




Science A

Week 1 Schedule

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Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Ants	pp. 3–5	pp. 6–7	pp. 8–9		
Activity Sheet Questions	#1–3	#4–5	#6–8		
BookShark Science A Experiments Book				Why Do Ants Build Tunnels?	
Optional: Do Together	Exoskeleton				
Supplies	We provide: KSK — 1 ¼ cup sand, a pipe cleaner, a straw, a popsicle stick. You Provide: flat surface (like a cutting board or cookie sheet), plastic wrap, 2 books, a pencil, ¾ cup flour (or cornstarch), ¼ cup cooking oil (vegetable, canola, olive, etc.). 				
Shopping/Planning List	For next week: scissors, ruler (optional).				
Other Notes					

Day 1

Ants | pp. 3–5


Why do you think ants work together in large groups? By working together, ants can accomplish more than working alone. Plus, they are able to *specialize*. This means that different ants have different jobs. This allows them to get good at their job. We have specialized jobs now, too. For example, some people are farmers and grow large crops for others to eat. Some people are firefighters and help keep members of their community safe. Some people are teachers who help educate children, and others are doctors and nurses who keep the members of the community healthy. Learning one type of job has made

individuals much better at doing the job they know how to do, and has allowed us to become more wealthy than at other points in history where people had to try to do everything on their own.

The book mentions that ants use feelers to *smell* things. That certainly sounds strange. But we smell when tiny bits of something in the air bump into sensors in our nose. For ants, those sensors are on their feelers.

Activity Sheet Questions | #1–3

Note: Throughout the year, you will see some Activity Sheet questions marked as **Challenge** or as **Critical Thinking**. These are questions whose answers are not necessarily in the book. While we believe the material covered

 Special Note to Mom or Dad



Notes

Week 1

in the challenge questions is worthwhile for your children to know, it may not be specifically explained in their reading assignment. As always, if you think any question is too difficult for your children, please feel free to skip.

For **Challenge** questions, you and your student will need to complete outside research to answer the question. If you choose to do your research online, please review “Tips When Using the Internet” found in **Section Four** of our guide for precautions on surfing the web.

For **Critical Thinking** questions, the answer may be inspired by information that you learned that day or may be a statement of opinion. Encourage your student to take some time to write their best answer.

Supplies | You Provide

Note to Mom or Dad: When supplies are listed as “**We provide:**”, find them in your course-specific (**KSK**) Supplies Kit. When supplies are listed as “**You provide:**”, they are materials you can generally find around your home.

Optional: Do Together | Exoskeleton

Your skeleton is made up of all your bones and is found inside your body. These bones give your body its shape and make it sturdy. Many bugs have a skeleton on the outside. This is called an exoskeleton. Ex is part of a word that means “out”, like Exit. Bug “bones” are on the outside of their bodies!

Activity

You don’t have an exoskeleton. But you probably put on gear to protect your skin, organs, and bones. What you’ll need:

- protective gear you own

What do you wear as an exoskeleton? Find as many items of protective wear as you can and put them on. When you’re dressed, talk about how each thing you’re wearing helps keep you safe and what part of your body it protects.

Bonus

A full suit of armor that knights wore is like a complete exoskeleton. Make your own exoskeleton out of cardboard.

Day 2

Ants | pp. 6–7

To Discuss After You Read

Q: Do you remember the word for when things “all have different jobs to do”?

A: *specialization*

Do you have any siblings? If not, do you know a friend who does? Can you imagine having *thousands* of brothers and sisters? The book mentions that a queen ant can lay thousands of eggs in one day. To get a sense of how many a thousand is, see if you can get \$10 in pennies. Now try naming them all!

Activity Sheet Questions | #4–5

Day 3

Ants | pp. 8–9

Insects are different from us, but they do things like sunbathing and opening windows.

Find pictures of houses from around the world either in books or on the Web. What materials do people use to build them? Can you find any examples of houses built underground?

Activity Sheet Questions | #6–8

Day 4

BookShark Science A Experiments Book | #1

Why Do Ants Build Tunnels?

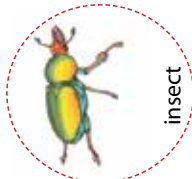
If you’d like to make additional kinetic sand beyond what we provide, follow the recipe located in the Key Recipes sections of your book. ■

Week 1 Activity Sheet

Ants

Mom or Dad: Write your child's answer as you talk about each question.

1. Ants are a type of: (p. 3)



insect



reptile



mammal



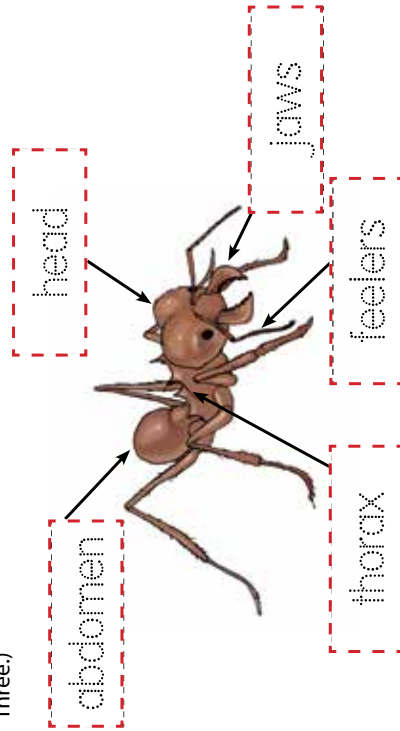
bird

...who live and work:

together in a group.

alone.

2. Label the parts of an ant (pp. 4–5). (Please find Cut-Out #1 in Section Three.)



Week 1 Activity Sheet

3. How does an ant's body help it survive? Match. (p. 5)

feelers

used to dig, cut, carry and protect themselves

jaws

used to climb plants—even upside down!

hook-like claws on legs

used to touch and smell

4. Ants in a colony have different jobs to do. Place the pictures to show who completes each job (pp. 6–7). (Please find Cut-Out #2.)

Worker

take care of other ants and brings food

Queen

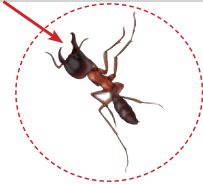
mother of the colony who lays eggs

Soldier

fights off attackers

Week 1 Activity Sheet

5. Which ant is the soldier ant? How can you tell? Draw an arrow to the feature that gives it away. (p. 7)



(it has huge jaws to attack its enemies—and to chop up large

pieces of food)

6. In which type of home do ants live? (p. 8)



hive



nest



house



igloo

7. How do wood ants keep their homes the right temperature? (p. 8)



To warm it up: (ants warm their bodies in the sun
and then go inside)



To cool it down: (ants dig holes in the mound to let in
cool air)

Week 1 Activity Sheet

8. Which materials do ants use to build homes? Circle them. (pp. 8–9)



bricks



wood



leaves



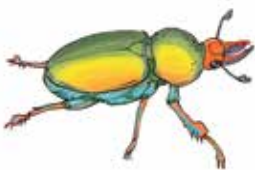
silk

Week 1 Activity Sheet

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mammal



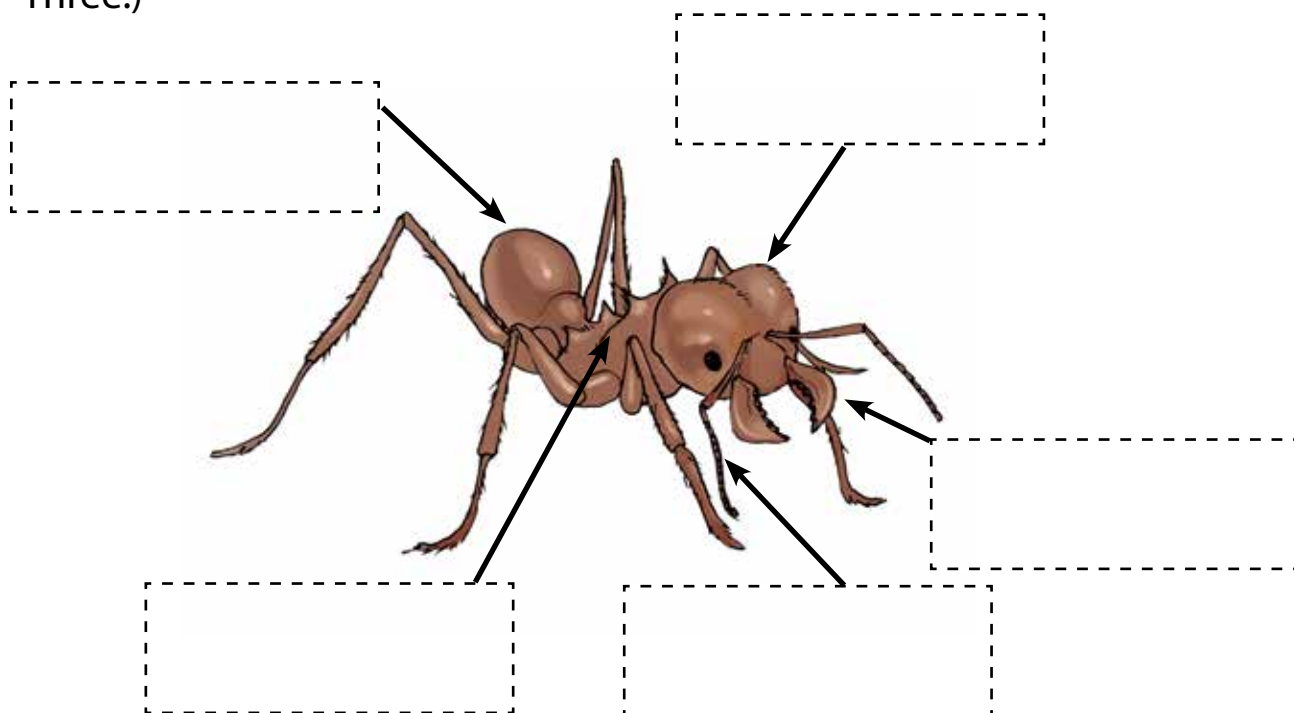
bird

...who live and work:

together in a group.

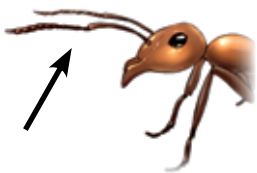
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hook-like
claws on legs



used to dig, cut, carry
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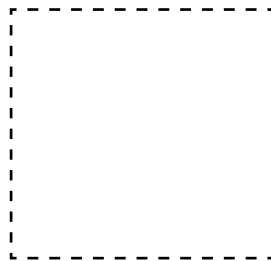


used to touch
and smell

4. Ants in a colony have different jobs to do. Place the pictures to show who completes each job (pp. 6–7). (Please find Cut-Out #2.)



take care of other ants
and brings food



mother of the colony
who lays eggs



fighters off attackers

Week 1 Activity Sheet

5. Which ant is the soldier ant? How can you tell? Draw an arrow to the feature that gives it away. (p. 7)



6. In which type of home do ants live? (p. 8)



hive



nest



house



igloo

7. How do wood ants keep their homes the right temperature? (p. 8)



To warm it up: _____



To cool it down: _____

Week 1 Activity Sheet

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bricks



wood



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silk




Science A

Week 2 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Ants	pp. 10–13	pp. 14–15	pp. 16–17		
Activity Sheet Questions	#1–3	#4	#5–6		
BookShark Science A Experiments Book				How Do Ants Walk?	
Optional: Do Together		Growing Up			
Supplies	We provide: KSK —clay (enough to make three quarter-sized pieces), 2 pipe cleaners. You Provide: scissors that can cut pipe cleaners, ruler (optional).				
Shopping/Planning List	For next week: 1 cup of warm water, 1 tsp sugar, a small clear plastic bottle with a narrow mouth.				

Other Notes

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 Special Note to Mom or Dad



Day 1

Ants | pp. 10–13

The natural world is very violent. It can be distressing to imagine defending yourself or being hurt by attackers. Now may be a good time to introduce personal safety.

Some people eat ants, too. Insects can actually be a great food source, we just don't tend to think about it. But remember: It's not wise to eat bugs or anything else that hasn't been properly cooked.

Activity Sheet Questions | #1–3

Day 2

Ants | pp. 14–15

You are probably already familiar with the idea that caterpillars spin cocoons so they can turn into butterflies, but many ants do too! What stages of development have you gone through? (e.g. growing inside your mommy, baby, toddler, and now in school!)

There are special names for different stages in development. It's not important to memorize these now, but it's fun to introduce the words.

For ants

Egg → Larvae → Pupae → Nymph → Ant

For people

Zygote → Embryo → Fetus → Baby → Toddler → Children → Teen → Adult

Activity Sheet Question | #4

Optional: Do Together | Growing Up

While not every type of ant takes the same amount of time to grow up, they grow up much faster than we do as humans. Most ants will take 6 to 10 weeks to grow up into an adult. Humans will take 18 to 35 years.

Activity

Spend some time today talking about how much your children have grown since they were born. What you'll need:

- Your children's baby photos or photo album (if you have them)
- Their old clothes or toys (if you have them)

- Their height chart (if you are doing this)
- Anything that shows growth in your students

Some questions to consider when you talk about each stage of life together with your students. These can be answered by both the parent and the student in as much detail as the students can remember.

- What were you like at this age?
- What were your favorite activities to do?
- What were your favorite moments at this stage of life?

Bonus

Parents, find pictures of yourself when you were the same age as your children and answer the same questions for yourself. Compare how you were similar or different from your kids as best as you know.

Day 3

Ants | pp. 16–17

Reproduction can be an uncomfortable topic. Approach it from the standpoint that everything—plants and animals—reproduce. If pressed with specific questions, technical definitions with the proper medical terms is often the best approach. If you have not started practicing yet, you may want to start getting comfortable with terms like *reproductive organ*, *ovary*, *eggs*, and more.

A queen ant's wings are designed to be removed, but she often has to pull them off herself so they don't get in her way as she starts her life laying eggs. Her body will use the energy from her wing muscles to help her get her new colony started.

Activity Sheet Questions | #5–6

Day 4

BookShark Science A Experiments Book | #2
How Do Ants Walk? ■

Week 2 Activity Sheet

Ants

1. Describe some of the clever ways ants stay safe. (pp. 10–11)



(use wide heads to keep attackers out of nest)



(spray smelly liquid)



(sting)



(explode and cover attacker in glue)

2. Why do ants work so hard to stay safe? (pp. 12–13)

(because many creatures eat ants for food)



3. Which animals eat ants? (pp. 12–13)



bears



fish



anteater



antlion

Week 2 Activity Sheet

4. Place the pictures in order to show how an ant grows to an adult (p. 14).
(Please find Cut-Out #3).



1) Larvae hatch out of eggs. Adult ants care for them and feed them.



2) Larvae spin cocoons out of silk around themselves and their bodies change inside.



3) About three weeks later, adult ants break out of the cocoons.

5. Why do some ants have wings? (p. 16)

They watch for enemies from the air.

They fly away to start a new colony.



6. How do some ants start a new colony? Use the pictures in the book to help you explain. (p. 16)

(1. A male and female ant fly away and mate.)

(2. The new queen's wings fall off and she finds a place to lay eggs.)

(3. Her eggs grow into workers in a new colony.)

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Week 2 Activity Sheet

Ants

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2. Why do ants work so hard to stay safe? (pp. 12–13)



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Science A

Week 3 Schedule

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Ants	pp. 18–19	pp. 20–21	pp. 22–23		
Activity Sheet Questions	#1–2	#3–4	#5–6		
BookShark Science A Experiments Book				Why Do Leafcutter Ants Need Leaves?	
Optional: Do Together	Finding Food				
Supplies	We provide: KSK—a package of yeast, a balloon. You Provide: 1 cup of warm (not hot) water, 1 tsp sugar, a small clear plastic bottle with a narrow mouth.				
Shopping/Planning List	For next week: a pencil, scissors, medium-sized tub or bowl of water, wider dish or container of water, fork.				

Other Notes

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 Special Note to Mom or Dad



Notes

Week 3

Day 1

Ants | pp. 18–19

Do you like to eat different kinds of food, or do you prefer to eat the same thing every day? Like ants, some people eat centipedes, have you? What kinds of seeds have you eaten?

Activity Sheet Questions | #1–2

Optional: Do Together | Finding Food

Ants have some interesting abilities that help them get to a food source once it has been found. The ants that find the food are able to let off a smell that then marks out a trail for the other ants back at the colony to find their way to the food. That allows them to collect all the food as a team in as quick a way as possible.

Activity

Today, as a way for your kids to get to a meal or snack, create a specific trail that they can follow in much the same way as ants leave a scent. What you'll need:

- Yarn, String, Stickers, Sticky Notes or something else you can use to make a trail

It is easy to use food as the end goal of following the trail you make for your children, but small rewards of some kind will work as well. Have your children wait in a bedroom or playroom that is reasonably far from the goal. Use your chosen means to mark your trail as you walk from the reward to where your children are. Do not necessarily take the quickest path or walk by the reward as you are making your trail. Go through different rooms and around furniture. When you reach your children explain that they are going to find the reward the same way the ants find their food. Assist them in staying on the path that you created. If you are using sticky notes you may also choose to have a different number or letter on each note as a way to review counting or the alphabet

Day 2

Ants | pp. 20–21

You will do more with fungus in your experiments. But some people take fungus with them, just like a queen ant. People use a piece of dough from their sourdough bread starter—a fungus—with every new batch.

Activity Sheet Questions | #3–4

Day 3

Ants | pp. 22–23

Sometimes things seem strange until we take a moment and think about it. Drinking honeydew from a bug sounds really weird, right? But what do you think honey is? You will learn more about honey when you study bees, but people take care of bees just like ants care for aphids (and for the same reason)!

Activity Sheet Questions | #5–6

Day 4

BookShark Science A Experiments Book | #2
Why Do Leafcutter Ants Need Leaves? ■

Week 3 Activity Sheet

Ants

1. Put the pictures in order to show how ants find food (pp. 18–19).
(Please find Cut-Out #4.)



An ant finds food and leaves a scent trail back to the nest.

Other ants follow the smell to find food.

Ants use their strong jaws to carry food back to the nest.

2. **Critical Thinking:** Why could it be a problem if you see even just one ant in the kitchen? (pp. 18–19)



(If the one ant finds food and leaves a scent trail back to the colony, the entire colony might come to raid the kitchen!)

3. Why do leaf cutter ants need fungus? (pp. 20–21)

They eat it for food.

They feed bites of the fungus to their larvae.

They build their nests with it.



Week 3 Activity Sheet

4. Why are leaf cutter ants like farmers? (pp. 20–21)

(ants take care of the fungus by keeping it clean and

healthy and by pushing chewed up leaves into it

to help it grow)



5. How do aphids help ants? Finish the sentence (pp. 22–23).

(Please find Cut-Out #5)



aphids

make a sugary liquid called



ants

like to eat.



honeydew

6. Why do ants protect aphids? (p. 23)

(so ants can collect honeydew all the time)



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Ants

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- They eat it for food.
- They feed bites of the fungus to their larvae.
- They build their nests with it.



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4. Why are leaf cutter ants like farmers? (pp. 20–21)



5. How do aphids help ants? Finish the sentence (pp. 22–23).

(Please find Cut-Out #5)

[] make a sugary liquid called []
that [] like to eat.

6. Why do ants protect aphids? (p. 23)



Science A—Weekly Subject List

Week	Subject
1	insects/parts of an ant/specialization of jobs/building nests/insect homes/exoskeleton
2	safety and protection/stages of development/starting a colony/ancestors
3	finding food/food sources/growing fungus/leaf cutter ants/aphids
4	ant species/amazing abilities/the five senses/body temperature
5	reptiles/warm-blooded/cold-blooded/body temperature/ reptile homes/adapting
6	shedding skin (molting)/reptile movement
7	hunting for food/ prey/venom/communication of chameleons/bacteria/dental health
8	protection from attacks/eggs and babies/reptile abilities
9	rainforests/humidity/canopy/predators/camouflage/roots
10	layers of the rainforest/herbivores/carnivores/night vision
11	survival/smelly plants/shape and usage of beaks/Amazon River
12	rainforest products/extinction/engineering/conservation/chocolate/endangered species
13	bees and wasps/body parts/ jobs and types of bees in a colony
14	worker bees/building nests/laying eggs/hatching/stages of growth
15	finding food/pollen/nectar/seeds/protection and defense/elevator mechanics
16	bee communication/honey makers/hives/nests/swarms
17	seeds/spores/pollination/sprouting/parts of flowers
18	traveling of seeds/germination/seed growth
19	necessities for plants to make food/weather/finding seeds
20	types of clouds/fog/snowflakes/working or therapy dogs
21	lightning/thunder/hail/wind/measuring temperature
22	tornadoes/weather prediction, tools and scientists/migration/animal responses to weather
23	weather and environmental conditions/cloud types/air layers/hurricanes
24	naming hurricanes/traits of hurricanes/wind curve/Coriolis effect/recycling/whales
25	facts about the sun/classification/photosynthesis/chlorophyll/water cycle/symbiotic relationships
26	gravity/force/water vapor/mass/weight/energy/nuclear fusion
27	uses of the sun/stars/telescopes/planting seeds for trees/mammals
28	defining science/states of matter/properties of materials
29	mixtures/reversible and irreversible changes/rainbows/water cycle
30	light/reflection/color/electricity/static electricity/simple circuits/conductors/insulators
31	magnetic materials/poles/attracting/repelling/living things
32	forces/movement/friction/gravity/effects of Earth's gravity
33	wind and water resistance/laws of motion/friction
34	simple machines/pulleys/gears/wheels and axles/wedges/levers/screws/slope
35	heat energy/convection/conduction/radiation/sound waves/light/shadows
36	human body/functions of systems and organs/scientists