtube.com/watch?v=RfaSvFDBQzU>



Games and Review

Games are a fantastic way for students to learn scientific concepts while having fun. We incorporate a variety of games into our curriculum, including interactive quizzes and puzzles that challenge students to think critically about the material. Our Hidden Box Games are a particularly popular feature, which conclude each unit by revealing a picture related to the topic. Students try to guess what the picture might be, making learning an engaging experience.

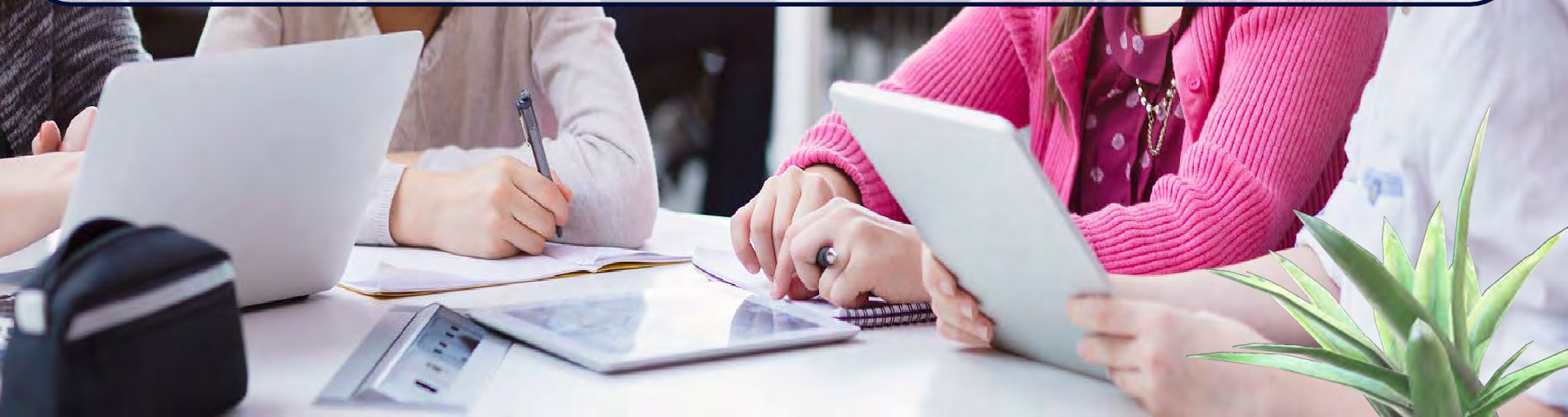




The Owl - Each Part of the slideshow has a small clipart Owl hiding somewhere in a slide. The owl is incredibly small and blended into just the right slide. If a student spots the "Owl" they can raise their hand high into the air. When you call upon the student they can say "Owl" and be the student who spotted the Owl. Each PowerPoint Review game also has an owl hiding in it worth one point. Remind the students that they secretly write the word "owl" rather than yell it out during the review games. The Owl search is not included in every lesson. A slide at the beginning of the lesson will alert the students that today is an "Owl" day. Everything arrives editable so delete if you wish. You will find that some students will become the expert owl hunters in the group.

Google Classroom Compatible

Our digital learning programs are designed for students to learn science in a flexible and engaging environment. Our Google Classroom-compatible units provide a seamless learning experience whether your students are in the classroom or learning from home. Our step-by-step slideshows and student work bundles ensure that students can complete their work independently. The PowerPoint Slideshows and step-by-step work bundles can easily be loaded to your Google Drive and posted in your Google Classroom. These are great for daily lessons, students who need additional time, and for a student who was absent and looking to catch up in their work bundle.





Part 1 Lesson 4 Optics

Google Slides



Part 1 Lesson 3 Magnification

Google Slides



Part 1 Lesson 1 Lab Safety

Google Slides



Part 1 Lesson 7 Review Game

Google Slides



Part 1 Lesson 6 Microscope ...

Google Slides



Part 1 Lesson 5 Microscope ...

Google Slides



Part 1 Lesson 2 Lab Safety a...

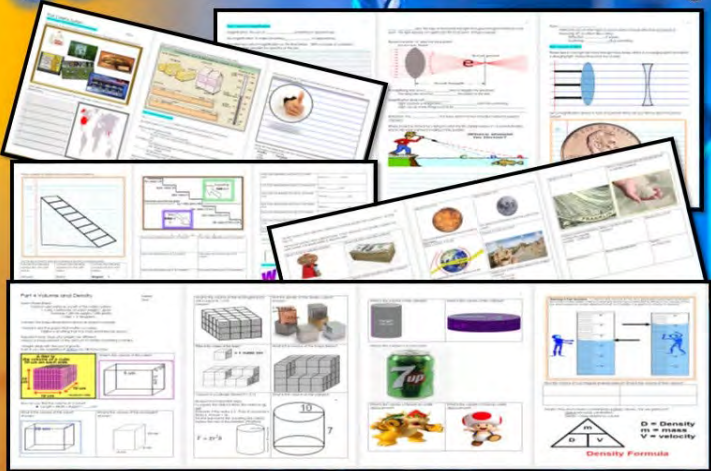
Google Slides

Science Skills Unit

Areas of Focus within the Science Skills Unit: Lab Safety and Magnification: Lab Safety, Ways to be Safe in the Lab, Lab Safety Equipment and how to use it, Building a Mini Fire Extinguisher Activity, Lab Safety Quiz and Contract, Magnification, Demagnification, Light Transmission, Absorption of Light, Reflection, Scattering, and Interference, Refraction, Diffraction, Optics, Convex Lens, Concave Lens, Converging and Diverging of Light, Microscopes, Stereoscopes, Hand Lenses, Electron Microscopes, Compound Light Microscopes, Parts of a Compound Microscope, Microscope Parts Quiz, Using a Microscope and Microscope Safety, Pond Life Study, US Customary Units that are Familiar and their Metric Equivalents, Introduction to the International Systems of Units, Why the SI System is stronger, One Unit for each measure for each quantity, Prefixes and Scale, Decimal Based System, SI Conversions, Conversions of all types, SI Notation, Base Unit Prefixes, Using the Prefixes, Measuring, The seven SI Base Units, Temperature, Temp Conversions, Mass, Time, Speed, Velocity, and other Base Units. Volume and Density: Mass, Metric Ton, Volume, Finding Volume of Objects and Measuring, Volume of Irregular Shaped Object by means of Water Displacement, Finding Density, Finding the Density of a Student Optional Activity, Density Quiz, What is Science?, What makes a Good Scientist, Follow Procedures, Building a Lego Vehicle Activity / Making a Procedure Activity, Types of Scientists, Observation, Inferences, Scientific Method, what is Science? What makes a good scientist? Types of Scientists, Inquiry Box Activity, Branches of Science, Scientific Method, Types of Variables, Importance of Control Group, Hypothesis, Graphing, Types of Graphs, Observations, Learning to be a Good Observer, Making Inferences, Stem Gall Fly Activity, Crime Scene Activity, Listening Trial Study

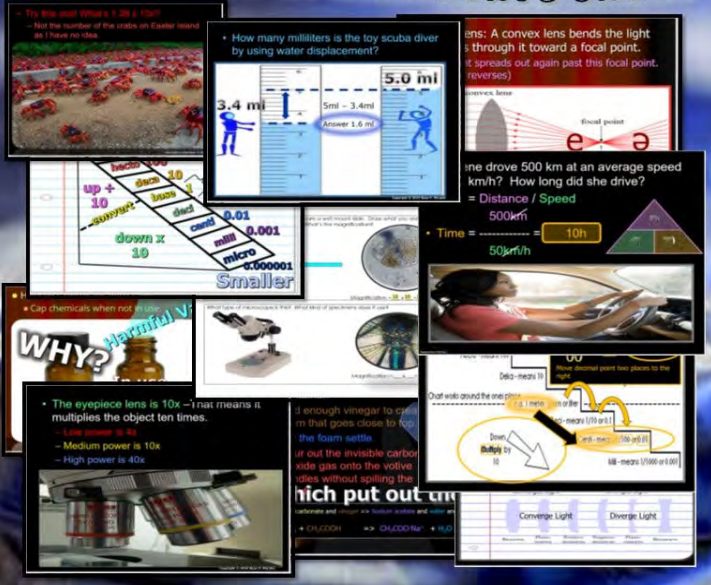
[Science Skills Unit](#)

Science Skills Unit

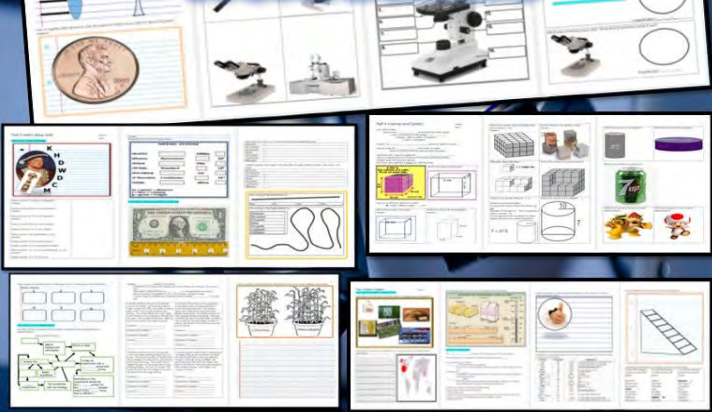


5 Parts, 30 Lessons

Thousands of Interactive Slides



67 Pages of Follow Along Work Bundle



Exciting Activities

Assessments, Games, Video Links, and more



Everything you need to run an amazing learning experience

Part 1 Lab Safety and Magnification: Lab Safety, Ways to be Safe in the Lab, Lab Safety Equipment and how to use it, Building a Mini Fire Extinguisher Activity, Lab Safety Quiz and Contract, Magnification, Demagnification, Light Transmission, Absorption of Light, Reflection, Scattering, and Interference, Refraction, Diffraction, Optics, Convex Lens, Concave Lens, Converging and Diverging of Light, Microscopes, Stereoscopes, Hand Lenses, Electron Microscopes, Compound Light Microscopes, Parts of a Compound Microscope, Using a Microscope and Microscope Safety, Pond Life Study

Part 1: Science Skills Unit



Part 1 Lesson 1 Lab Safety



Part 1 Lesson 2 Lab Safety and Quiz



Part 1 Lesson 3 Magnification



Part 1 Lesson 4 Optics



Part 1 Lesson 5 Microscope Quiz



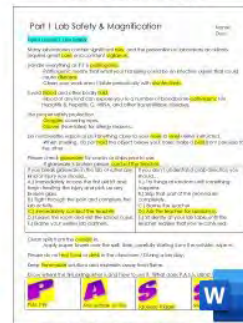
Part 1 Lesson 6 Microscope Wrap Up



Part 1 Lesson 7 Review Game



Part 1 Lesson 8 Review Game Answers



Part 1 Work Bundle Answers



Part 1 Work Bundle Print

Part 2: US Customary Units that are Familiar and their Metric Equivalents, Introduction to the International Systems of Units, Why the SI System is stronger, One Unit for each measure for each quantity, Prefixes and Scale, Decimal Based System, SI Conversions, Conversions of all types, SI Notation, Base Unit Prefixes, Using the Prefixes, Measuring, The seven SI Base Units, Temperature, Temp Conversions, Mass, Time, and other Base Units.

Parts 2 and 3: Science Skills Unit



Part 2 Lesson 1 Metric Intro



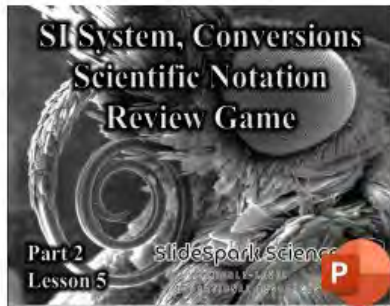
Part 2 Lesson 2 Metric System Ten



Part 2 Lesson 3 Metric Conversions



Part 2 Lesson 4 SI Notation



Part 2 Lesson 5 Review Game



Part 2 Lesson 6 Review Game Answers



Part 2 Work Bundle Answers



Part 2 Work Bundle Print

Parts 2 and 3: Science Skills Unit: US Customary Units that are Familiar and their Metric Equivalents, Introduction to the International Systems of Units, Why the SI System is stronger, One Unit for each measure for each quantity, Prefixes and Scale, Decimal Based System, SI Conversions, Conversions of all types, SI Notation, Base Unit Prefixes, Using the Prefixes, Measuring, The seven SI Base Units, Temperature, Temp Conversions, Mass, Time, Speed, Velocity, and other Base Units.

Parts 2 and 3: Science Skills Unit



Part 3 Lesson 1 Prefixes



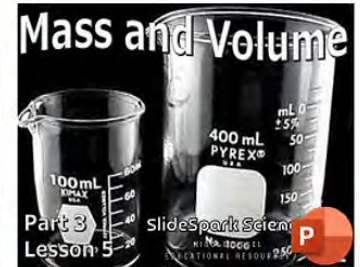
Part 3 Lesson 2 Measuring



Part 3 Lesson 3 Temperature



Part 3 Lesson 4 Time other SI Units



Part 3 Lesson 5 Mass and Volume



Part 3 Lesson 6 Review Game



Part 3 Lesson 7 Review Game Answers



Part 3 Work Bundle Answers



Part 3 Work Bundle Print

Part 4: Volume and Density: Mass, Metric Ton, Volume, Finding Volume of Objects and Measuring, Volume of Irregular Shaped Object by means of Water Displacement, Finding Density, Finding the Density of a Student Optional Activity, Density Quiz

Part 4: Science Skills Unit

Part 2 Lesson 1



Mass and Volume
Properties of Matter
Matter and Its Interactions

Part 2 lesson 1 Mass and Volume

Water Molecule Unit
Volume and Density



Part 2 Lesson 2

Part 2 lesson 2 Calculating Density

Part 2 Lesson 3 Optional



Properties of Matter
Matter and Its Interactions

Part 2 lesson 3 Optional Density Person

Part 2 Lesson 4



Density Experiments
Properties of Matter
Matter and Its Interactions

Part 2 lesson 4 Density Visuals

Part 2 Lesson 5 Quiz



Properties of Matter
Matter and Its Interactions

Part 2 lesson 5 Density Quiz

Part 2 Lesson 6 Density Quiz ANSWERS



Properties of Matter
Matter and Its Interactions

Part 2 lesson 6 Density Quiz Answers Rafting



Part 2 Materials List

Part 2 Properties of Matter



Part 2 Work Bundle Answer Version

Part 2 Work Bundle Answer Version

Part 2 Properties of Matter



Part 2 Work Bundle Digital Version

Part 2 Work Bundle Digital Version

Part 2 Properties of Matter



Part 2 Work Bundle Printed Version

Part 2 Work Bundle Printed Version

What is Science?, What makes a Good Scientist, Follow Procedures, Building a Lego Vehicle Activity / Making a Procedure Activity, Types of Scientists, Observation, Inferences, Scientific Method, what is Science? What makes a good scientist? Types of Scientists, Inquiry Box Activity, Branches of Science, Scientific Method, Types of Variables, Importance of Control Group, Hypothesis, Graphing, Types of Graphs, Observations, Learning to be a Good Observer, Making Inferences, Stem Gall Fly Activity, Crime Scene Activity, Listening Trial Study

Part 5: Science Skills Unit



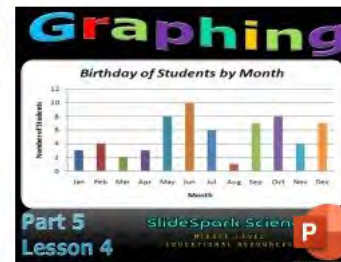
Part 5 Lesson 1 Sci Method



Part 5 Lesson 2 Procedure Lego



Part 5 Lesson 3 Variables



Part 5 Lesson 4 Graphing



Part 5 Lesson 5 Observation



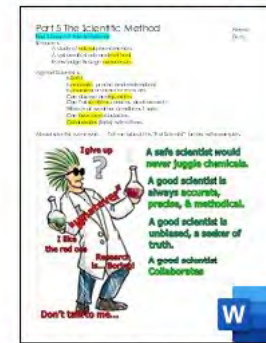
Part 5 Lesson 6 Obs Cont



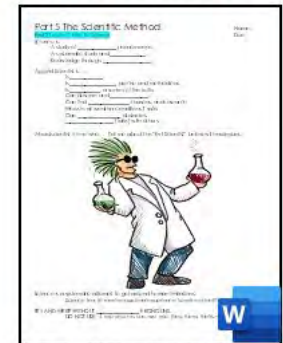
Part 5 Lesson 7 Soda and Rafting



Part 5 Lesson 8 Times Have Changed



Part 5 Work Bundle Answers



Part 5 Work Bundle Print

Curriculum Guide

Number of Lessons in each unit (50 min, daily lessons) and difficult rating scale / intended grade level.

 =Easier,

 = More difficult,

 =Most difficult

Earth Science Units	Daily Lessons	Intended Grade	
Geology Topics Unit	60 Lessons	6-8 medium difficulty	
Weather and Climate Unit	40 Lessons	6-8 medium difficulty	
Astronomy Unit	60 Lessons	6-8 medium difficulty	
Weathering, Soil Sciences	28 Lessons	5-7 easier	
Rivers and Water Quality	25 Lessons	5-7 easier	
Water Molecule Unit	20 Lessons	5-7 easier	
Biogeochemical Cycles Unit	16 Lessons	5-7 easier	

Earth Science Curriculum

SlideSpark Science

MIDDLE-LEVEL
EDUCATIONAL RESOURCES



Entire Water Unit

27 Lessons

Rivers, Lakes, Water Quality Unit

20+ Lessons

7 Units • 250 Lessons

Interactive Slideshows with Chronological Work Bundles
Hundreds of Pages, Activities, Projects, Videos, Academic Links, Assessments, Games & Keys All Built-In for Seamless, Ready-to-Go Learning

Biogeochemical Cycles

17 Lessons

GEOLOGY Mega Bundle

6 Parts, 60 Lessons

Weathering, Soil Science, Ice Ages, Glaciers Unit

5 Parts 36 Lessons

Interactive Slideshows Follow Along Bundles

Weather and Climate Mega Bundle

40 Lessons

7 Units

Astronomy Mega Bundle

60 Lessons

7 Units

Grades 5-10

Life Science Units

Life Science Units	Daily Lessons	Intended Grade	
Ecology Feeding Levels Unit	13 Lessons	5-6 easier	
Ecology Interactions Unit	30 Lessons	5-6 easier	
Ecology Abiotic Factors Unit	13 Lessons	5-6 easier	
Botany Unit	50 Lessons	5-7 easier	
Evolution and Natural Selection	40 Lessons	5-7 easier	
Taxonomy and Classification	50 Lessons	6-8 medium difficulty	
Infectious Diseases Unit	30 Lessons	7-9 more difficult	
DNA and Genetics Unit	42 Lessons	8-10 most difficult	
Human Body Systems Unit	85 Lessons	6-8 medium difficulty	
Cell Biology Unit	30 Lessons	8-10 most difficult	

Life Science Curriculum

SlideSpark Science

MIDDLE-LEVEL
EDUCATIONAL RESOURCES



Interactive Slideshows Follow Along Bundles

10 Units of Study



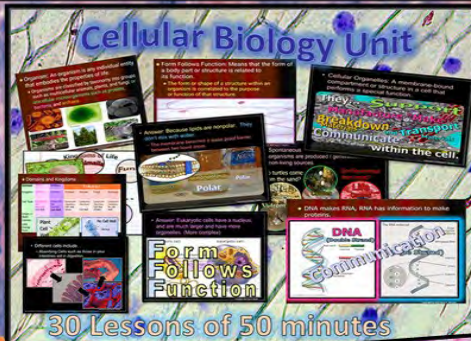
Botany Unit



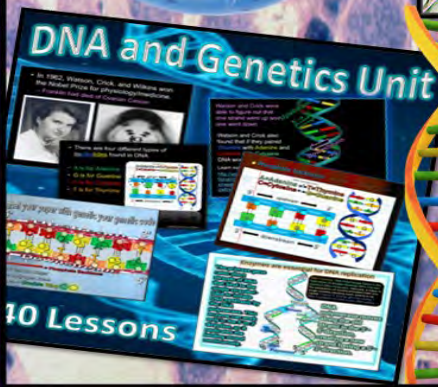
Human Body Systems Unit



Cellular Biology Unit



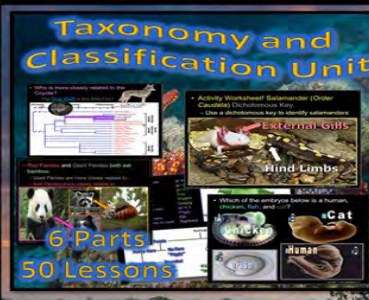
DNA and Genetics Unit



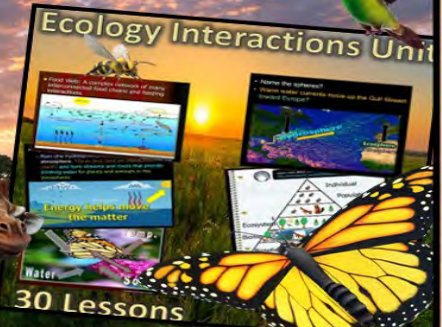
Infectious Diseases



Taxonomy and Classification Unit



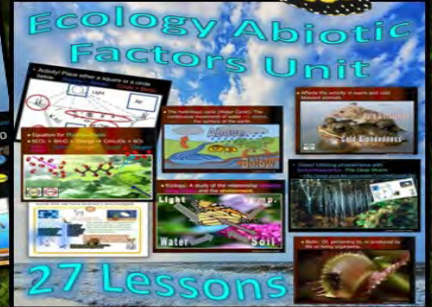
Ecology Interactions Unit



Ecology Feeding Level Full Unit



Ecology Abiotic Factors Unit



Physical Science

	Daily Lessons	Intended Grade	
Laws of Motion and Machines Unit	33 Lessons	8-10 most difficult	
Matter Energy and the Environment	58 Lessons	7-10 medium difficulty	
Atoms and Periodic Table Unit	44 Lessons	8-10 most difficult	
Science Skills Unit	30 Lessons	5-7 medium difficulty	

[Physical Science Curriculum](#)

[Entire SlideSpark Science Curriculum](#)



Physical Science Curriculum

SlideSpark Science

MIDDLE-LEVEL
EDUCATIONAL RESOURCES



Science Skills Unit

5 Parts, 30 Lessons

Physical Science Curriculum,
4 Units • 165 Lessons of 50
mins, Interactive Slideshows
with Chronological Work
Bundles, Hundreds of Pages,
Activities, Labs, Projects,
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Assessments, Games, Keys,
All Built-In for Seamless
Ready-to-Go Learning

Thousands of Interactive Slides

67 Pages of Follow Along
Work Bundle

Assessments, Games,
Video Links, and more

Everything you need to run an
amazing learning experience

Interactive Slideshows Follow Along Bundles

Grades 7-10

Laws of Motion and
Simple Machines Unit

33 Lessons

With Follow Along
Work Bundles

63 Pages

Assessments, Activities,
Projects, and so much more

Atoms and Periodic Table Unit

6 Parts, 44 Lessons

Thousands of Interactive Slides

Follow Along Work Bundle

108 Pages, with Labs,
Quizzes, more, all built-in

Exciting Activities, Questions,
Videos, All built-in

Matter and Energy and the Environment Unit

58 Lessons

Interactive Slideshows

with Follow Along Work Bundles

Activities, Assessments,
and more, all built-in

125 Pages

Dear Valued Educator,

Our fully editable .pptx and .doc resources are perfect for educators looking to bring enthusiasm and creativity to their lessons. We encourage you to make changes to fit your needs and style. As science educators, we're committed to providing students with the tools they need to succeed in the classroom and beyond. Each unit in the curriculum includes a range of resources that have been developed through extensive research and use in a busy classroom. Our teaching approach is designed to make science education engaging and exciting for learners of all ages. We offer a one-of-a-kind science curriculum that will challenge, inspire, and educate students to become tomorrow's scientists and leaders. Join us today and learn more about how our program can help you achieve your classroom goals.

With appreciation,

Support@SlideSpark.net



Thank you for your time and interest in our Science curriculum. We strive to provide students with engaging and informative lessons that will spark their curiosity and encourage scientific exploration. Should you have any questions or concerns, please do not hesitate to contact us. Thank you again for considering our curriculum, and we wish you all the best in your educational journey.

Sincerely,

Support@slidespark.net



SlideSpark Science

MIDDLE-LEVEL
EDUCATIONAL RESOURCES



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