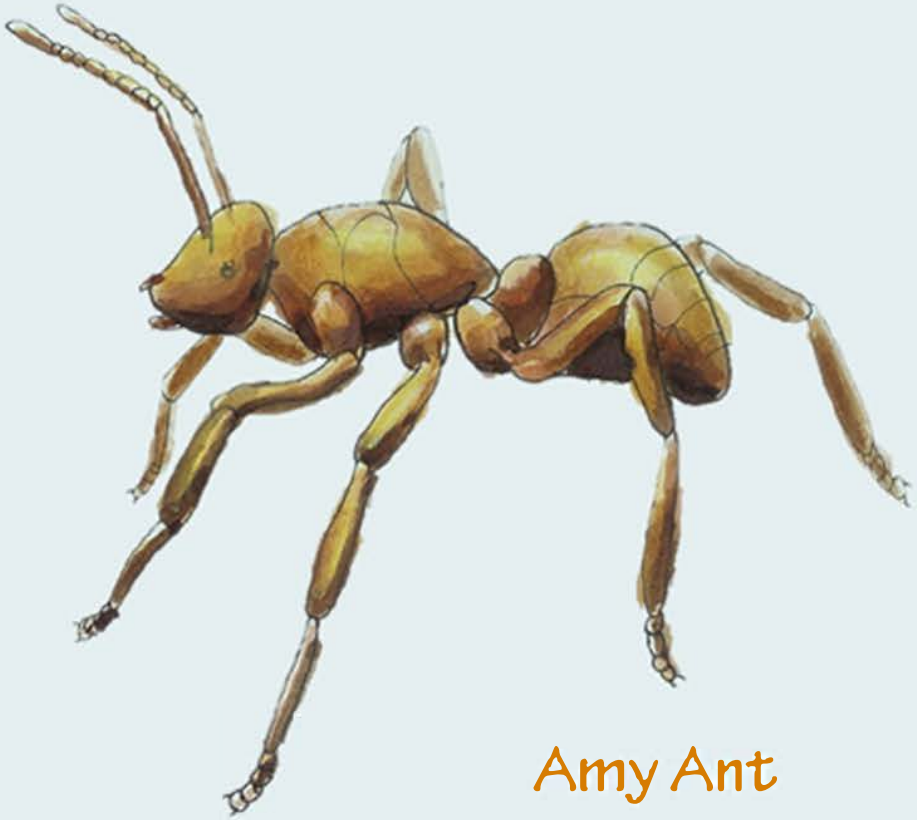
Formica's Amazing Adventure with Amy Ant

Dr. Sheila Grant
(Mica's mom)

Formica
"Mica" Grant



Amy Ant

By Elisabeth Schlegel, Jessica Louton, Natasha Mehdiabadi, and Ted Schultz

Illustrated by Katherine Arisumi

At the Smithsonian Institution's National Museum of Natural History, it is "Bring Your Children to Work" day.

Smithsonian Entomologist Dr. Sheila Grant (mother): Now dear, I expect you to be on your best behavior today. You can help me care for the ants in the lab. How does that sound?

Formica "Mica" Grant (daughter): Mom, ants are so gross and boring. All they do is mess up my picnic and crawl on me. Yuck!

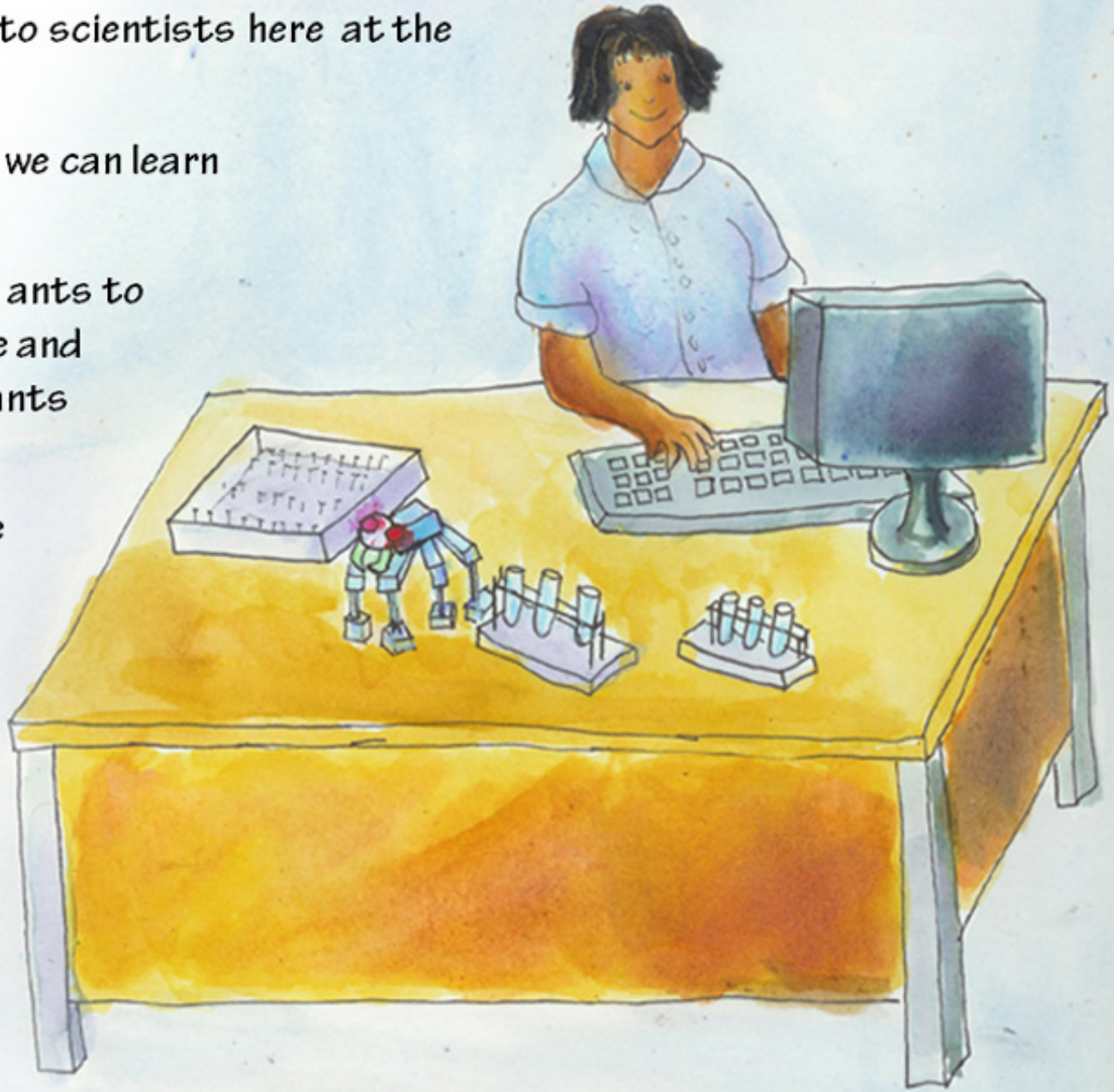
Dr. Grant: Ants are not boring to scientists here at the Natural History Museum.

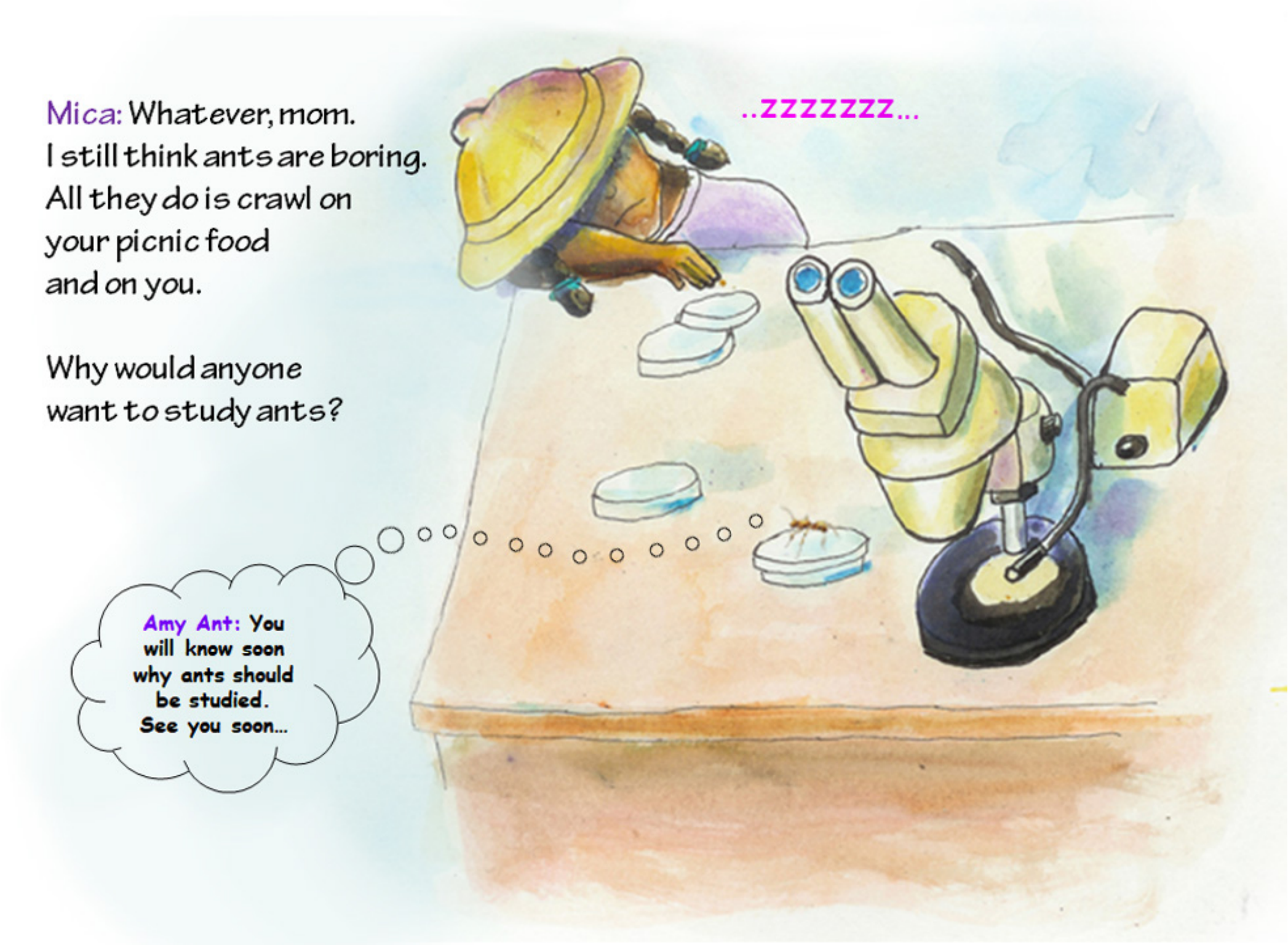
There are a lot of useful things we can learn by studying ants.

Dr. Nate Adenine uses genes in ants to discover what species they are and how ant species evolved from ants that lived with the dinosaurs.

Dr. Addison Acacia studies the interaction between plants and ants.

I study the outside characteristics (morphology) of ants so I can identify which species it is and how it is related to other ants.

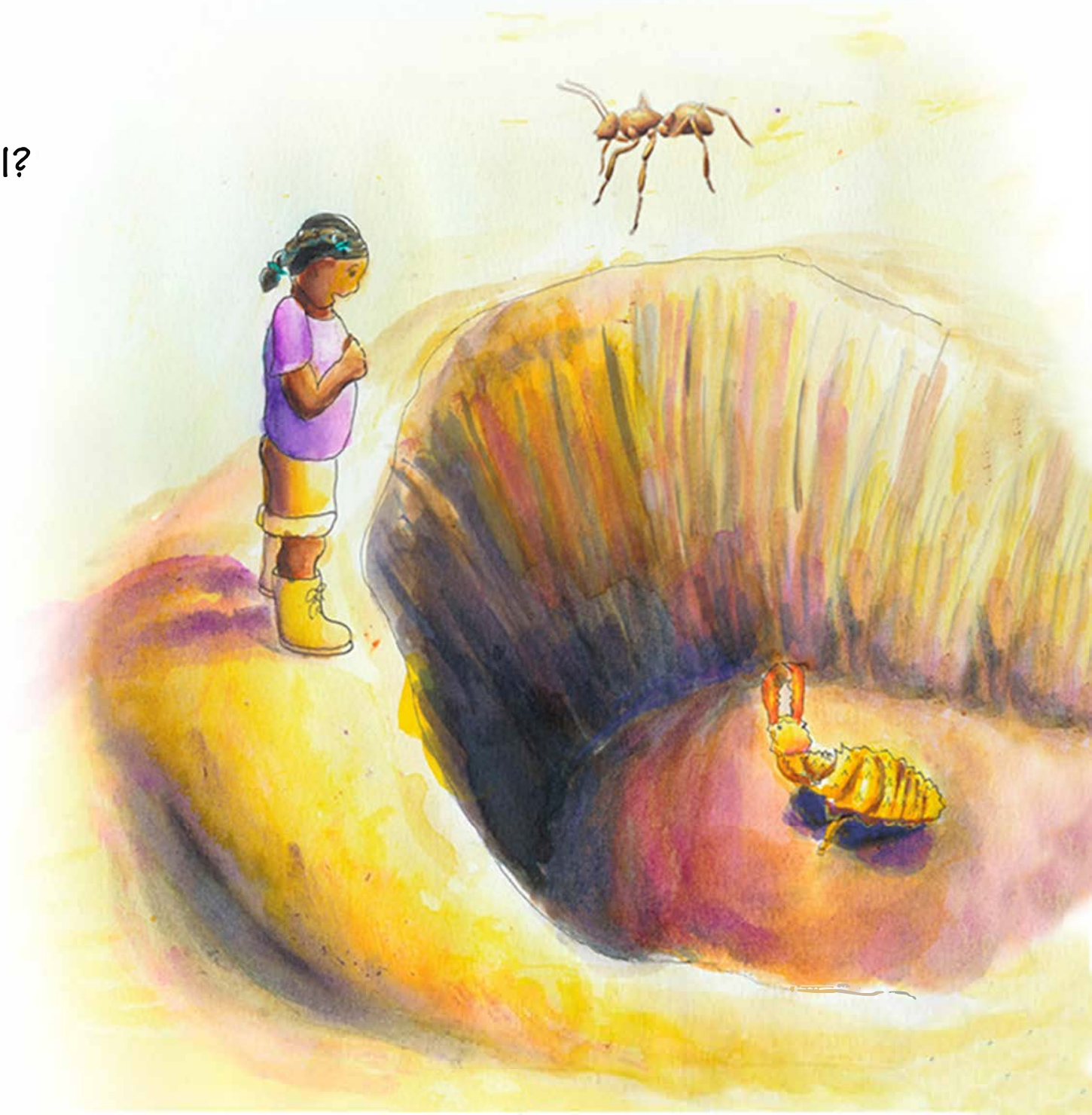



Mica: Whatever, mom. I still think ants are boring. All they do is crawl on your picnic food and on you.
Why would anyone want to study ants?
..zzzzzzz...
Amy Ant: You will know soon why ants should be studied. See you soon...

Mica: Mom? Where am I?
Oh no! What is that?
Help me please!
Somebody!

Amy Ant:
Where are you?

Mica: Over here!
Please hurry!
I am about to fall in!



Mica: Thank you. What was that thing you saved me from?

Amy Ant: That was an antlion. They build traps for ants and if we fall in they eat us.

Mica: Oh no, I was very close to falling in. Thank you ...excuse me, but what are you doing?

Amy Ant: My, my, you are the oddest ant I have ever seen.

Mica: Silly, I'm not an ant. I'm a girl. My name is Formica but people call me Mica. Why are you putting your antennae on me?

Amy Ant: Ants use chemicals and scent (pheromones) to communicate. This is my way of saying hello and getting to know you.

Mica: Well it is an odd way of greeting new friends. Where am I?

Amy Ant: You are in my nest. I brought you here to learn about ants. Ants are more ecologically important than you think.

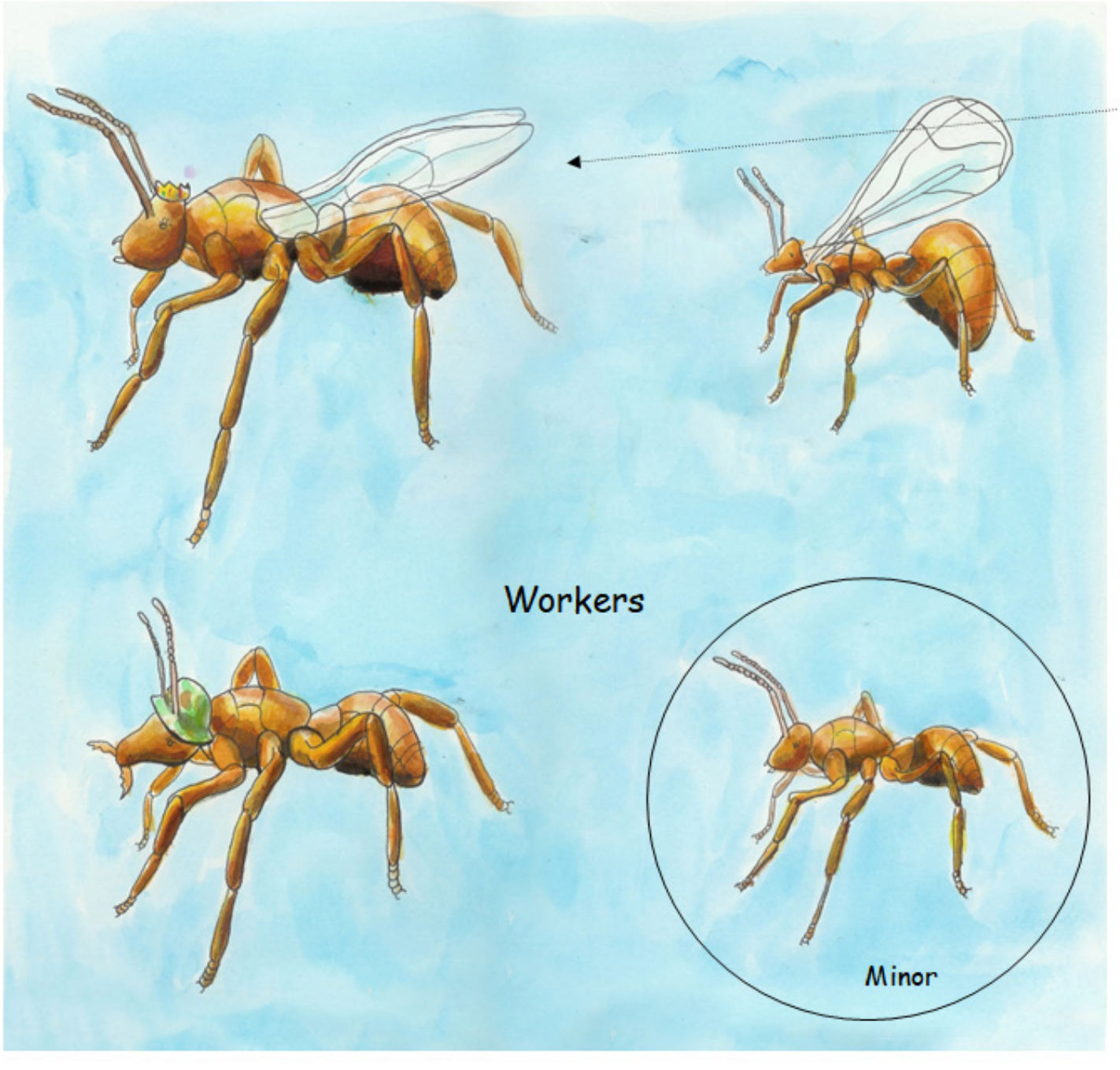
Some ants grow fungus to feed the colony.

Some ants harvest seeds.

Some ants herd other insects that provide food for the ants.

Some ants live on other animals and protect them from parasites.

Mica: Wow, I did not know that ants were so important. How is an ant colony started?



Amy Ant: We have one *queen* who started the nest and is mother to all of us.

Mica: You mean every ant in the nest is your brother or sister?

Amy Ant: Yes.

Mica: But some of them are larger than you and some have wings.

Amy Ant: That is because there are several different kinds of ants (castes). I am a *minor* worker ant. My job is to care for my sisters (a eusocial behavior).

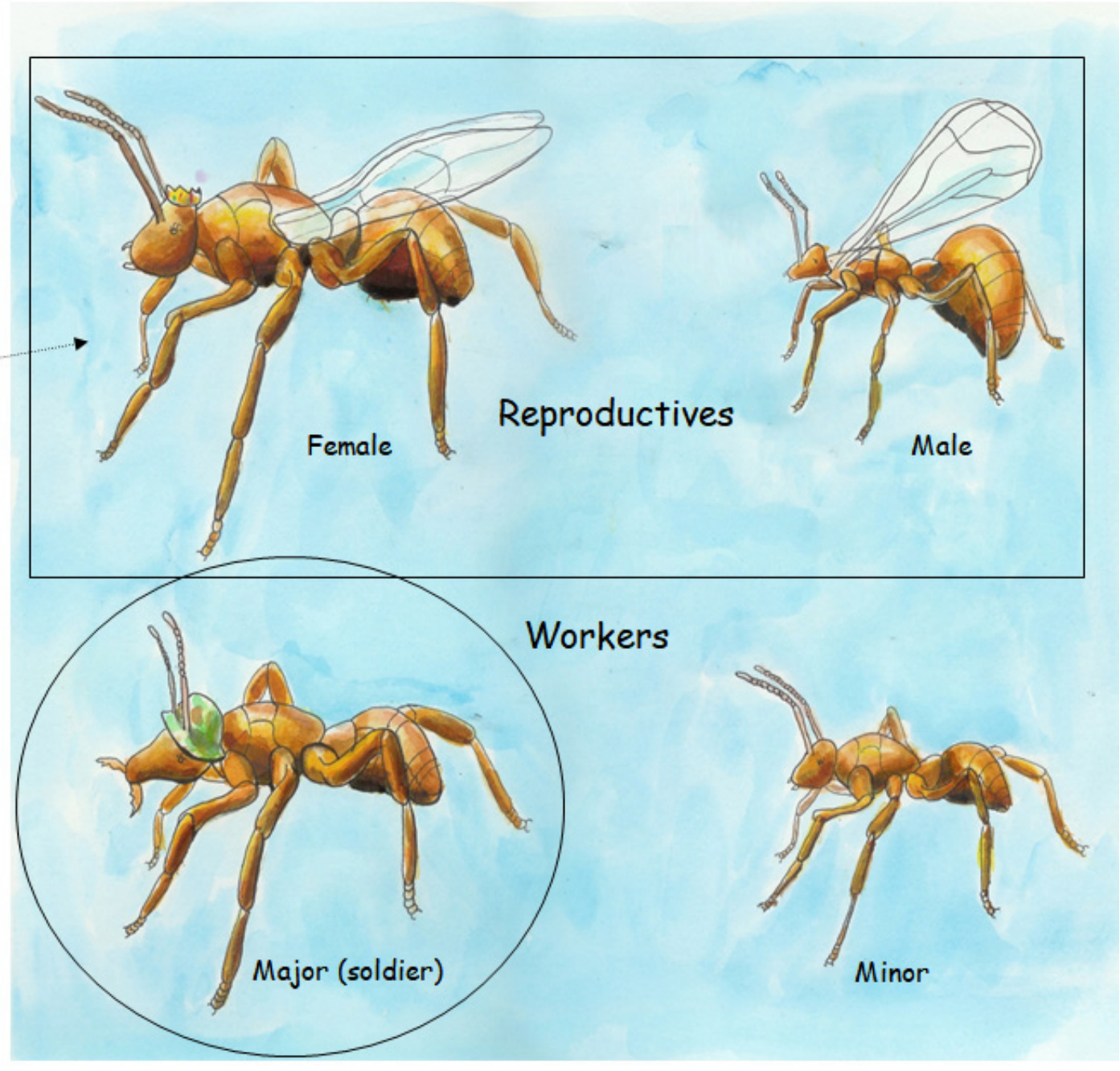
Amy Ant: The larger worker ant *without* wings is a soldier. She is larger because she defends the nest when needed.

The group of my siblings *with* wings are reproductives.

This group contains both male and female ants. When they mature, they leave the nest to mate with reproductives from other colonies.

The females in this caste set up new ant colonies and become queens.

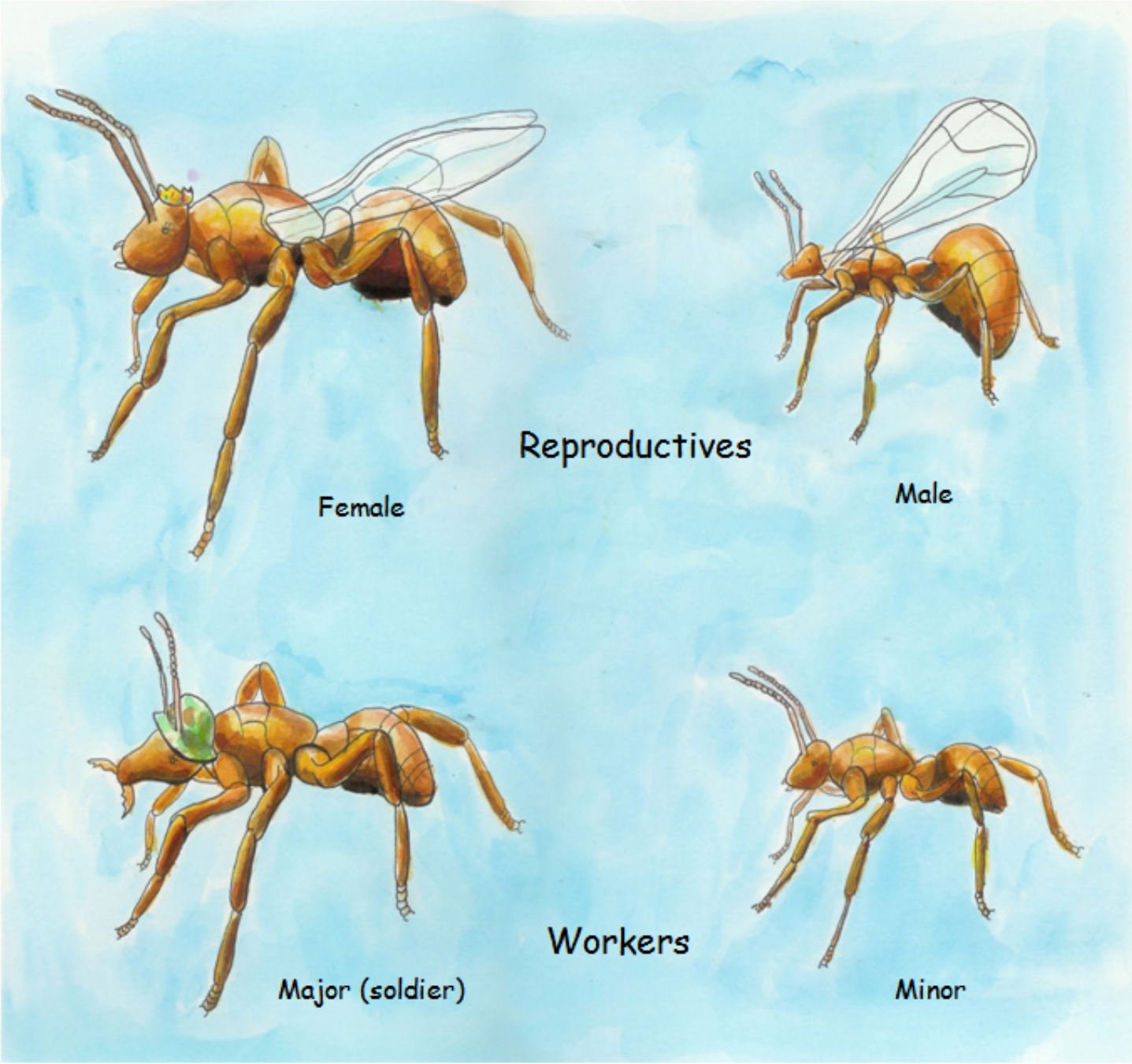
The males do not live very long after mating.



Mica: How can you tell male and female reproductive ants apart?

Amy Ant: The only male ants in our entire colony are the smaller of the two winged reproductive ants.

Mica: How are adult ants formed?



Amy Ant: An ant's life begins as an egg within a reproductive female ant. If an egg is fertilized it becomes a new female ant. If not fertilized, the egg becomes a male ant.

As the egg matures, it becomes a larva and is tended by workers who provide the larva with food. The food provided to the female larva determines if it is a queen, soldier, or worker later in life.

As the larva grows, it becomes a pupa.

The pupa then develops into an adult.

Mica: What kind of food do ants eat?

Amy Ant: Most ants are predators or scavengers but some ants eat fungus that they grow in their colony. Leafcutter ants collect fresh leaves, bring them back to their nest, and break these down into smaller pieces. These small pieces are used as a mulch (substrate) for the fungus.

Mica: Wow, some ants are farmers!

Amy Ant: Some members of a honeypot ant colony fill their stomach (abdomen) with food (flower nectar and other sweet substances) until swollen. The other ants then receive food from the swollen ants.

Other ants "milk" plant lice (Homoptera, including aphids) for the sweet nectar the lice provide. This nectar is so delicious some ants tend the lice, like farmers tend cows or pigs.

Mica: It seems like ants really like to eat sweet things. I have some cake in my backpack. Would you like some?

Amy Ant: This cake is delicious!

Mica: I will be sure to share some of my cake with ants <u>outside</u> my home.

Amy Ant: Now that you know all about ants you are ready to go back to the museum.

Mica: But I had so much fun here. Can't I stay and help?

Amy Ant: You can always visit the Smithsonian ants in the Insect Zoo and visit your mom's office to see her live fungus-growing ant colony. Time to wake up...

Dr. Grant: Time to wake up Mica.

Mica: Mom? Oh mom, I just had the most amazing adventure! I was an ant. Well, not really. I was ant size and talked to Amy.

Dr. Grant: Who?

Mica: The worker over there. Where did she go?

Dr. Grant: You have a great imagination.

Mica: No mom, it was real.

Dr. Grant: Come on, dear. Let's go to lunch.

Dr. Grant: Now Mica, tell me about this dream?

Mica: Mom, it wasn't a dream. Ants are so cool. I went to a colony. I almost was eaten by an antlion but Amy rescued me. I was sniffed and told I was an unusual ant. I learned all about ant castes, life cycles, and ant societies.

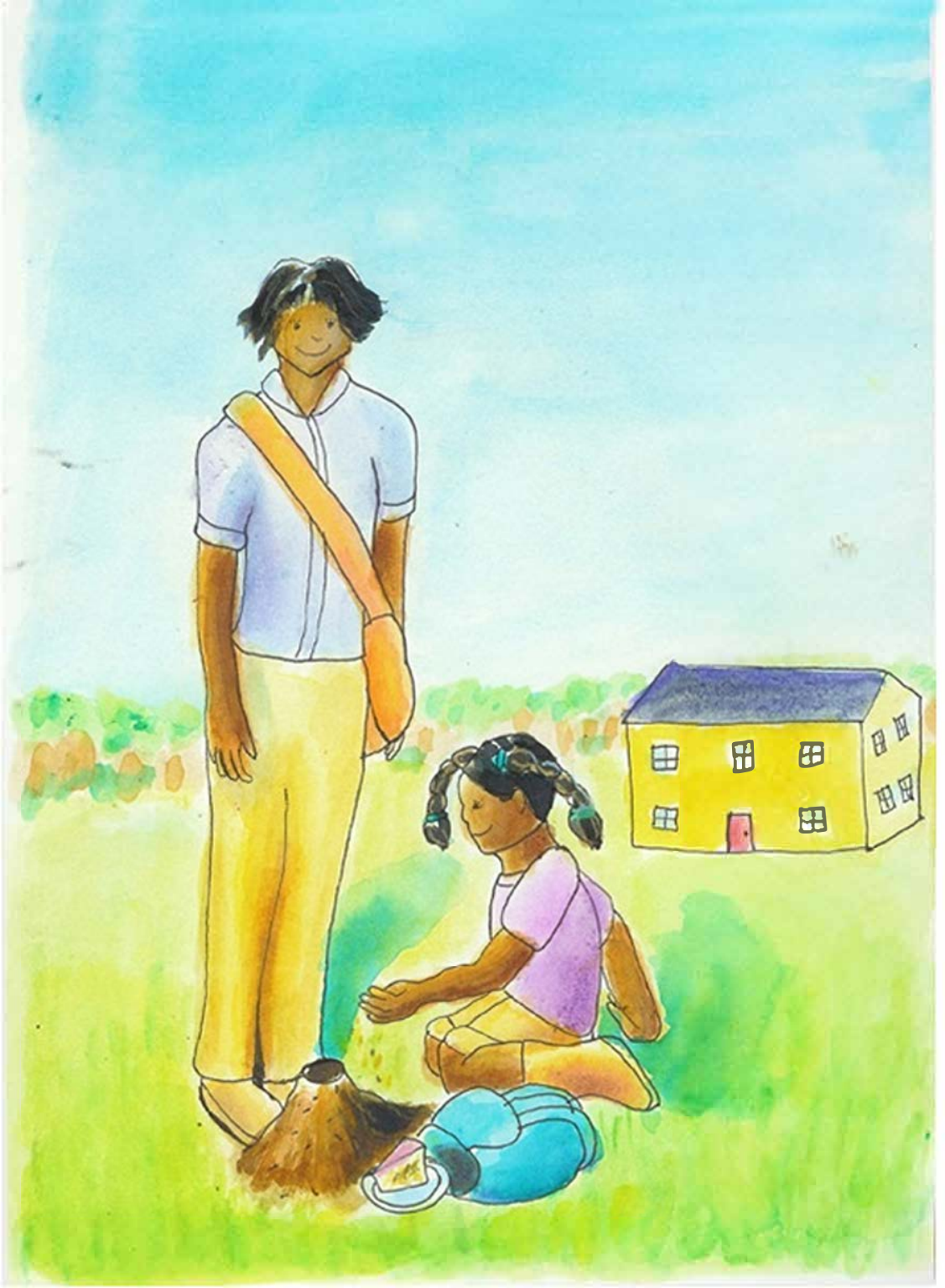
Dr. Grant: Wow! Sounds incredible!

Mica: Do we have any cake left?

Dr. Grant: Why?

Mica: I was going to feed it to the ants.

Dr. Grant: That sounds like a wonderful idea, but only feed the ants <u>outside.</u>



Mica: Oh mom, this is so great! Ants love sweet food and Amy loved this cake.

Dr. Grant: Make sure not to touch the ants. Ants can bite and some ants sting when they are disturbed. What else did Amy tell you?

Mica: Lots of things. How some ants grow fungus, how ants help other insects and animals, how ants live together and care for each other. I feel as if I know tons of information about ants.

Dr. Grant: The Smithsonian has several activities for kids on ants. Do you want to print out and do the activities?

Mica: Sure, that sounds like fun! Goodbye Amy Ant!

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The End