Dear Homeschool Friend,

Thank you for ordering *BookShark's Science B Instructor's Guide*.

Unfortunately, two books have recently gone out of print: *What Makes You Ill?* and *Lift-the-Flap Engineering*. We are replacing these titles with *Germs Make Me Sick!* and *Working with Materials*. Enclosed, you will find a new schedule and Activity Sheets to use in your Science B Guide.

For *What Makes You Ill?*, simply replace Weeks 18-21 in your current Guide with the enclosed pages for *Germs Make Me Sick!*.

For *Lift-the-Flap Engineering*, please replace Weeks 34-36 with the enclosed pages for *Working with Materials*.

If you have any questions or concerns regarding this product update, please feel free to contact us. You can reach us at (303) 797-2954, 9:00 am to 4:00 pm MST Monday through Thursday and 9:00 am to 1:00 pm on Friday, or email us anytime at main@BookShark.com.

Thank you for making BookShark part of your homeschool day.

Sincerely,

The BookShark Team

Enclosure: Replacement for *BookShark Science B, Weeks 18–21 and Weeks 34–36.*

1SBU Curriculum Update (2023v2)

8022 S Grant Way, Littleton, CO 80122
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Science B
Week 18 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Germs Make Me Sick!	pp. 5–6	pp. 7–8	pp. 9–10		
Activity Sheet Questions	#1–2	#3–5	#6–8		
Optional: Do Together	Healthy Habits	Kitchen Safety			
BookShark Science B Experiments Book				#18 Why do I Have to Wash My Hands?	
Supplies	**We provide (1SK):** 5 fold-top sandwich-sized plastic bags, 2 plastic gloves **You provide:** 1 zip-top sandwich-sized plastic bag, permanent marker, colored pencils, 6 slices (or partial slices) of white bread				
Shopping/Planning List	**For next week:** 2 magnets (rectangular magnets with poles work best), permanent marker, 2 clear disposable water bottles with lids (labels removed), water, measuring cups, food coloring, 1/2 cup + 1 Tablespoon cooking oil, funnel (optional), timer, about 2 Tablespoons liquid dish soap, plastic bowl, 2 paper towels				

Other Notes

Day 1

Germs Make Me Sick! | pp. 5–6

Activity Sheet Questions | #1–2

Optional: Do Together | Healthy Habits

Take some time today to talk with your student about all the ways your family tries to stay healthy. Do your meals follow the healthy eating guidelines? If not, are there ways you can modify your diet to be healthier? Can you exchange a snack of chips for an apple? Can you add another vegetable to your dinner meal? Does your family exercise together? You could go on a family walk after dinner, play soccer in the yard, or go on a bike ride. Does your family take time to rest? In our current culture, we tend to go, go, go. You might consider blocking out one day or evening per week where your family has time to relax, reconnect, and rest. Plan to take one step today to improve your family's health! You can talk about healthy meals, your favorite way to exercise, and about making time for rest.

Special Note to Mom or Dad

Notes
Week 18

Day 2

Germs Make Me Sick! | pp. 7–8

Activity Sheet Questions | #3–5

Optional: Do Together | Kitchen Safety

Take some time to talk with your student about ways to stay safe and avoid accidents. You might talk about kitchen safety such as turning pot handles in or being careful with knives. Invite your child to help you prepare a snack or a meal. As you cut up an apple, you can talk about how to safely handle knives. As you prepare lunch, you can show your child how to safely work the stove and oven. Discuss food safety as well. Show your student the proper way to wash their hands. It is important to wash your hands frequently while you cook. Explain cross-contamination to your student. For example, putting vegetables on the same cutting board that you used for raw meat can make you ill. Eating food that has been out of the refrigerator for too long can make you sick. Now, enjoy the fruits of your labor together.

Day 3

Germs Make Me Sick! | pp. 9–10

Activity Sheet Questions | #6–8

Day 4

BookShark Science B Experiments Book | #18
Why do I Have to Wash My Hands? ■

Week 18 Activity Sheet

Germs Make Me Sick!

1. Symptoms can show that someone is ill; they occur when your body doesn't feel right, and your body tells you something is wrong. Circle the examples of symptoms below: (p. 5)

fever	have energy
sore throat	body aches
feel tired	feel cheerful
are hungry	head hurts

2. Write "X" in the boxes that have true statements. (p. 6)

- [x] Germs are tiny.
- [x] Germs are alive.
- [x] Germs come in a wide variety of types.
- [ ] Germs are rare.
- [x] Some germs are bacteria.
- [x] Some germs are viruses.

Week 18 Activity Sheet

3. Label the illustrations either bacteria or virus. (p. 7)

(virus)

(bacteria)

4. Name some places where germs can be found. (p. 8)

(in the air, in food, in water, on the things we touch, on our bodies)

5. **Challenge:** Why should you cover your mouth when you sneeze and be sure to wash your hands often? (p. 8)

(because germs spray through the air when you sneeze, and can get stuck on your hands. Washing helps to keep germs from getting into your body, as well as getting others sick)

6. Why aren't we sick all the time? (p. 9)

(because our bodies usually fight off germs that get inside)

7. True or False? All germs make us sick. (p. 9)

True **False**

Week 18 Activity Sheet

8. Name two body parts that help keep germs out. (p. 9–10)

1) *(Possible: nose hairs catch germs;*

2) *skin keeps germs out if you don't have any cuts)*

Week 18 Activity Sheet

Germs Make Me Sick!

1. Symptoms can show that someone is ill; they occur when your body doesn't feel right, and your body tells you something is wrong. Circle the examples of symptoms below: (p. 5)

fever	have energy
sore throat	body aches
feel tired	feel cheerful
are hungry	head hurts

2. Write "X" in the boxes that have true statements. (p. 6)

- ☐ Germs are tiny.
- ☐ Germs are alive.
- ☐ Germs come in a wide variety of types.
- ☐ Germs are rare.
- ☐ Some germs are bacteria.
- ☐ Some germs are viruses.

Week 18 Activity Sheet

3. Label the illustrations either bacteria or virus. (p. 7)

_____

_____

4. Name some places where germs can be found. (p. 8)

_____

_____

5. **Challenge:** Why should you cover your mouth when you sneeze and be sure to wash your hands often? (p. 8)

_____

_____

_____

6. Why aren't we sick all the time? (p. 9)

_____

_____

7. True or False? All germs make us sick. (p. 9)

True **False**

Week 18 Activity Sheet

8. Name two body parts that help keep germs out. (p. 9–10)

1) _____

2) _____

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Science B
Week 19 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Germs Make Me Sick!	pp. 11–13	pp. 14–15	pp. 16–18		
Activity Sheet Questions	#1–2	#3	#4–6		
Optional: Do Together	Kindness in Action				
BookShark Science B Experiments Book				#19 Why Should I Wash with Soap?	
Supplies	**We provide (1SK):** masking tape, small ball of clay, 5 metal thumbtacks **You provide:** 2 magnets (rectangular magnets with poles work best), permanent marker, 2 clear disposable water bottles with lids (labels removed), water, measuring cups, food coloring, 1/2 cup + 1 Tablespoon cooking oil, funnel (optional), timer, about 2 Tablespoons liquid dish soap, plastic bowl, 2 paper towels				
Shopping/Planning List	**For next week:** cookie sheet, other crayon colors to test (optional), construction paper matching any addition crayon colors to test (optional)				

Other Notes

Day 1

Germs Make Me Sick! | pp. 11–13

Activity Sheet Questions | #1–2

Optional: Do Together | Kindness in Action

One way to help people who are ill and don't feel well is to do something nice for them to let them know you are thinking of them. You might drop off some flowers or their favorite treat. Your students might want to draw a picture or write a note to someone who is not feeling well. Perhaps you might offer to pick up their groceries or run some errands. This is a great opportunity to teach your students how to help others.

Day 2

Germs Make Me Sick! | pp. 14–15

Activity Sheet Questions | #3

N Special Note to Mom or Dad

Notes
Week 19

Day 3

Germs Make Me Sick! | pp. 16–18

Activity Sheet Questions | #4–6

Day 4

BookShark Science B Experiments Book | #19 Why Should I Wash with Soap? ■

Week 19 Activity Sheet

Germs Make Me Sick!

1. Name three ways germs can get into our bodies. (pp. 11–13)

a. *(we breathe in germs from someone who is sick)*

b. *(we swallow germs)*

c. *(a cut in the skin)*

2. **Challenge:** When do food and water become "bad"?

(when they become infested with too many germs)

3. Circle the correct terms to complete the sentences on how our bodies fight germs. (pp. 14–15)

White blood cells / **Red blood cells** kill germs.

Green cells / **Antibodies** attack germs.

Week 19 Activity Sheet

4. How do bacteria grow in number so quickly? (p. 16)

They make hundreds at a time. **They double every hour.**

5. Complete the sentences with the correct words. (pp. 16–17)

waste	sick	rapidly	poison

Bacteria multiply *(rapidly)* and produce *(waste)* products. These products *(poison)* the cells. This causes people to feel *(sick)*.

6. Name some symptoms people feel when they are sick with bacteria-caused illness. (p. 18)

(they can have pains, aches, run a fever, rash, cough, sneeze, or throw up)

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Week 19 Activity Sheet

Germs Make Me Sick!

1. Name three ways germs can get into our bodies. (pp. 11–13)

a. _____

b. _____

c. _____

2. **Challenge:** When do food and water become "bad"?

_____

_____

3. Circle the correct terms to complete the sentences on how our bodies fight germs. (pp. 14–15)

White blood cells / **Red blood cells** kill germs.

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They make hundreds at a time. **They double every hour.**

5. Complete the sentences with the correct words. (pp. 16–17)

waste	sick	rapidly	poison

Bacteria multiply _____ and produce _____ products. These products _____ the cells. This causes people to feel _____.

6. Name some symptoms people feel when they are sick with bacteria-caused illness. (p. 18)

_____

_____

Science B
Week 20 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Germs Make Me Sick!	pp. 19–21	pp. 22–23	pp. 24–26 [N]		
Activity Sheet Questions	#1–2	#3–4	#5		
Optional: Do Together		First Aid Kit			
BookShark Science B Experiments Book				#20 How Much Sunlight in a Day? (Part 2) & Why do Things Get Hot in the Sun?	
Supplies	**We provide (1SK):** crayon bits (yellow, white, blue, black) **You provide:** cookie sheet, other crayon colors to test (optional), construction paper matching any additional crayon colors to test (optional)				
Shopping/Planning List	**For next week:** 2 sheets of white paper, scissors, marker, a safe/high location				

Other Notes

Day 1

Germs Make Me Sick! | pp. 19–21

Activity Sheet Questions | #1–2

Day 2

Germs Make Me Sick! | pp. 22–23

Activity Sheet Questions | #3–4

Optional: Do Together | First Aid Kit

Today is a good day to update your family's first aid kit. Have your student join you to check for expiration dates on any medicine. Throw out any that has expired. Make sure that you haven't used up the Band-aids or ice packs. Make a shopping list to restock your supplies once you have inventoried what you have on hand.

[N] Special Note to Mom or Dad

Notes
Week 20

Day 3

Germs Make Me Sick! | pp. 24–26

Note: Some families don't use antibiotics. If your family chooses not to use them, talk to your students about how you handle illnesses. [p. 26]

Activity Sheet Questions | #5

Day 4

BookShark Science B Experiments Book | #20
How Much Sunlight in a Day? (Part 2) & Why do Things Get Hot in the Sun? ■

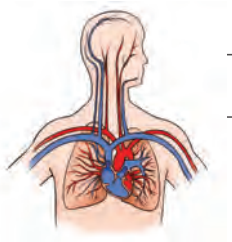
Week 20 Activity Sheet

Germs Make Me Sick!

1. For each symptom listed, circle either "stays close" or "moves around" to describe how the poisons from bacteria spreads through the body. (pp. 19–20)

Cavity in Tooth	**Stays Close**	**Moves Around**
Headache	**Stays Close**	**Moves Around**
Earache	**Stays Close**	**Moves Around**
Sore Throat	**Stays Close**	**Moves Around**
Boil	**Stays Close**	**Moves Around**
Stomach Ache	**Stays Close**	**Moves Around**
Throw Up	**Stays Close**	**Moves Around**
Rash	**Stays Close**	**Moves Around**

2. How do germs move quickly throughout your body? (p. 20)



(they move through the blood)

Week 20 Activity Sheet

3. How do viruses grow in number so quickly? (p. 22)

They make hundreds at a time. **They double every hour.**

4. Match each phrase that describes either a virus, a bacteria, or both. (pp. 17–23)

bacteria

virus

- creates poison that makes a person feel sick
- reproduce within the cell
- grows in number quickly
- can cause fever, cavities, earaches, and more
- causes colds, flu, measles, and chickenpox
- spread when a cell explodes
- attacks cells

Week 20 Activity Sheet

5. Using numbers 1-5, put in order the steps to take if a sickness lingers: (p. 26)

___(2)___ The doctor runs tests like swabbing your throat or taking a blood sample.

___(4)___ If tests show a bacteria infection, take antibiotic drugs.

___(1)___ See a doctor.

___(5)___ Antibiotic drugs kill infection.

___(3)___ Tests go to a lab to find results.

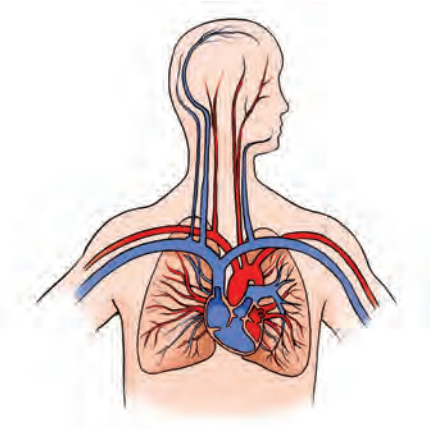
Week 20 Activity Sheet

Germs Make Me Sick!

1. For each symptom listed, circle either "stays close" or "moves around" to describe how the poisons from bacteria spreads through the body. (pp. 19–20)

Cavity in Tooth	**Stays Close**	**Moves Around**
Headache	**Stays Close**	**Moves Around**
Earache	**Stays Close**	**Moves Around**
Sore Throat	**Stays Close**	**Moves Around**
Boil	**Stays Close**	**Moves Around**
Stomach Ache	**Stays Close**	**Moves Around**
Throw Up	**Stays Close**	**Moves Around**
Rash	**Stays Close**	**Moves Around**

2. How do germs move quickly throughout your body? (p. 20)



Week 20 Activity Sheet

3. How do viruses grow in number so quickly? (p. 22)

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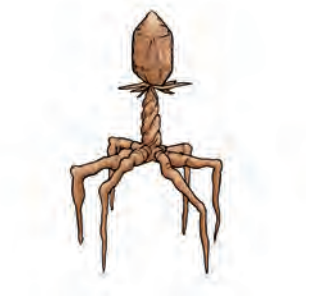
4. Match each phrase that describes either a virus, a bacteria, or both. (pp. 17–23)

bacteria •



virus •

- creates poison that makes a person feel sick
- reproduce within the cell
- grows in number quickly
- can cause fever, cavities, earaches, and more
- causes colds, flu, measles, and chickenpox
- spread when a cell explodes
- attacks cells

5. Using numbers 1-5, put in order the steps to take if a sickness lingers: (p. 26)

_____ The doctor runs tests like swabbing your throat or taking a blood sample.

_____ If tests show a bacteria infection, take antibiotic drugs.

_____ See a doctor.

_____ Antibiotic drugs kill infection.

_____ Tests go to a lab to find results.

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Science B
Week 21 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Germs Make Me Sick!	pp. 27–28 N	pp. 29–32			
The Usborne Children's Encyclopedia			pp. 181–183		
Activity Sheet Questions	#1	#2–3	#4–5		
Optional: Do Together		Healthy Eating	Life Without Science		
BookShark Science B Experiments Book				#21 Which Shape Glides Best?	
Supplies	**We provide (1SK):** 2 sheets of cardstock, 2 paperclips (optional) **You provide:** 2 sheets of white paper, scissors, marker, a safe/high location				
Shopping/Planning List	**For next week:** plastic shopping bags (offer a few options: thick and thin), scissors, best glider from previous experiment, marker, something to use as a spool for the kite string (an empty toilet paper tube, spice container, empty bottle in recycling, comb or brush, etc.)				

Other Notes

Day 1

Germs Make Me Sick! | pp. 27–28

Note: This page states that there are no medicines that can get rid of viruses aside from some shots. Some families don't use vaccines. If your family chooses to avoid vaccines, talk to your students about your choices.

Although there are currently no medicines that eradicate viruses, some relatively new medicines called antivirals can help reduce the length and severity of some viruses. [p. 27]

Activity Sheet Question | #1

Day 2

Germs Make Me Sick! | pp. 29–32

Activity Sheet Question | #2–3

Optional: Do Together | Healthy Eating

What makes a meal a healthy meal? Ask your students what they think makes up a healthy meal. After having this discussion, do some internet research to see what dietary professionals think makes a meal a healthy one. Enter terms like "Choose My Plate" or "Healthy eating for kids" into your favorite search engine to get some ideas.

N Special Note to Mom or Dad

(As always, remember to be careful on the internet and monitor the websites your children access.) After you have gathered your information, make a meal plan with your children. Help them write out a shopping list and head out the grocery store. Once home with your food, enjoy cooking together and serving your family a healthy meal!

Day 3

The Usborne Children's Encyclopedia | pp. 181–183

Activity Sheet Questions | #4–5

Optional: Do Together | Life Without Science

Ask your children to imagine what life would be like without science. No technological breakthroughs. Primitive medicines. No heater. Take a walk around your house—including the garage, if you have one—and marvel at how scientists have made your world better. Can your children list ten things they see that they can thank scientists for? Ask your children to try to think of three types of scientists they might want to be when they grow up. If they're interested, pick one of the types to research further. What would it be like to work as a chemist or a botanist or a marine biologist or a … ?

Day 4

BookShark Science B Experiments Book | #21
Which Shape Glides Best? ■

Week 21 Activity Sheet

Germs Make Me Sick!

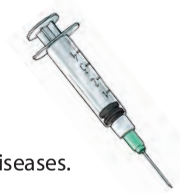
1. Label the following as True or False: (pp. 26–28)

Currently, no drugs are available to cure diseases caused by viruses.

True **False**

Doctors give shots (vaccines) to prevent diseases caused by viruses.

True **False**



Doctors give drugs to help sick people feel better.

True **False**

Doctors give drugs to heal from bacteria-caused diseases.

True **False**

2. Name three ways we can help our bodies heal. (p. 29)

a) *(take medicine as prescribed; rest; eat and drink healthy foods)*

b) _____

c) _____

Week 21 Activity Sheet

3. Label the things you can do to stay healthy. (p. 31)

(eat well)

(rest)

(exercise)

(keep clean)

(visit the doctor)

The Usborne Children's Encyclopedia

4. What do scientists do with the things they learn? (pp. 182–183)

- [x] use their understanding to invent new things
- [ ] use their understanding to make pizza
- [ ] nothing—they're just happy that they figured something out

5. Name three things you use every day that have been developed by scientists. (pp. 182–183)

1) *(Possible: computers; medicines; cars; our homes*

2) *themselves—heating and cooling, appliances,*

3) *lights; telephones; the Internet; etc.)*

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Week 21 Activity Sheet

Germs Make Me Sick!

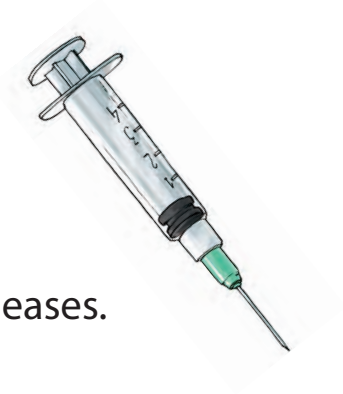
1. Label the following as True or False: (pp. 26–28)

Currently, no drugs are available to cure diseases caused by viruses.

True **False**

Doctors give shots (vaccines) to prevent diseases caused by viruses.

True **False**



Doctors give drugs to help sick people feel better.

True **False**

Doctors give drugs to heal from bacteria-caused diseases.

True **False**

2. Name three ways we can help our bodies heal. (p. 29)

a) _____

b) _____

c) _____

Week 21 Activity Sheet

3. Label the things you can do to stay healthy. (p. 31)

_____ _____ _____

_____ _____

The Usborne Children's Encyclopedia

4. What do scientists do with the things they learn? (pp. 182–183)

☐ use their understanding to invent new things

☐ use their understanding to make pizza

☐ nothing—they're just happy that they figured something out

5. Name three things you use every day that have been developed by scientists. (pp. 182–183)

1) _____

2) _____

3) _____

Science B
Week 34 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Working With Materials	pp. 4–5	pp. 6–9 [N]	pp. 10–13		
Activity Sheet Questions	#1–3	#4–6	#7–8		
Optional: Do Together		Testing Properties			
BookShark Science B Experiments Book				#34 Can Wind Make a Car Go?	
Supplies	**We provide (1SK):** coffee filter, 2 straight straws, sponge, 2 thin wooden dowels, 4 wooden wheels, 4 foam beads, 1 jumbo craft sticks, 3 craft sticks, 3 glue dots, masking tape **You provide:** craft materials (aluminum foil, tissue paper, craft foam, coffee filters, cloth, plastic wrap, plastic grocery bag, cardboard, egg carton), sharp knife (with adult supervision), hot glue gun (optional), a hard floor space for testing				
Shopping/Planning List	**For next week:** Earth Model (skewer, Styrofoam ball, rubber band, and plastic thumbtack) from Experiment #1, reflective objects (small mirrors, shiny pans or lids, silverware, anything made from chrome or silver, etc.), a few non-reflective objects (pillow, stuffed animal, blanket, etc.), scissors, 3-4 books, white paper, a space where you can direct a laser to reflect in different directions (easiest in a dark room)				

Other Notes

Day 1

Working with Materials | pp. 4–5

Before you begin reading, ask your student what they think materials are. You may get different answers such as paper and glue, wood and nails, or even food for a recipe. Materials are the building blocks for everything we see around us. Have your students look around the room and pick a few items they see. Ask them to try and identify some materials that might have been used to build that item. Engineers are scientists that use materials to design items. Engineers see a problem and work to find an innovative solution. The solution may not be the first thing that the engineer tries. Would your students want to be engineers? Even if they don't, the ability to try and fail and then try again is a wonderful lesson for all students! Even if engineering is not the path they choose for a career, the problem-solving skills that engineering teaches will serve them well no matter what path they take.

Activity Sheet Questions | #1–3

[N] Special Note to Mom or Dad

Notes
Week 34

Day 2

Working with Materials | pp. 6–9

Note: There are some experiments throughout this book. While we schedule these pages to help your students better understand how materials are used in every day life, there is no need to perform these experiments. It is entirely up to you and your students.

Activity Sheet Questions | #4–6

Optional: Do Together | Testing Properties

Today, you learned about the properties that make up different materials. Engineers need to have a good understanding of materials and their properties to properly use them in what they create. Pretend you are an engineer who needs to take stock of your potential building inventory. You want to know what materials you have and what properties they possess. Using your book as reference, walk around your house and choose different objects. Name the material (plastic, metal, wood, etc.) and then name the properties (soft, hard, rough, smooth, etc) of these objects.

Day 3

Working with Materials | pp. 10–13

Activity Sheet Questions | #7–8

Day 4

BookShark Science B Experiments Book | #34
Can Wind Make a Car Go? ■

Week 34 Activity Sheet

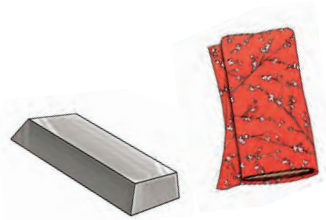
Working With Materials

1. True or False? Materials make up everything we use. (p. 4)

True **False**

2. Name at least four materials. (p. 5)

1) *(Posssible: ceramic)*
2) *(fabric)*
3) *(metal)*
4) *(plastic)*



3. Match each type of material or substance to its correct type. (p. 5)

Man-made materials	A type of natural material that does not have a living source, for examples: rocks, minerals, and pure metals.
Inorganic materials	A type of natural material that came from living things, for example: wood, wool, and cotton.
Organic Substances	Materials designed by engineers and made in factories. Examples include plastic and glass.

Week 34 Activity Sheet

4. Place a check mark in front of the words that describe properties. (pp. 6–7)

☒ hard	☒ lightweight
☐ rock	☒ absorbent
☒ flexible	☒ rough
☐ rubber band	☐ log

5. Circle the correct answer: Which property describes a drinking glass? (p. 7)

soft **smooth** **absorbent**

6. True or False? Engineers can change the properties of some materials. (p. 7)

True **False**

Week 34 Activity Sheet

7. Use the following word bank to fill in the blanks. (p. 10)

Engineers	**one another**
Friction	**friction**

(Engineers) must decide how to handle *(friction)* as they consider which materials to use. *(Friction)* occurs when two materials rub *(one)* *(another)*.

8. Mark the statements that are true. (p. 10)

- [x] Air causes friction.
- [ ] Engineers always seek to avoid friction.
- [x] Friction is a force.

Week 34 Activity Sheet

Working With Materials

1. True or False? Materials make up everything we use. (p. 4)

True **False**

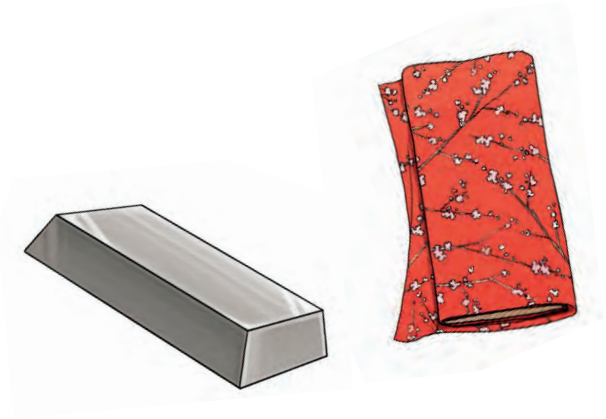
2. Name at least four materials. (p. 5)

1) _____

2) _____

3) _____

4) _____



3. Match each type of material or substance to its correct type. (p. 5)

Man-made materials	•	• A type of natural material that does not have a living source, for examples: rocks, minerals, and pure metals.
Inorganic materials	•	• A type of natural material that came from living things, for example: wood, wool, and cotton.
Organic Substances	•	• Materials designed by engineers and made in factories. Examples include plastic and glass.

Week 34 Activity Sheet

4. Place a check mark in front of the words that describe properties. (pp. 6–7)

☐ hard	☐ lightweight
☐ rock	☐ absorbent
☐ flexible	☐ rough
☐ rubber band	☐ log

5. Circle the correct answer: Which property describes a drinking glass? (p. 7)

soft **smooth** **absorbent**

6. True or False? Engineers can change the properties of some materials. (p. 7)

True **False**

7. Use the following word bank to fill in the blanks. (p. 10)

Engineers	**one another**
Friction	**friction**

_____must decide how to handle _____ as they consider which materials to use. _____ occurs when two materials rub _____ _____.

8. Mark the statements that are true. (p. 10)

- ☐ Air causes friction.
- ☐ Engineers always seek to avoid friction.
- ☐ Friction is a force.

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Science B
Week 35 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Working With Materials	pp. 14–15	pp. 16–19	pp. 20–23		
Activity Sheet Questions	#1–4	#5–8	#9–10		
Optional: Do Together	Build a Bridge	Plastic from the Earth?			
BookShark Science B Experiments Book				# 35 How Much Sunlight Shines in a Day? (Part 3) & Can I Make Light Turn a Corner?	
Supplies	**We provide (1SK):** laser pointer with flashlight function, small mirror **You Provide:** Earth Model (skewer, Styrofoam ball, rubber band, and plastic thumbtack) from Experiment #1, reflective objects (small mirrors, shiny pans or lids, silverware, anything made from chrome or silver, etc.), a few non-reflective objects (pillow, stuffed animal, blanket, etc.), scissors, 3-4 books, white paper, a space where you can direct a laser to reflect in different directions (easiest in a dark room)				
Shopping/Planning List	**For next week:** 4 same sized disposable water bottles (approx. 16 oz), box that can close completely and fit three water bottles, scissors (or box cutter, or matte knife), 3 sheets of white paper, packing or duct tape, a sunny location, food coloring (red, blue, yellow), crayons in a variety of colors				

Other Notes

Day 1

Working with Materials | pp. 14–15

Engineers mix different materials together to create a new material that has better properties than either material separate. For example, when you mix iron and carbon together to make steel, steel is a stronger metal than iron is, and does not rust as easily as iron. This makes steel the ideal material to use in most construction. By itself, copper easily corrodes (is eaten away) by salt in water. But when you mix copper with nickel to make cupronickel, it is much more resistant to salt. This makes cupronickel a good choice for plumbing or for any tools or structures used near seawater.

In order for metals to be mixed or hammered into different shapes as described in your reading today, usually the metals first have to be heated up and melted into liquids to mix and shape. Iron melts at 2800 degrees Fahrenheit. To compare, a typical candle's flame is about 1800 degrees Fahrenheit. Iron must be 1000 degrees hotter than a candle to melt.

N Special Note to Mom or Dad

Notes
Week 35

Activity Sheet Questions | #1–4

Optional: Do Together | Build a Bridge

You read today about civil engineers and how they rely on metal to build buildings and bridges. Today you will be a civil engineer and design a bridge of your own! What will your bridge look like? What is the purpose of the bridge? Is it for pedestrians or cars? Is it going over a small stream or a large river? Draw and color your bridge design. Once you have a visual representation of your bridge design. Use plastic blocks, marshmallows and toothpicks, or items from the recycling bin to make you design come to life.

Day 2

Working with Materials | pp. 16–19

Plastic is one of the most common man-made materials we interact with throughout the day. But what exactly is it made of? There is no "plastic tree" to cut down and harvest plastic... right?

Most plastics are made from fossil fuels like crude oil that we drill from deep inside the Earth. There is a limited amount of fossil fuels in the Earth, so scientists are always looking for alternative options. We can now make plastic out of seaweed, beets, corn, sugarcane, and many more plants that are easily replantable, which means we won't run out of them as long as we keep planting more seeds. The other benefit to making plastic from plants is that they are biodegradable, which means that they will eventually break back down into dirt by bacteria found commonly in nature.

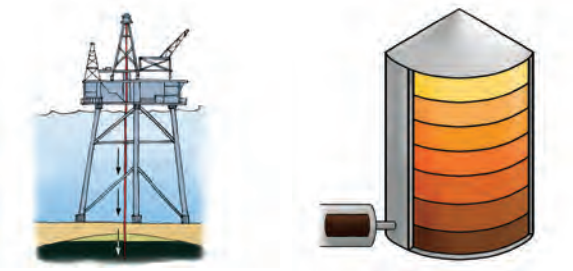
Activity Sheet Questions | #5–8

Optional: Do Together | Plastic from the Earth?

How are plastics made from crude oil? When crude oil is heated up in a furnace, it separates into different layers of liquid.

To demonstrate how liquids can have layers, find a small, clear glass. Pour some dish soap into the bottom. Then slowly pour some water on top, and then some vegetable oil on top of that.

When black, crude oil from the Earth is heated, it separates into layers like this, and engineers are able to take each layer, which each has different properties, and put them to use. The bottom layers are dense, heavy materials such as oil or diesel. The top layers are lighter materials like gasoline or lighter fluid. The layer third from the top is a layer call naphtha. Naphtha is often mixed with a few other materials in a complicated process to create plastic.



Day 3

Working with Materials | pp. 20–23

Activity Sheet Questions | #9–10

Day 4

BookShark Science B Experiments Book | #35
How Much Sunlight Shines in a Day? (Part 3) & Can I Make Light Turn a Corner? ■

Week 35 Activity Sheet

Working With Materials

1. True or False? Metals can be made to change shape. (p. 14)

True **False**

2. True or False? All metals are magnetic. (p. 14)

True **False**

3. What are some properties of metals? Check off all that apply. (p. 14)

- [x] Conduct both heat and electricity.
- [x] Hard, strong, and often shiny.
- [x] Malleable—able to be structured and shaped without shattering.

4. Circle the amount of steel made each year that builders worldwide use for construction. (p. 15)

2 pounds **2 tons** **1.3 billion tons**

Week 35 Activity Sheet

5. What sorts of things are made with plastic? Check off all that apply. (p. 16)

- [x] Legos®
- [ ] wool sweater
- [x] pens
- [ ] wooden pencil
- [x] cars

6. Why do engineers like working with plastic for new products? (p. 16)

- [x] inexpensive
- [x] easy to make
- [x] strong
- [x] lightweight
- [x] can be colored
- [ ] ugly

7. What is the "plastic problem"? *(plastic is hard to dispose of—it doesn't break down and it fills landfills)*. (p. 17)

Week 35 Activity Sheet

8. Circle the correct answer. Glass and ceramics are what type of material? (p. 20)

Organic substance **Man-made material** **Inorganic material**

9. Check off which items are ceramics. (p. 21)

- [x] pottery
- [x] cement
- [x] brick
- [x] tile
- [ ] glass window

Week 35 Activity Sheet

Working With Materials

1. True or False? Metals can be made to change shape. (p. 14)

True **False**

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☐ wooden pencil ☐ cars

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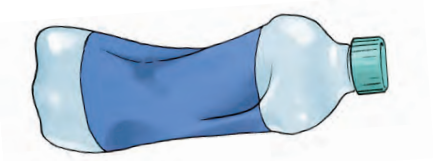
☐ inexpensive ☐ easy to make

☐ strong ☐ lightweight

☐ can be colored ☐ ugly

7. What is the "plastic problem"? _____

_____. (p. 17)



8. Circle the correct answer. Glass and ceramics are what type of material? (p. 20)

Organic substance **Man-made material** **Inorganic material**

9. Check off which items are ceramics. (p. 21)

☐ pottery ☐ cement ☐ brick

☐ tile ☐ glass window

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Science B
Week 36 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Working With Materials	pp. 24–25	pp. 26–27	pp. 28–29		
Activity Sheet Questions	#1–4	#5–7			
Optional: Do Together		Amazing Bikes		Finale	
BookShark Science B Experiments Book				#36 How Do Color and Water Affect Light?	
Supplies	**We provide (1SK):** masking tape, 2 red cellophane squares, 2 blue cellophane squares, 2 green cellophane squares, flashlight **You provide:** 4 same sized disposable water bottles (approx. 16 oz), box that can close completely and fit three disposable water bottles, scissors (or box cutter, or matte knife with adult supervision), 3 sheets of white paper, packing or duct tape, a sunny location, food coloring (red, blue, yellow), crayons in a variety of colors				

Other Notes

You're Done!

Day 1

Working with Materials | pp. 24–25

Activity Sheet Questions | #1–4

Day 2

Working with Materials | pp. 26–27

Briefly review *The Usborne Children's Encyclopedia* pp. 186-189 to remind your students about how atoms bond and work together to make up the materials we use.

Every element's atoms have a different pattern in which they tend to bond with other atoms. Later, you will learn that these patterns have to do with even tinier particles called electrons, and how many electrons each element's atoms have. The element's bonding pattern is often what gives the element the properties it has.

Your book today explores three different structures of the element carbon. Carbon atoms tend to bond together into strong shapes that can hold a lot of weight. This allows carbon to form strong materials like diamonds. This is also why carbon is combined with iron to create steel, which is stronger than iron by itself.

Activity Sheet Questions | #5–7

Special Note to Mom or Dad

Notes
Week 36

Optional: Do Together | Amazing Bikes

Your bicycle is an engineering marvel! Go on a bike ride today to appreciate all the work the materials engineers did to make bike riding possible. But, before you hit to road, help your student identify the materials of the bike. From our reading today, what is the body of the bike made of? What materials are the wheels? The spokes? The gears? Why are they the materials that they are? What would happen if the bike was made up of different materials? Would it work the same?

Day 3

Working with Materials | pp. 28–29

There are no Activity Sheet questions today. Enjoy your last days of school!

Day 4

BookShark Science B Experiments Book | #36
How Do Color and Water Affect Light?

Optional: Do Together | Finale

Take some time today to talk to your children about their science studies over the past year. What do they want to learn more about? Is there a special project they'd like to do this summer? Were there any subjects that they were unable to explore in depth because the season wasn't right, i.e., did they study something during the winter that needs to be observed in the summer? If so, make plans to study those things in greater depth this summer. Marvel at all they remember and reminisce about all the wonderful moments you had together this year. ■

Week 36 Activity Sheet

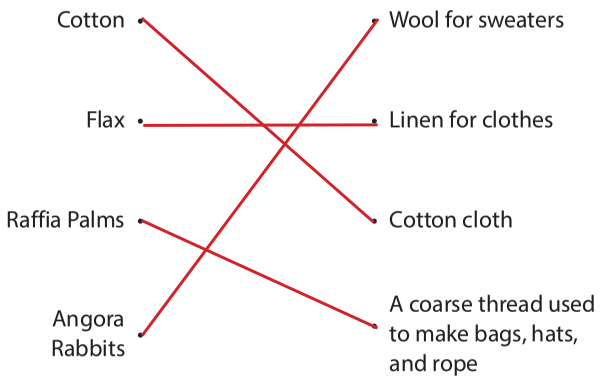
Working With Materials

1. Check the materials that can be made from some plants: (p. 24)

- [x] wood
- [x] textiles
- [ ] metal

2. **Challenge!** Circle the correct answer: Trees are **renewable** / **non-renewable** material. (p. 24)

3. Match the organic substance to its textile. (p. 25)



Week 36 Activity Sheet

4. True or False? All textiles are natural, organic substances. (p. 25)

True **False**

5. Use the following word bank to fill in the blanks. (p. 26)

materials	**flexible**	**engineers**	**materials**

Material *(engineers)* seek to create new *(materials)* that are stronger, lightweight, or more *(flexible)* than current *(materials)*.

6. What are all materials made up of? Circle the answer. (p. 26)

organic substances **atoms** **man-made materials**

7. Circle the items made from carbon. Each has different structures and properties. (p. 27)

granite **diamond**

fullerenes **graphite**

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Week 36 Activity Sheet

Working With Materials

1. Check the materials that can be made from some plants: (p. 24)

☐ wood

☐ textiles

☐ metal

2. **Challenge!** Circle the correct answer: Trees are **renewable** / **non-renewable** material. (p. 24)

3. Match the organic substance to its textile. (p. 25)

Cotton •	• Wool for sweaters
Flax •	• Linen for clothes
Raffia Palms •	• Cotton cloth
Angora Rabbits •	• A coarse thread used to make bags, hats, and rope

Week 36 Activity Sheet

4. True or False? All textiles are natural, organic substances. (p. 25)

True **False**

5. Use the following word bank to fill in the blanks. (p. 26)

materials	**flexible**	**engineers**	**materials**

Material _____ seek to create new _____ that are stronger, lightweight, or more _____ than current_____.

6. What are all materials made up of? Circle the answer. (p. 26)

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granite **diamond**

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