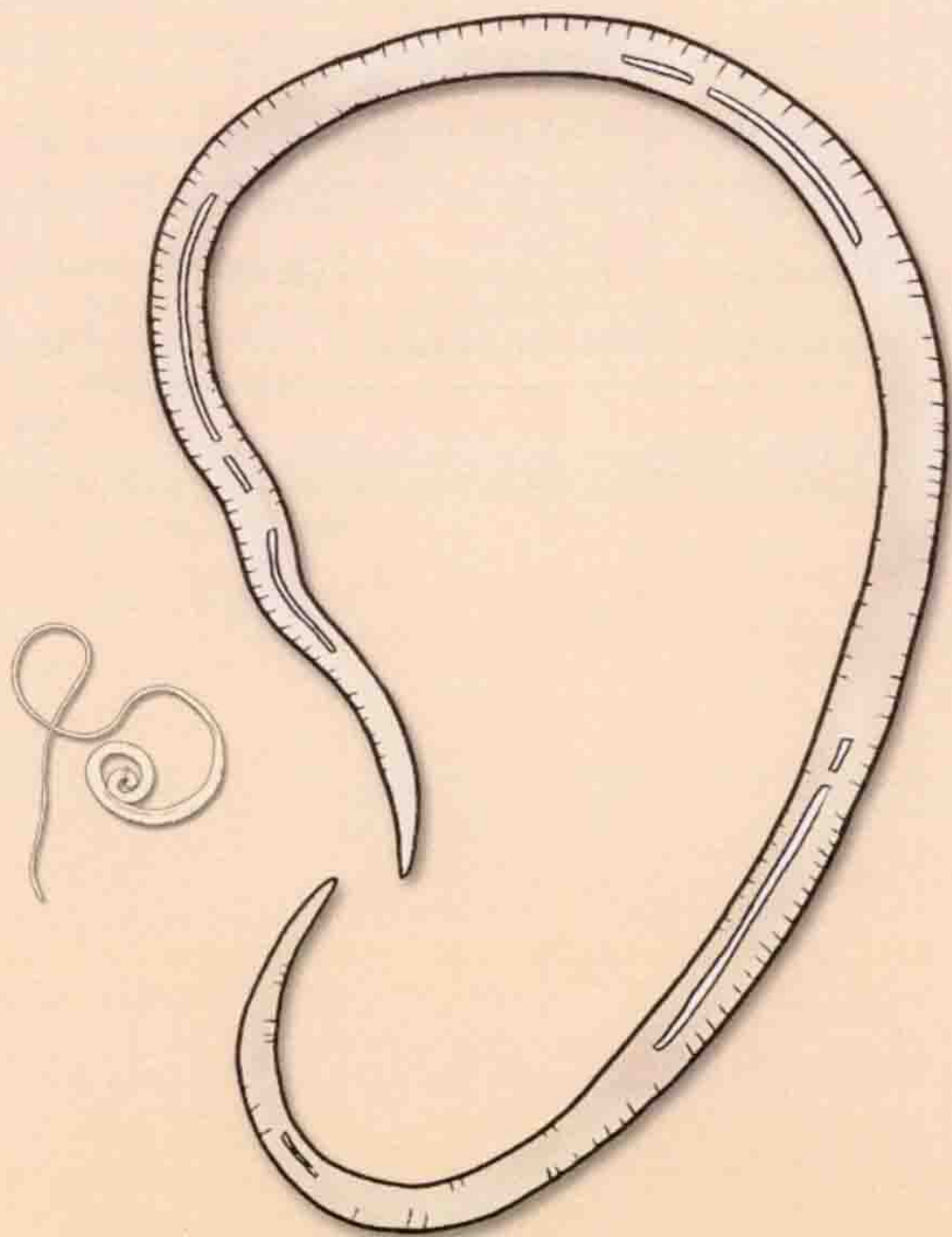


Teachers guide

Unit 1: What are worms?



Unit 1 What are worms?

Unit 1: What are worms and why are they a problem?		
Activity 1:	Good and bad worms	30 mins
Activity 2:	What do the worms look like?	30 mins ★
Activity 3:	Make your own wiggly worms	30 mins
Activity 4:	What do the worms do inside you?	1 hour ★
Activity 5:	How do worms make you sick?	1 hour ★
Activity 6:	Your health rights	30 mins ★

Total: 4 hours

★ Stars indicate core learning activities that must be completed.



What are the outcomes?

There are many different kinds of worms, but the aim of this unit is to introduce the children to two intestinal worms that are bad for our health: *whipworm* and *roundworm*.

By the end of the unit, children should know:

- What these worms look like
- What the worms do inside our bodies
- How worms make us sick
- How they can tell if they have worms
- What they should do if they think they have worms.

Have I prepared?

1. You need to be sure of your facts before you teach this unit. Read through *Thandi's story* and the *fact sheets* on whip- and roundworms before you begin.
2. Find out from your local clinic what treatment they recommend for worms. This is usually once every six months, but it may vary from province to province.
3. Start with Activity 1.

Thandi's story: Worms that make you sick

Thandi lives in Site C, Khayelitsha with her mother, father, brother and baby sister. She is eight years old.

Her teacher, Mrs Dlamini, is worried because Thandi is always tired in class. She is falling behind with her school work and at break time, Thandi doesn't want to play with the other children. Mrs Dlamini asks Thandi what is wrong. Thandi says she feels fine, but her tummy feels sore.

Mrs Dlamini decides to visit Thandi's parents. Her mother, Nosipho, says she is also worried about Thandi and agrees to take Thandi to the clinic.

At the clinic, the doctor asks Thandi some questions. He also asks her to pooh in a jar. He sends the pooh away to be tested. He asks Thandi and Nosipho to come back to the clinic in a week's time.

When Thandi and Nosipho come back to the clinic, the doctor says that Thandi has worms. He shows Thandi and Nosipho pictures of the worms that are living inside her body. He says the worms are eating Thandi's food so she does not have enough energy to play and to learn.

The doctor says Thandi needs medicine to kill the worms.

The clinic sister gives Thandi the medicine. She explains that the medicine might give her a runny stomach or make her vomit. She may even see the worms coming out in her vomit or pooh. She mustn't worry about this, because the medicine will make her better.

Thandi asks where the worms come from. How did they get inside her?

The sister tells her that the worms lay many eggs inside a person's body. "These eggs come out with your pooh. If the eggs get inside your mouth and you swallow them, then they will start to grow inside you. Worm eggs are so small you can't see them. So it is easy to swallow them without knowing."

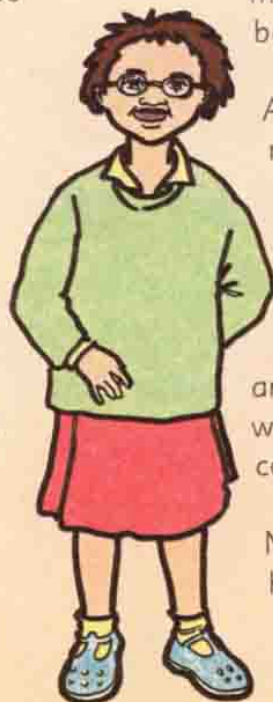
"Is there nothing we can do to stop the worms?" asks Thandi. "Yes," says the sister, "it helps to keep things clean. Always wash your hands after using the toilet and before touching food. Keep flies away and keep your house and yard clean. Always use a toilet and don't pooh outside."

Nosipho is angry: "Are you saying my child has worms because she is dirty? Are you telling me I don't keep a clean home?"

"No," says the sister, "clean hands, clean food and a clean home help stop worms from spreading. But even if you do all these things, you could still get worms. These eggs can be blown by the wind or carried into your home by flies or pets. That's why we say that all young children should be given deworming medicine two times a year. It is better to be safe than sorry."

After taking the medicine, Thandi feels much better. She has more energy for her schoolwork and for her friends. Mrs Dlamini is happy to see the change in Thandi. She asks Nosipho what happened at the clinic. Nosipho tells her what she learnt about the medicines and about keeping things clean. "But I am worried that other children at the school could also have worms."

Mrs Dlamini decides to ask the headmaster to call a parents' meeting. She wants all the parents to learn more about worms.



Whipworm fact sheet

How do these worms get inside you?

The only way you can get whipworms is if you swallow the eggs. The worms don't grow inside other animals and they cannot get in through your skin.

What do they do inside you?

Once you have swallowed the eggs, they hatch inside your *small intestine*. They move down to the *large intestine* (or colon) where they thread themselves into the intestinal wall. They stay here and grow into adult worms in about 3 months. The adult male is 3–4,5 cm long and the female is 3,5–5 cm long. They can live inside the body for several years, which is why the number of whipworm inside a person can build up over time, even if the rate of infection is low.

What are the signs and symptoms?

Whipworm infection can be serious in young children, because the worms eat the food that their bodies need to grow and they damage the walls of the intestine. Children with poor nutrition are particularly vulnerable.

You cannot tell if a child has worms if the infection is mild (there are no symptoms, when there are only a few worms).

In cases of severe infection (where there are many worms), children can experience *tummy cramps* and *chronic diarrhoea*. If nothing is done to get rid of the worms, the child will start to *lose weight* and *suffer from malnutrition*. Children who have been infected for a long time, may appear *pale and have no energy*. They do not want to play or learn.

How do they spread?

The female whipworm lays between 3 000 and 20 000 eggs a day. These eggs are too small to see without a microscope. (They are shaped like a barrel and measure about 50 x 22 micrometres in diameter.) The eggs leave the body with the person's stools. The eggs survive well in warm, moist and shaded soils.

If the eggs are swallowed by another person, then the cycle begins again. Worms spread easily because the eggs are so small, we don't even know they are there.



Whip worm egg
(2 000 x actual size)

Roundworm fact sheet

How do they get inside you?

The only way you can get infected by roundworms is if the eggs enter through your mouth or nose. They cannot get in through your skin.

What do they do inside you?

Once you have swallowed the eggs, they hatch inside your stomach or small intestine. The hatched larvae move through the stomach or intestinal wall, into the blood stream. The blood carries them to the lungs. The larvae grow inside the lungs for 9–15 days. Then they move up to the throat, where they are swallowed for a second time. At this stage the larvae are less than 2 mm long.

Once the larvae reach your intestines, they start to grow into adult worms. The male worm grows up to 15–31 cm long and about ½ cm thick. The female worm is slightly bigger. It can grow up to 45 cm long and ½ cm thick. Adult worms can live in your small intestines for a year or more, where they eat the food your body needs to grow and stay healthy.

What are the signs and symptoms

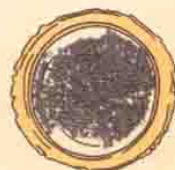
As the larvae leave the lungs, the person may experience *coughing and fever* that clears up within 14 days. In cases of severe infection (many worms) the coughing and fever don't stop and are ongoing.

Worm infection is serious in children, because the worms are eating important nutrients (food) that the child needs to grow. In cases of severe infection (where there are many worms), children can suffer from *stomach cramps and loss of appetite*. Eventually the children start to show signs of *malnutrition*. They fail to grow and develop properly and they struggle to learn.

If a child catches a fever, this can cause the worms to migrate out of the intestine and come out of the body through the mouth, nose or anus. The worms can also migrate into the liver causing serious health problems.

How do they spread?

The female roundworm lays up to 200 000 eggs a day. (The eggs are round in shape and measure 60 micrometres in diameter.) The eggs are too small to see without a microscope, which is why people become infected easily, without knowing it. The eggs come out with the person's stools and they can survive in the soil for up to 10 years!



Round worm egg
(2 000 x actual size)



Activity 1:

Good worms and bad worms

Bright Ideas



Remember to wash your hands before going back to the classroom!

1. Start this lesson in the school garden or vegetable garden. If you don't have a garden at school, ask a food gardening project to give you some earthworms to bring to school. Show children the earthworms. Ask them if they know why earthworms are good for us.
2. Return to the classroom. Ask the children to think of as many different kinds of worms as possible. Write the children's answers on the board.
3. Now ask the children to decide which of these worms are good for us and which are bad. Ask the children to give reasons for their answers. Write their answers up on the board in two columns: *good worms* and *bad worms* as in the example below. When you have finished ask the children to count how many worms are good and how many worms are bad. Fill in the correct number at the bottom of each column.

Earthworms help keep our soil healthy by breaking down compost into food that plants need to grow!

Good worms	Bad worms
earthworms	tapeworm maggots
.....

4. Ask the children if they know about another kind of worm that lives inside our bodies. These worms are bad for our health.
5. Find out what the children know about intestinal worms. Ask the following questions:
What do they look like?
What do they do inside us?
How do they make us sick?
How do you know if you have worms?
6. Write the children's answers on the blackboard.



30 mins

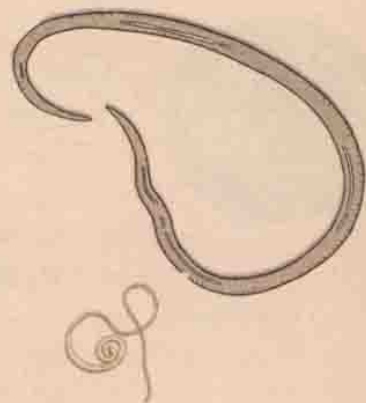
Unit 1 What are intestinal worms?



Activity 2: What do the worms look like?

What materials do I need?

- Individual copies of *Worksheet 1*
- Pieces of string about 50 cm long for measuring



Instructions

Ask the children if they know what worms look like. Then give them the handout with pictures of worms. You can also speak to your local clinic and see if they can supply real worms in bottles for the children to look at.



What colour are they?
Whip and round worms are a dirty white colour.
Earthworms are brown or pink.

How big are they?

Choose the activity best suited to your grade!

1. Show the children how to measure the length of the worms on the handout using a ruler and a piece of string.
2. Explore the concepts of long and short, big and small. Ask questions such as:
 - Which worm is the longest — the whip worm or the round worm?
 - Which worm is shorter?
3. Compare the lengths of the worms with other everyday objects. Ask questions such as:
 - Is the round worm longer or shorter than a) your ruler, b) your pencil, c) your finger?
4. Older children who know how to use a ruler should use a ruler and string to measure the worms and fill in *Worksheet 1*.



30 min

Activity 3:

Make your own wiggly worms

What materials do I need?

- Copies of Worksheet 1
- String and scissors
- Clay or playdough
- Wire and plastic bags
- Any other materials you can think of!

Making small worms

1. Divide the class into small groups.
2. Give each child clay, playdough and string.
Tell them to use the material to make their own worms.
(They can use the worksheet to help them.)
3. Ask each child to make one whipworm and two roundworms. Use measurements where grade appropriate.
4. Help the children to label their work.
5. Make a display of their work in a corner of the classroom.

Making big worms

You can also ask the children to make bigger worms to use in a song or play about wiggly worms at the end of unit 2.

You can use wire and recycled plastic bags to make the worms.

A round worm is 30 cm long in real life, but you can make these worms 5 times bigger (1,5 m long) so the audience can see them. Whip worms are about 5 cm long in real life, but you can make them 25 cm long (5 x 5 cm) so that they are the same proportions as the round worms.

Playdough recipe

- 2 teaspoons cream of tartar
- 1 cup plain flour
- ½ cup salt
- 1 tablespoon oil
- 1 cup water

1. Mix all ingredients to form a smooth paste.
2. Put it in a pan and cook slowly until the dough comes away from the sides to form a ball.
3. When cool enough, knead the dough for 3–4 minutes.
4. Will keep for several months in cool, airtight container.



30 mins

Unit 1 What are intestinal worms?



You may want to start this exercise by looking at how the digestive system works! What happens to our food inside our bodies?



Activity 4: What do the worms do inside you?

Have I prepared?

- Enlarge *Worksheets 2, 3 and 4* to make your own body charts.
- Review *fact sheets* so you know what each worm does and where it lives in the body!

What materials do I need?

Individual copies of *Worksheets 2, 3 and 4*

Instructions

Work with the whole class. Use your big body charts to show the children where the worms go inside the body.



Start with the outside of the body (Worksheet 3)



Name the body parts on the worksheet. Then ask the children if they know how worms get into our bodies and where the eggs come out.



Start with whipworms. (Worksheet 4)

Show how worm eggs enter the *mouth*, move down through the *oesophagus*, *stomach* and *small intestines* to grow in the *large intestines*. Don't forget that the worm eggs leave the body with *pooh/faeces* through the *anus*!

Then do roundworms. (Worksheet 5)

Show the *mouth*, *oesophagus*, *stomach* and *small intestines*. Then show how the worm larvae move to the *lungs* and up through the *windpipe* to the *throat* before moving back down through the *oesophagus*, *stomach* to their home in the *small intestine*.

Explain how the worms sometimes try to get out of the large intestine — through the *mouth*, *nose* and *anus* — and how they can also get into the *liver*, *heart* and *lungs*.

You can ask the children what the different organs (liver, intestine, heart and lungs) are used for. This will give children a sense of what kind of damage worms can cause if they get into these organs.

Ask children to mime (or show on their own bodies) where each kind of worm goes inside their bodies.

Children learn best by doing

This activity helps reinforce what you have shown them on the body chart. You can also make this activity into a group song.

Assessment:

Hand out *Worksheets 3, 4 and 5*

Ask the children to:

1. match the words in the wordbox to the correct body parts.
2. draw in arrows to show where the worms go.



60 min



Activity 5: How do worms make you sick?

Have I prepared?

- Revise signs and symptoms from the worm fact sheets
- Remember to find out from your local clinic what treatment they recommend for worms. This is usually once every six months, but it may vary from province to province.

What materials do I need?

- A copy of *Thandi's story*.
- Copies of *Worksheet 5, 6 and 7* for each child.

Instructions

Read *Thandi's story* to the children.
(You can adapt the story to suit your own context.)

Ask the children:

1. How old is Thandi? What grade do you think she is in?
2. Why is Thandi's teacher worried about her?
3. Where does Thandi go to get help?
4. Have you been to the clinic? Why did you visit the clinic?
5. What are the names of the people who help us at the clinic?
6. What are the worms doing inside Thandi's body that make her feel tired?
7. Does the medicine the nurse gave Thandi make her feel better straight away? Explain your answer.
8. How often should young children get worm medicine?



60 mins



Signs and symptoms of worms

Discuss the **signs and symptoms** of worms with the whole class. Show the children copies of the pictures on worksheet 5. Discuss how the children are feeling in each of the pictures.

Make sure they understand that:

1. you can have worms without even knowing it (if you have only a few worms).
2. worms can seriously affect your health (if there are too many worms inside you).
3. some of the symptoms could be signs of other illnesses, so you need to go to the clinic to find out if you have worms.



Hand out individual copies of *Worksheet 5*.

Ask the learners to work in small groups to complete the worksheet.

Reportback to the whole class and discuss any differences between the group's answers.



Non-discrimination

Explain to the class that anyone can get worms — even children from wealthy homes get worms. It is also safe to play with and care for someone who has worms. Hand out individual copies of *Worksheet 6* for the learners to fill in. This is an individual exercise for learners to hand in. Remember to create a space for learners to come and talk to you if they are worried they may have worms. Do not make learners feel ashamed or create opportunities for learners to discriminate against one another.



Handout individual copies of *Worksheet 7*.

Ask the learners to work in small groups to complete the worksheet. You may need to demonstrate the first one on the black board. Ask the groups to report back to the class: Who has worms? What should their mother do about the problem?

(Thandi, Sine and Nico show signs of having worms. Their mothers should take them to the clinic to find out if they do have worms (or some other illness) and to get treatment. Children with worms don't feel like eating, so it is unlikely that Lulama has worms, but her mother should still take her to the clinic to see if she is growing properly.)



60 min.

Activity 6: Your health rights

Preparation

Contact your local clinic to find out what the recommended treatment is in your area.

Make copies of *worksheets 8, 9 and 10.*

Instructions:

What should I do if I think I have worms?

Explain how regular treatment (deworming medicine) helps kill the worms and the eggs. Children can get deworming medicine at the clinic or chemist. But treating one child at a time is not enough to stop worms spreading. It is best to treat the whole school community at the same time. This means there are less eggs in the environment and less chance of children getting re-infected. We also need to work together to make sure our school and home environments are clean and healthy.

Now work with the whole class to help them complete *Worksheet 8.*

You and your health rights

Make sure the children know their health rights! Hand out *Worksheet 9.* Ask the children about their experiences at the clinic and discuss their health rights.

Rights and responsibilities

When we have rights, we also have responsibilities. Work with the whole class to make a table of our health rights and responsibilities. Put this table up on the wall.

Sharing what you know

Hand out *Worksheet 10.* Divide the class into small groups.

Ask the groups to:

1. identify the characters from the story.
2. cut out and colour in the different people.
3. use the pictures to tell a story about how worms make us sick.

More bright ideas

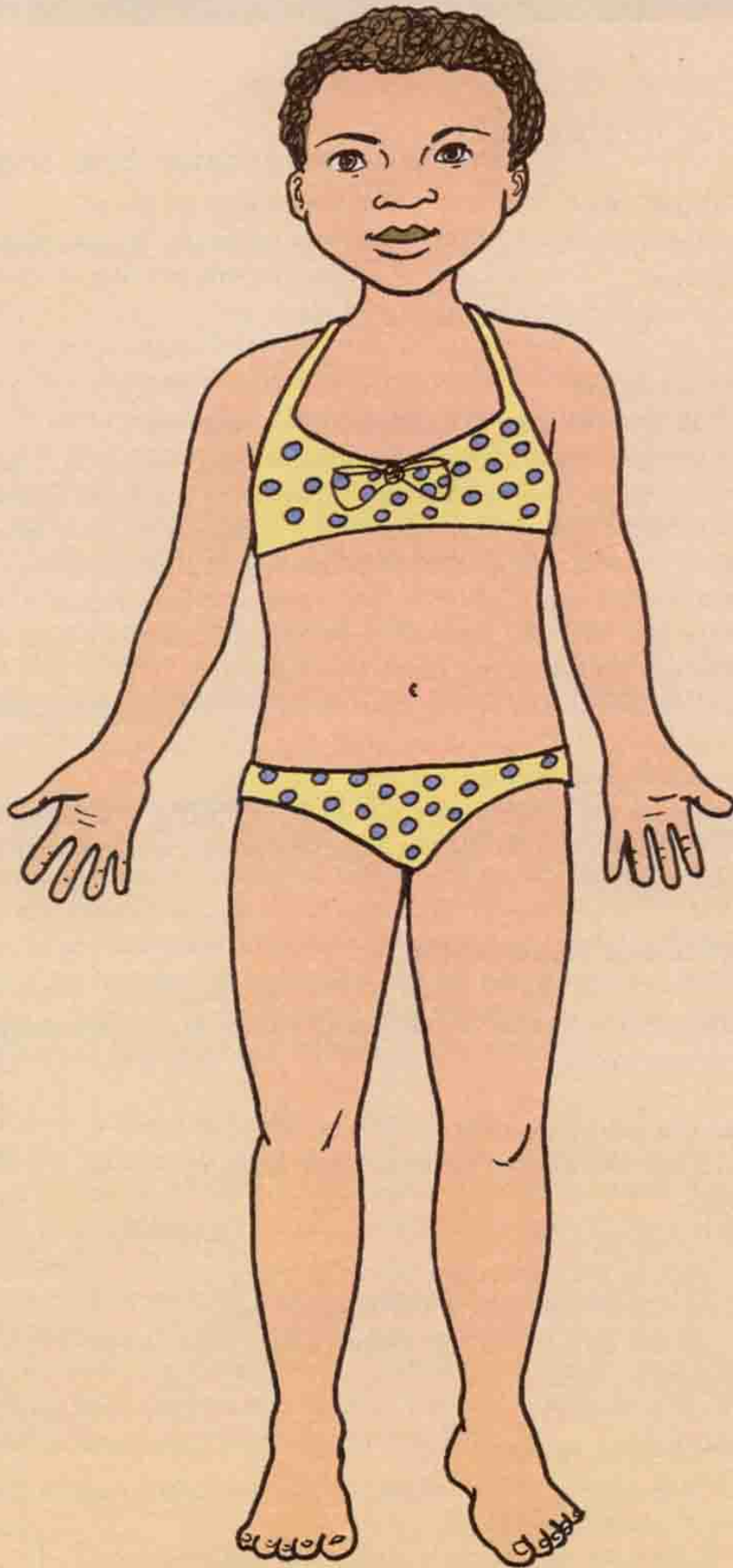
- Make a song or a role-play to educate other people about worms and our health rights.
- Make your own picture storybook about worms.

Worms can
make
you
sick

by
Thandi
Manyela



30 mins



Whipworm chart

